

Section A:

State Success Factors

GRADE			EARLY FOUNDATIONS				SCHOOL YEARS	
			Family Income	Parent Education	Parental Employment	Linguistic Integration	Preschool Enrollment	Kindergarten Enrollment
			Percent of children in families with incomes at least 200% of poverty level	Percent of children with at least one parent with a postsecondary degree	Percent of children with at least one parent working full time and year-round	Percent of children whose parents are fluent English-speakers	Percent of 3- and 4-year-olds enrolled in preschool	Percent of children enrolled in kindergarten program
MASSACHUSETTS	A	93.3	73.8%	59.4%	76.7%	85.7%	60.4%	76.7%
NEW JERSEY	A-	90.6	73.2	54.4	80.0	81.6	64.2	76.6%
HAMPSHIRE	A-	89.9	77.3	59.4	84.5	96.6	49.0	77.1%
CONNECTICUT	A-	89.8	74.7	55.5	79.2	87.0	60.5	76.0%
MINNESOTA	B+	87.0	71.1	58.1	82.4	91.5	42.8	71.6%
MARYLAND	B+	87.0	73.9	52.5	82.4	90.3	49.7	79.4%
VERMONT	B+	86.9	69.3	52.0	77.6	97.8	53.5	72.9%
SOUTH DAKOTA	B	84.6	67.1	60.8	84.2	96.5	27.7	74.2%
VIRGINIA	B	83.9	68.6	51.3	81.1	90.2	48.1	76.3%
PENNSYLVANIA	B	83.5	64.0	47.7	76.7	93.2	47.5	73.8%
WISCONSIN	B	83.2	66.5	49.3	81.9	93.4	42.2	77.7%
IOWA	B	83.1	65.0	52.4	83.9	93.9	43.7	76.2%
NEW YORK	B	82.6	62.1	49.4	75.7	79.0	56.9	77.3%
COLORADO	B-	82.4	65.4	51.8	79.6	84.5	43.9	73.1%
KANSAS	B-	82.4	61.2	50.1	82.8	90.8	42.5	77.4%
NEBRASKA	B-	82.1	65.5	51.2	86.4	89.9	36.1	73.2%
ILLINOIS	B-	81.2	63.7	47.9	77.4	82.3	52.1	77.2%
UTAH	B-	80.9	65.9	54.6	83.8	90.2	37.5	78.3%
SOUTH DAKOTA	B-	80.5	58.6	49.3	80.5	95.1	38.9	75.7%
RODE ISLAND	B-	80.4	66.9	50.9	75.1	83.9	44.7	73.2%
MONTANA	B-	79.9	60.2	49.2	76.7	97.9	40.1	75.7%
WASHINGTON	B-	79.8	66.3	48.7	78.0	84.7	40.0	73.7%
WYOMING	C+	79.5	67.1	44.7	82.9	96.7	45.2	71.9%
DELAWARE	C+	79.5	64.1	42.8	79.8	89.8	45.8	78.8%
OHIO	C+	79.3	61.0	45.4	75.9	96.4	43.1	74.2%
MAINE	C+	78.6	60.3	44.9	74.7	97.7	37.8	82.2%
HAWAII	C+	78.4	73.0	46.8	81.7	80.6	54.6	75.6%
MISSOURI	C+	78.1	58.8	43.3	76.9	95.6	42.3	77.8%
INDIANA	C+	77.6	60.6	43.6	76.5	94.5	39.4	74.9%
MICHIGAN	C+	77.3	59.5	45.2	72.6	94.2	46.3	74.4%
SOUTH CAROLINA	C+	77.2	53.3	41.5	61.8	94.5	68.6	78.7%
IDAHO	C	76.4	53.5	44.5	77.4	90.3	33.0	76.8%
SOUTH CAROLINA	C	76.4	57.3	43.6	76.2	89.4	46.6	78.1%
OREGON	C	75.7	59.3	45.1	75.0	85.5	39.6	73.5%
FLORIDA	C	75.6	58.2	44.8	77.2	81.8	50.9	77.5%
SOUTH CAROLINA	C	75.1	55.4	42.2	73.8	94.9	48.6	79.4%
ALASKA	C	74.9	69.6	44.1	70.8	91.9	39.3	74.1%
GEORGIA	C	74.3	56.4	41.1	76.4	88.9	50.7	78.6%
TEXAS	C	73.5	52.9	36.7	77.8	73.1	41.6	79.0%
KENTUCKY	C	73.3	53.7	37.7	70.6	96.7	42.8	76.8%
CALIFORNIA	C	72.9	58.7	39.0	74.5	62.8	49.3	78.4%
ALABAMA	C-	72.3	55.1	40.0	73.9	95.7	43.2	77.1%
OKLAHOMA	C-	72.1	52.6	38.7	75.7	91.8	42.1	76.0%
TENNESSEE	C-	72.0	54.6	39.1	75.2	93.7	37.4	76.8%
ARIZONA	C-	70.9	54.6	37.3	76.6	75.2	33.9	78.0%
ARKANSAS	C-	70.8	47.6	34.0	72.6	93.0	49.3	76.6%
WEST VIRGINIA	C-	70.6	53.1	33.5	72.1	99.5	37.7	79.6%
LOUISIANA	C-	69.8	52.5	33.7	73.6	96.6	50.7	75.4%
MISSISSIPPI	D+	68.6	45.1	35.7	70.0	98.2	50.6	78.6%
NEW MEXICO	D+	67.4	47.9	34.0	76.2	83.9	37.8	79.9%
NEVADA	D+	67.0	60.4	33.0	79.0	72.3	28.7	78.8%
U.S. ¹	C+	78.0	60.4%	44.4%	76.9%	83.9%	46.8%	76.9%

K-12 EDUCATIONAL OUTCOMES				ADULT OUTCOMES			State
Grade	8th Grade Mathematics	High School Graduation	Young-Adult Education	Adult Educational Attainment	Annual Income	Steady Employment	
of 4th grade students "proficient" on NAEP	Percent of 8th grade public school students "proficient" on NAEP	Percent of public high school students who graduate with a diploma	Percent of young adults (18-24) enrolled in postsecondary education or with a degree	Percent of adults (25-64) with a 2- or 4-year postsecondary degree	Percent of adults (25-64) with incomes at or above national median	Percent of adults (25-64) in labor force working full time and year-round	
49.2%	51.7%	75.9%	66.8%	49.8%	61.6%	71.1%	MASSACHUSETTS
43.1	44.4	82.1	61.6	44.7	61.4	73.9	NEW JERSEY
41.1	43.3	77.0	61.0	45.5	56.7	72.5	NEW HAMPSHIRE
41.2	39.8	78.9	62.4	46.7	62.6	72.1	CONNECTICUT
46.9	46.9	79.2	59.0	45.4	55.6	72.3	MINNESOTA
45.9	40.1	73.5	54.5	44.2	63.0	76.9	MARYLAND
40.9	43.5	78.7	63.7	44.6	48.7	70.6	VERMONT
45.3	43.1	79.0	61.4	44.0	47.9	74.5	NORTH DAKOTA
47.6	35.6	69.2	53.5	43.3	56.8	76.7	VIRGINIA
40.2	39.8	77.6	61.3	37.7	51.7	73.4	PENNSYLVANIA
45.6	39.3	81.7	57.5	37.8	50.5	73.7	WISCONSIN
46.1	33.9	80.7	60.5	38.9	46.3	75.5	IOWA
46.0	33.7	68.3	62.8	43.7	54.5	73.3	NEW YORK
46.2	39.7	72.7	52.7	45.2	53.6	72.4	COLORADO
46.1	39.5	75.4	54.2	40.9	48.8	76.5	KANSAS
44.6	34.6	78.7	63.9	40.7	45.5	76.8	NEBRASKA
42.2	33.1	74.1	58.6	40.8	53.3	72.8	ILLINOIS
43.9	35.1	72.2	50.3	40.4	49.3	72.8	UTAH
43.7	41.5	77.1	51.6	38.1	42.2	79.2	SOUTH DAKOTA
40.8	27.8	72.8	67.9	40.9	54.1	70.5	RHODE ISLAND
48.5	43.6	76.1	42.9	38.1	42.8	70.8	MONTANA
46.3	39.4	62.4	48.3	42.3	56.4	70.6	WASHINGTON
46.4	34.7	73.2	40.8	34.0	51.3	76.3	WYOMING
43.8	31.7	66.0	55.4	36.4	53.4	75.7	DELAWARE
46.3	35.7	74.3	53.9	35.0	48.2	72.0	OHIO
45.8	35.3	76.3	53.1	35.9	43.4	68.9	MAINE
45.7	25.3	63.9	42.7	42.5	55.7	76.7	HAWAII
41.8	35.5	74.4	51.8	35.0	46.1	73.8	MISSOURI
43.0	36.2	73.3	52.6	33.5	47.5	71.7	INDIANA
42.4	30.5	69.6	57.5	35.7	48.6	66.9	MICHIGAN
43.8	11.2	48.8	70.3	54.4	64.6	75.6	DISTRICT OF COLUMBIA
45.1	38.4	76.8	46.2	35.2	45.1	70.8	IDAHO
49.1	35.6	63.3	49.7	37.0	45.6	73.0	NORTH CAROLINA
48.3	36.6	74.9	45.8	38.6	47.4	67.1	OREGON
44.0	29.0	57.5	49.0	36.8	45.1	72.7	FLORIDA
45.8	30.2	66.3	48.6	34.7	44.6	74.0	SOUTH CAROLINA
48.7	33.5	65.9	35.6	36.5	57.7	62.7	ALASKA
48.3	26.8	55.9	45.4	36.2	48.3	74.7	GEORGIA
49.6	36.2	65.3	45.6	33.2	47.8	76.6	TEXAS
43.5	27.2	72.0	45.1	28.7	44.0	73.5	KENTUCKY
42.9	23.4	67.5	53.2	38.6	53.1	69.9	CALIFORNIA
48.9	20.4	61.4	47.2	31.7	45.3	75.4	ALABAMA
46.8	23.8	70.6	45.0	31.7	42.9	76.2	OKLAHOMA
46.9	25.2	69.5	47.3	31.0	43.1	73.3	TENNESSEE
44.2	29.0	68.6	43.0	34.4	48.4	73.2	ARIZONA
48.6	27.0	71.9	41.6	26.9	39.6	73.8	ARKANSAS
47.8	19.4	71.8	50.7	25.5	41.8	73.6	WEST VIRGINIA
40.4	20.3	61.9	45.1	27.1	45.9	75.9	LOUISIANA
48.7	15.2	60.5	51.9	29.4	39.7	75.0	MISSISSIPPI
44.0	20.2	56.0	40.9	33.6	43.3	72.2	NEW MEXICO
44.4	24.8	47.3	39.2	30.2	50.0	73.6	NEVADA
41.7%	32.6%	69.2%	53.0%	37.9%	50.6%	73.0%	U.S.

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Policy Brief:
**School, Teacher, and Leadership Impacts
on Student Achievement**

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School, Teacher, and Leadership Impacts on Student Achievement

by Kirsten Miller

After more than 30 years of research on schools and classrooms, a science of education has begun to emerge. Although there is no silver bullet that guarantees that every student will be successful, now more than ever research provides guidance about the characteristics of effective schools and effective teachers that, if followed, can help maximize school and ultimately student performance.

This brief is based on McREL's meta-analyses of quantitative research on teacher, school, and leadership practices. Through these meta-analyses, McREL has identified a number of variables that influence student achievement. This brief offers suggestions for implementing policies and practices that can positively impact these variables.

School Practices

Meta-analysis, or a statistical analysis of a collection of individual studies, can be a compelling research method for determining what really works in education. McREL's meta-analysis of research on the school and teacher impacts on student achievement (Marzano, 2000) found that school-level and teacher-level factors account for approximately 20 percent of the variance in student achievement. Student characteristics — home environment, learned intelligence/background knowledge, and motivation — account for 80 percent of the variance in student achievement, as Exhibit 1 shows.

At first blush, these findings might appear to suggest that school and classroom improvement have, at best, a marginal impact on student achievement. Marzano (2003) offers a compelling argument to the contrary. To illustrate this point, imagine that all of the nation's 92,000 public schools could be rank-ordered according to their effectiveness — that is, in terms of the variables they control, such as instruction, curriculum, and parent involvement. Next, consider the schools to the far right of the distribution curve — that is, schools ranked at the 99th percentile in terms of their effectiveness. In these schools, 84.7 percent of students would be expected to pass a test on which the normal pass rate is 50 percent. This would be true for any school in this group, regardless of the background of students who attend the school.

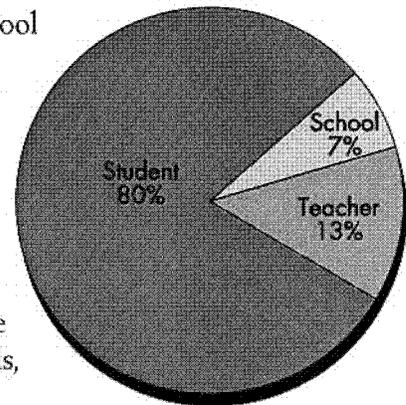


Exhibit 1: Factors Accounting for Variance in Student Achievement

Put another way, a student scoring at the 50th percentile who spends two years in an average school, with an average teacher, is likely to continue scoring at the 50th achievement percentile. That same student, having spent two years in a “most effective” school with a “most effective” teacher, rockets to the 96th achievement percentile. The converse also holds: If this same student spends two years in a “least effective” school with a “least effective” teacher, that student’s achievement level plunges to the third percentile (Marzano, 2003). Because schools can have such a significant impact on student achievement, it is critical that they put into place policies and practices that support students’ learning.

For a number of years now, students’ learning has been equated with students’ proficiency relative to the knowledge and skills captured in state standards. Nearly every state, and most districts, have developed academic standards for what students should know and be able to

do before graduating from high school. In fact, the No Child Left Behind Act now mandates that states implement statewide accountability systems “based on challenging State standards.”

States should consider distilling their current standards and benchmarks into a core of essential standards, identifying which content is essential for students to learn and which is not essential.

A long-recognized problem, however, is the large number of standards teachers must address given the finite amount of time available for

instruction in the typical school day and year. In many schools and districts, attempting to teach all of these standards has resulted in a curriculum that is too extensive and therefore affects students’ in-depth understanding as well as their performance on standardized achievement tests. To address this problem, states should consider distilling their current standards and benchmarks into a core of essential standards, identifying which content is essential for students to learn and which is not essential. When identifying essential content, it is also important to consider what knowledge and skills students will be held accountable for in state assessments.

The Importance of Effective Teaching

Numerous studies reveal the tremendous impact schools and teachers can have on student achievement. For example, a study conducted by Sanders and Horn (1994, reviewed in Marzano, 2003) reveals a 39 percentage-point difference in student achievement between students with “most effective” and “least effective” teachers. In classrooms headed by teachers characterized as “most effective,” students posted achievement gains of 53 percentage points over the course of one academic year, whereas in classrooms led by “least effective” teachers, student achievement gains averaged 14 percentage points (Marzano, 2003).

Effective teaching begins with effective teacher preparation. In teacher preparation programs, states should focus their efforts on ensuring that graduates have strong content expertise and are equipped to use research-based instructional strategies.

Efforts are underway in many states to identify essential versus non-essential content. The South Dakota Department of Education, for example, has identified the essential core of the state’s content standards in mathematics and reading.

To assist practitioners in identifying essential standards, McREL has recently completed a guide for identifying essential content and performance levels (Kendall & Snyder, 2003) (see www.mcrel.org for details).

To ensure that prospective teachers have gained these competencies, several states, including North Carolina, Indiana, and Kansas, have implemented or have begun the move toward performance-based teacher licensure systems.

In teacher preparation programs, states should focus their efforts on ensuring that graduates have strong content expertise and are equipped to use research-based instructional strategies.

Kansas, for example, has developed a performance-based licensure system in which teacher candidates receive a two-year conditional license upon completion of a teacher preparation program. In order to receive a professional teaching license, teachers are required to complete a performance assessment developed by a committee of practitioners

and higher education faculty. Teachers select a unit on which they would like to be assessed, administer pre- and post-tests to students on that unit, and turn in a report to the state department of education. The report includes student demographic data and a self-reflection component, which details why a teacher believes students did or didn't learn, and what that teacher might do differently in the future. (See www.ksbe.state.ks.us/ for more information.)

One mark of an effective teacher is the ability to use an array of research-based instructional strategies. McREL's meta-analysis of the research on instruction (Marzano, 1998) identifies nine instructional strategies that enhance student achievement.

- Identifying similarities and differences: The classroom practices associated with the instructional category of identifying similarities and differences include comparison tasks, classifying tasks, the use of metaphors, and the use of analogies.
- Summarizing and note taking: Summarizing and note taking focus on distilling and analyzing information, thus strengthening students' understanding of the content.
- Reinforcing effort and providing recognition: By reinforcing effort and providing recognition, teachers underscore that students' efforts make a difference in their levels of achievement.
- Homework and practice: Homework and practice provide opportunities for students to deepen their understanding and strengthen their skills.
- Nonlinguistic representations: Nonlinguistic representations can take a variety of forms including graphic representations, physical models, mental pictures, drawings, and kinesthetic classroom activities.
- Cooperative learning: There are five defining elements of cooperative learning: positive interdependence, face-to-face promotive interaction, individual and group accountability, interpersonal and small-group skills, and group processing.

- Setting goals and providing feedback: Goal setting establishes a direction for learning. Involving students in the goal-setting process can increase students' accountability for their own learning.
- Generating and testing hypotheses: Processes that encourage students to generate and test hypotheses include systems analysis, invention, experimental inquiry, decision making, and problem solving.
- Activating prior knowledge: Cues, questions, and advance organizers give students a preview of what they are about to learn or experience and thus help activate students' prior knowledge.

By integrating these strategies into their current classroom practice, teachers can help students deepen their understanding and strengthen their proficiency. Recommendations for implementing these nine research-based strategies are detailed in *Classroom Instruction that Works* (Marzano, Pickering, & Pollock, 2001).

Ensuring that teachers have the knowledge and skills needed to implement research-based instructional strategies requires policies that specifically support teachers' learning. Professional development is the dominant approach to improving teachers' knowledge and skills and is

critical to maintaining teachers' effectiveness; yet, it can sometimes be given short shrift. In Education Week's 2001 *Quality Counts* report, for example, 28 percent of teachers surveyed said that, during the previous year, they had had no training in understanding and using state standards. Sixty-eight percent of teachers noted that they had had "some" or "little" access to training in state assessments.

To positively influence teachers' effectiveness in the classroom, schools need to implement coherent, meaningful professional development programs and ensure that teachers are given adequate time and supports to put what they have learned into practice.

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coherent, meaningful professional development programs and ensure that teachers are given adequate time and supports to put what they have learned into practice. The U.S. Department of Education (1995) has identified a number of characteristics of an effective professional development program, including the following:

- Focuses on teachers as central to student learning, yet includes all other members of the school community
- Focuses on individual, collegial, and organizational improvement
- Respects and nurtures the intellectual and leadership capacity of teachers, principals, and others in the school community
- Reflects best available research and practice in teaching, learning, and leadership

- Is planned collaboratively by those who will participate in and facilitate that development
- Requires substantial time and other resources
- Is driven by a coherent, long term plan

Professional development committees would be well advised to design their overall plans to focus on clear personal development and organizational improvement goals, using research-based programs to achieve them.

The Critical Role of Leadership

Effective leadership adds value to the impact of classroom and teacher practices and ensures that lasting change flourishes. Awareness of the school and teacher practices that impact student achievement is critical, but without effective leadership, there is less of a possibility that schools and districts will address these variables in a coherent and meaningful way.

McREL has identified 21 leadership responsibilities with statistically significant relationships to student achievement that, when consistently implemented, can have a substantial impact on student achievement (Waters, Marzano, & McNulty, 2003). These responsibilities include such tasks as establishing a set of standard operating procedures and routines; involving teachers in the design and implementation of important decisions and policies; and monitoring the effectiveness of school practices and their impact on student learning.

The caliber of leadership in a school can have a dramatic effect on student achievement. According to Waters, Marzano, and McNulty (2003), the average effect size between leadership and student achievement is .25. Waters et al. explain this correlation as follows:

Consider two schools (school A & school B) with similar student and teacher populations. Both demonstrate achievement on a standardized, norm-referenced test at the 50th percentile. Principals in both schools are also average — that is, their abilities in the 21 key leadership responsibilities are ranked at the 50th percentile. Now assume that the principal of school B improves her demonstrated abilities in all 21 responsibilities by exactly one standard deviation. . . .

Our research findings indicate that this increase in leadership ability would translate into mean student achievement at school B that is 10 percentile points higher than school A. (p. 3)

Because leadership has such a significant impact on student achievement, state and district policymakers are shifting leader preparation programs toward a dual focus on leadership skills and management training. Principals need core knowledge, as well as management skills, to inform and lead change. Too, as districts and schools move toward increasingly data-driven systems, it is critical that principals understand how to interpret research findings and evaluative data.

To ensure that principals gain this necessary knowledge, states are moving toward a performance-based principal licensure system, in which prospective principals are required to demonstrate their effectiveness in the field prior to licensure. Other states are mandating that newly appointed principals undergo induction programs. In Louisiana, for instance, all new principals and assistant principals are required to participate in the Louisiana Principal Induction program. The purpose of the program, according to the Louisiana Department of Education, is to “build the capacity of new building-level administrators to provide leadership to their schools in both instructional and administrative areas within the school” (Louisiana Department of Education, n.d.).

Implementing intensive administrator training programs has the potential to increase the efficacy and retention of administrators, in that principals may be better prepared to handle the myriad challenges associated with running a school.

Programs such as these might indirectly address an issue of concern for many states: administrator turnover. In urban and rural areas in particular, which can have high numbers of low-performing, high-poverty schools, it can be difficult for districts to attract and retain principals. Implementing intensive administrator training programs has the potential to increase the efficacy and retention of administrators, in that principals may be better prepared to handle the myriad challenges associated with running a school.

In the case of performance-based administrator and teacher licensure programs, educator preparation institutions have an important role to play. In order to create effective performance-based licensure systems, state boards of education are partnering with colleges and universities to develop educator training standards and align educator performance assessments with university courses. For example, Kansas’s teacher performance assessment, which teachers complete prior to receiving professional certification, was developed in conjunction with higher education faculty.

Final Thoughts

Initiating focused, lasting change in a school system can be a daunting task. Implementing the policies detailed in this brief, however, can help states, districts, and schools edge closer to implementing meaningful reform. By focusing on policies that address the variables that have been shown to positively impact student achievement, policymakers can create conditions in which students have the resources and support they need to reach high standards.

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**EXECUTIVE ORDER BY THE GOVERNOR
ESTABLISHING THE GOVERNOR'S EDUCATION REFORM
BLUE RIBBON TASK FORCE**

WHEREAS, the provision of quality K-12 and higher education in Nevada is an issue of vital importance to all people across the state; and

WHEREAS, the quality, efficiency, and effectiveness of K-12 and higher education are of critical concern and interest to the State of Nevada because education is the foundation of the intellectual infrastructure of Nevada's future; and

WHEREAS, federal funds to support education reform are available through the Race to the Top program and the state will benefit greatly from access to such funds; and

WHEREAS, Race to the Top funds are awarded through a competitive process requiring completion of an extensive application documenting the state's commitment to innovation and reform in education; and

WHEREAS, the completion of a successful application for Race to the Top funds will require the attention and expertise of a diverse group of experts and stakeholders; and

WHEREAS, the development and implementation of true education reform requires planning by experts and stakeholders in K-12 and higher education, business, government, technology, and other industries; and

WHEREAS, Nevada's state, private and nonprofit leaders must work together to ensure a successful state application for the Race to the Top competition and effect long term K-12 and higher education reform; and

WHEREAS, Article 5, Section 1 of the Nevada Constitution provides that "The supreme executive power of this State, shall be vested in a Chief Magistrate who shall be the Governor of the State of Nevada.

NOW, THEREFORE, I, Jim Gibbons, Governor of the State of Nevada, by virtue of the power and authority vested in me by the Constitution and laws of the State of Nevada do hereby establish the Governor's Education Reform Blue Ribbon Task Force. The members serve at the pleasure of the Governor, and the Task Force terminates on December 31, 2010, unless extended by Executive Order.

The Governor's Education Reform Blue Ribbon Task Force will guide and oversee Nevada's Race to the Top application and facilitate public and private discussion and consensus for overall reform of the public education delivery system in Nevada.

infrastructure and recommendation of measures designed to ensure that we are providing a fair and appropriate education that will support the future of our state and diversification of our economy;

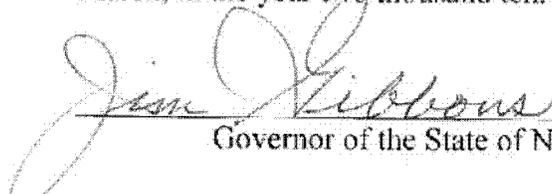
- Facilitate a statewide dialogue on reform of our public education delivery system;
- Consult with relevant stakeholders to develop a plan to improve the results of our state's public education system, from K-12 through higher education; and
- Develop legislative and regulatory recommendations supporting the mission that may address, among other matters, governance, academic standards, teacher performance and resource allocation.

The Task Force shall have the right to consult with all relevant stakeholders in the course of conducting its operations.

BE IT FURTHER ORDERED, that the Task Force shall submit the completed Race to the Top application to the Governor's Office no later than May 21, 2010, and shall present its report which will include recommendations regarding revisions to state laws and regulations relating to education reform and related funding for inclusion in the Governor's Executive Budget for Fiscal Years 2011-2012 and 2012-2013 no later than November 19, 2010.

BE IT FURTHER ORDERED, that the Superintendent of Public Instruction and the Director of the Department of Administration shall provide appropriate staff support as necessary to facilitate the activities and functions of the Governor's Education Reform Blue Ribbon Task Force.

IN WITNESS WHEREOF, I have hereunto set my hand and caused the Great Seal of the State of Nevada to be affixed at the State Capitol in Carson City, this 15th day of March, in the year two thousand ten.



Governor of the State of Nevada

By the Governor:



Secretary of State



Deputy Secretary of State



NRS 386.650 Adoption and maintenance of system; adoption of uniform program for school districts to collect, maintain and transfer data to system; duties of Superintendent of Public Instruction; access to data within system.

1. The Department shall establish and maintain an automated system of accountability information for Nevada. The system must:

(a) Have the capacity to provide and report information, including, without limitation, the results of the achievement of pupils:

(1) In the manner required by 20 U.S.C. §§ 6301 et seq., and the regulations adopted pursuant thereto, and NRS 385.3469 and 385.347; and

(2) In a separate reporting for each group of pupils identified in paragraph (b) of subsection 1 of NRS 385.361;

(b) Include a system of unique identification for each pupil:

(1) To ensure that individual pupils may be tracked over time throughout this State; and

(2) That, to the extent practicable, may be used for purposes of identifying a pupil for both the public schools and the Nevada System of Higher Education, if that pupil enrolls in the System after graduation from high school;

(c) Have the capacity to provide longitudinal comparisons of the academic achievement, rate of attendance and rate of graduation of pupils over time throughout this State;

(d) Have the capacity to perform a variety of longitudinal analyses of the results of individual pupils on assessments, including, without limitation, the results of pupils by classroom and by school;

(e) Have the capacity to identify which teachers are assigned to individual pupils and which paraprofessionals, if any, are assigned to provide services to individual pupils;

(f) Have the capacity to provide other information concerning schools and school districts that is not linked to individual pupils, including, without limitation, the designation of schools and school districts pursuant to NRS 385.3623 and 385.377, respectively, and an identification of which schools, if any, are persistently dangerous;

(g) Have the capacity to access financial accountability information for each public school, including, without limitation, each charter school, for each school district and for this State as a whole; and

(h) Be designed to improve the ability of the Department, school districts and the public schools in this State, including, without limitation, charter schools, to account for the pupils who are enrolled in the public schools, including, without limitation, charter schools.

➤ The information maintained pursuant to paragraphs (c), (d) and (e) must be used for the purpose of improving the achievement of pupils and improving classroom instruction but must not be used for the purpose of evaluating an individual teacher or paraprofessional.

2. The board of trustees of each school district shall:

(a) Adopt and maintain the program prescribed by the Superintendent of Public Instruction pursuant to subsection 3 for the collection, maintenance and transfer of data from the records of individual pupils to the automated system of information, including, without limitation, the development of plans for the educational technology which is necessary to adopt and maintain the program;

(b) Provide to the Department electronic data concerning pupils as required by the Superintendent of Public Instruction pursuant to subsection 3; and

(c) Ensure that an electronic record is maintained in accordance with subsection 3 of NRS 386.655.

3. The Superintendent of Public Instruction shall:

(a) Prescribe a uniform program throughout this State for the collection, maintenance and transfer of data that each school district must adopt, which must include standardized software;

(b) Prescribe the data to be collected and reported to the Department by each school district and each sponsor of a charter school pursuant to subsection 2 and by each university school for profoundly gifted pupils;

(c) Prescribe the format for the data;

(d) Prescribe the date by which each school district shall report the data to the Department;

(e) Prescribe the date by which each charter school shall report the data to the sponsor of the charter school;

(f) Prescribe the date by which each university school for profoundly gifted pupils shall report the data to the Department;

(g) Prescribe standardized codes for all data elements used within the automated system and all exchanges of data within the automated system, including, without limitation, data concerning:

- (1) Individual pupils;
- (2) Individual teachers and paraprofessionals;
- (3) Individual schools and school districts; and
- (4) Programs and financial information;

(h) Provide technical assistance to each school district to ensure that the data from each public school in the school district, including, without limitation, each charter school and university school for profoundly gifted pupils located within the school district, is compatible with the automated system of information and comparable to the data reported by other school districts; and

(i) Provide for the analysis and reporting of the data in the automated system of information.

4. The Department shall establish, to the extent authorized by the Family Educational Rights and Privacy Act of 1974, 20 U.S.C. § 1232g, and any regulations adopted pursuant thereto, a mechanism by which persons or entities, including, without limitation, state officers who are members of the Executive or Legislative Branch, administrators of public schools and school districts, teachers and other educational personnel, and parents and guardians, will have different types of access to the accountability information contained within the automated system to the extent that such information is necessary for the performance of a duty or to the extent that such information may be made available to the general public without posing a threat to the confidentiality of an individual pupil.

5. The Department may, to the extent authorized by the Family Educational Rights and Privacy Act of 1974, 20 U.S.C. § 1232g, and any regulations adopted pursuant thereto, enter into an agreement with the Nevada System of Higher Education to provide access to data contained within the automated system for research purposes.

(Added to NRS by 1997, 1227; A 2001, 3141; 2003, 19th Special Session, 47; 2005, 1174, 2410, 2546; 2007, 1197, 1959)

NRS 385.34691 Plan by State Board to improve achievement of pupils: Preparation; contents; submission; annual review.

1. The State Board shall prepare a plan to improve the achievement of pupils enrolled in the public schools in this State. The plan:

(a) Must be prepared in consultation with:

- (1) Employees of the Department;
- (2) At least one employee of a school district in a county whose population is 100,000 or more, appointed by the Nevada Association of School Boards;
- (3) At least one employee of a school district in a county whose population is less than 100,000, appointed by the Nevada Association of School Boards; and
- (4) At least one representative of the Statewide Council for the Coordination of the Regional Training Programs created by NRS 391.516, appointed by the Council; and

(b) May be prepared in consultation with:

- (1) Representatives of institutions of higher education;
- (2) Representatives of regional educational laboratories;
- (3) Representatives of outside consultant groups;
- (4) Representatives of the regional training programs for the professional development of teachers and administrators created by NRS 391.512;
- (5) The Bureau; and
- (6) Other persons who the State Board determines are appropriate.

2. A plan to improve the achievement of pupils enrolled in public schools in this State must include:

(a) A review and analysis of the data upon which the report required pursuant to NRS 385.3469 is based and a review and analysis of any data that is more recent than the data upon which the report is based.

(b) The identification of any problems or factors common among the school districts or charter schools in this State, as revealed by the review and analysis.

(c) Strategies based upon scientifically based research, as defined in 20 U.S.C. § 7801(37), that will strengthen the core academic subjects, as set forth in NRS 389.018.

(d) Strategies to improve the academic achievement of pupils enrolled in public schools in this State, including, without limitation, strategies to:

(1) Instruct pupils who are not achieving to their fullest potential, including, without limitation:

(I) The curriculum appropriate to improve achievement;

(II) The manner by which the instruction will improve the achievement and proficiency of pupils on the examinations administered pursuant to NRS 389.015 and 389.550; and

(III) An identification of the instruction and curriculum that is specifically designed to improve the achievement and proficiency of pupils in each group identified in paragraph (b) of subsection 1 of NRS 385.361;

(2) Increase the rate of attendance of pupils and reduce the number of pupils who drop out of school;

(3) Integrate technology into the instructional and administrative programs of the school districts;

(4) Manage effectively the discipline of pupils; and

(5) Enhance the professional development offered for the teachers and administrators employed at public schools in this State to include the activities set forth in 20 U.S.C. § 7801(34) and to address the specific needs of the pupils enrolled in public schools in this State, as deemed appropriate by the State Board.

(e) Strategies designed to provide to the pupils enrolled in middle school, junior high school and high school, the teachers and counselors who provide instruction to those pupils, and the parents and guardians of those pupils information concerning:

(1) The requirements for admission to an institution of higher education and the opportunities for financial aid;

(2) The availability of Governor Guinn Millennium Scholarships pursuant to NRS 396.911 to 396.938, inclusive; and

(3) The need for a pupil to make informed decisions about his or her curriculum in middle school, junior high school and high school in preparation for success after graduation.

(f) An identification, by category, of the employees of the Department who are responsible for ensuring that each provision of the plan is carried out effectively.

(g) For each provision of the plan, a timeline for carrying out that provision, including, without limitation, a timeline for monitoring whether the provision is carried out effectively.

(h) For each provision of the plan, measurable criteria for determining whether the provision has contributed toward improving the academic achievement of pupils, increasing the rate of attendance of pupils and reducing the number of pupils who drop out of school.

(i) Strategies to improve the allocation of resources from this State, by program and by school district, in a manner that will improve the academic achievement of pupils. If this State has a financial analysis program that is designed to track educational expenditures and revenues to individual schools, the State Board shall use that statewide program in complying with this paragraph. If a statewide program is not available, the State Board shall use the Department's own financial analysis program in complying with this paragraph.

(j) Based upon the reallocation of resources set forth in paragraph (i), the resources available to the State Board and the Department to carry out the plan, including, without limitation, a budget for the overall cost of carrying out the plan.

(k) A summary of the effectiveness of appropriations made by the Legislature to improve the academic achievement of pupils and programs approved by the Legislature to improve the academic achievement of pupils.

3. The State Board shall:

(a) Review the plan prepared pursuant to this section annually to evaluate the effectiveness of the plan; and

(b) Based upon the evaluation of the plan, make revisions, as necessary, to ensure that the plan is designed to improve the academic achievement of pupils enrolled in public schools in this State.

4. On or before December 15 of each year, the State Board shall submit the plan or the revised plan, as applicable, to the:

(a) Governor;

(b) Committee;

(c) Bureau;

(d) Board of Regents of the University of Nevada;

(e) Council to Establish Academic Standards for Public Schools created by NRS 389.510;

(f) Board of trustees of each school district; and

(g) Governing body of each charter school.

(Added to NRS by 2003, 19th Special Session, 8; A 2005, 707, 1335, 1647, 1975; 2007, 1932)

COMMON CORE
STATE STANDARDS FOR

English Language Arts and
Literacy in History/Social Studies & Science

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Introduction

The *Common Core State Standards for English Language Arts and Literacy in History/Social Studies and Science* are the culmination of an extended, broad-based effort to fulfill the charge issued by the states to create the next generation of K–12 standards that help ensure that all students are college and career ready in literacy by no later than the end of high school. The *Standards* set requirements for English language arts (ELA) but also for reading, writing, speaking, listening, and language in the social and natural sciences. Just as students must learn to communicate effectively in a variety of content areas, so too must the *Standards* specify the literacy skills and understandings required for eventual college and career readiness in history, social studies, and science as well as ELA. By their structure, the *Standards* encourage curriculum makers to take a comprehensive approach that coordinates ELA courses with courses in other subject areas in order to help students acquire a wide range of ever more sophisticated knowledge and skills through reading, writing, speaking, and listening.

The present work, led by the Council of Chief State School Officers (CCSSO) and the National Governors Association (NGA), builds on the foundation laid by states in their decades-long work on crafting high-quality education standards, including their work on the American Diploma Project with Achieve. The *Standards* also draw on the most important international models as well as research and input from numerous sources, including scholars, assessment developers, professional organizations, and educators from kindergarten through college. In their design and content, the *Standards* represent a synthesis of the best elements of standards-related work to date and an important advance over that previous work.

As specified by CCSSO and NGA, the *Standards* are (1) research and evidence based, (2) aligned with college and work expectations, (3) rigorous, and (4) internationally benchmarked. A particular standard was included in the document only when the best available evidence indicated that its mastery was essential for students to be college and career ready in a twenty-first-century, globally competitive society. As new and better evidence emerges, the *Standards* will be revised accordingly.

The *Standards* are an extension of a prior initiative led by CCSSO and NGA to develop College and Career Readiness (CCR) standards in reading,

writing, speaking, listening, and language as well as in mathematics. The CCR Reading, Writing, and Speaking and Listening Standards, released in draft form in September 2009, serve, in revised form, as the backbone of the present document. Consistent across grades and disciplines, the CCR Standards create an essential unity within the document and a consistent point of reference for educators. Whether guiding third graders through a science unit or high school sophomores through a classic work of literature, teachers can look to the same CCR Standards—included in each section of this document—to help judge whether students are on course for being college and career ready. Grade-specific K–12 standards in reading, writing, speaking, listening, and language translate the broad (and, for the earliest grades, seemingly distant) aims of the CCR Standards into age- and attainment-appropriate terms.

While college and career readiness is the end point of the *Standards*—an ambitious goal in its own right—some students will reach that point before the end of high school. For those students who do complete the *Standards*' requirements before graduation, advanced work in such areas as literature, composition, language, and journalism should be available. It is beyond the scope of the *Standards* to describe what such advanced work should consist of, but it should provide the next logical step up from the college and career readiness baseline established here.

As a natural outgrowth of meeting the charge to define college and career readiness, the *Standards* also lay out a vision of what it means to be a literate person in the twenty-first century. Indeed, the skills and understandings students are expected to demonstrate have wide applicability outside the classroom or workplace. Students who meet the *Standards* readily undertake the close, attentive reading that is at the heart of understanding and enjoying complex works of literature. They habitually perform the critical reading necessary to pick carefully through the staggering amount of information available today in print and online. They actively seek the wide, deep, and thoughtful engagement with high-quality literary and informational texts that builds knowledge, enlarges experience, and broadens worldviews. They reflexively demonstrate the cogent reasoning and use of evidence that is essential to both private deliberation and responsible citizenship in a democratic republic. In short, students who master the *Standards* develop the skills in reading, writing, speaking, and listening that are the foundation for any creative and purposeful expression in language.

March 2010

Key Design Considerations

A focus on results rather than means

By focusing on required achievements, the *Standards* leave room for teachers, curriculum developers, and states to determine how those goals should be reached and what additional topics should be addressed. Thus, the *Standards* do not mandate such things as a particular writing process or specify the full range of metacognitive strategies that students may need to use to monitor and direct their thinking and learning. Teachers are thus free to provide students with whatever tools and knowledge their professional judgment and experience identify as most helpful for meeting the goals set out in the *Standards*.

An integrated model of literacy

Although the *Standards* are divided into Reading, Writing, Speaking and Listening, and Language strands for conceptual clarity, the processes of communication are closely connected, as reflected throughout this document. For example, Writing Standard #9 requires that students be able to write about what they read. Likewise, Speaking and Listening Standard #4 sets the expectation that students will share findings from their research.

Language conventions and vocabulary are treated in detail in a separate strand not because those skills should be taught in isolation from other communication activities but because their importance extends beyond writing and reading, where standards documents often place such skills. Many of the conventions must be observed in standard spoken as well as written English, and students, particularly the youngest ones, encounter and acquire new words through conversations as well as through texts. To signal the link between the Language skills and the rest of the standards even more strongly, some skills associated with language use are also found in other strands when appropriate. Reading Standard #4, for example, concerns determining word meanings, and Writing Standard #5 includes editing among the skills students must be able to use to strengthen writing.

Research and media skills integrated into the Standards as a whole

To be ready for college, workforce training, and life in a technological society, students need the ability to gather, comprehend, evaluate, synthesize, report on, and create a high volume and extensive range of print and nonprint texts in media forms old and new. The need to research and to consume and produce media is embedded into every element of today's

curriculum; in like fashion, the associated skills and understandings are embedded throughout the *Standards* rather than treated in a separate section.

Shared responsibility for students' literacy development

The *Standards* establish that instruction in reading, writing, speaking, listening, and language is a shared responsibility. The *Standards* present reading instruction in K–5 as fully integrative, including a rich blend of stories, drama, and poetry as well as informational texts from a range of content areas. ELA-specific standards for grade 6 and above include fiction, poetry, and drama but also literary nonfiction (e.g., speeches, essays, and historical documents with significant cultural importance and literary merit). Literacy standards specific to history/social studies and science for grade 6 and above are predicated on teachers in these areas using their unique disciplinary expertise to help students meet the particular challenges of reading, writing, speaking, listening, and language in their respective fields.

Part of the motivation behind the interdisciplinary approach to literacy promulgated by the *Standards* is extensive research establishing the need for college- and career-ready students to be proficient in reading complex informational text independently in a variety of content areas. Most of the required reading in college and workforce training programs is informational in structure and challenging in content; postsecondary education programs typically provide students with both a higher volume of such reading than is generally required in K–12 schools and comparatively little scaffolding.

The *Standards* are not alone in calling for a special emphasis on informational text. The 2009 reading framework of the National Assessment of Educational Progress (NAEP) requires a high and increasing proportion of informational text on its assessment as students advance through the grades.

Distribution of Literary and Informational Passages by Grade in the 2009 NAEP Reading Framework

Grade	Literary	Informational
4	50%	50%
8	45%	55%
12	30%	70%

The *Standards* aim to align instruction with this framework so that many more students can meet the demands of college and career readiness. In K–5, the *Standards* balance the teaching of literature with informational text, including texts in history/social studies and science. Fulfilling the standards for 6–12 ELA requires much greater attention to literary nonfiction than has been traditional. The NAEP framework also makes clear that significant reading of informational texts should take place outside of the ELA classroom in order for students to be ready for college and careers. The NAEP framework applies the sum of all the reading students do in a grade, not just their reading in the ELA context. The percentages do not imply, for example, that high school ELA teachers must teach 70 percent informational text; they demand instead that a great deal of reading should occur in other disciplines. To measure students' growth toward college and career readiness, assessments aligned with the *Standards* should adhere to the distribution of texts across grades cited in the NAEP framework.

A progression of writing toward college and career readiness

NAEP likewise outlines a distribution across the grades of the core purposes and types of student writing. Similar to the *Standards*, the NAEP framework cultivates the development of three mutually reinforcing writing capacities: writing to persuade, to explain, and to convey real or imagined experience. Evidence concerning the demands of college and career readiness gathered during development of the *Standards* concurs with NAEP's shifting emphases: in grades 9–12 in the *Standards*, students continue writing in all three forms but focus overwhelmingly on writing to argue and to inform or explain.

**Distribution of Communicative Purposes by Grade
in the 2011 NAEP Writing Framework**

Grade	To Persuade	To Explain	To Convey Experience
4	30%	35%	35%
8	35%	35%	30%
12	40%	40%	20%

It follows that writing assessments aligned with the *Standards* should adhere to the distribution of writing purposes across grades outlined by NAEP.

Grade levels for K–8; grade bands for 9–10 and 11–12

The *Standards* use individual grade levels in kindergarten through grade 8 to provide useful specificity; the *Standards* use two-year bands in grades 9–12 to allow schools, districts, and states flexibility in high school course design.

What is not covered by the Standards

The *Standards* should be recognized for what they are *not* as well as what they are. Three of the most important intentional design limitations are as follows:

- 1) The *Standards* define what all students are expected to know and be able to do but not *how* teachers should teach. The *Standards* must be complemented by a well-developed, content-rich curriculum consistent with the expectations laid out in this document.
- 2) While the *Standards* do attempt to focus on what is most essential, they do not describe all that *can* or *should* be taught. A great deal is left to the discretion of teachers and curriculum developers. The aim of the *Standards* is to articulate the fundamentals, not to set out an exhaustive list nor a set of restrictions that limits what can be taught beyond what is specified herein.
- 3) The *Standards* set grade-level standards but do not define the intervention methods or materials necessary to support students who are well below or well above grade-level expectations. No set of grade-level standards can fully reflect the great variety in achievement levels of students in any given classroom. However, the *Standards* do provide clear signposts along the way to the goal of college and career readiness for all students.

The Student Who is College and Career Ready in Reading, Writing, Speaking, Listening, and Language

The descriptions that follow are not standards themselves, but instead offer a portrait of students who meet the standards set out in this document. As students advance through the grades and master the standards in reading, writing, speaking, listening, and language, they are able to exhibit with increasing fullness and regularity these capacities of the literate individual.

- **They demonstrate independence.**

Students can, without significant scaffolding or support, comprehend and evaluate complex texts across a range of types and disciplines, and they can construct effective arguments and clearly convey intricate or multifaceted information. Likewise, students are independently able to discern a speaker's key points and request clarification if something is not understood. They ask relevant questions, build on others' ideas, articulate their own ideas, and ask for confirmation that they have been understood. Without prompting, they observe language conventions, determine word meanings, attend to the connotations of words, and acquire new vocabulary.

- **They build strong content knowledge.**

Students establish a base of knowledge across a wide range of subject matter by engaging with works of quality and substance. They become proficient in new areas through research and study. They read purposefully and listen attentively to gain both general knowledge and discipline-specific expertise. They refine and share their knowledge through writing and speaking.

- **They respond to the varying demands of audience, task, purpose, and discipline.**

Students consider their communication in relation to audience, task, purpose, and discipline. They appreciate nuances, such as how the composition of an audience should affect tone when speaking and how the connotations of words affect meaning. They also know that different disciplines call for different types of evidence (e.g., documentary evidence in history, experimental evidence in the sciences).

- **They comprehend as well as critique.**

Students are engaged and open-minded—but discerning—readers and listeners. They work diligently to understand precisely what an author or

speaker is saying, but they also question an author's or speaker's assumptions and assess the veracity of claims.

- **They value evidence.**

Students cite specific evidence when offering an oral or written interpretation of a text. They use relevant evidence when supporting their own points in writing and speaking, making their reasoning clear to the reader or listener, and they constructively evaluate others' use of evidence.

- **They use technology and digital media strategically and capably.**

Students employ technology thoughtfully to enhance their reading, writing, speaking, listening, and language use. They tailor their searches online to acquire useful information efficiently, and they integrate what they learn using technology with what they learn offline. They are familiar with the strengths and limitations of various technological tools and mediums and can select and use those best suited to their communication goals.

- **They come to understand other perspectives and cultures.**

Students appreciate that the twenty-first-century classroom and workplace are settings in which people from often widely divergent cultures and who represent diverse experiences and perspectives must learn and work together. Students actively seek to understand other perspectives and cultures through reading and listening, and they are able to communicate effectively with people of varied backgrounds. They evaluate other points of view critically and constructively. Through reading great classic and contemporary works of literature representative of a variety of periods, cultures, and worldviews, students can vicariously inhabit worlds and have experiences much different than their own.

How to Read This Document

Overall Document Organization and Main Features

The *Standards* comprise three main sections: a comprehensive K–5 section and two content area-specific sections for grades 6–12, one in English language arts and one in history/social studies and science.

Each section is divided into Reading, Writing, Speaking and Listening, and Language *strands*. Each strand is headed by a set of *College and Career Readiness (CCR) Standards* that is identical across all grades and content areas. The uniformity of the CCR Standards provides a consistent point of reference for educators, facilitating schoolwide goal setting and professional development.

CCR Standards: The basis for the K–12 Standards

Standards for each grade within K–8 and for grades 9–10 and 11–12 follow the College and Career Readiness (CCR) Standards in each strand. Each *grade-specific standard* (as these standards will be collectively referred to) corresponds to a particular CCR Standard. Put another way, each CCR Standard has an accompanying grade-specific standard translating the broader CCR statement into grade-appropriate terms.

Who is responsible for which portion of the Standards

A single K–5 section sets CCR and grade-specific standards for reading, writing, speaking, listening, and language across the curriculum, reflecting the fact that most or all of the instruction students receive in these grades comes from one elementary school teacher. Grades 6–12 are covered in two content area–specific sections, the first for the English language arts teacher and the second for the history/social studies and the science teacher. Each of these sections uses the same CCR Standards but also includes discipline-specific standards tuned to the literacy requirements of these disciplines. It is important to note that the literacy standards in history/social studies and science are meant to complement rather than supplant content standards in those disciplines.

Key Features of the Strands

Reading: Text complexity and the growth of comprehension

To foster students’ ability to comprehend literary and informational texts of steadily increasing complexity, the *Standards* (starting formally in grade 2) define what proportion of the texts students read each year should come from a particular text complexity grade band (2–3, 4–5, 6–8, 9–10, or 11–12). Whatever they are reading, students must also show a steadily increasing ability to discern more from and make fuller use of text, including making an increasing number of connections among ideas and between texts, considering a wider range of textual evidence, and becoming more sensitive to inconsistencies, ambiguities, and poor reasoning in texts.

Writing: Text types, responding to sources, and research

The *Standards* acknowledge the fact that whereas some writing skills, such as the ability to reflect purpose, task, and audience, are important for many types of writing, others are more properly part of writing narratives, informative and explanatory texts, or arguments. Beginning at grade 4, the *Standards* specify the sorts of writing over extended and shorter time frames that students in each grade are to produce in response to sources. Because of the centrality of writing to most forms of inquiry, research standards are primarily included in this strand.

Speaking and Listening:

Flexible communication and interpersonal skills

Including but not limited to skills necessary for formal presentations, the Speaking and Listening standards require students to develop a range of broadly useful oral communication and interpersonal skills. Students must learn to sift through and evaluate multiple points of view, listen thoughtfully in order to build on and constructively question the ideas of others while contributing their own ideas, and, where appropriate, reach agreement and common goals through teamwork.

Language: Conventions and vocabulary

The Conventions standards in the Language strand include the essential “rules” of formal written and spoken English, but they also approach language as a matter of craft and informed choice among alternatives. The Vocabulary standards focus on both understanding words and their nuances and acquiring new words through conversation, reading, and being taught them directly.

Appendices

Appendix A contains supplementary material on reading text complexity, writing, speaking and listening, language conventions, and vocabulary. Appendix B consists of text exemplars illustrating the complexity, quality, and range of reading appropriate for various grade levels. Appendix C includes annotated writing samples demonstrating at least adequate performance at various grade levels.

**Standards for English Language Arts
and Literacy in History/Social Studies & Science**

K-5

DRAFT

College and Career Readiness Standards for Reading

The K–5 standards on the following pages define what students should understand and be able to do in each grade and build toward the ten College and Career Readiness Standards.

Key Ideas and Details

1. Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.
2. Determine central ideas or themes of a text and analyze their development; summarize the key supporting details and ideas.
3. Analyze in detail where, when, why, and how events, ideas, and characters develop and interact over the course of a text.

Craft and Structure

4. Interpret words and phrases as they are used in a text, including determining technical, connotative, and figurative meanings, and explain how specific word choices shape meaning or tone.
5. Analyze the structure of texts, including how specific sentences, paragraphs, and larger portions of the text (e.g., a section or chapter) relate to each other and the whole.
6. Assess how point of view or purpose shapes the content and style of a text.

Integration of Knowledge and Ideas

7. Synthesize and apply information presented in diverse ways (e.g., through words, images, graphs, and video) in print and digital sources in order to answer questions, solve problems, or compare modes of presentation.¹
8. Delineate and evaluate the reasoning and rhetoric within a text, including assessing whether the evidence provided is relevant and sufficient to support the text's claims.
9. Analyze how two or more texts address similar themes or topics in order to build knowledge or to compare the approaches the authors take.

Range and Level of Text Complexity

10. Read complex texts independently, proficiently, and fluently, sustaining concentration, monitoring comprehension, and, when useful, rereading.²

¹Please see “Research to Build Knowledge” in Writing and “Comprehension and Collaboration” in Speaking and Listening for additional standards relevant to gathering, assessing, and applying information from print and digital sources.

²Proficiency in this standard is measured by students' ability to read a range of appropriately complex texts in each grade as defined on page 14.

Note on range and content of student reading

To build a foundation for college and career readiness, students must read widely and deeply from among a broad range of high-quality, increasingly challenging literary and informational texts. Through extensive reading of stories, dramas, poems, and myths from diverse cultures and different time periods, students gain literary and cultural knowledge as well as familiarity with various text structures and elements. By reading texts in history/social studies, science, and other disciplines, students build a foundation of knowledge in these fields that will also give them the background to be better readers in all content areas. Students can only gain this foundation when the curriculum is intentionally and coherently structured to develop rich content knowledge within and across grades. Students also acquire the habits of reading independently and closely, which are essential to their future success.

Reading Standards for Literature K–5

Following are the standards for K–5, which relate to their College and Career Readiness counterparts by number. They offer a focus for instruction each year and help ensure that students gain adequate exposure to a range of texts and tasks. Rigor is also infused through the requirement that students read increasingly complex texts through the grades.

Kindergartners:	Grade 1 students:	Grade 2 students:
Key Ideas and Details		
1. With prompting and support, ask and answer questions about details and events in a text.	1. Ask and answer questions about key details and events in a text.	1. Ask and answer such questions as <i>who</i> , <i>what</i> , <i>where</i> , <i>when</i> , <i>why</i> , and <i>how</i> to demonstrate understanding of key details and events in a text.
2. Retell familiar stories.	2. Retell stories, demonstrating understanding of the central message or lesson.	2. Paraphrase stories, fables, folktales, or myths from diverse cultures and determine their lessons or morals.
3. Identify characters, settings, and key events in a story.	3. Describe characters, settings, and key events in a story.	3. Describe how characters in a story respond to key events and conflicts.
Craft and Structure		
4. Ask questions about unknown words in a text.	4. Identify words and phrases in stories or poems that suggest feelings or appeal to the senses.	4. Identify words and phrases (e.g., regular beats, rhymes, and repeated lines) that supply rhythm and meaning in a story, poem, or song.
5. Recognize common types of texts (e.g., storybooks, poems).	5. Distinguish major categories of writing from each other (e.g., stories and poems), drawing on a wide reading of a range of text types.	5. Refer to core elements of stories, plays, and myths, including characters, settings, and plots, when writing or speaking about a specific text.
6. Name the author and illustrator of a text and define the role of each.	6. Identify who is speaking at various points in a story, myth, fable, or narrative poem.	6. Distinguish between characters by speaking in a different voice for each character when reading aloud.
Integration of Knowledge and Ideas		
7. Relate pictures and illustrations to the overall story in which they appear.	7. Use pictures, illustrations, and details in a story to describe characters, events, or settings.	7. Explain how images and illustrations contribute to and clarify a story.
8. (Not applicable to literature)	8. (Not applicable to literature)	8. (Not applicable to literature)
9. Compare and contrast the adventures of characters in familiar stories.	9. Compare and contrast two or more versions of the same story (e.g., Cinderella stories) by different authors or from different cultures.	9. Compare and contrast characters or events from different stories addressing similar themes.
Range and Level of Text Complexity		
10. Read emergent-reader literature texts with purpose and understanding.	10. Read independently, proficiently, and fluently literature texts appropriately complex for grade 1.	10. Read literature independently, proficiently, and fluently within the grades 2–3 text complexity band; read texts at the high end of the range with scaffolding as needed.

Reading Standards for Literature K–5

Grade 3 students:	Grade 4 students:	Grade 5 students:
Key Ideas and Details		
1. Ask and answer questions to demonstrate understanding of a text, explicitly using the text as the basis for the answers.	1. Draw on details and examples from a text to support statements about the text.	1. Quote from a text to support statements about the text.
2. Use key supporting details in stories, fables, folktales, or myths from diverse cultures to determine the lessons or morals.	2. Summarize a text and derive a theme of a story, drama, or poem from details in the text.	2. Determine a theme of a text, drawing on how characters in a story respond to challenges or how the speaker in a poem reflects upon a topic; summarize the text.
3. Describe the main characters in a story (e.g., their traits, motivations, or feelings) and explain how they contribute to the sequence of events.	3. Describe in detail a character, event, or setting, drawing on specific details in the text (e.g., from a character’s thoughts, words, deeds, or interactions with others).	3. Compare and contrast two or more characters, events, or settings in a text, drawing on specific details.
Craft and Structure		
4. Interpret key words and phrases in a text, distinguishing literal from figurative language.	4. Understand words and phrases in a text that allude to significant characters found in mythology (e.g., <i>Herculean</i>), drawing on a wide reading of classic myths from a variety of cultures and periods.	4. Identify how metaphors and similes as well as rhymes and other repetitions of sounds (e.g., alliteration) supply meaning and rhythm in a specific verse or stanza of a poem.
5. Demonstrate understanding of common features of legends, myths, and folk- and fairytales (e.g., heroes and villains; quests or challenges) when writing or speaking about classic stories from around the world.	5. Explain major differences between poems and prose, and refer to the structural elements of poems (e.g., stanza, verse, rhythm, meter) when writing or speaking about specific poems.	5. Explain major differences between drama and prose stories, and refer to the structural elements of drama (e.g., casts of characters, setting descriptions, dialogue, stage directions, acts, scenes) when writing or speaking about specific works of dramatic literature.
6. Distinguish their own point of view from those of characters in a story.	6. Compare the point of view from which different stories are narrated, including the difference between first- and third-person narrations.	6. Identify how a narrator’s perspective or point of view influences how events are described.
Integration of Knowledge and Ideas		
7. Use information from illustrations and other visual elements in a text with the words to develop an understanding of the setting, characters, and plot.	7. Integrate information from several illustrations and other visual elements in a text with the words to develop an understanding of how the setting and characters change and the plot develops.	7. Explain how images, sounds, and movements contribute to an animated or live-action adaptation of a story, comparing that version to what they “see” or “hear” from reading the text.
8. (Not applicable to literature)	8. (Not applicable to literature)	8. (Not applicable to literature)
9. Compare and contrast the plots, settings, and themes of stories written by the same author about the same or similar characters (e.g., in books from a series).	9. Compare and contrast thematically similar tales, myths, and accounts of events from various cultures.	9. Compare the treatment of similar ideas and themes (e.g., opposition of good and evil) as well as character types and patterns of events in myths and other traditional literature from different cultures.
Range and Level of Text Complexity		
10. Read literature independently, proficiently, and fluently within the grades 2–3 text complexity band; read “stretch” texts in the grades 4–5 text complexity band with scaffolding as needed.	10. Read literature independently, proficiently, and fluently in the grades 4–5 text complexity band; read texts at the high end of the range with scaffolding as needed.	10. Read literature independently, proficiently, and fluently within the grades 4–5 text complexity band; read “stretch” texts in the grades 6–8 text complexity band with scaffolding as needed.

Reading Standards for Informational Text K–5

Kindergartners:	Grade 1 students:	Grade 2 students:
Key Ideas and Details		
1. With prompting and support, ask and answer questions about information and events a text.	1. Ask and answer questions about key information and events in a text.	1. Ask and answer such questions as <i>who, what, where, when, why,</i> and <i>how</i> to demonstrate understanding of key information and events in a text.
2. Identify the main topic and main ideas of a text.	2. Identify the main topic, main ideas, and key details of a text.	2. Identify the main focus of a multiparagraph text as well as that of specific paragraphs within the text.
3. With prompting and support, describe the connection between two events or ideas in a text.	3. Describe the connection between two key events or ideas in a text.	3. Describe the connection between two or more historical events or scientific concepts in a text.
Craft and Structure		
4. Ask questions about unknown words in a text.	4. Learn and determine the meanings of words and phrases encountered in text relevant to a <i>grade 1 topic or subject area</i> .	4. Learn and determine the meanings of words and phrases encountered in text relevant to a <i>grade 2 topic or subject area</i> .
5. Locate basic information in a text.	5. Describe how a text groups information into general categories (e.g., cows, pigs, and horses are <i>farm animals</i>).	5. Know and use various text features (e.g., captions, headings, tables of contents, glossaries, indexes, electronic menus, icons) to locate key facts or information.
6. Name the author and illustrator of a text and define the role of each.	6. Distinguish between information provided by pictures or illustrations and that provided by the words in a text.	6. Identify the main purpose of a text, including what question the author aims to answer or what the author aims to explain or describe.
Integration of Knowledge and Ideas		
7. Relate pictures or illustrations to the overall text in which they appear.	7. Use pictures, illustrations, and details in a text to describe the key ideas.	7. Explain how images and illustrations contribute to and clarify a text.
8. With prompting and support, recognize cause-and-effect relationships in a text.	8. Identify cause-and-effect relationships in a text.	8. Describe how specific causes link key events or ideas together in a text.
9. With prompting and support, recognize basic similarities in and differences between two texts on the same topic (e.g., in illustrations or descriptions).	9. Identify similarities in and differences between two texts on the same topic (e.g., in illustrations or descriptions).	9. Describe similarities in and differences between two texts on the same topic.
Range and Level of Text Complexity		
10. Read emergent-reader informational texts with purpose and understanding.	10. Read independently, proficiently, and fluently informational texts appropriately complex for grade 1.	10. Read informational texts independently, proficiently, and fluently within the grades 2–3 text complexity band; read texts at the high end of the range with scaffolding as needed.

Reading Standards for Informational Text K–5

Grade 3 students:	Grade 4 students:	Grade 5 students:
Key Ideas and Details		
1. Ask and answer questions to demonstrate understanding of a text, explicitly using the text as the basis for the answers.	1. Draw on details and examples from a text to support statements about the text.	1. Quote from a text to support statements about the text.
2. Determine the main idea of a text and explain how it is supported by the key details.	2. Determine the main idea and supporting details of a text; summarize the text.	2. Determine two or more main ideas and how they are supported by details; summarize the text.
3. Describe the relationship between historical or scientific events or ideas in a text, using knowledge of connective devices that pertain to time, sequence, and cause and effect.	3. Describe the sequence of events in an historical or scientific account, including what happened and why, based on specific information in a text.	3. Explain the relationships between two or more historical events or scientific concepts by drawing on specific information from one or more texts.
Craft and Structure		
4. Learn and determine the meanings of general academic language and domain-specific words and phrases encountered in a text relevant to a <i>grade 3 topic or subject area</i> .	4. Learn and determine the meanings of general academic language and domain-specific words or phrases encountered in a text relevant to a <i>grade 4 topic or subject area</i> .	4. Learn and determine the meanings of general academic language and domain-specific words and phrases encountered in a text relevant to a <i>grade 5 topic or subject area</i> .
5. Use text features (e.g., bold print, key words, topic sentences, hyperlinks, electronic menus, icons) to locate information quickly and efficiently.	5. Use text features and search tools to locate and process information relevant to a given topic.	5. Describe how events, ideas, or information are organized (e.g., chronology, comparison, cause and effect) in a whole text or in part of a text.
6. Compare what is presented in a text with relevant prior knowledge and beliefs, making explicit what is new or surprising.	6. Compare an eyewitness account to a secondhand account of the same event or topic.	6. Analyze two accounts of the same event or topic and describe important similarities and differences in the details they provide.
Integration of Knowledge and Ideas		
7. Integrate information from illustrations and other visual elements (e.g., maps, photographs) in print and digital texts as an aid to understanding where, when, why, and how key events occur.	7. Interpret factual information presented graphically or visually (e.g., in charts, diagrams, time lines, animations, and interactive elements) and explain how the information contributes to understanding a print or digital text.	7. Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently.
8. Describe the logical connection between paragraphs and between sentences in a text (e.g., comparison, sequence, example).	8. Explain how an author uses evidence to support his or her claims in a text.	8. Explain how an author uses evidence to support his or her claims in a text, identifying what evidence supports which claim(s).
9. Compare and contrast information drawn from two texts on the same subject.	9. Describe how two or more texts on the same subject build on one another; provide a coherent picture of the information they convey.	9. Integrate information from several texts on the same subject in order to write or speak about the subject knowledgeably.
Range and Level of Text Complexity		
10. Read informational texts independently, proficiently, and fluently within the grades 2–3 text complexity band; read “stretch” texts in the grades 4–5 text complexity band with scaffolding as needed.	10. Read informational texts independently, proficiently, and fluently within the grades 4–5 text complexity band; read texts at the high end of the range with scaffolding as needed.	10. Read informational texts independently, proficiently, and fluently within the grades 4–5 text complexity band; read “stretch” texts in the grades 6–8 text complexity band with scaffolding as needed.

Reading Standards: Foundational Skills (K–3)

These standards are directed toward fostering students' understanding and working knowledge of concepts of print, the alphabetic principle, and other basic conventions of the English writing system. These Foundational Skills are not an end in and of themselves; rather, they are necessary and important components of an effective, comprehensive reading program designed to develop proficient readers with the capacity to comprehend texts across a range of types and disciplines.

Kindergartners:	Grade 1 students:
<p>Print Concepts</p> <p>1. Demonstrate understanding of the organization and basic features of print.</p> <ul style="list-style-type: none">a. Identify the front cover, back cover, and title page of a book.b. Follow words from left to right, top to bottom, and page by page.c. Understand that words are separated by spaces in print.d. Recognize and name all upper- and lowercase letters of the alphabet.	<p>1. (Not applicable)</p>
<p>Phonological Awareness</p> <p>2. Demonstrate understanding of spoken words, syllables, and phonemes.</p> <ul style="list-style-type: none">a. Recite and produce rhyming words.b. Count, pronounce, blend, and segment syllables in spoken words.c. Count individual words in spoken phrases or simple sentences.d. Blend and segment consonants and rimes of spoken words (/g/ - /oat/, /bl/ - /ack/).e. Demonstrate phonemic awareness by isolating and pronouncing the initial, medial vowel, and final phonemes (sounds) in three-phoneme (CVC) words (e.g., /save/, /ham/).¹ (This does not include CVCs ending with /l/, /r/, or /x/.)f. Add or substitute individual phonemes in simple, one-syllable words to make new words (e.g., /at/ → /sat/ → /mat/ → /map/).	<p>2. Demonstrate understanding of spoken words, syllables, and phonemes.</p> <ul style="list-style-type: none">a. Aurally distinguish long from short vowel sounds in spoken single-syllable words (e.g., /tap/ vs. /tape/, /sock/ vs. /soak/, /sit/ vs. /sight/).b. Orally produce single-syllable words by blending phonemes, including consonant blends (e.g., /cats/, /black/, /blast/).c. Isolate and pronounce initial, medial vowel, and final phonemes (sounds) in spoken single-syllable words (e.g., /fast, fast, fast/).d. Segment spoken single-syllable words into their complete sequence of individual phonemes (e.g., lap: /l/-/a/-/p/ → /f/-/l/-/a/-/p/).

¹Words, syllables, or phonemes written in /slashes/ refer to their pronunciation or phonology. Thus, /CVC/ is a word with three phonemes regardless of the number of letters in the spelling of the word.

Reading Standards: Foundational Skills (K–3)

Kindergartners:	Grade 1 students:	Grade 2 students:	Grade 3 students:
Phonics and Word Recognition			
<p>3. Know and apply grade-level phonics and word analysis skills in decoding words.</p> <p>a. Demonstrate basic knowledge of letter-sound correspondences by producing the primary or most frequent sound for each consonant.</p> <p>b. Associate the long and short sounds with the graphemes for the five major vowels.</p> <p>c. Read at least twenty-five very-high-frequency words by sight (e.g., <i>the, of, to, you, she, my, is, are, do, does</i>).</p> <p>d. Distinguish between similarly spelled words by identifying the sounds of the letters that differ (e.g., <i>bat</i> vs. <i>sat, cat</i> vs. <i>can, hit</i> vs. <i>hot</i>).</p>	<p>3. Know and apply grade-level phonics and word analysis skills in decoding words.</p> <p>a. Know the spelling-sound correspondences for common consonant digraphs (e.g., <i>-ll, -ck, wr-, sh</i>).</p> <p>b. Decode regularly spelled one-syllable words (e.g., <i>lock, much, see, rain, slide, bake, bring</i>).</p> <p>c. Know final <i>-e</i> (e.g., <i>take, side</i>) and common vowel team conventions (e.g., <i>rain, day, week, seat, road, show</i>) for representing long vowel sounds.</p> <p>d. Use knowledge that every syllable must have a vowel sound to determine the number of syllables in a printed word.</p> <p>e. Decode two-syllable words following basic patterns (e.g., <i>rabbit</i>) by breaking the words into syllables.</p> <p>f. Read words with inflectional endings (e.g., <i>-s, -es, -ed, -ing, -er, -est</i>).</p> <p>g. Recognize and read grade-appropriate irregularly spelled words (e.g., <i>said, were, could, would, their, there, through, none, both</i>).</p>	<p>3. Know and apply grade-level phonics and word analysis skills in decoding words.</p> <p>a. Distinguish long and short vowels when reading regularly spelled one-syllable words (e.g., <i>hop</i> vs. <i>hope, men</i> vs. <i>mean, fell</i> vs. <i>feel, bend</i> vs. <i>bead</i>).</p> <p>b. Know spelling-sound correspondences for additional common vowel teams (e.g., <i>loud, cow, look, loop, boy, boil</i>).</p> <p>c. Decode regularly spelled two-syllable words with long vowels (e.g., <i>surprise, remain, needle, baby, paper</i>).</p> <p>d. Decode words with common prefixes and suffixes (e.g., <i>unhappy, carefully, goodness, unbutton</i>).</p> <p>e. Identify words with inconsistent but common spelling-sound correspondences (e.g., <i>heat</i> vs. <i>head, roll</i> vs. <i>doll, hint</i> vs. <i>hind</i>).</p> <p>f. Recognize and read grade-appropriate irregularly spelled words (e.g., <i>through, eyes, busy, ocean, island, people</i>).</p>	<p>3. Know and apply grade-level phonics and word analysis skills in decoding words.</p> <p>a. Identify and know the meaning of the most common prefixes and derivational suffixes (e.g., <i>un-, re-, mis-, -ful, -less, -able</i>).</p> <p>b. Decode words with common Latin suffixes (e.g., <i>-tion/-sion, -ture, -tive/-sive, -ify, -ity, -ment</i>).</p> <p>c. Decode multisyllable words (e.g., <i>supper, chimpanzee, refrigerator, terrible, frightening</i>).</p> <p>d. Read grade-appropriate irregularly spelled words (e.g., <i>although, science, stomach, machine</i>).</p>
Fluency			
<p>4. Read with sufficient accuracy and fluency to support comprehension.</p> <p>a. Read emergent-reader texts with purpose and understanding.</p>	<p>4. Read with sufficient accuracy and fluency to support comprehension.</p> <p>a. Read on-level text with purpose and understanding.</p> <p>b. Read on-level text orally with accuracy, appropriate rate, and expression on successive readings.</p> <p>c. Use context to confirm or self-correct word recognition and understanding, rereading as necessary.</p>	<p>4. Read with sufficient accuracy and fluency to support comprehension.</p> <p>a. Read on-level text with purpose and understanding.</p> <p>b. Read on-level text orally with accuracy, appropriate rate, and expression on successive readings.</p> <p>c. Use context to confirm or self-correct word recognition and understanding, rereading as necessary.</p>	<p>4. Read with sufficient accuracy and fluency to support comprehension.</p> <p>a. Read on-level text with purpose and understanding.</p> <p>b. Read on-level text orally with accuracy, appropriate rate, and expression on successive readings.</p> <p>c. Use context to confirm or self-correct word recognition and understanding, rereading as necessary.</p>

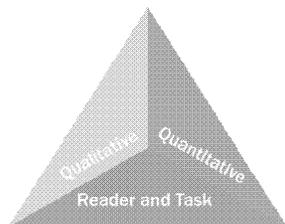
Range and Level of Text Complexity for Student Reading by Grade (Standard 10)

Students demonstrate proficiency in reading texts at the following ranges of text complexity to progress on a path to college and career readiness.

Grade	Text Complexity Range	Percentage	Description
K	(See specific exemplars.)		
1			
2	2–3 Level Text	100%	In grade 2, students focus on reading texts independently in the grades 2–3 text complexity band, with scaffolding likely required for texts at the high end of the range.
3	2–3 Level Text	70%	In grade 3, students focus on reading texts independently in the grades 2–3 text complexity band (70 percent) and are introduced to texts in the grades 4–5 text complexity band as “stretch” texts (30 percent), which will likely require scaffolding.
	4–5 Level Text	30%	
4	4–5 Level Text	100%	In grade 4, students focus on reading texts independently in the grades 4–5 text complexity band, with scaffolding likely required for texts at the high end of the range.
	6–8 Level Text		
5	4–5 Level Text	70%	In grade 5, students focus on reading independently in the grades 4–5 text complexity band (70 percent) and are introduced to texts in the grades 6–8 text complexity band as “stretch” texts (30 percent), which will likely require scaffolding.
	6–8 Level Text	30%	

Note: In any given classroom, the actual range of students’ reading ability could be greater than the proposed range. Some students will require extra time and intense support and scaffolding to enable them to read grade-level material, whereas other students will be ready for—and should be encouraged to read—more advanced texts.

Measuring Text Complexity: Three Factors



Qualitative evaluation of the text: Levels of meaning, structure, language conventionality and clarity, and knowledge demands

Quantitative evaluation of the text: Readability measures and other scores of text complexity

Matching reader to text and task: Reader knowledge, motivation, and interests as well as the complexity generated by the tasks to be assigned and the questions to be posed

Note: More detailed information on text complexity and how it is measured is contained in Appendix A.

Range of Text Types for K–5

Students in K–5 apply the Reading standards to the following range of text types, with texts selected from a broad range of cultures and periods.

Literature			Informational Text
Stories	Drama	Poetry	Literary Nonfiction, History/Social Studies, and Science and Technical Texts
Includes children’s adventure stories, folktales, legends, fables, fantasy, realistic fiction, and myth	Includes staged dialogue and brief familiar scenes	Includes nursery rhymes and the subgenres of the narrative poem, limerick, and free verse poem	Includes biographies and autobiographies; books about history, social studies, science, and the arts; and digital media sources on a range of topics

College and Career Readiness Standards for Writing

The K–5 standards on the following pages define what students should understand and be able to do in each grade and build toward the ten College and Career Readiness Standards.

*Text Types and Purposes*¹

1. Write arguments to support a substantive claim with clear reasons and relevant and sufficient evidence.
2. Write informative/explanatory texts to convey complex information clearly and accurately through purposeful selection and organization of content.
3. Write narratives to convey real or imagined experiences, individuals, or events and how they develop over time.

Production and Distribution of Writing

4. Produce writing in which the organization, development, substance, and style are appropriate to task, purpose, and audience.
5. Strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach.²
6. Use technology, including the Internet, to produce, publish, and interact with others about writing.

Research to Build Knowledge

7. Perform short, focused research projects as well as more sustained research in response to a focused research question, demonstrating understanding of the material under investigation.
8. Gather relevant information from multiple print and digital sources, assess the credibility and accuracy of each source, and integrate and cite the information while avoiding plagiarism.
9. Write in response to literary or informational sources, drawing evidence from the text to support analysis and reflection as well as to describe what they have learned.

Range of Writing

10. Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.³

¹These broad categories of writing include many subgenres. See Appendix A for definitions of key writing types.

²See “Conventions” in Language, pages 22–26, for specific editing expectations.

³This standard is measured by the proficiency of student writing products.

Note on range and content of student writing

To build a foundation for college and career readiness, students need to learn to use writing as a way of offering and supporting opinions, demonstrating understanding of the subjects they are studying, and conveying thoughts, feelings, and real and imaginary experiences. They learn to appreciate that a key purpose of writing is to communicate clearly to an external, sometimes unfamiliar audience, and they begin to adapt the form, content, and style of their writing to accomplish a particular purpose and task. They develop the capacity to build knowledge on a subject through research projects and to respond analytically to literary and informational sources. To meet these goals, students must devote significant time and effort to writing, producing numerous pieces over short and long time frames throughout the year.

Writing Standards K–5

Following are the standards for K–5, which relate to their College and Career Readiness counterparts by number. They offer a focus for instruction in each year to help ensure that students gain adequate exposure to a range of skills and applications. Growth in writing ability is characterized by an increasing sophistication in all aspects of language use, from vocabulary and syntax to the development and organization of ideas. At the same time, the content and sources that students address in their writing grow in demand every year.

Kindergartners:	Grade 1 students:	Grade 2 students:
Text Types and Purposes		
1. Use a combination of drawing, dictating, and writing to compose opinions in which they tell a reader the name of a book or the topic they are “writing” about and give an opinion about the topic (e.g., <i>My favorite book is . . .</i>).	1. Write opinions in which they introduce the topic or the name of the book they are writing about, state an opinion, and provide a reason for their opinion.	1. Write opinions in which they introduce the topic or book(s) directly, state an opinion, provide reasons and details to support opinions, use words to link opinions and reason(s) (e.g., <i>because, and, also</i>), and provide a sense of closure.
2. Use a combination of drawing, dictating, and writing to compose informative and explanatory texts in which they name what they are “writing” about and share some information about it.	2. Write informative and explanatory texts in which they name a topic, supply some facts relevant to the topic, and provide some sense of closure.	2. Write informative and explanatory texts in which they introduce a topic, use facts and definitions to develop points, present similar information together using headers to signal groupings when appropriate, and provide a concluding sentence or section.
3. Use a combination of drawing, dictating, and writing to narrate a single event or several loosely linked events, tell about the events in the order that they occurred, and provide a reaction to what happened.	3. Write narratives in which they include at least two or more appropriately sequenced events, use time cue words to signal event order, and provide some details and a sense of closure.	3. Write narratives in which they recount a well-elaborated event or series of events, use temporal words and phrases to signal event order, include details to tell what the narrator did, thought, and felt, and provide closure.
Production and Distribution of Writing		
4. (Begins in grade 3)	4. (Begins in grade 3)	4. (Begins in grade 3)
5. With guidance and support from adults, add details to strengthen writing as needed through revision.	5. With guidance and support from adults, add details to strengthen writing as needed through revision.	5. With guidance from adults, strengthen writing as needed by revising and editing.
6. (Begins in grade 2)	6. (Begins in grade 2)	6. With guidance from adults, use technology to produce writing.
Research to Build Knowledge		
7. (Begins in grade 1)	7. Participate in shared research and writing projects (e.g., exploring a number of books on a given topic).	7. Participate in shared research and writing projects (e.g., exploring a number of books on a given topic).
8. Gather information from experiences or provided text sources to answer a specific question.	8. Gather information from experiences or provided text sources to answer a specific question.	8. Gather information from experiences or provided text sources to answer a specific question.
9. (Begins in grade 4)	9. (Begins in grade 4)	9. (Begins in grade 4)
Range of Writing		
10. (Begins in grade 4)	10. (Begins in grade 4)	10. (Begins in grade 4)

Writing Standards K–5

Grade 3 students:	Grade 4 students:	Grade 5 students:
Text Types and Purposes		
<p>1. Write opinions in which they:</p> <ol style="list-style-type: none">Introduce the topic or book(s) directly, state an opinion relative to the topic, and create an organizing structure that lists reasons.Provide reasons that support the opinion.Use appropriate words to link opinions and reason(s) (e.g., <i>because, therefore, in order to, since, for example</i>).Provide a sense of closure.	<p>1. Write opinions in which they:</p> <ol style="list-style-type: none">Introduce an opinion about a concrete issue or topic and create an organizing structure where related ideas are grouped to support the writer's purpose.Provide reasons that are supported by facts and details.Link reasons and details together using words and phrases (e.g., <i>so, then, for instance, in addition</i>).Adopt an appropriate style for sharing and defending an opinion.Provide a concluding statement or section.	<p>1. Write opinions in which they:</p> <ol style="list-style-type: none">Introduce an opinion about a concrete issue or topic and create an organizing structure where ideas are logically grouped to support the writer's purpose.Provide logically ordered reasons that are supported by facts and details.Link reasons and details together using words, phrases, and clauses (e.g., <i>consequently, generally, specifically</i>).Adopt an appropriate style for sharing and defending an opinion.Provide a concluding statement or section.
<p>2. Write informative/explanatory pieces in which they:</p> <ol style="list-style-type: none">Introduce a topic and create an organizational structure that presents similar information together.Provide some details to develop points.Use linking words (e.g., <i>also, another, and, more</i>) to connect ideas within categories of information.Include a concluding sentence or section.	<p>2. Write informative/explanatory pieces in which they:</p> <ol style="list-style-type: none">State the topic clearly and group related information in paragraphs and sections.Develop the topic using facts, concrete details, quotations, or other information and examples.Use appropriate links to join ideas within categories of information.Employ domain-specific vocabulary when appropriate.Provide a conclusion related to the information or explanation offered.	<p>2. Write informative/explanatory pieces in which they:</p> <ol style="list-style-type: none">State the topic clearly, provide a general observation and focus, and group related information logically.Develop the topic using relevant facts, concrete details, quotations, or other information and examples.Use appropriate links to join ideas within and across categories of information.Employ domain-specific vocabulary and some technical terms when appropriate.Provide a conclusion related to the information or explanation offered.
<p>3. Write narratives in which they:</p> <ol style="list-style-type: none">Establish a situation, introduce a narrator and/or characters, and organize an event sequence that unfolds naturally.Employ dialogue and descriptions of characters' actions, thoughts, and feelings.Use temporal words and phrases to signal event sequence.Provide a sense of closure.	<p>3. Write narratives in which they:</p> <ol style="list-style-type: none">Orient the reader by establishing a situation, introduce a narrator and/or characters, and organize an event sequence that unfolds naturally.Use narrative techniques such as dialogue and description to develop events and show the characters' external behaviors and internal responses to events.Use a variety of temporal words and phrases to manage the sequence of events.Use concrete and sensory words and phrases to convey events and experiences precisely.Provide a satisfying conclusion that follows from the narrative's events.	<p>3. Write narratives in which they:</p> <ol style="list-style-type: none">Engage and orient the reader by establishing a situation, introduce a narrator and/or characters, and create an organization that sequences events naturally and logically.Use narrative techniques such as dialogue, pacing, and description to develop events and show characters' external behaviors and internal responses.Use a variety of temporal words, phrases, and clauses to manage the sequence of events.Use well-chosen words and phrases to convey events and experiences precisely.Provide a satisfying conclusion that follows from the narrative's events.

Writing Standards K–5

Grade 3 students:	Grade 4 students:	Grade 5 students:
<i>Production and Distribution of Writing</i>		
4. (Begins in grade 4).	4. Produce coherent and clear writing in which the organization, development, substance, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in Standards 1–3 above.)	4. Produce coherent and clear writing in which the organization, development, substance, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in Standards 1–3 above.)
5. With guidance and support from peers and adults, strengthen writing as needed by revising and editing.	5. With guidance and support from peers and adults, strengthen writing as needed by planning, revising, and editing.	5. With guidance and support from peers and adults, strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach.
6. With guidance and support from adults, use technology to produce and publish writing.	6. With guidance and support from adults, use technology to produce, publish, and interact with others about writing.	6. With guidance and support from adults, use technology, including the Internet, to produce, publish, and interact with others about writing.
<i>Research to Build Knowledge</i>		
7. Perform short, focused research tasks that build knowledge about a topic.	7. Perform short, focused research tasks that build knowledge through investigation of different aspects of a single topic.	7. Perform short, focused research tasks that build knowledge through investigation of different aspects of a topic using several sources.
8. Gather information from experience as well as print and digital resources, take simple notes on sources, and sort evidence into provided categories.	8. Gather relevant information from experience as well as print and digital sources, take notes and categorize evidence, restate information in written text, and provide basic bibliographic information.	8. Gather relevant information from experience as well as print and digital sources; summarize or paraphrase information in notes and finished work, and provide basic bibliographic information.
9. (Begins in grade 4)	9. Write in response to literary or informational sources, drawing evidence from the text to support analysis and reflection as well as to describe what they have learned: <ol style="list-style-type: none"> Apply <i>grade 4 reading standards</i> to informational texts (e.g., “Explain how an author uses evidence to support his or her claims in a text”). Apply <i>grade 4 reading standards</i> to literature (e.g., “Describe in detail a character, event, or setting, drawing on specific details in the text (e.g., from a character’s thoughts, words, deeds, and interactions with others”). 	9. Write in response to literary or informational sources, drawing evidence from the text to support analysis and reflection as well as to describe what they have learned: <ol style="list-style-type: none"> Apply <i>grade 5 reading standards</i> to informational texts (e.g., “Explain how an author uses evidence to support his or her claims in a text, identifying what evidence supports which claim(s)”). Apply <i>grade 5 reading standards</i> to literature (e.g., “Compare and contrast two or more characters, events, or settings in a text, drawing on specific details”).
<i>Range of Writing</i>		
10. (Begins in grade 4)	10. Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.	10. Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.

College and Career Readiness Standards for Speaking and Listening

The K–5 standards on the following pages define what students should understand and be able to do in each grade and build toward the six College and Career Readiness Standards.

Comprehension and Collaboration

1. Participate effectively in a range of interactions (one-on-one and in groups), exchanging information to advance a discussion and to build on the input of others.
2. Integrate and evaluate information from multiple oral, visual, or multimodal sources in order to answer questions, solve problems, or build knowledge.
3. Evaluate the speaker’s point of view, reasoning, and use of evidence and rhetoric.

Presentation of Knowledge and Ideas

4. Present information, evidence, and reasoning in a clear and well-structured way appropriate to purpose and audience.
5. Make strategic use of digital media and visual displays of data to express information and enhance understanding.
6. Adapt speech to a variety of contexts and communicative tasks, demonstrating a command of formal English when indicated or appropriate.

Note on range and content of student speaking and listening

To build a foundation for college and career readiness, students must have ample opportunities to take part in a variety of rich, structured conversations—whole class, small group, and with a partner. Being productive members of these conversations requires that students contribute accurate, relevant information; respond to and develop what others have said; make comparisons and contrasts; and analyze and synthesize a multitude of ideas in various domains.

New technologies have broadened and expanded the role that speaking and listening play in acquiring and sharing knowledge and have tightened their link to other forms of communication. Digital texts confront students with the potential for continually updated content and dynamically changing combinations of words, graphics, images, hyperlinks, and embedded video and audio.

Speaking and Listening Standards K–5

Following are the standards for K–5, which relate to their College and Career Readiness counterparts by number. They offer a focus for instruction in each year to help ensure that students gain adequate exposure to a range of skills and applications.

Kindergartners:	Grade 1 students:	Grade 2 students:
Comprehension and Collaboration		
<ol style="list-style-type: none"> Participate in conversations with peers and adults about <i>kindergarten topics and texts</i> being studied in class. <ol style="list-style-type: none"> Listen to others and take turns speaking. Continue a conversation through several exchanges. 	<ol style="list-style-type: none"> Initiate and participate in conversations with peers and adults about <i>grade 1 topics and texts</i> being studied in class. <ol style="list-style-type: none"> Follow agreed-upon rules for discussions, such as listening to others, speaking one at a time, and gaining the floor in respectful ways. Respond to the comments of others through multiple exchanges. Ask questions to clear up confusion about a topic. 	<ol style="list-style-type: none"> Engage in group discussions on <i>grade 2 topics and texts</i> being studied in class. <ol style="list-style-type: none"> Follow agreed-upon rules for discussions, such as listening to others, speaking one at a time, and gaining the floor in respectful ways. Stay on topic by linking their own additions to the conversation to the previous remarks of others. Ask for clarification and further explanation as needed. Extend their ideas and understanding in light of the discussions.
<ol style="list-style-type: none"> Confirm understanding of information presented orally or through media by asking and answering questions about key details. 	<ol style="list-style-type: none"> Confirm understanding of information presented orally or through media by restating key elements and asking and answering questions about key details. 	<ol style="list-style-type: none"> Retell key details or ideas presented orally or through media.
<ol style="list-style-type: none"> Ask questions to get information, seek help, or clarify something that is not understood. 	<ol style="list-style-type: none"> Ask questions to get information, clarify something that is not understood, or gather additional information. 	<ol style="list-style-type: none"> Ask and answer questions about information presented orally or visually in order to deepen their understanding or clarify comprehension.
Presentation of Knowledge and Ideas		
<ol style="list-style-type: none"> Describe familiar people, places, things, and events and, with prompting and support, provide additional detail. 	<ol style="list-style-type: none"> Describe familiar people, places, things, and events with relevant details, expressing ideas and feelings clearly. 	<ol style="list-style-type: none"> Recount stories or experiences with appropriate facts and descriptive details.
<ol style="list-style-type: none"> (Begins in grade 4) 	<ol style="list-style-type: none"> (Begins in grade 4) 	<ol style="list-style-type: none"> (Begins in grade 4)
<ol style="list-style-type: none"> (Begins in grade 1) 	<ol style="list-style-type: none"> Produce complete sentences when appropriate to task and situation, using correct verb tenses to convey a sense of past, present, and future. (See “Conventions” in Language, pages 22–26, for specific demands.) 	<ol style="list-style-type: none"> Produce complete sentences when appropriate to task and situation to provide requested detail or clarification, ensuring subject-verb agreement and correct use of irregular plural nouns. (See “Conventions” in Language, pages 22–26, for specific demands.)

Speaking and Listening Standards K–5

Grade 3 students:	Grade 4 students:	Grade 5 students:
Comprehension and Collaboration		
<p>1. Initiate and engage in group discussions on <i>grade 3 topics and texts</i> being studied in class.</p> <p>a. Follow agreed-upon rules for discussions and carry out assigned roles in small-group discussions.</p> <p>b. Pose relevant questions and link their own additions to the conversation to the previous remarks of others.</p> <p>c. Extend their ideas and understanding in light of the discussions.</p>	<p>1. Initiate and engage in group discussions on <i>grade 4 topics and texts</i> being studied in class.</p> <p>a. Come to discussions prepared, having read required material; in discussions, explicitly draw on that material and other information known about the topic.</p> <p>b. Pose and respond to questions as well as build on the ideas of previous speakers.</p> <p>c. Acknowledge new information provided by others and incorporate it into their own thinking as appropriate.</p>	<p>1. Initiate and engage in group discussions on <i>grade 5 topics and texts</i> being studied in class.</p> <p>a. Come to discussions prepared, having read the required material; in discussions, explicitly draw on that material and other information known about the topic.</p> <p>b. Respond to questions with elaboration, make comments that contribute to the topic, and build on the ideas of previous speakers.</p> <p>c. Ask questions to clarify or follow up on ideas or information presented orally or through media.</p> <p>d. Draw conclusions based on the ideas of others and incorporate them into their own thinking as appropriate.</p>
<p>2. Identify the main ideas and supporting details of information presented graphically, visually, orally, or multimodally.</p>	<p>2. Paraphrase the key information or ideas presented graphically, visually, orally, or multimodally.</p>	<p>2. Summarize the key ideas and supporting details presented graphically, visually, orally, or multimodally.</p>
<p>3. Ask and answer questions about presentations, offering appropriate elaboration and detail.</p>	<p>3. Identify the claims and supporting evidence used by a speaker or a presenter.</p>	<p>3. Summarize the claims made by a speaker or presenter and explain how each claim is supported with evidence.</p>
Presentation of Knowledge and Ideas		
<p>4. Report on a topic or recount stories or experiences with appropriate facts and descriptive details.</p>	<p>4. Report on events, topics, or texts in an organized manner, using appropriate, specific facts and descriptive details to support main ideas.</p>	<p>4. Report on events, topics, or texts in a focused, organized manner, sequencing ideas logically and using appropriate, specific facts, details, examples, or other information to develop main ideas.</p>
<p>5. (Begins in grade 4)</p>	<p>5. Incorporate visual displays and digital media into presentations when appropriate.</p>	<p>5. Incorporate visual displays and digital media into presentations when appropriate.</p>
<p>6. Speak coherently, employing a variety of tenses and ensuring subject-verb and pronoun-antecedent agreement. (See “Conventions” in Language, pages 22–26, for specific demands.)</p>	<p>6. Differentiate between contexts that call for formal English (e.g., presenting ideas) and situations where informal discourse is appropriate (e.g., small-group discussion); use formal English when appropriate to task and situation. (See “Conventions” in Language, pages 22–26, for specific demands.)</p>	<p>6. Adapt speech to a variety of contexts and communicative tasks, using formal English when appropriate to task and situation. (See “Conventions” in Language, pages 22–26, for specific demands.)</p>

College and Career Readiness Standards for Language

The K–5 standards on the following pages define what students should understand and be able to do in each grade and build toward the six College and Career Readiness Standards.

Conventions in Writing and Speaking

1. Demonstrate a command of the conventions of standard English grammar and usage.
2. Demonstrate a command of the conventions of capitalization, punctuation, and spelling.
3. Make effective choices about language, punctuation, and sentence structure for meaning and style.

Vocabulary Acquisition and Use

4. Determine the meaning of words and phrases encountered through conversations, reading, and media use.
5. Understand the nuances of and relationships among words.
6. Use grade-appropriate general academic vocabulary and domain-specific words and phrases purposefully acquired as well as gained through conversation and reading and responding to texts.

Note on range and content of student language use

To build a foundation for college and career readiness in language, students must gain control over many conventions of writing and speaking as well as acquire new words and understand those that they encounter through listening, reading, and media use. They must be able to determine the meaning of grade-appropriate words, come to appreciate that words have shadings of meaning and relationships to other words, and expand their vocabulary through conversation and (especially in later grades) through reading and by being taught words directly in the course of studying subject matter. The inclusion of Language standards in their own strand should not be taken as an indication that skills related to conventions and vocabulary are unimportant to reading, writing, speaking, and listening; indeed, they are

Language Standards K–5

Following are the standards for K–5, which relate to their College and Career Readiness counterparts by number. They offer a focus for instruction in each year to help ensure that students gain adequate exposure to a range of skills and applications.

Kindergartners:	Grade 1 students:	Grade 2 students:
<p>Conventions in Writing and Speaking</p> <ol style="list-style-type: none"> 1. Observe conventions of grammar and usage. <ol style="list-style-type: none"> a. Print most upper- and lowercase letters. b. Write a letter or letters for most consonant and short-vowel sounds (phonemes). c. Form regular plural nouns orally by adding /s/ or /es/ (e.g., <i>dog, dogs; wish, wishes</i>) when speaking. d. Understand and use the most frequently occurring prepositions in English (e.g., <i>to/from, in/out, on/off, for, of, by, with</i>) when speaking. e. Produce and expand complete sentences in shared language and writing activities. f. Understand and use question words (e.g., <i>who, what, where, when, why, how</i>) in discussions. 2. Observe conventions of capitalization, punctuation, and spelling. <ol style="list-style-type: none"> a. Capitalize the first word in a sentence and the pronoun <i>I</i>. b. Name and identify end punctuation, including periods, question marks, and exclamation points. c. Spell simple words phonetically using knowledge of sound-letter relationships. 3. (Begins in grade 3) 	<ol style="list-style-type: none"> 1. Observe conventions of grammar and usage. <ol style="list-style-type: none"> a. Print all upper- and lowercase letters. b. Use singular and plural nouns with matching verbs in simple sentences (e.g., <i>He hops; We hop</i>). c. Use subject, object, and possessive pronouns in speaking and writing (e.g., <i>I, me, my; they, them, their</i>). d. Use verbs to convey a sense of past, present, and future in writing and speaking (e.g., <i>Yesterday I walked home; Today I walk home; Tomorrow I will walk home</i>). e. Understand and use frequently occurring prepositions in English (e.g., <i>during, beyond, toward</i>). f. Produce and expand complete declarative, interrogative, imperative, and exclamatory sentences in response to questions and prompts. g. Understand that, minimally, every sentence must be about something (the subject) and tell something (the predicate) about its subject. 2. Observe conventions of capitalization, punctuation, and spelling. <ol style="list-style-type: none"> a. Capitalize names, places, and dates. b. Use end punctuation for sentences, including periods, question marks, and exclamation points. c. Use commas in dates and to separate single words in a series. d. Use conventional spelling for words with common spelling patterns and for common irregular words. e. Use phonetic spellings for untaught words, drawing on phonemic awareness and spelling conventions. f. Form new words through addition, deletion, and substitution of sound and letters (e.g., <i>an → man → mat → mast → must → rust → crust</i>). 3. (Begins in grade 3) 	<ol style="list-style-type: none"> 1. Observe conventions of grammar and usage. <ol style="list-style-type: none"> a. Form common irregular plural nouns (e.g., <i>feet, children, teeth, mice, fish</i>). b. Form the past tense of common irregular verbs (e.g., <i>sat, hid, told</i>). c. Produce and expand complete declarative, interrogative, imperative, and exclamatory sentences. d. Produce and expand complete sentences to provide requested detail or clarification. 2. Observe conventions of capitalization, punctuation, and spelling. <ol style="list-style-type: none"> a. Capitalize holidays, product names, geographic names, and important words in titles. b. Use commas in greetings and closings of letters. c. Use apostrophes to form contractions and common possessives. d. Generalize learned spelling patterns when writing words (e.g., <i>cage → badge; boy → boil; paper → copper</i>). e. Consult reference materials, including beginning dictionaries, as needed to check and correct spellings. 3. (Begins in grade 3)

Language Standards K-5

Kindergartners:

Grade 1 students:

Grade 2 students:

Vocabulary Acquisition and Use

- | | | |
|---|--|--|
| <p>4. Determine word meanings (<i>based on kindergarten reading</i>).</p> <ol style="list-style-type: none">Sort common objects into categories (e.g., shapes, foods) to gain a sense of the concepts the categories represent.Identify new meanings for familiar words and apply them accurately (e.g., knowing <i>duck</i> as a bird and learning the verb <i>to duck</i>).Use the most common affixes in English (e.g., <i>-ed</i>, <i>-s</i>, <i>re-</i>, <i>un-</i>, <i>pre-</i>, <i>-ful</i>, <i>-less</i>) as a clue to the meaning of an unknown word. | <p>4. Determine word meanings (<i>based on grade 1 reading</i>).</p> <ol style="list-style-type: none">Sort words into categories (e.g., colors, clothing) to gain a sense of the concepts the categories represent.Use sentence-level context as a clue to the meaning of an unknown word.Use common affixes in English as a clue to the meaning of an unknown word.Define words by category and by one or more key attributes (e.g., a <i>duck</i> is a bird that swims; a <i>tiger</i> is a large cat with stripes).Demonstrate understanding of the concept of multiple-meaning words (e.g., <i>match</i>, <i>kind</i>, <i>play</i>) by identifying meanings of some grade-appropriate examples of such words. | <p>4. Determine word meanings (<i>based on grade 2 reading</i>).</p> <ol style="list-style-type: none">Determine or clarify the meaning of unknown or multiple-meaning words through the use of one or more strategies, such as understanding how the word is used in a sentence; analyzing the word's sounds, spelling, and meaningful parts; and consulting glossaries or beginning dictionaries, both print and digital.Explain the meaning of grade-appropriate compound words (e.g., <i>birdhouse</i>, <i>lighthouse</i>, <i>housefly</i>; <i>bookshelf</i>, <i>notebook</i>, <i>bookmark</i>).Use a known root word as a clue to the meaning of an unknown word with the same root (e.g., <i>addition</i>, <i>additional</i>).Determine the meaning of the new word formed when a known prefix is added to a known word (e.g., <i>happy</i> / <i>unhappy</i>, <i>tell</i> / <i>retell</i>). |
| <p>5. Understand word relationships.</p> <ol style="list-style-type: none">Build real-life connections between words and their use (e.g., note places at school that are <i>colorful</i>).Distinguish shades of meaning among verbs describing the same general action (e.g., <i>walk</i>, <i>march</i>, <i>strut</i>, <i>prance</i>) by acting out the meanings.Use common adjectives to distinguish objects (e.g., the <i>small blue</i> square; the <i>shy white</i> rabbit).Demonstrate understanding of common verbs and adjectives by relating them to their opposites (antonyms). | <p>5. Understand word relationships.</p> <ol style="list-style-type: none">Build real-life connections between words and their use (e.g., note places at home that are <i>cozy</i>).Distinguish shades of meaning among verbs differing in manner (e.g., <i>look</i>, <i>peek</i>, <i>glance</i>, <i>stare</i>, <i>glare</i>, <i>scowl</i>) and adjectives differing in intensity (e.g., <i>large</i>, <i>gigantic</i>) by defining, choosing, or acting out the meanings. | <p>5. Understand word relationships.</p> <ol style="list-style-type: none">Build real-life connections between words and their use (e.g., describe foods that are <i>spicy</i> or <i>juicy</i>).Distinguish shades of meaning among related verbs (e.g., <i>toss</i>, <i>throw</i>, <i>hurl</i>) and related adjectives (e.g., <i>thin</i>, <i>slender</i>, <i>skinny</i>, <i>scrawny</i>). |
| <p>6. Use newly learned words acquired through conversations, reading, and responding to texts.</p> | <p>6. Use newly learned words acquired through conversations, reading, and responding to texts.</p> | <p>6. Use newly learned words acquired through conversations, reading, and responding to texts.</p> |

Language Standards K–5

Grade 3 students:	Grade 4 students:	Grade 5 students:
Conventions in Writing and Speaking		
<p>1. Observe conventions of grammar and usage.</p> <ul style="list-style-type: none"> a. Explain the function of nouns, pronouns, verbs, adjectives, and adverbs in general and their functions in specific sentences. b. Form and use the simple (e.g., <i>I walked, I walk, I will walk</i>) verb tenses. c. Ensure subject-verb and pronoun-antecedent agreement.* d. Produce simple, compound, and complex sentences. 	<p>1. Observe conventions of grammar and usage.</p> <ul style="list-style-type: none"> a. Form and use the progressive (e.g., <i>I was walking, I am walking, I will be walking</i>) verb aspects. b. Form and use adjectives and adverbs (including comparative and superlative forms), placing them appropriately within sentences.* c. Produce complete sentences, avoiding rhetorically poor fragments and run-ons.* d. Correctly use frequently confused words (e.g., <i>to, too, two; there, their</i>).* 	<p>1. Observe conventions of grammar and usage.</p> <ul style="list-style-type: none"> a. Form and use the perfect (e.g., <i>I had walked, I have walked, I will have walked</i>) verb aspects. b. Recognize and correct inappropriate shifts in verb tense and aspect.*
<p>2. Observe conventions of capitalization, punctuation, and spelling.</p> <ul style="list-style-type: none"> a. Use correct capitalization. b. Use quotation marks in dialogue. c. Use conventional spelling for high-frequency and other studied words and for adding suffixes to base words (e.g., <i>sitting, smiled, cries, happiness</i>). d. Use spelling patterns and generalizations (e.g., word families, position-based spellings, syllable patterns, ending rules, meaningful word parts) in writing words. e. Consult reference materials, including dictionaries, as needed to check and correct spellings. 	<p>2. Observe conventions of capitalization, punctuation, and spelling.</p> <ul style="list-style-type: none"> a. Use quotation marks to mark direct speech and quotations from a text. b. Spell grade-appropriate words correctly, consulting references as needed. 	<p>2. Observe conventions of capitalization, punctuation, and spelling.</p> <ul style="list-style-type: none"> a. Use punctuation to separate items in a series.* b. Use a comma to separate an introductory element from the rest of the sentence. c. Use underlining, quotation marks, or italics to indicate titles of works. d. Spell grade-appropriate words correctly, consulting references as needed.
<p>3. Make effective language choices.</p> <ul style="list-style-type: none"> a. Use words for effect.* 	<p>3. Make effective language choices.</p> <ul style="list-style-type: none"> a. Use punctuation for effect.* b. Maintain consistency in style and tone.* c. Choose words and phrases to convey ideas precisely.* 	<p>3. Make effective language choices.</p> <ul style="list-style-type: none"> a. Expand, combine, and reduce sentences for meaning, reader/listener interest, and style.*

* Conventions standards noted with an asterisk (*) need to be revisited by students in subsequent grades as their writing and speaking grows in sophistication. See chart on page 27 for a complete listing.

Language Standards K-5

Grade 3 students:

Grade 4 students:

Grade 5 students:

Vocabulary Acquisition and Use

- | | | |
|---|--|---|
| <p>4. Determine word meanings (<i>based on grade 3 reading</i>).</p> <p>a. Determine or clarify the meaning of unknown or multiple-meaning words through the use of one or more strategies, such as understanding how the word is used in a sentence; analyzing the word's sounds, spelling, and meaningful parts; and consulting glossaries or beginning dictionaries, both print and digital.</p> <p>b. Use a known root word as a clue to the meaning of an unknown word with the same root (e.g., <i>company, companion</i>).</p> <p>c. Determine the meaning of the new word formed when a known affix is added to a known word (e.g., <i>agreeable/disagreeable, comfortable/uncomfortable, care/careless, heat/preheat</i>).</p> <p>d. Distinguish the literal and nonliteral meanings of words and phrases in context (e.g., <i>take steps</i>).</p> | <p>4. Determine word meanings (<i>based on grade 4 reading</i>).</p> <p>a. Determine or clarify the meaning of unknown or multiple-meaning words through the use of one or more strategies, such as using semantic clues (e.g., definitions, examples, or restatements in text); using syntactic clues (e.g., the word's position or function in the sentence); analyzing the word's sounds, spelling, and meaningful parts; and consulting reference materials, both print and digital.</p> <p>b. Use a known root word as a clue to the meaning of an unknown word with the same root (e.g., <i>telegraph, photograph, autograph</i>).</p> <p>c. Explain the meaning of simple similes and metaphors (e.g., <i>as pretty as a picture</i>).</p> <p>d. Paraphrase common idioms, adages, and proverbs.</p> | <p>4. Determine word meanings (<i>based on grade 5 reading</i>).</p> <p>a. Determine or clarify the meaning of unknown or multiple-meaning words through the use of one or more strategies, such as using semantic clues (e.g., definitions, examples, or restatements in text); using syntactic clues (e.g., the word's position or function in the sentence); analyzing the word's sounds, spelling, and meaningful parts; and consulting reference materials, both print and digital.</p> <p>b. Use a known root word as a clue to the meaning of an unknown word with the same root (e.g., <i>photograph, photosynthesis</i>).</p> <p>c. Interpret figurative language, including similes and metaphors.</p> <p>d. Explain the meaning of common idioms, adages, and proverbs.</p> |
| <p>5. Understand word relationships.</p> <p>a. Build real-life connections between words and their use (e.g., describe people who are <i>friendly</i> or <i>helpful</i>).</p> <p>b. Distinguish among related words that describe states of mind or degrees of certainty (e.g., <i>knew, believed, suspected, heard, wondered</i>).</p> | <p>5. Understand word relationships.</p> <p>a. Build real-life connections between words and their various uses and meanings.</p> <p>b. Define relationships between words (e.g., how <i>ask</i> is like and unlike <i>demand</i>; what items are likely to be <i>enormous</i>).</p> <p>c. Distinguish a word from other words with similar but not identical meanings (synonyms).</p> | <p>5. Understand word relationships.</p> <p>a. Build real-life connections between words and their various uses and meanings.</p> <p>b. Define relationships between words (e.g., how <i>smirk</i> is like and unlike <i>smile</i>; what items are likely to be <i>vast</i>).</p> <p>c. Distinguish a word from other words with similar but not identical meanings (synonyms).</p> |
| <p>6. Use words that are in common, conversational vocabulary as well as grade-appropriate academic vocabulary and domain-specific words (in English language arts, history/social studies, and science) taught directly and acquired through reading and responding to texts.</p> | <p>6. Use grade-appropriate general academic vocabulary and domain-specific words and phrases (in English language arts, history/social studies, and science) taught directly and acquired through reading and responding to texts.</p> | <p>6. Use grade-appropriate general academic vocabulary and domain-specific words and phrases (in English language arts, history/social studies, and science) taught directly and acquired through reading and responding to texts.</p> |

English Language Arts Conventions Progressive Skills, By Standard

The following, marked with an asterisk (*) in the Conventions standards, are skills and understandings that require continued attention in higher grades (after their introduction in the grade listed below) as they are applied to increasingly sophisticated writing and speaking.

Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8	Grades 9–10	
<p>1c. Ensure subject-verb and pronoun-antecedent agreement.</p> <p>3a. Choose words for effect.</p>							
		<p>1b. Form and use adjectives and adverbs (including comparative and superlative forms), placing them appropriately within sentences.</p> <p>1c. Produce complete sentences, avoiding rhetorically poor fragments and run-ons.</p> <p>1d. Correctly use frequently confused words (e.g., <i>effect/affect</i>, <i>to/too/two</i>).</p> <p>3a. Use punctuation for effect.</p> <p>3b. Maintain consistency in style and tone.</p> <p>3c. Choose words and phrases to convey ideas precisely.</p>					
		<p>1b. Recognize and correct inappropriate shifts in verb tense and aspect.</p> <p>2a. Use punctuation to separate items in a series.</p> <p>3a. Expand, combine, and reduce sentences for meaning, reader/listener interest, and style.</p>					
		<p>1b. Recognize and correct inappropriate shifts in pronoun number and person.</p> <p>1c. Recognize and correct vague pronouns (i.e., ones with unclear or ambiguous antecedents).</p> <p>2a. Use commas, parentheses, or dashes to set off nonrestrictive/parenthetical elements.</p> <p>3a. Vary sentence patterns for meaning, reader/listener interest, and style.</p>					
				<p>1c. Place phrases and clauses within a sentence, avoiding misplaced and dangling modifiers.</p> <p>3b. Choose words and phrases that express ideas concisely, eliminating wordiness and redundancy.</p>			
				<p>1c. Recognize and correct inappropriate shifts in verb voice and mood.</p>			
						<p>1a. Use parallel structure in writing.</p>	

Texts Illustrating the Complexity, Quality, and Range of Student Reading K–5

* Read-aloud
** Read-along

	Literature: Stories, Drama, Poetry	Informational Texts: Literary Nonfiction, History/Social Studies, Science/Technical Texts
K ¹	<ul style="list-style-type: none"> ▪ <i>Over in the Meadow</i> by John Langstaff (traditional) (c1800)* ▪ <i>A Boy, a Dog, and a Frog</i> by Mercer Mayer (1967) ▪ <i>Pancakes for Breakfast</i> by Tomie DePaola (1978) ▪ <i>A Story A Story</i> by Gail E. Haley (1970)* ▪ <i>Kitten's First Full Moon</i> by Kevin Henkes (2004)* 	<ul style="list-style-type: none"> ▪ <i>My Five Senses</i> by Alike (1962)* ▪ <i>Truck</i> by Donald Crews (1980) ▪ <i>I Read Signs</i> by Tana Hoban (1987) ▪ <i>What Do You Do With a Tail Like This?</i> by Steve Jenkins & Robin Page (2003)* ▪ <i>Amazing Whales!</i> by Sarah L. Thomson (2005)*
1	<ul style="list-style-type: none"> ▪ "Mix a Pancake" by Christina G. Rossetti (1893)** ▪ <i>Mr. Popper's Penguins</i> by Richard Atwater (1938)* ▪ <i>Little Bear</i> by Else Holmelund Minarik, illustrated by Maurice Sendak (1957)** ▪ <i>Frog and Toad Together</i> by Arnold Lobel (1971)** ▪ <i>Hi! Fly Guy</i> by Tedd Arnold (2006) 	<ul style="list-style-type: none"> ▪ <i>A Tree Is a Plant</i> by Clyde Robert Bulla, illustrated by Stacey Schuett (1960)** ▪ <i>My Five Senses</i> by Alike (1962)** ▪ <i>Follow the Water from Brook to Ocean</i> by Arthur Dorros (1991)** ▪ <i>From Seed to Pumpkin</i> by Wendy Pfeffer, illustrated by James Graham Hale (2004)* ▪ <i>How People Learned to Fly</i> by Fran Hodgkins and True Kelley (2007)*
2–3	<ul style="list-style-type: none"> ▪ "Who Has Seen the Wind?" by Christina G. Rossetti (1893) ▪ <i>Charlotte's Web</i> by E. B. White (1952)* ▪ <i>Sarah, Plain and Tall</i> by Patricia MacLachlan (1985) ▪ <i>Tops and Bottoms</i> by Janet Stevens (1995) ▪ <i>Poppleton in Winter</i> by Cynthia Rylant, illustrated by Mark Teague (2001) 	<ul style="list-style-type: none"> ▪ <i>A Medieval Feast</i> by Alike (1983) ▪ <i>From Seed to Plant</i> by Gail Gibbons (1991) ▪ <i>The Story of Ruby Bridges</i> by Robert Coles (1995)* ▪ <i>A Drop of Water: A Book of Science and Wonder</i> by Walter Wick (1997) ▪ <i>Moonshot: The Flight of Apollo 11</i> by Brian Floca (2009)
4–5	<ul style="list-style-type: none"> • <i>Alice's Adventures in Wonderland</i> by Lewis Carroll (1865) • "Casey at the Bat" by Ernest Lawrence Thayer (1888) • <i>The Black Stallion</i> by Walter Farley (1941) • "Zlateh the Goat" by Isaac Bashevis Singer (1984) ▪ <i>Bud, Not Buddy</i> by Christopher Paul Curtis (1999) ▪ <i>The Birchbark House</i> by Louise Erdrich (1999) ▪ <i>Where the Mountain Meets the Moon</i> by Grace Lin (2009) 	<ul style="list-style-type: none"> ▪ <i>Discovering Mars</i> by Melvin Berger (1992) ▪ <i>Hurricanes: Earth's Mightiest Storms</i> by Patricia Lauber (1996) ▪ <i>A History of US</i> by Joy Hakim (2005) ▪ <i>Horses</i> by Seymour Simon (2006) ▪ <i>Quest for the Tree Kangaroo: An Expedition to the Cloud Forest of New Guinea</i> by Sy Montgomery (2006)

Note: Given space limitations, the illustrative texts listed above are meant only to show individual titles that are representative of a wide range of topics and genres. (See Appendix B for excerpts of these and other texts illustrative of K–5 text complexity.) At a curricular or instructional level, within and across grade levels, texts need to be selected around topics or themes that generate knowledge and allow students to study that topic in depth. On the next page is an example of progressions of texts building knowledge across grade levels.

¹Children at the kindergarten and grade 1 levels should be expected to read texts independently that have been specifically written to correlate to their reading level and their word knowledge. Many of the titles listed above are meant to supplement carefully structured independent reading with books to read along with a teacher or that are read aloud to students to build knowledge and cultivate a joy in reading.

Staying on Topic Within a Grade and Across Grades: How to Build Knowledge Systematically in English Language Arts K–5

Building knowledge systematically in English language arts is like giving children various pieces of a puzzle in each grade that, over time, will form one big picture. At a curricular or instructional level, texts—within and across grade levels—need to be selected around topics or themes that systematically develop the knowledge base of students. Within a grade level, there should be an adequate number of titles on a single topic that would allow children to study that topic for a sustained period. The knowledge children have learned about particular topics in early grade levels should then be expanded and developed in subsequent grade levels to ensure an increasingly deeper understanding of these topics. Children in the upper elementary grades will generally be expected to read these texts independently and reflect on them in writing. However, children in the early grades (particularly K–2) should participate in rich, structured conversations with an adult in response to the written texts that are read aloud, *orally* comparing and contrasting as well as analyzing and synthesizing, in the manner called for by the *Standards*.

Preparation for reading complex informational texts should begin at the very earliest elementary school grades. What follows is one example that uses domain-specific nonfiction titles across grade levels to illustrate how curriculum designers and classroom teachers can infuse the English language arts block with rich, age-appropriate content knowledge and vocabulary in history/social studies, science, and the arts. Having students listen to informational read-alouds in the early grades helps lay the necessary foundation for students' reading and understanding of increasingly complex texts on their own in subsequent grades.

Exemplar Texts on a Topic Across Grades	K	1	2–3	4–5
<p>The Human Body</p> <p>Students can begin learning about the human body starting in kindergarten and then review and extend their learning during each subsequent grade.</p>	<p>The five senses and associated body parts</p> <ul style="list-style-type: none"> ▪ <i>My Five Senses</i> by Alikei (1989) ▪ <i>Hearing</i> by Maria Rius (1985) ▪ <i>Sight</i> by Maria Rius (1985) ▪ <i>Smell</i> by Maria Rius (1985) ▪ <i>Taste</i> by Maria Rius (1985) ▪ <i>Touch</i> by Maria Rius (1985) <p>Taking care of your body: Overview (hygiene, diet, exercise, rest)</p> <ul style="list-style-type: none"> ▪ <i>My Amazing Body: A First Look at Health & Fitness</i> by Pat Thomas (2001) ▪ <i>Get Up and Go!</i> by Nancy Carlson (2008) ▪ <i>Go Wash Up</i> by Doering Tourville (2008) ▪ <i>Sleep</i> by Paul Showers (1997) ▪ <i>Fuel the Body</i> by Doering Tourville (2008) 	<p>Introduction to the systems of the human body and associated body parts</p> <ul style="list-style-type: none"> ▪ <i>Under Your Skin: Your Amazing Body</i> by Mick Manning (2007) ▪ <i>Me and My Amazing Body</i> by Joan Sweeney (1999) ▪ <i>The Human Body</i> by Gallimard Jeunesse (2007) ▪ <i>The Busy Body Book</i> by Lizzy Rockwell (2008) ▪ <i>First Encyclopedia of the Human Body</i> by Fiona Chandler (2004) <p>Taking care of your body: Germs, diseases, and preventing illness</p> <ul style="list-style-type: none"> ▪ <i>Germs Make Me Sick</i> by Marilyn Berger (1995) ▪ <i>Tiny Life on Your Body</i> by Christine Taylor-Butler (2005) ▪ <i>Germ Stories</i> by Arthur Kornberg (2007) ▪ <i>All About Scabs</i> by Genichiro Yagu (1998) 	<p>Digestive and excretory systems</p> <ul style="list-style-type: none"> ▪ <i>What Happens to a Hamburger</i> by Paul Showers (1985) ▪ <i>The Digestive System</i> by Christine Taylor-Butler (2008) ▪ <i>The Digestive System</i> by Rebecca L. Johnson (2006) ▪ <i>The Digestive System</i> by Kristin Petrie (2007) <p>Taking care of your body: healthy eating and nutrition</p> <ul style="list-style-type: none"> ▪ <i>Good Enough to Eat</i> by Lizzy Rockwell (1999) ▪ <i>Showdown at the Food Pyramid</i> by Rex Barron (2004) <p>Muscular, skeletal, and nervous systems</p> <ul style="list-style-type: none"> ▪ <i>The Mighty Muscular and Skeletal Systems</i> Crabtree Publishing (2009) ▪ <i>Muscles</i> by Seymour Simon (1998) ▪ <i>Bones</i> by Seymour Simon (1998) ▪ <i>The Astounding Nervous System</i> Crabtree Publishing (2009) ▪ <i>The Nervous System</i> by Joelle Riley (2004) 	<p>Circulatory system</p> <ul style="list-style-type: none"> ▪ <i>The Heart</i> by Seymour Simon (2006) ▪ <i>The Heart and Circulation</i> by Carol Ballard (2005) ▪ <i>The Circulatory System</i> by Kristin Petrie (2007) ▪ <i>The Amazing Circulatory System</i> by John Burstein (2009) <p>Respiratory system</p> <ul style="list-style-type: none"> ▪ <i>The Lungs</i> by Seymour Simon (2007) ▪ <i>The Respiratory System</i> by Susan Glass (2004) ▪ <i>The Respiratory System</i> by Kristin Petrie (2007) ▪ <i>The Remarkable Respiratory System</i> by John Burstein (2009) <p>Endocrine system</p> <ul style="list-style-type: none"> ▪ <i>The Endocrine System</i> by Rebecca Olien (2006) ▪ <i>The Exciting Endocrine System</i> by John Burstein (2009)

Standards for English Language Arts
6-12

DRAFT

College and Career Readiness Standards for Reading

The grades 6–12 standards on the following pages define what students should understand and be able to do in each grade and build toward the ten College and Career Readiness Standards.

Key Ideas and Details

1. Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.
2. Determine central ideas or themes of a text and analyze their development; summarize the key supporting details and ideas.
3. Analyze in detail where, when, why, and how events, ideas, and characters develop and interact over the course of a text.

Craft and Structure

4. Interpret words and phrases as they are used in a text, including determining technical, connotative, and figurative meanings, and explain how specific word choices shape meaning or tone.
5. Analyze the structure of texts, including how specific sentences, paragraphs, and larger portions of the text (e.g., a section or chapter) relate to each other and the whole.
6. Assess how point of view or purpose shapes the content and style of a text.

Integration of Knowledge and Ideas

7. Synthesize and apply information presented in diverse ways (e.g., through words, images, graphs, and video) in print and digital sources in order to answer questions, solve problems, or compare modes of presentation.¹
8. Delineate and evaluate the reasoning and rhetoric within a text, including assessing whether the evidence provided is relevant and sufficient to support the text's claims.
9. Analyze how two or more texts address similar themes or topics in order to build knowledge or to compare the approaches the authors take.

Range and Level of Text Complexity

10. Read complex texts independently, proficiently, and fluently, sustaining concentration, monitoring comprehension, and, when useful, rereading.²

¹Please see "Research to Build Knowledge" in Writing and "Comprehension and Collaboration" in Speaking and Listening for additional standards relevant to gathering, assessing, and applying information from print and digital sources.

²Proficiency in this standard is measured by students' ability to read a range of appropriately complex text in each grade as defined on page 36.

Note on range and content of student reading

To become college and career ready, students must grapple with works of exceptional craft and thought whose range extends across genres, cultures, and centuries. Such works offer profound insights into the human condition and serve as models for students' own thinking and writing. Along with high-quality contemporary works, these texts should be chosen from among the founding U.S. documents, the classics of American literature, and the timeless dramas of Shakespeare. Through wide and deep reading of literature and literary nonfiction of steadily increasing sophistication, students gain a reservoir of literary and cultural knowledge, references, and images; the ability to evaluate intricate arguments; and the capacity to surmount the challenges posed by complex texts.

Reading Standards for Literature 6–12

Following are the standards for grades 6–12, which relate to their College and Career Readiness counterparts by number. They offer a focus for instruction each year and help ensure that students gain adequate exposure to a range of texts and tasks. Rigor is also infused through the requirement that students read increasingly complex texts through the grades.

Grade 6 students:	Grade 7 students:	Grade 8 students:
Key Ideas and Details		
1. Cite specific textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.	1. Cite several sources of textual evidence when useful to support analysis of what the text says explicitly as well as inferences drawn from the text.	1. Cite a wide range of evidence throughout the text when useful to support analysis of what the text says explicitly as well as inferences drawn from the text.
2. Analyze how a theme or central idea develops over the course of a text, drawing on key details.	2. Analyze how two or more themes or central ideas in a text relate to one another, drawing on key details.	2. Analyze how recurring images or events contribute to the development of a theme or central idea in a text.
3. Describe how a story’s plot unfolds (in a series of episodes or as a problem to be solved) as well as how characters adapt or change as they move toward a resolution.	3. Analyze how particular lines of dialogue or specific incidents in a story or drama propel the action, reveal aspects of a character, or provoke a decision.	3. Analyze how elements of a story or drama interact (e.g., how plot and setting are integral to one another; how the setting affects characters).
Craft and Structure		
4. Interpret the figurative and connotative meanings of words and phrases as they are used in a text.	4. Interpret the figurative and connotative meanings of words and phrases as they are used in a text and describe in detail a specific word choice and its impact on meaning and tone.	4. Explain the comparisons an author makes through metaphors, allusions, or analogies in a text and analyze how those comparisons contribute to meaning.
5. Explain the effect of such devices as flashbacks and foreshadowing on the development of the plot and meaning of a text.	5. Describe how any given sentence, chapter, scene, or stanza fits into the overall structure of a text and contributes to the development of the plot or themes.	5. Compare a poem with a conventional structure, such as a sonnet, to a poem without a proscribed structure, such as a free verse poem.
6. Describe how an author establishes the point of view of the speaker or a character in a poem, drama, or story.	6. Analyze how an author presents the points of view of different characters in a story or drama, including their different reactions to the same person or event(s).	6. Explain how a difference in the perspective or knowledge of characters and the audience (e.g., created through the device of dramatic irony) produces suspense or humor.
Integration of Knowledge and Ideas		
7. Analyze how illustrations, diagrams, multimedia elements, and words contribute to the meaning and tone of a print or digital text (e.g., graphic novel, multimedia presentation of fiction).	7. Compare and contrast a text to its filmed, staged, or multimedia version, including examining some techniques unique to each medium (e.g., lighting, sound, color, camera focus and angles).	7. Analyze to what degree a filmed or live production of a drama or story stays faithful to or departs from the script or text.
8. (Not applicable to literature)	8. (Not applicable to literature)	8. (Not applicable to literature)
9. Analyze stories in the same genre (e.g., mysteries, adventure stories), comparing and contrasting their approaches to similar themes and topics.	9. Analyze a specific case in which a modern work of fiction draws on patterns of events or character types found in traditional literature (e.g., the hero, the quest).	9. Compare a fictional portrayal of a time, place, or character to historical sources from the same period as a means of understanding how authors use or alter history.
Range and Level of Text Complexity		
10. Read literature independently, proficiently, and fluently in the grades 6–8 text complexity band; read texts at the high end of the range with scaffolding as needed.	10. Read literature independently, proficiently, and fluently in the grades 6–8 text complexity band; read “stretch” texts in the grades 9–10 text complexity band with scaffolding as needed.	10. Read literature independently, proficiently, and fluently in the grades 6–8 text complexity band; engage in sustained practice with “stretch” texts in the grades 9–10 text complexity band with scaffolding as needed.

Reading Standards for Literature 6–12

Grades 9–10 students:	Grades 11–12 students:
Key Ideas and Details	
<p>1. Cite the evidence in the text that most strongly supports a specific analysis of what the text says explicitly as well as inferences drawn from the text.</p>	<p>1. Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text, including determining where the text leaves things uncertain.</p>
<p>2. Analyze in detail the development and refinement of a theme or central idea in a text, including how it emerges and how it is shaped and refined by specific details.</p>	<p>2. Analyze how multiple themes or central ideas in a text interact, build on, and, in some cases, conflict with one another.</p>
<p>3. Analyze how complex characters, including those with conflicting motivations or divided loyalties, develop over the course of a text, interact with other characters, and advance the plot or develop the theme.</p>	<p>3. Analyze the impact of the author’s choices regarding how to develop and relate elements of a story or drama (e.g., where a story is set, how the action is ordered, how the characters are introduced and developed).</p>
Craft and Structure	
<p>4. Evaluate how an author’s use of language, including formality of diction, shapes meaning and tone in a text (e.g., how the language evokes a sense of time and place, how it sets a formal or informal tone).</p>	<p>4. Analyze in detail the condensed language of poems (or particularly rich language use in a narrative or drama), determining how specific word choices and multiple meanings shape the impact and tone.</p>
<p>5. Analyze how an author structures a text, orders events within it (e.g., parallel plots), and manipulates time (e.g., pacing) to create mystery, tension, or surprise.</p>	<p>5. Analyze how an author’s choices concerning how to structure a text (e.g., electing at what point to begin or end a story) shape the meaning of the text.</p>
<p>6. Analyze a case in which the author’s work takes a position or stance on a social issue or other topic and describe how the author carries out that purpose.</p>	<p>6. Analyze an author’s use of satire, sarcasm, irony, understatement, or other means that requires a reader to understand various layers of meaning in a text.</p>
Integration of Knowledge and Ideas	
<p>7. Compare and contrast the representation of a subject or a key scene in two different artistic mediums (e.g., Auden’s “Musée de Beaux Arts” and Breughel’s <i>Landscape with the Fall of Icarus</i>).</p>	<p>7. Compare and contrast multiple interpretations of a drama or story (e.g., recorded or live productions), distinguishing how each version interprets the source text. (This includes at least one play by Shakespeare as well as one play by an American dramatist.)</p>
<p>8. (Not applicable to literature)</p>	<p>8. (Not applicable to literature)</p>
<p>9. Analyze a wide range of nineteenth- and early-twentieth-century foundational works of American literature, comparing and contrasting approaches to similar ideas or themes in two or more texts from the same period.</p>	<p>9. Analyze how an author draws on and transforms fictional source material in a specific work (e.g., how Shakespeare draws on a story from Ovid or how a later author draws on a play by Shakespeare).</p>
Range and Level of Text Complexity	
<p>10. In grade 9, read literature independently, proficiently, and fluently in the grades 9–10 text complexity band; read texts at the high end of the range with scaffolding as needed. In grade 10, read literature independently, proficiently, and fluently in the grades 9–10 text complexity band; read “stretch” texts in the grades 11–CCR text complexity band with scaffolding as needed.</p>	<p>10. In grade 11, read literature independently, proficiently, and fluently in the grades 11–CCR text complexity band; read texts at the high end of the range with scaffolding as needed. In grade 12, read literature independently, proficiently, and fluently in the grades 11–CCR text complexity band; read “stretch” texts in the Beyond CCR text complexity band with scaffolding as needed.</p>

Reading Standards for Informational Text 6–12

Grade 6 students:	Grade 7 students:	Grade 8 students:
Key Ideas and Details		
1. Cite specific textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.	1. Cite several sources of textual evidence when useful to support analysis of what the text says explicitly as well as inferences drawn from the text.	1. Cite a wide range of evidence throughout the text when useful to support analysis of what the text says explicitly as well as inferences drawn from the text.
2. Analyze how a central idea develops over the course of a text, drawing on key details.	2. Analyze how two or more central ideas in a text relate to one another, drawing on key details.	2. Provide an objective summary of a text, accurately conveying an author's view and specific points.
3. Determine the causes or reasons that link different events, ideas, or information in a text, drawing on key details.	3. Describe in detail how an author introduces, illustrates, and elaborates a key idea in a text (e.g., through examples or anecdotes).	3. Analyze how an author introduces, illustrates, and elaborates two or more significant ideas in a text, including how the relationship between the ideas is expressed.
Craft and Structure		
4. Interpret words and phrases as they are used in a text, including technical, figurative, and connotative meanings, and analyze how an author's choice of specific words in a text contributes to understanding the ideas or concepts.	4. Interpret words and phrases as they are used in a text, including technical, figurative, and connotative meanings, and describe in detail how an author's choice of specific words affects meaning and tone.	4. Explain the comparisons an author makes through metaphors, allusions, and analogies in a text and analyze how those comparisons contribute to meaning.
5. Describe the structure an author uses to organize a specific text, including how the major sections contribute to the whole.	5. Describe how any given sentence, paragraph, chapter, or section fits into the overall structure of a text and contributes to the development of the ideas.	5. Analyze in detail the structure of a specific paragraph in a text, including the role of particular sentences in developing and refining a key concept.
6. Compare and contrast one author's point of view on events with that of another (e.g., a memoir written by and a biography on the same person).	6. Describe an author's point of view or purpose in a text and analyze how the author distinguishes his or her point of view from that of others.	6. Compare and contrast the points of view and purposes of two authors writing about the same topic.
Integration of Knowledge and Ideas		
7. Compare and contrast the accounts of a subject in different mediums (e.g., a person's life story told in print, video, or multimedia), analyzing which details are emphasized and how the account unfolds in each version.	7. Compare and contrast the impression conveyed by a printed text to that conveyed when listening to or viewing a video or multimedia presentation of it (e.g., analyzing how the delivery of a speech affects its impact).	7. Evaluate the advantages and disadvantages of using different mediums (e.g., text, video, multimedia) to present a particular topic or idea.
8. Distinguish among fact, opinion, and reasoned judgment presented in a text.	8. Identify the stated and unstated premises of an argument and explain how they contribute to the conclusions reached.	8. Evaluate an argument's claims and reasoning as well as the degree to which evidence supports each claim.
9. Assess the similarities and differences between two or more texts on the same subject and apply the knowledge gained to inform reading of additional texts.	9. Analyze where two or more texts provide conflicting information on the same subject and determine whether the texts disagree on matters of fact or on matters of interpretation.	9. Compare and contrast how two or more authors writing about the same topic shape their presentations of key information by emphasizing different evidence or advancing different interpretations of facts.
Range and Level of Text Complexity		
10. Read informational text independently, proficiently, and fluently in the grades 6–8 text complexity band; read texts at the high end of the range with scaffolding as needed.	10. Read informational text independently, proficiently, and fluently in the grades 6–8 text complexity band; read "stretch" texts in the grades 9–10 text complexity band with scaffolding as needed.	10. Read informational text independently, proficiently, and fluently in the grades 6–8 text complexity band; engage in sustained practice with "stretch" texts in the grades 9–10 text complexity band with scaffolding as needed.

Reading Standards for Informational Text 6–12

Grades 9–10 students:	Grades 11–12 students:
Key Ideas and Details	
<p>1. Cite evidence in the text that most strongly supports a specific analysis of what the text says explicitly as well as inferences drawn from the text.</p>	<p>1. Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text, including determining where the text leaves things uncertain.</p>
<p>2. Analyze in detail the development and refinement of a central idea in a text, including how it emerges and is shaped and refined by specific details.</p>	<p>2. Analyze how multiple ideas in a text interact, build on, and, in some cases, conflict with one another.</p>
<p>3. Analyze the interactions between and among ideas and events, including how ideas and events influence one another.</p>	<p>3. Analyze in detail an author’s ideas by describing how the ideas are developed and refined by specific sentences, paragraphs, and larger portions of a text.</p>
Craft and Structure	
<p>4. Evaluate how an author’s use of language, including formality and type of diction, shapes meaning and tone in a text (e.g., the formality of a court opinion or a newspaper).</p>	<p>4. Interpret how an author uses and refines the meaning of a key term or terms over the course of a text (e.g., how Madison defines <i>faction</i> in Federalist No. 10 and No. 51).</p>
<p>5. Evaluate the effectiveness of the structure an author uses in his or her exposition or argument, including whether the structure makes points clear, convincing, and engaging.</p>	<p>5. Analyze how an author’s choices concerning how to structure a text (e.g., how reasons, evidence, and information are organized and emphasized) shape the meaning of the text.</p>
<p>6. Analyze documents of historical and literary significance, including foundational U.S. documents (e.g., the Declaration of Independence, the Preamble to the Constitution, the Bill of Rights) for their premises, purposes, and structure.</p>	<p>6. Analyze how various authors express different points of view on similar events or issues, assessing the authors’ assumptions, use of evidence, and reasoning, including analyzing seminal U.S. documents (e.g., <i>The Federalist</i>, landmark U.S. Supreme Court majority opinions and dissents).</p>
Integration of Knowledge and Ideas	
<p>7. Synthesize information presented in different formats (e.g., text, video, multimedia) to generate a coherent understanding of an issue.</p>	<p>7. Synthesize and apply multiple sources of information presented in different formats in order to address a question or solve a problem, including resolving conflicting information.</p>
<p>8. Assess the truth of an argument’s explicit and implicit premises by determining whether the evidence presented in the text justifies the conclusions.</p>	<p>8. Evaluate the reasoning and rhetoric that support an argument or explanation, including assessing the relevance and sufficiency of evidence and identifying false statements or fallacious reasoning.</p>
<p>9. Analyze how authors argue with or otherwise respond to one another’s ideas or accounts of key events, evaluating the strength of each author’s interpretation.</p>	<p>9. Synthesize explanations and arguments from diverse sources to provide a coherent account of events or ideas, including resolving conflicting information.</p>
Range and Level of Text Complexity	
<p>10. In grade 9, read informational text independently, proficiently, and fluently in the grades 9–10 text complexity band; read texts at the high end of the range with scaffolding as needed. In grade 10, read informational text independently, proficiently, and fluently in the grades 9–10 text complexity band; read “stretch” texts in the grades 11–CCR text complexity band with scaffolding as needed.</p>	<p>10. In grade 11, read informational text independently, proficiently, and fluently in the grades 11–CCR text complexity band; read texts at the high end of the range with scaffolding as needed. In grade 12, read informational text independently, proficiently, and fluently in the grades 11–CCR text complexity band; read “stretch” texts in the Beyond CCR text complexity band with scaffolding as needed.</p>

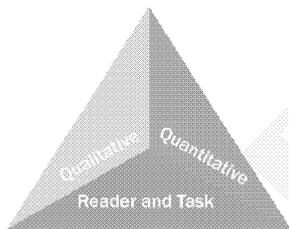
Range and Level of Text Complexity for Student Reading by Grade (Standard 10)

Students demonstrate proficiency in reading texts at the following ranges of text complexity to progress on a path to college and career readiness.

6	<table border="1"> <tr> <td>6–8 Level Text</td> <td>9–10 Level Text</td> </tr> <tr> <td>100%</td> <td></td> </tr> </table>	6–8 Level Text	9–10 Level Text	100%		<p>In grade 6, students focus on reading texts independently in the grades 6–8 text complexity band, with scaffolding likely required for texts at the high end of the range.</p>		
6–8 Level Text	9–10 Level Text							
100%								
7	<table border="1"> <tr> <td>6–8 Level Text</td> <td>9–10 Level Text</td> </tr> <tr> <td>90%</td> <td>10%</td> </tr> </table>	6–8 Level Text	9–10 Level Text	90%	10%	<p>In grade 7, students focus on reading texts independently in the grades 6–8 text complexity band (90 percent) and are introduced to texts in the grades 9–10 text complexity band as “stretch” texts (10 percent), which will likely require scaffolding.</p>		
6–8 Level Text	9–10 Level Text							
90%	10%							
8	<table border="1"> <tr> <td>6–8 Level Text</td> <td>9–10 Level Text</td> </tr> <tr> <td>70%</td> <td>30%</td> </tr> </table>	6–8 Level Text	9–10 Level Text	70%	30%	<p>In grade 8, students focus on reading texts independently in the grades 6–8 text complexity band (70 percent) as well as sustained practice with texts in the grades 9–10 text complexity band as “stretch” texts (30 percent), which will likely require scaffolding.</p>		
6–8 Level Text	9–10 Level Text							
70%	30%							
9	<table border="1"> <tr> <td>9–10 Level Text</td> <td>11–CCR Level Text</td> </tr> <tr> <td>100%</td> <td></td> </tr> </table>	9–10 Level Text	11–CCR Level Text	100%		<p>In grade 9, students focus on reading texts independently in the grades 9–10 text complexity band, with scaffolding likely required for texts at the high end of the range.</p>		
9–10 Level Text	11–CCR Level Text							
100%								
10	<table border="1"> <tr> <td>9–10 Level Text</td> <td>11–CCR Level Text</td> </tr> <tr> <td>70%</td> <td>30%</td> </tr> </table>	9–10 Level Text	11–CCR Level Text	70%	30%	<p>In grade 10, students focus on reading texts independently in the grades 9–10 text complexity band (70 percent) and are introduced to texts in the grades 11–CCR text complexity band as “stretch” texts (30 percent), which will likely require scaffolding.</p>		
9–10 Level Text	11–CCR Level Text							
70%	30%							
11	<table border="1"> <tr> <td>9–10 Level Text</td> <td>11–CCR Level Text</td> <td>Beyond CCR</td> </tr> <tr> <td></td> <td>100%</td> <td></td> </tr> </table>	9–10 Level Text	11–CCR Level Text	Beyond CCR		100%		<p>In grade 11, students focus on reading texts independently in the grades 11–CCR text complexity band, with scaffolding likely required for texts at the high end of the range.</p>
9–10 Level Text	11–CCR Level Text	Beyond CCR						
	100%							
12	<table border="1"> <tr> <td>9–10 Level Text</td> <td>11–CCR Level Text</td> <td>Beyond CCR</td> </tr> <tr> <td></td> <td>70%</td> <td>30%</td> </tr> </table>	9–10 Level Text	11–CCR Level Text	Beyond CCR		70%	30%	<p>In grade 12, students focus on reading texts independently in the grades 11–CCR text complexity band (70 percent) and are introduced to texts in the Beyond CCR text complexity band as “stretch” texts (30 percent), which will likely require scaffolding.</p>
9–10 Level Text	11–CCR Level Text	Beyond CCR						
	70%	30%						

Note: In any given classroom, the actual range of students’ reading ability could be greater than the proposed range. Some students will require extra time and intense support and scaffolding to enable them to read grade-level material, whereas other students will be ready for—and should be encouraged to read—more advanced texts.

Measuring Text Complexity: Three Factors



Qualitative evaluation of the text: Levels of meaning, structure, language conventionality and clarity, and knowledge demands

Quantitative evaluation of the text: Readability measures and other scores of text complexity

Matching reader to text and task: Reader knowledge, motivation, and interests as well as the complexity generated by the tasks to be assigned and the questions to be posed

Note: More detailed information on text complexity and how it is measured is contained in Appendix A.

College and Career Readiness Standards for Writing

The grades 6–12 standards on the following pages define what students should understand and be able to do in each grade and build toward the ten College and Career Readiness Standards.

Text Types and Purposes¹

1. Write arguments to support a substantive claim with clear reasons and relevant and sufficient evidence.
2. Write informative/explanatory texts to convey complex information clearly and accurately through purposeful selection and organization of content.
3. Write narratives to convey real or imagined experiences, individuals, or events and how they develop over time.

Production and Distribution of Writing

4. Produce writing in which the organization, development, substance, and style are appropriate to task, purpose, and audience.
5. Strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach.²
6. Use technology, including the Internet, to produce, publish, and interact with others about writing.

Research to Build Knowledge

7. Perform short, focused research projects as well as more sustained research in response to a focused research question, demonstrating understanding of the material under investigation.
8. Gather relevant information from multiple print and digital sources, assess the credibility and accuracy of each source, and integrate and cite the information while avoiding plagiarism.
9. Write in response to literary or informational sources, drawing evidence from the text to support analysis and reflection as well as to describe what they have learned.

Range of Writing

10. Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.³

¹These broad categories of writing include many subgenres. See Appendix A for definitions of key writing types.

²See “Conventions” in Language, pages 47–50, for specific editing expectations.

³This standard is measured by the proficiency of student writing products.

Note on range and content of student writing

For students, writing is a key means of asserting and defending claims, showing what they know about a subject, and conveying what they have experienced, imagined, thought, and felt. To be college- and career-ready writers, students must take task, purpose, and audience into careful consideration, choosing words, information, structures, and formats deliberately. They need to be able to use technology strategically when creating, refining, and collaborating on writing. They have to become adept at gathering information, evaluating sources, and citing material accurately, reporting findings from their research and analysis of sources in a clear and cogent manner. They must have the flexibility, concentration, and fluency to produce high-quality first-draft text under a tight deadline as well as the capacity to revisit and make improvements to a piece of writing over multiple drafts when circumstances encourage or require it. To meet these goals, students must devote significant time and effort to writing, producing numerous pieces over short and long time frames throughout the year.

Writing Standards 6–12

Following are the standards for grades 6–12, which relate to their College and Career Readiness counterparts by number. They offer a focus for instruction in each year to help ensure that students gain adequate exposure to a range of skills and applications. Growth in writing ability is characterized by an increasing sophistication in all aspects of language use, from vocabulary and syntax to the development and organization of ideas. At the same time, the content and sources that students address in their writing grow in demand every year.

Grade 6 students:	Grade 7 students:	Grade 8 students:
Text Types and Purposes		
<p>1. Write arguments in which they:</p> <ol style="list-style-type: none">Introduce a claim about a topic or issue and organize the reasons and evidence to support the claim.Support the claim with clear reasons and relevant evidence.Use words, phrases, and clauses to convey the relationships among claims and reasons.Sustain an objective style and tone.Provide a concluding statement or section that follows from the argument.	<p>1. Write arguments in which they:</p> <ol style="list-style-type: none">Introduce a claim about a topic or issue, acknowledge alternate or opposing claims, and organize the reasons and evidence logically to support the claim.Support the claim with logical reasoning and detailed, relevant evidence that demonstrate a comprehensive understanding of the topic.Use words, phrases, and clauses to convey the relationships among the claims, reasons, and evidence.Sustain an objective style and tone.Provide a concluding statement or section that follows logically from the argument.	<p>1. Write arguments in which they:</p> <ol style="list-style-type: none">Introduce a claim about a topic or issue, distinguish it from alternate or opposing claims, and organize the reasons and evidence logically to support the claim.Support the claim with logical reasoning and detailed and relevant evidence from credible sources to demonstrate a comprehensive understanding of the topic.Use words, phrases, and clauses to make clear the relationships among claims, reasons, counterclaims, and evidence.Sustain an objective style and tone.Provide a concluding statement or section that follows logically from the argument.
<p>2. Write informative/explanatory texts in which they:</p> <ol style="list-style-type: none">Introduce a topic and organize information appropriate to the purpose, using strategies such as definition, classification, comparison/contrast, and cause/effect.Develop the topic with relevant facts, definitions, concrete details, quotations, or other information and examples.Use appropriate links and varied sentence structures to join and clarify ideas.Use straightforward language to create an objective style appropriate for a reader seeking information.Provide a conclusion that follows logically from the information or explanation presented.	<p>2. Write informative/explanatory texts in which they:</p> <ol style="list-style-type: none">Introduce and establish a topic that provides a sense of what is to follow and organize information appropriate to the purpose, using strategies such as definition, classification, comparison/contrast, and cause/effect.Develop the topic with relevant and accurate facts, definitions, concrete details, quotations, or other information and examples.Use appropriate links and varied sentence structures to create cohesion and clarify ideas.Use precise language and sustain an objective style appropriate for a reader seeking information.Provide a conclusion that follows logically from the information or explanation presented.	<p>2. Write informative/explanatory texts in which they:</p> <ol style="list-style-type: none">Introduce and establish a topic and organize information under broader concepts or categories.Develop the topic with well-chosen, relevant, and accurate facts, concrete details, quotations, or other information and examples.Use varied links and sentence structures to create cohesion and clarify information and ideas.Use precise language and domain-specific and technical wording (when appropriate) and sustain a formal, objective style appropriate for a reader seeking information.Provide a conclusion that follows logically from the information or explanation presented.

Writing Standards 6–12

Grade 6 students:

Grade 7 students:

Grade 8 students:

Text Types and Purposes (continued)

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| <p>3. Write narratives in which they:</p> <ol style="list-style-type: none">Engage and orient the reader by establishing a context and point of view, and organize a sequence of events or experiences.Develop narrative elements (e.g., setting, event sequence, characters) using relevant sensory details.Use a variety of transition words, phrases, and clauses to convey sequence, shift from one time frame or setting to another, and/or show the relationships among events and experiences.Choose words and phrases to develop the events, experiences, and ideas precisely.Provide a satisfying conclusion that follows from the events, experiences, or ideas. | <p>3. Write narratives in which they:</p> <ol style="list-style-type: none">Engage and orient the reader by establishing a context and point of view, and purposefully organize a sequence of events or experiences.Develop narrative elements (e.g., setting, conflict, complex characters) with relevant and specific sensory details.Use a variety of techniques to convey sequence, shift from one time frame or setting to another, and/or show the relationships among events or experiences.Choose words and phrases to develop the events, experiences, and ideas precisely and to create mood.Provide a satisfying conclusion that follows from the events, experiences, or ideas. | <p>3. Write narratives in which they:</p> <ol style="list-style-type: none">Engage and orient the reader by establishing a context and point of view, and purposefully organize a progression of events or experiences.Develop narrative elements (e.g., setting, plot, event sequence, complex characters) with well-chosen, relevant, and specific sensory details.Use a variety of techniques to convey sequence in multiple storylines, shift from one time frame or setting to another, and/or show the relationships among events or experiences.Choose words and phrases to effectively develop the events, experiences, and ideas precisely and to create mood.Provide a satisfying conclusion that follows from the events, experiences, or ideas. |
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Production and Distribution of Writing

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| <p>4. Produce writing in which the organization, development, substance, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in Standards 1–3 above.)</p> | <p>4. Produce writing in which the organization, development, substance, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in Standards 1–3 above.)</p> | <p>4. Produce writing in which the organization, development, substance, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in Standards 1–3 above.)</p> |
| <p>5. With some guidance and support from peers and adults, strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach.</p> | <p>5. With some guidance and support from peers and adults, strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach after rethinking how well questions of purpose have been addressed.</p> | <p>5. With some guidance and support from peers and adults, strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach after rethinking how well questions of purpose and context have been addressed.</p> |
| <p>6. Use technology, including the Internet, to produce, publish, and interact with others about writing, including linking to and citing online sources.</p> | <p>6. Use technology, including the Internet, to produce, publish, and interact with others about writing, including presenting and citing information in a digital format.</p> | <p>6. Use technology, including the Internet, to present and cite information effectively in a digital format, including when publishing and responding to writing.</p> |

Writing Standards 6–12

Grade 6 students:	Grade 7 students:	Grade 8 students:
Research to Build Knowledge		
<p>7. Perform short, focused research projects in response to a question and refocus the inquiry in response to further research and investigation.</p> <p>8. Gather relevant information from multiple print and digital sources, assess the credibility of each source, and quote or paraphrase the data and conclusions of others while avoiding plagiarism and documenting sources.</p> <p>9. Write in response to literary or informational sources, drawing evidence from the text to support analysis and reflection as well as to describe what they have learned.</p> <p>a. Apply <i>grade 6 reading standards</i> to literature (e.g., “Analyze stories in the same genre (e.g., mysteries, adventure stories), comparing and contrasting their approaches to similar themes and topics.”).</p> <p>b. Apply <i>grade 6 reading standards</i> to literary nonfiction (e.g., “Distinguish among fact, opinion, and reasoned judgment presented in a text”).</p>	<p>7. Perform short, focused research projects in response to a question and generate additional related and focused questions for further research and investigation.</p> <p>8. Gather relevant information from multiple print and digital sources using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others, avoiding plagiarism and following a standard format for citation.</p> <p>9. Write in response to literary or informational sources, drawing evidence from the text to support analysis and reflection as well as to describe what they have learned.</p> <p>a. Apply <i>grade 7 reading standards</i> to literature (e.g., “Analyze a specific case in which a modern work of fiction draws on patterns of events or character types found in traditional literature (e.g., the hero, the quest).”).</p> <p>b. Apply <i>grade 7 reading standards</i> to literary nonfiction (e.g., “Identify the stated and unstated premises of an argument and explain how they contribute to the conclusions reached”).</p>	<p>7. Perform short, focused research projects in response to a question and generate additional related questions that allow for multiple avenues of exploration.</p> <p>8. Gather relevant information from multiple print and digital sources using advanced search features; assess the credibility and accuracy of each source; and quote or paraphrase the evidence, avoiding plagiarism and following a standard format for citation.</p> <p>9. Write in response to literary or informational sources, drawing evidence from the text to support analysis and reflection as well as to describe what they have learned:</p> <p>a. Apply <i>grade 8 reading standards</i> to literature (e.g., “Compare a fictional portrayal of a time, place, or character to historical sources from the same period as a means of understanding how authors use or alter history”).</p> <p>b. Apply <i>grade 8 reading standards</i> to literary nonfiction (e.g., “Evaluate an argument’s claims and reasoning as well as the degree to which evidence supports each claim”).</p>
Range of Writing		
<p>10. Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.</p>	<p>10. Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.</p>	<p>10. Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.</p>

Writing Standards 6–12

Grades 9–10 students:

Grades 11–12 students:

Text Types and Purposes

1. Write arguments in which they:
 - a. Introduce a precise claim, distinguish it from alternate or opposing claims, and provide an organization that establishes clear relationships among the claim, reasons, and evidence.
 - b. Develop a claim and counterclaim fairly, supplying evidence for each, while pointing out the strengths of their own claim and the weaknesses of the counterclaim.
 - c. Use precise words, phrases, and clauses to make clear the relationships between claims and reasons, between reasons and evidence, and between claims and counterclaims.
 - d. Sustain an objective style and tone while attending to the norms and conventions of the specific discipline as well as to the audience's knowledge of the issue.
 - e. Provide a concluding statement or section that follows logically from the argument and offers a reflection or recommendation.
 2. Write informative/explanatory texts in which they:
 - a. Introduce a topic and organize information under broader concepts and categories to make clear the connections and distinctions between key ideas appropriate to the purpose; include formatting (e.g., headings) and graphics (e.g., figures, tables) when useful to clarify ideas.
 - b. Develop a complex topic through well-chosen, relevant, and sufficient facts, concrete details, quotations, extended definitions, or other information and examples.
 - c. Use varied transitions and sentence structures to create cohesion, clarify information and ideas, and link major sections in the text.
 - d. Use precise language and domain-specific and technical wording (when appropriate) to manage the complexity of the topic in a style that responds to the specific discipline and context as well as to the expertise of likely readers.
 - e. Provide a conclusion that follows logically from the information or explanation provided and articulates the implications or significance of the topic.
1. Write arguments in which they:
 - a. Introduce a substantive claim, establish its significance, distinguish it from alternate or opposing claims, and create an organization so that claims, reasons, and evidence are purposefully and logically sequenced.
 - b. Develop a claim and counterclaim thoroughly and fairly, supplying the most relevant evidence, while pointing out the strengths of their own claim and the weaknesses of the counterclaim.
 - c. Use precise words, phrases, and complex syntax to make explicit the relationships between claims and reasons, between reasons and evidence, and between claims and counterclaims.
 - d. Sustain an objective style and tone while attending to the norms and conventions of the specific discipline as well as to the audience's knowledge, values, and possible biases.
 - e. Provide a concluding statement or section that follows logically from the argument and offers a reflection or recommendation.
 2. Write informative/explanatory texts in which they:
 - a. Introduce a complex topic and organize the information at multiple levels of the text so that each new piece of information builds on that which precedes it to create a unified whole; include formatting (e.g., headings) and graphics (e.g., figures, tables) when useful to clarify ideas.
 - b. Thoroughly develop aspects of a complex topic through the purposeful selection of the most significant and relevant facts, concrete details, quotations, extended definitions, or other information and examples.
 - c. Use varied transitional devices and sentence structures to create cohesion, clarify complex ideas, and link the major sections of the text.
 - d. Use precise language, domain-specific and technical wording (when appropriate), and techniques such as metaphor, simile, and analogy to manage the complexity of the topic in a style that responds to the specific discipline and context as well as to the expertise of likely readers.
 - e. Provide a well-developed conclusion that follows logically from the information or explanation provided and articulates the implications or significance of the topic.

Writing Standards 6–12

Grades 9–10 students:

Grades 11–12 students:

Text Types and Purposes (continued)

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| <p>3. Write narratives in which they:</p> <ol style="list-style-type: none">Engage the reader by establishing a problem, situation, or observation and purposefully organize a progression of events or experiences.Develop narrative elements (e.g., setting, event sequence, complex characters) with well-chosen, revealing details.Use a variety of techniques to sequence events so that they build on one another to create a coherent whole.Use precise language to develop a picture of how the events, experiences, and ideas emerge and unfold.Provide a satisfying conclusion that follows from what is experienced, observed, or resolved over the course of the narrative. | <p>3. Write narratives in which they:</p> <ol style="list-style-type: none">Engage the reader by establishing the significance of a problem, situation, or observation and purposefully organize events or experiences.Develop narrative elements (e.g., setting, stance, event sequence, complex characters) with purposefully selected details that call readers' attention to what is most distinctive or worth noticing.Use a variety of techniques to build toward a particular impact (e.g., a sense of mystery, suspense, growth, or resolution).Use precise language to develop the events, experiences, and ideas clearly and to reinforce the style.Provide a satisfying conclusion that follows from what is experienced, observed, or resolved over the course of the narrative. |
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Production and Distribution of Writing

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| <p>4. Produce writing in which the organization, development, substance, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for this standard are defined in Standards 1–3 above.)</p> <p>5. Strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific task and context.</p> <p>6. Use technology, including the Internet, to produce, publish, and collaborate on a shared writing product, incorporating diverse and sometimes conflicting feedback.</p> | <p>4. Produce writing in which the organization, development, substance, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for this standard are defined in Standards 1–3 above.)</p> <p>5. Strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.</p> <p>6. Demonstrate command of technology, including the Internet, to produce, publish, and update work in response to ongoing feedback, including fresh arguments or new information.</p> |
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Research to Build Knowledge

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| <p>7. Perform short, focused research projects and more sustained research; synthesize multiple sources on a subject to answer a question or solve a problem.</p> <p>8. Assemble evidence gathered from authoritative print and digital sources; assess the credibility and accuracy of the information and its strengths and limitations in terms of answering the research question; and integrate selected information into the text, avoiding overreliance on any one source and following a standard format for citation.</p> | <p>7. Perform short, focused research projects and more sustained research; synthesize multiple authoritative sources on a subject to answer a question or solve a problem.</p> <p>8. Analyze evidence gathered from multiple authoritative print and digital sources; assess the credibility and accuracy of the information and its usefulness and relevance for the specific task, purpose, and audience; and integrate selected information into the text, following a standard format for citation.</p> |
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Writing Standards 6–12

Grades 9–10 students:

Grades 11–12 students:

Research to Build Knowledge (continued)

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| <p>9. Write in response to literary or informational sources, drawing evidence from the text to support analysis and reflection as well as to describe what they have learned.</p> <ol style="list-style-type: none">a. Apply <i>grades 9–10 reading standards</i> to literature (e.g., “Analyze a wide range of nineteenth- and early-twentieth-century foundational works of American literature, comparing and contrasting approaches to similar ideas or themes in two or more texts from the same period.”).b. Apply <i>grades 9–10 reading standards</i> to literary nonfiction (e.g., “Assess the truth of an argument’s explicit and implicit premises by determining whether the evidence presented in the text justifies the conclusions”). | <p>9. Write in response to literary or informational sources, drawing evidence from the text to support analysis and reflection as well as to describe what they have learned.</p> <ol style="list-style-type: none">a. Apply <i>grades 11–12 reading standards</i> to literature (e.g., “Analyze how an author draws on and transforms fictional source material, such as how Shakespeare draws on a story from Ovid, or a later author draws on Shakespeare”).b. Apply <i>grades 11–12 reading standards</i> to literary nonfiction (e.g., “Evaluate the reasoning and rhetoric that support an argument or explanation, including assessing the relevance and sufficiency of evidence and identifying false statements or fallacious reasoning”). |
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Range of Writing

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| <p>10. Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.</p> | <p>10. Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.</p> |
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College and Career Readiness Standards for Speaking and Listening

The grades 6–12 standards on the following pages define what students should understand and be able to do in each grade and build toward the six College and Career Readiness Standards.

Comprehension and Collaboration

1. Participate effectively in a range of interactions (one-on-one and in groups), exchanging information to advance a discussion and to build on the input of others.
2. Integrate and evaluate information from multiple oral, visual, or multimodal sources in order to answer questions, solve problems, or build knowledge.
3. Evaluate the speaker’s point of view, reasoning, and use of evidence and rhetoric.

Presentation of Knowledge and Ideas

4. Present information, evidence, and reasoning in a clear and well-structured way appropriate to purpose and audience.
5. Make strategic use of digital media and visual displays of data to express information and enhance understanding.
6. Adapt speech to a variety of contexts and communicative tasks, demonstrating a command of formal English when indicated or appropriate.

Note on range and content of student speaking and listening

To become college and career ready, students must have ample opportunities to take part in a variety of rich, structured conversations—whole class, small group, and with a partner—built around important content in various domains. They must be able to contribute appropriately to these conversations, to make comparisons and contrasts, and to analyze and synthesize a multitude of ideas in accordance with the standards of evidence appropriate to a particular discipline. Whatever their intended major or profession, high school graduates will depend heavily on their ability to listen attentively to others so that they are able to build on others’ meritorious ideas while expressing their own clearly and persuasively.

New technologies have broadened and expanded the role that speaking and listening play in acquiring and sharing knowledge and have tightened their link to other forms of communication. The Internet has accelerated the speed at which connections between speaking, listening, reading, and writing can be made, requiring that students be ready to use these modalities nearly simultaneously. Technology itself is changing quickly, creating a new urgency for students to be adaptable in response to change.

Speaking and Listening Standards 6–12

Following are the standards for grades 6–12, which relate to their College and Career Readiness counterparts by number. They offer a focus for instruction in each year to help ensure that students gain adequate exposure to a range of skills and applications.

Grade 6 students:	Grade 7 students:	Grade 8 students:
Comprehension and Collaboration		
<ol style="list-style-type: none"> 1. Initiate and engage actively in group discussions on <i>grade 6 topics, texts, and issues</i> being studied in class. <ol style="list-style-type: none"> a. Prepare for discussions by completing reading or conducting research and explicitly draw on that material in discussions. b. Cooperate with peers to set clear goals and deadlines. c. Build on the ideas of others by asking relevant questions and contributing appropriate and essential information. d. Review the key ideas expressed and extend their own thinking in light of new information learned. 2. Interpret information presented in visual or multimodal formats and explain how the information clarifies and contributes to a topic or issue under study. 3. Delineate the claims made by a speaker or presenter and detail what evidence supports which claims. 	<ol style="list-style-type: none"> 1. Initiate and engage actively in group discussions on <i>grade 7 topics, texts, and issues</i> being studied in class. <ol style="list-style-type: none"> a. Prepare for discussions by completing reading or conducting research and explicitly draw on that material in discussions. b. Cooperate with peers to set clear goals and deadlines. c. Advance a discussion by asking questions, responding precisely, and sharing factual knowledge and observations. d. Ensure a hearing for the range of positions on an issue. e. Take the views of others into account and, when warranted, modify their own views in light of the evidence presented. 2. Determine the main ideas and supporting elements presented in oral, visual, or multimodal formats and explain how the information clarifies and contributes to an understanding of a topic or issue under study. 3. Evaluate a speaker's or presenter's reasoning and claims as well as the degree to which each claim is logically supported by the evidence provided. 	<ol style="list-style-type: none"> 1. Initiate and engage actively in group discussions on <i>grade 8 topics, texts, and issues</i> being studied in class. <ol style="list-style-type: none"> a. Prepare for discussions by completing reading or conducting research and explicitly draw on that material in discussions. b. Cooperate with peers to set clear goals and deadlines. c. Advance a discussion by asking questions, responding precisely, and sharing factual knowledge and observations supported by credible evidence. d. Ensure a hearing for the range of positions on an issue. e. Qualify or justify, when warranted, their own thinking after listening to others' questions or accounts of the evidence. 2. Determine the purpose of and perspectives represented in oral, visual, or multimodal formats and evaluate whether the information is laden with social, commercial, or political motives. 3. Assess the truth of a speaker's or presenter's premises and the validity of his or her conclusions.
Presentation of Knowledge and Ideas		
<ol style="list-style-type: none"> 4. Present information, emphasizing salient points with pertinent descriptions and details and using appropriate eye contact, adequate volume, and clear pronunciation. 5. Incorporate digital media and visual displays of data when helpful and in a manner that strengthens the presentation. 6. Adapt speech to a variety of contexts and communicative tasks, demonstrating a command of formal English when indicated or appropriate. (See "Conventions" in Language, on pages 47–50, for specific demands.) 	<ol style="list-style-type: none"> 4. Present claims and findings with relevant and specific descriptions, facts, and examples, and use appropriate eye contact, adequate volume, and clear pronunciation. 5. Incorporate digital media and visual displays of data when helpful and in a manner that strengthens the presentation. 6. Adapt speech to a variety of contexts and communicative tasks, demonstrating a command of formal English when indicated or appropriate. (See "Conventions" in Language, pages 47–50, for specific demands.) 	<ol style="list-style-type: none"> 4. Present claims and findings with relevant evidence that is accessible and verifiable to listeners, and use appropriate eye contact, adequate volume, and clear pronunciation. 5. Incorporate digital media and visual displays of data when helpful and in a manner that strengthens the presentation. 6. Adapt speech to a variety of contexts and communicative tasks, demonstrating a command of formal English when indicated or appropriate. (See "Conventions" in Language, pages 47–50, for specific demands.)

Speaking and Listening Standards 6–12

Grades 9–10 students:

Grades 11–12 students:

Comprehension and Collaboration

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| <ol style="list-style-type: none">1. Initiate and participate effectively in group discussions on <i>grades 9–10 topics, texts, and issues</i> being studied in class.<ol style="list-style-type: none">a. Prepare for discussions by reading and researching material under study and explicitly draw on that preparation in discussions.b. Cooperate with peers to set clear goals and deadlines and to establish roles.c. Build on essential information from others' input by asking questions and sharing comments that enrich discussions.d. Acknowledge the ideas and contributions of others in the group, reach decisions about the information and ideas under discussion, and complete the task.e. Evaluate whether the team has met its goals.2. Synthesize information presented visually or multimodally with other information presented orally, noting any discrepancies between the data that emerge as a result.3. Determine a speaker's or presenter's position or point of view by assessing the evidence, word choice, points of emphasis, and tone used. | <ol style="list-style-type: none">1. Initiate and participate effectively in group discussions on <i>grades 11–12 topics, texts, and issues</i> being studied in class.<ol style="list-style-type: none">a. Prepare for discussions by distilling the evidence or information about the material under study and explicitly draw on that preparation in discussions.b. Cooperate with peers to set clear goals and deadlines, establish roles, and determine ground rules for decision making (e.g., informal consensus, taking votes on key issues, presentation of alternate views).c. Propel conversations forward by asking questions that test the evidence and by sharing findings that clarify, verify, or challenge ideas and conclusions.d. Summarize accurately the comments and claims made on all sides of an issue and determine what additional information, research, and tasks are required for the team to complete the task.e. Evaluate whether the team has met its goals.2. Integrate multiple streams of data presented through various mediums, evaluating the reliability and credibility of each source of information in order to answer questions, solve problems, or build knowledge.3. Evaluate the information conveyed and rhetoric used by a speaker or presenter, identifying logical errors in reasoning and exaggerated or distorted evidence. |
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Presentation of Knowledge and Ideas

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| <ol style="list-style-type: none">4. Plan and deliver relevant and sufficient evidence in support of findings and claims such that listeners can follow the reasoning, adjusting presentation to particular audiences and purposes.5. Make strategic use of digital media elements and visual displays of data to enhance understanding.6. Adapt speech to a variety of contexts and communicative tasks, demonstrating a command of formal English when indicated or appropriate. (See "Conventions" in Language, pages 47–50, for specific demands.) | <ol style="list-style-type: none">4. Plan and deliver focused and coherent presentations that convey clear and distinct perspectives such that the line of reasoning and sources of support are clear and alternative perspectives are addressed, adjusting presentation to particular audiences and purposes.5. Make strategic use of digital media elements and visual displays of data to enhance understanding.6. Adapt speech to a variety of contexts and communicative tasks, demonstrating a command of formal English when indicated or appropriate. (See "Conventions" in Language, pages 47–50, for specific demands.) |
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College and Career Readiness Standards for Language

The grades 6–12 standards on the following pages define what students should understand and be able to do in each grade and build toward the six College and Career Readiness Standards.

Conventions in Writing and Speaking

1. Demonstrate a command of the conventions of standard English grammar and usage.
2. Demonstrate a command of the conventions of capitalization, punctuation, and spelling.
3. Make effective choices about language, punctuation, and sentence structure for meaning and style.

Vocabulary Acquisition and Use

4. Determine the meaning of words and phrases encountered through conversations, reading, and media use.
5. Understand the nuances of and relationships among words.
6. Use grade-appropriate general academic vocabulary and domain-specific words and phrases purposefully acquired as well as gained through conversation and reading and responding to texts.

Note on range and content of student language use

To be college and career ready in language, students must have firm control over the conventions of writing and speaking and have extensive vocabularies built through reading and study. They must have a well-developed understanding of standard written and spoken English, demonstrating command of the conventions of grammar, usage, and mechanics. They also must come to appreciate that language is as much a matter of craft as of rules and be able to use punctuation, words, phrases, clauses, and sentences to achieve particular rhetorical effects and to convey ideas precisely and concisely. They need to become highly skilled in determining the meanings of words they encounter, choosing flexibly from an array of strategies to aid them. They must learn to see an individual word as part of a network of other words—words, for example, that have similar denotations but different connotations. The inclusion of Language standards in their own strand should not be taken as an indication that skills related to conventions and vocabulary are unimportant to reading, writing, speaking, and listening; indeed, they are inseparable from such contexts.

Language Standards 6–12

Following are the standards for grades 6–12, which relate to their College and Career Readiness counterparts by number. They offer a focus for instruction in each year to help ensure that students gain adequate exposure to a range of skills and applications.

Grade 6 students:	Grade 7 students:	Grade 8 students:
<i>Conventions in Writing and Speaking</i>		
<p>1. Observe conventions of grammar and usage.</p> <ul style="list-style-type: none"> a. Ensure that pronouns are in the proper case (subjective, objective, possessive). b. Recognize and correct inappropriate shifts in pronoun number and person.* c. Recognize and correct vague pronouns (i.e., ones with unclear or ambiguous antecedents).* <p>2. Observe conventions of capitalization, punctuation, and spelling.</p> <ul style="list-style-type: none"> a. Use commas, parentheses, or dashes to set off nonrestrictive/parenthetical elements.* b. Spell correctly. <p>3. Make effective language choices.</p> <ul style="list-style-type: none"> a. Vary sentence patterns for meaning, reader/listener interest, and style.* 	<p>1. Observe conventions of grammar and usage.</p> <ul style="list-style-type: none"> a. Explain the function of phrases and clauses in general and their functions in specific sentences. b. Choose among simple, compound, complex, and compound-complex sentences to signal differing relationships among ideas. c. Place phrases and clauses within a sentence, avoiding misplaced and dangling modifiers.* <p>2. Observe conventions of capitalization, punctuation, and spelling.</p> <ul style="list-style-type: none"> a. Use a comma before a coordinating conjunction in a compound sentence. b. Spell correctly. <p>3. Make effective language choices.</p> <ul style="list-style-type: none"> a. Choose words and phrases that express ideas concisely, eliminating wordiness and redundancy.* 	<p>1. Observe conventions of grammar and usage.</p> <ul style="list-style-type: none"> a. Form and use verbs in the active and passive voice. b. Form and use verbs in the indicative, imperative, interrogative, conditional, and subjunctive moods. c. Recognize and correct inappropriate shifts in verb voice and mood.* <p>2. Observe conventions of capitalization, punctuation, and spelling.</p> <ul style="list-style-type: none"> a. Use a comma to separate coordinate adjectives (e.g., <i>It was a fascinating, enjoyable movie</i> but not <i>He wore an old[,] green shirt</i>). b. Use a comma, ellipses, or dash to indicate a pause or break. c. Spell correctly. <p>3. Make effective language choices.</p> <ul style="list-style-type: none"> a. Use verbs in the active and passive voice and in the conditional and subjunctive moods to achieve particular effects (e.g., emphasizing the actor or the action; expressing uncertainty or describing a state contrary to fact).

* Conventions standards noted with an asterisk need to be revisited by students in subsequent grades. See page 51 for a complete listing.

Language Standards 6–12

Grade 6 students:

Grade 7 students:

Grade 8 students:

Vocabulary Acquisition and Use

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| <p>4. Determine word meanings (<i>based on grade 6 reading</i>).</p> <p>a. Determine or clarify the meaning of unknown or multiple-meaning words through the use of one or more strategies, such as using semantic clues (e.g., sentence and paragraph context, the organizational pattern of the text); using syntactic clues (e.g., the word's position or function in the sentence); analyzing the word's sounds, spelling, and meaningful parts; and consulting reference materials, both print and digital.</p> <p>b. Use a known root as a clue to the meaning of an unknown word (e.g., <i>audience, auditory, audible</i>).</p> <p>c. Verify the preliminary determination of a word's meaning (e.g., by checking the inferred meaning in context or looking up the word in a dictionary).</p> <p>d. Interpret various figures of speech (e.g., personification) relevant to particular texts.</p> | <p>4. Determine word meanings (<i>based on grade 7 reading</i>).</p> <p>a. Determine or clarify the meaning of unknown or multiple-meaning words through the use of one or more strategies, such as using semantic clues (e.g., sentence and paragraph context, the organizational pattern of the text); using syntactic clues (e.g., the word's position or function in the sentence); analyzing the word's sounds, spelling, and meaningful parts; and consulting reference materials, both print and digital.</p> <p>b. Use a known root as a clue to the meaning of an unknown word (e.g., <i>belligerent, bellicose, rebel</i>).</p> <p>c. Verify the preliminary determination of a word's meaning (e.g., by checking the inferred meaning in context or looking up the word in a dictionary).</p> <p>d. Interpret various figures of speech (e.g., allegory) relevant to particular texts.</p> | <p>4. Determine word meanings (<i>based on grade 8 reading</i>).</p> <p>a. Determine or clarify the meaning of unknown or multiple-meaning words through the use of one or more strategies, such as using semantic clues (e.g., sentence and paragraph context, the organizational pattern of the text); using syntactic clues (e.g., the word's position or function in the sentence); analyzing the word's sounds, spelling, and meaningful parts; and consulting reference materials, both print and digital.</p> <p>b. Use a known root as a clue to the meaning of an unknown word (e.g., <i>precede, recede, secede</i>).</p> <p>c. Verify the preliminary determination of a word's meaning (e.g., by checking the inferred meaning in context or looking up the word in a dictionary).</p> <p>d. Interpret various figures of speech (e.g. verbal irony, puns) relevant to particular texts.</p> |
| <p>5. Understand word relationships.</p> <p>a. Trace the network of uses and meanings that different words have and the interrelationships among those meanings and uses.</p> <p>b. Distinguish a word from other words with similar denotations but different connotations.</p> | <p>5. Understand word relationships.</p> <p>a. Trace the network of uses and meanings different words have and the interrelationships among those meanings and uses.</p> <p>b. Distinguish a word from other words with similar denotations but different connotations.</p> | <p>5. Understand word relationships.</p> <p>a. Trace the network of uses and meanings different words have and the interrelationships among those meanings and uses.</p> <p>b. Distinguish a word from other words with similar denotations but different connotations.</p> |
| <p>6. Use grade-appropriate general academic vocabulary and English language arts–specific words and phrases taught directly and gained through reading and responding to texts.</p> | <p>6. Use grade-appropriate general academic vocabulary and English language arts–specific words and phrases taught directly and gained through reading and responding to texts.</p> | <p>6. Use grade-appropriate general academic vocabulary and English language arts–specific words and phrases taught directly and gained through reading and responding to texts.</p> |

Language Standards 6–12

Grades 9–10 students:

Grades 11–12 students:

Conventions in Writing and Speaking

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| <ol style="list-style-type: none">1. Observe conventions of grammar and usage.<ol style="list-style-type: none">a. Use parallel structure in writing.*b. Use various types of phrases (noun, verb, adjectival, adverbial, participial, prepositional, absolute) and clauses (independent, dependent; noun, relative, adverbial) to add variety and interest to writing or presentations.2. Observe conventions of capitalization, punctuation, and spelling.<ol style="list-style-type: none">a. Use a semicolon (and perhaps a conjunctive adverb) to link two or more closely related independent clauses.b. Use a colon to introduce a list or quotation.c. Spell correctly.3. Make effective language choices.<ol style="list-style-type: none">a. Write and edit work so that it conforms to the guidelines in a style manual. | <ol style="list-style-type: none">1. Observe conventions of grammar and usage.<ol style="list-style-type: none">a. Apply the understanding that usage is a matter of convention, can change over time, and is sometimes contested.b. Resolve complex usage issues, particularly when the issue involves contested or changing usage; consult references (e.g., <i>Merriam-Webster's Dictionary of English Usage</i>) as needed for guidance.2. Observe conventions of capitalization, punctuation, and spelling.<ol style="list-style-type: none">a. Observe the conventions concerning using hyphens to join words.b. Spell correctly.3. Make effective language choices.<ol style="list-style-type: none">a. Write and edit work so that it conforms to the guidelines in a style manual. |
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Vocabulary Acquisition and Use

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| <ol style="list-style-type: none">4. Determine word meanings (<i>based on grades 9–10 reading</i>).<ol style="list-style-type: none">a. Determine or clarify the meaning of unknown or multiple-meaning words through the use of one or more strategies, such as using semantic clues (e.g., sentence, paragraph, and whole-text context; the organizational pattern of the text); using syntactic clues (e.g., the word's position or function in the sentence); analyzing the word's sounds, spelling, and meaningful parts; understanding the word's etymology; and consulting reference materials, both print and digital.b. Verify the preliminary determination of a word's meaning (e.g., by checking the inferred meaning in context or looking up the word in a dictionary).c. Interpret various figures of speech (e.g., hyperbole, paradox) and analyze their role in a text.5. Understand word relationships.<ol style="list-style-type: none">a. Trace the network of uses and meanings different words have and the interrelationships among those meanings and uses.b. Distinguish a word from other words with similar denotations but different connotations.6. Use grade-appropriate general academic vocabulary and English language arts–specific words and phrases taught directly and gained through reading and responding to texts. | <ol style="list-style-type: none">4. Determine word meanings (<i>based on grades 11–12 reading</i>).<ol style="list-style-type: none">a. Determine or clarify the meaning of unknown or multiple-meaning words through the use of one or more strategies, such as using semantic clues (e.g., sentence, paragraph, and whole-text context; the organizational pattern of the text); using syntactic clues (e.g., the word's position or function in the sentence); analyzing the word's sounds, spelling, and meaningful parts; understanding the word's etymology; and consulting reference materials, both print and digital.b. Verify the preliminary determination of a word's meaning (e.g., by checking the inferred meaning in context or looking up the word in a dictionary).c. Interpret various figures of speech (e.g., satire, sarcasm) and analyze their role in a text.5. Understand word relationships.<ol style="list-style-type: none">a. Trace the network of uses and meanings different words have and the interrelationships among those meanings and uses.b. Distinguish a word from other words with similar denotations but different connotations.6. Use grade-appropriate general academic vocabulary and English language arts–specific words and phrases taught directly and gained through reading and responding to texts. |
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* Conventions standards noted with an asterisk need to be revisited by students in subsequent grades as their writing and speak grow in sophistication. See page 51 for a complete listing.

English Language Arts Conventions Progressive Skills, By Standard

The following, marked with an asterisk (*) in the Conventions standards, are skills and understandings that require continued attention in higher grades (after their introduction in the grade listed below) as they are applied to increasingly sophisticated writing and speaking.

Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8	Grades 9–10
<p>1c. Ensure subject-verb and pronoun-antecedent agreement.</p> <p>3a. Choose words for effect.</p>						
		<p>1b. Form and use adjectives and adverbs (including comparative and superlative forms), placing them appropriately within sentences.</p> <p>1c. Produce complete sentences, avoiding rhetorically poor fragments and run-ons.</p> <p>1d. Correctly use frequently confused words (e.g., <i>effect/affect</i>, <i>to/too/two</i>).</p> <p>3a. Use punctuation for effect.</p> <p>3b. Maintain consistency in style and tone.</p> <p>3c. Choose words and phrases to convey ideas precisely.</p>				
		<p>1b. Recognize and correct inappropriate shifts in verb tense and aspect.</p> <p>2a. Use punctuation to separate items in a series.</p> <p>3a. Expand, combine, and reduce sentences for meaning, reader/listener interest, and style.</p>				
		<p>1b. Recognize and correct inappropriate shifts in pronoun number and person.</p> <p>1c. Recognize and correct vague pronouns (i.e., ones with unclear or ambiguous antecedents).</p> <p>2a. Use commas, parentheses, or dashes to set off nonrestrictive/parenthetical elements.</p> <p>3a. Vary sentence patterns for meaning, reader/listener interest, and style.</p>				
				<p>1c. Place phrases and clauses within a sentence, avoiding misplaced and dangling modifiers.</p> <p>3b. Choose words and phrases that express ideas concisely, eliminating wordiness and redundancy.</p>		
						<p>1c. Recognize and correct inappropriate shifts in verb voice and mood.</p>
						<p>1a. Use parallel structure in writing.</p>

Range of Text Types for 6–12

Students in grades 6–12 apply the Reading standards to the following range of text types, with texts selected from a broad range of cultures and periods.

Literature		Informational Text	
Stories	Drama	Poetry	Literary Nonfiction
Includes the subgenres of adventure stories, historical fiction, mysteries, myths, science fiction, realistic fiction, allegories, parodies, satire, and graphic novels	Includes one-act and multiact plays, both in written form and on film	Includes the subgenres of narrative poems, lyrical poems, free verse poems, sonnets, odes, ballads, and epics	Includes the subgenres of exposition and argument in the form of personal essays, speeches, opinion pieces, essays about art or literature, biographies, memoirs, journalism, and historical, scientific, or economic accounts (including digital media sources) written for a broad audience

Texts Illustrating the Complexity, Quality, and Range of Student Reading 6–12

	Literature: Stories, Drama, Poetry	Informational Texts: Literary Nonfiction
6–8	<ul style="list-style-type: none"> ▪ <i>Little Women</i> by Louisa May Alcott (1869) ▪ <i>The Adventures of Tom Sawyer</i> by Mark Twain (1876) ▪ “The Road Not Taken” by Robert Frost (1915) ▪ <i>The Dark Is Rising</i> by Susan Cooper (1973) ▪ <i>Dragonwings</i> by Laurence Yep (1975) ▪ <i>Roll of Thunder, Hear My Cry</i> by Mildred Taylor (1976) 	<ul style="list-style-type: none"> ▪ “Letter on Thomas Jefferson” by John Adams (1776) ▪ <i>Narrative of the Life of Frederick Douglass, an American Slave</i> by Frederick Douglass (1845) ▪ <i>Harriet Tubman: Conductor on the Underground Railroad</i> by Ann Petry (1955) ▪ <i>Travels with Charley: In Search of America</i> by John Steinbeck (1962) ▪ <i>The Great Fire</i> by Jim Murphy (1995) ▪ <i>This Land Was Made for You and Me: The Life and Songs of Woody Guthrie</i> by Elizabeth Partridge (2002)
9–10	<ul style="list-style-type: none"> ▪ <i>The Tragedy of Romeo and Juliet</i> by William Shakespeare (1592) ▪ “Ozymandias” by Percy Bysshe Shelley (1817) ▪ “The Raven” by Edgar Allan Poe (1845) ▪ “The Gift of the Magi” by O. Henry (1906) ▪ <i>The Grapes of Wrath</i> by John Steinbeck (1939) ▪ <i>Fahrenheit 451</i> by Ray Bradbury (1953) ▪ <i>The Killer Angels</i> by Michael Shaara (1975) 	<ul style="list-style-type: none"> ▪ “Speech to the Second Virginia Convention” by Patrick Henry (1775) ▪ The Declaration of Independence by Thomas Jefferson (1776) ▪ “Second Inaugural Address” by Abraham Lincoln (1865) ▪ “State of the Union Address” by Franklin Delano Roosevelt (1941) ▪ <i>Cod: A Biography of the Fish That Changed the World</i> by Mark Kurlansky (1997) ▪ <i>The Race to Save Lord God Bird</i> by Phillip Hoose (2004)
11–CCR	<ul style="list-style-type: none"> ▪ “Ode on a Grecian Urn” by John Keats (1820) ▪ <i>Jane Eyre</i> by Charlotte Brontë (1848) ▪ “Because I Could Not Stop for Death” by Emily Dickinson (1890) ▪ <i>The Great Gatsby</i> by F. Scott Fitzgerald (1925) ▪ <i>Their Eyes Were Watching God</i> by Zora Neale Hurston (1937) ▪ <i>A Raisin in the Sun</i> by Lorraine Hansberry (1959) ▪ <i>The Namesake</i> by Jhumpa Lahiri (2003) 	<ul style="list-style-type: none"> ▪ <i>The Crisis</i> by Thomas Paine (1776) ▪ <i>Walden</i> by Henry David Thoreau (1854) ▪ “Society and Solitude” by Ralph Waldo Emerson (1857) ▪ “Gettysburg Address” by Abraham Lincoln (1863) ▪ “Letter from Birmingham Jail” by Martin Luther King, Jr. (1964) ▪ <i>Google Hacks: Tips & Tools for Smarter Searching</i> by Tara Calishain and Rael Dornfest (2004) ▪ <i>America’s Constitution: A Biography</i> by Akhil Reed Amar (2005)

Note: Given space limitations, the illustrative texts listed above are meant only to show individual titles that are representative of a range of topics and genres. (See Appendix B for excerpts of these and other texts illustrative of grades 6–12 text complexity.) At a curricular or instructional level, within and across grade levels, texts need to be selected around topics or themes that generate knowledge and allow students to study topics in depth.

**Standards for Literacy
in History/Social Studies & Science**

6-12

DRAFT

College and Career Readiness Standards for Reading

The grades 6–12 standards on the following pages define what students need to know and be able to do and build toward the ten College and Career Readiness Standards.

Key Ideas and Details

1. Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.
2. Determine central ideas or themes of a text and analyze their development; summarize the key supporting details and ideas.
3. Analyze in detail where, when, why, and how events, ideas, and characters develop and interact over the course of a text.

Craft and Structure

4. Interpret words and phrases as they are used in a text, including determining technical, connotative, and figurative meanings, and explain how specific word choices shape meaning or tone.
5. Analyze the structure of texts, including how specific sentences, paragraphs, and larger portions of the text (e.g., a section or chapter) relate to each other and the whole.
6. Assess how point of view or purpose shapes the content and style of a text.

Integration of Knowledge and Ideas

7. Synthesize and apply information presented in diverse ways (e.g., through words, images, graphs, and video) in print and digital sources in order to answer questions, solve problems, or compare modes of presentation.¹
8. Delineate and evaluate the reasoning and rhetoric within a text, including assessing whether the evidence provided is relevant and sufficient to support the text's claims.
9. Analyze how two or more texts address similar themes or topics in order to build knowledge or to compare the approaches the authors take.

Range and Level of Text Complexity

10. Read complex texts independently, proficiently, and fluently, sustaining concentration, monitoring comprehension, and, when useful, rereading.²

¹Please see “Research to Build Knowledge” in Writing for additional standards relevant to gathering, assessing, and applying information from print and digital sources.

²Proficiency in this standard is measured by students' ability to read a range of appropriately complex text in each grade as defined in Appendix A.

Note on range and content of student reading

Reading is critical to building knowledge in history/social studies as well as in science and other technical fields. College- and career-ready reading in these fields requires an appreciation of the norms and conventions of each discipline, such as the kinds of evidence used in history and science; an understanding of domain-specific words and phrases; an attention to precise details; and the capacity to evaluate intricate arguments, synthesize complex information, and follow detailed descriptions of events and concepts. In history/social studies, for example, students need to be able to analyze, evaluate, and differentiate primary and secondary sources. When reading scientific and technical texts, students need to be able to gain knowledge from challenging texts that often make extensive use of elaborate diagrams and data to convey information and illustrate concepts. Students must be able to read complex informational text in these fields with independence and confidence because the vast majority of reading in college and workforce training programs will be sophisticated nonfiction. It is important to note that these Reading standards are meant to complement the specific content demands of the disciplines, not replace them.

Reading Standards for History/Social Studies 6–12

Following are the standards for grades 6–12, which relate to their College and Career Readiness counterparts by number. The standards below begin at grade 6; standards for K–5 reading in history/social studies are integrated into the K–5 standards for reading informational text.

Grades 6–8 students:	Grades 9–10 students:	Grades 11–12 students:
Key Ideas and Details		
<ol style="list-style-type: none"> 1. Cite specific textual evidence to support analysis of primary and secondary sources. 2. Determine the main ideas or information of a primary or secondary source; summarize the source, basing the summary on information in the text rather than on prior knowledge or opinions. 3. Identify key steps in a text’s description of a process related to history/social studies (e.g., how a bill becomes law, how interest rates are raised or lowered). 	<ol style="list-style-type: none"> 1. Cite specific textual evidence to support analysis of primary and secondary sources, attending to such features as the date and origin of the information. 2. Determine the main ideas or information of a primary or secondary source; summarize how key events or ideas develop over the course of the text. 3. Analyze in detail a series of events described in a text and the causes that link the events; distinguish whether earlier events caused later ones or simply preceded them. 	<ol style="list-style-type: none"> 1. Cite specific textual evidence to support analysis of primary and secondary sources, connecting insights gained from specific details to an understanding of the text as a whole. 2. Determine the main ideas or information of a primary or secondary source; provide a summary that makes clear the relationships between the key details and ideas. 3. Analyze how ideas and beliefs emerge, develop, and influence events, based on evidence in the text.
Craft and Structure		
<ol style="list-style-type: none"> 4. Determine the meaning of words and phrases in a text, including vocabulary specific to domains related to history/social studies. 5. Identify how a history/social studies text presents information (e.g., sequentially, comparatively, causally). 6. Identify aspects of a text that reveal an author’s point of view or purpose (e.g., loaded language, inclusion or avoidance of particular facts). 	<ol style="list-style-type: none"> 4. Determine the meaning of words and phrases in a text, including the vocabulary describing political, economic, or social aspects of history. 5. Explain how an author chooses to structure information or an explanation in a text to emphasize key points or advance a point of view. 6. Compare the point of view of two or more authors by comparing how they treat the same or similar historical topics, including which details they include and emphasize in their respective accounts. 	<ol style="list-style-type: none"> 4. Interpret the meaning of words and phrases in a text, including how an author uses and refines the meaning of a key term over the course of a text (e.g., how Madison defines <i>faction</i> in Federalist No. 10 and No. 51). 5. Analyze in detail how a complex primary source is structured, including how key sentences, paragraphs, and larger portions of the text contribute to the whole. 6. Evaluate authors’ differing points of view on the same historical event or issue by assessing the authors’ claims, evidence, and reasoning.
Integration of Knowledge and Ideas		
<ol style="list-style-type: none"> 7. Integrate graphical information (e.g., pictures, videos, maps, time lines) with other information in a print or digital text. 8. Distinguish among fact, opinion, and reasoned judgment in a historical account. 9. Analyze the relationship between a primary and secondary source on the same topic. 	<ol style="list-style-type: none"> 7. Integrate quantitative or technical information presented in maps, time lines, and videos with other information in a print or digital text. 8. Assess the extent to which the evidence in a text supports the author’s claims. 9. Compare and contrast treatments of the same topic in several primary and secondary sources. 	<ol style="list-style-type: none"> 7. Synthesize ideas and data presented graphically and determine their relationship to the rest of a print or digital text, noting discrepancies between the graphics and other information in the text. 8. Evaluate an author’s premises, claims, and evidence by corroborating or challenging them with other sources of information. 9. Integrate information from diverse sources, both primary and secondary, into a coherent understanding of an idea or event, noting discrepancies among sources.
Range and Level of Text Complexity		
<ol style="list-style-type: none"> 10. Read informational text independently, proficiently, and fluently in the grades 6–8 text complexity band; read “stretch” texts with scaffolding as needed. 	<ol style="list-style-type: none"> 10. Read informational text independently, proficiently, and fluently in the grades 9–10 text complexity band; read “stretch” texts with scaffolding as needed. 	<ol style="list-style-type: none"> 10. Read informational text independently, proficiently, and fluently in the grades 11–12 text complexity band; read “stretch” texts with scaffolding as needed.

Reading Standards for Science 6–12

Following are the standards for grades 6–12, which relate to their College and Career Readiness counterparts by number. The standards below begin at grade 6; standards for K–5 reading in science are integrated into the K–5 standards for reading informational text.

Grades 6–8 students:	Grades 9–10 students:	Grades 11–12 students:
Key Ideas and Details		
<ol style="list-style-type: none"> 1. Cite specific textual evidence to support analysis of scientific and technical texts. 2. Summarize the broad ideas and specific conclusions made in a text, basing the summary on textual information rather than on prior knowledge or opinions. 3. Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks. 	<ol style="list-style-type: none"> 1. Cite specific textual evidence to support analysis of scientific and technical text, including analysis of the precise details of explanations or descriptions. 2. Analyze the development of a text’s explanation of a process or phenomenon, summarizing the central ideas and supporting details. 3. Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks. 	<ol style="list-style-type: none"> 1. Cite specific textual evidence to support analysis of scientific and technical texts, including analysis of important distinctions the author makes between ideas or pieces of information. 2. Summarize complex information or ideas presented in a text, paraphrasing it in simpler but still accurate terms. 3. Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the causes of the specific results based on information from the text.
Craft and Structure		
<ol style="list-style-type: none"> 4. Determine the meaning of key terms, symbols, and domain-specific vocabulary used in a text. 5. Analyze how each major part of a text contributes to an understanding of the topic discussed in the text. 6. Analyze the purpose of an experiment or explanation in a text, including defining the problem or question to be resolved. 	<ol style="list-style-type: none"> 4. Determine the meaning of key terms, symbols, and domain-specific vocabulary used in a text, noting relationships among terms pertaining to important ideas or processes (e.g., <i>force</i>, <i>friction</i>, <i>reaction force</i>, <i>energy</i>). 5. Analyze the relationships among concepts in a text, including developing propositional concept maps to organize and illustrate the ideas. 6. Analyze the purpose of an experiment, including defining the possibilities ruled out by the experimental results. 	<ol style="list-style-type: none"> 4. Determine the meaning of key terms, symbols, and domain-specific vocabulary used in a text, attending to the precise meaning of terms as they are used in particular scientific or technical contexts. 5. Analyze the hierarchical or categorical relationships of concepts or information presented in a text. 6. Analyze the scope and purpose of an experiment or explanation and determine which related issues remain unresolved or uncertain.
Integration of Knowledge and Ideas		
<ol style="list-style-type: none"> 7. Integrate information provided by the words in a text with a version of that information expressed graphically (e.g., in a flowchart, diagram, model, graph, or table). 8. Distinguish facts or reasoned judgments based on research findings from opinions. 9. Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic. 	<ol style="list-style-type: none"> 7. Integrate quantitative or technical information presented graphically (e.g., in a flowchart, diagram, model, graph, or table) with other information in a text. 8. Assess the extent to which the evidence in a text supports a scientific claim or a recommendation for solving a technical problem. 9. Compare experimental findings presented in a text to information from other sources, noting when the findings support or contradict previous explanations or accounts. 	<ol style="list-style-type: none"> 7. Synthesize information in different formats by representing complex information in a text in graphical form (e.g., a table or chart) or translating a graphic or equation into words. 8. Evaluate the hypotheses, data, and conclusions in a scientific text, corroborating or undercutting them with other sources of information. 9. Integrate information from diverse sources (e.g., video, multimedia sources, experiments, simulations) into a coherent understanding of a concept, process, or phenomenon, noting discrepancies among sources.
Range and Level of Text Complexity		
<ol style="list-style-type: none"> 10. Read informational text independently, proficiently, and fluently in the grades 6–8 text complexity band; read “stretch” texts with scaffolding as needed. 	<ol style="list-style-type: none"> 10. Read informational text independently, proficiently, and fluently in the grades 9–10 text complexity band; read “stretch” texts with scaffolding as needed. 	<ol style="list-style-type: none"> 10. Read informational text independently, proficiently, and fluently in the grades 11–CCR text complexity band; read “stretch” texts with scaffolding as needed.

College and Career Readiness Standards for Writing

The grades 6–12 standards on the following pages define what students need to know and be able to do and build toward these ten College and Career Readiness Standards.

*Text Types and Purposes*¹

1. Write arguments to support a substantive claim with clear reasons and relevant and sufficient evidence.
2. Write informative/explanatory texts to convey complex information clearly and accurately through purposeful selection and organization of content.
3. Write narratives to convey real or imagined experiences, individuals, or events and how they develop over time.

Production and Distribution of Writing

4. Produce writing in which the organization, development, substance, and style are appropriate to task, purpose, and audience.
5. Strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach.
6. Use technology, including the Internet, to produce, publish, and interact with others about writing.

Research to Build Knowledge

7. Perform short, focused research projects as well as more sustained research in response to a focused research question, demonstrating understanding of the material under investigation.
8. Gather relevant information from multiple print and digital sources, assess the credibility and accuracy of each source, and integrate and cite the information while avoiding plagiarism.
9. Write in response to literary or informational sources, drawing evidence from the text to support analysis and reflection as well as to describe what they have learned.

Range of Writing

10. Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.²

¹These broad categories of writing include many subgenres. See Appendix A for definitions of key writing types.

²This standard is measured by the proficiency of student writing products.

Note on range and content of student writing

For students, writing is a key means of asserting and defending claims, showing what they know about a subject, and conveying what they have experienced, imagined, thought, and felt. To be college- and career-ready writers, students must take task, purpose, and audience into careful consideration, choosing words, information, structures, and formats deliberately. They need to be able to use technology strategically when creating, refining, and collaborating on writing. They have to become adept at gathering information, evaluating sources, and citing material accurately, reporting findings from their research and analysis of sources in a clear and cogent manner. They must have the flexibility, concentration, and fluency to produce high-quality first-draft text under a tight deadline and the capacity to revisit and make improvements to a piece of writing over multiple drafts when circumstances encourage or require it. To meet these goals, students must devote significant time and effort to writing, producing numerous pieces over short and long time frames throughout the year.

Writing Standards for History/Social Studies and Science 6–12

Following are the standards for grades 6–12, which relate to their College and Career Readiness counterparts by number. The standards below begin at grade 6; standards for K–5 writing in history/social studies and science are integrated into the K–5 standards for writing.

Grades 6–8 students:

Grades 9–10 students:

Grades 11–12 students:

Text Types and Purposes

- | | | |
|--|--|--|
| <p>1. Write arguments focused on <i>discipline-specific content</i> in which they:</p> <ol style="list-style-type: none">a. Introduce a claim about a topic or issue, distinguish it from alternate or opposing claims, and organize the reasons, data, and evidence logically to support the claim.b. Support the claim with logical reasoning and detailed, accurate data and evidence (science) or information from credible primary, secondary, and tertiary sources (history).c. Use words and phrases as well as domain-specific vocabulary to make clear the relationships among claims, reasons, data, and evidence.d. Sustain an objective style and tone.e. Provide a concluding statement or section that follows logically from the argument. | <p>1. Write arguments focused on <i>discipline-specific content</i> in which they:</p> <ol style="list-style-type: none">a. Introduce a precise claim, distinguish it from alternate or opposing claims, and provide an organization that establishes clear relationships among the claim, reasons, data, and evidence.b. Develop a claim fairly with logical reasoning, supplying detailed, accurate data and evidence acquired in a scientifically acceptable form (science) or gathered from credible primary, secondary, and tertiary sources (history).c. Use precise words and phrases as well as domain-specific vocabulary to make clear the relationships between claims and reasons and between reasons and the data and evidence.d. Sustain an objective style and tone while attending to the norms and conventions of the specific discipline.e. Provide a concluding statement or section that follows logically from the argument. | <p>1. Write arguments focused on <i>discipline-specific content</i> in which they:</p> <ol style="list-style-type: none">a. Introduce a substantive claim, establish its significance, distinguish it from alternate or opposing claims, and create an organization so that claims, reasons, data, and evidence are purposefully and logically sequenced.b. Develop a claim thoroughly and fairly with logical reasoning, supplying the most relevant data and evidence acquired in a scientifically acceptable form (science) or gathered from credible primary, secondary, and tertiary sources (history).c. Use precise words and phrases as well as domain-specific vocabulary to make clear the relationships between claims and reasons and between reasons and the data and evidence.d. Sustain an objective style and tone while attending to the norms and conventions of the specific discipline.e. Provide a concluding statement or section that follows logically from the argument. |
|--|--|--|

Writing Standards for History/Social Studies and Science 6–12

Grades 6–8 students:

Grades 9–10 students:

Grades 11–12 students:

Text Types and Purposes (continued)

- | | | |
|---|--|--|
| <p>2. Write informative/explanatory texts, including the narration of historical events or scientific procedures/experiments, in which they:</p> <ol style="list-style-type: none">Introduce and establish a topic and organize information under concepts or into categories.Develop a topic that has historical or scientific significance using well-chosen, relevant facts, data, details, quotations, examples, or other information.Use varied links and sentence structures to create cohesion and clarify information and ideas.Use precise language and domain-specific vocabulary and sustain a formal, objective style appropriate for a reader seeking information.Provide a conclusion that follows logically from the information or explanation presented. | <p>2. Write informative/explanatory texts, including the narration of historical events or scientific procedures/experiments, in which they:</p> <ol style="list-style-type: none">Introduce a topic and organize information under concepts and into categories, making clear the connections and distinctions between key ideas; use formatting and graphics (e.g., headings, figures, tables, graphs, illustrations) as useful to clarify ideas.Develop a topic that has historical or scientific significance using well-chosen, relevant, and sufficient facts, data, details, quotations, examples, extended definitions, or other information.Use varied transitions and sentence structures to create cohesion, clarify information and ideas, and link major sections in the text.Use precise language and domain-specific vocabulary to convey a style appropriate to the specific discipline and context as well as to the expertise of likely readers.Provide a conclusion that follows logically from the information or explanation provided and that articulates the implications or significance of the topic. | <p>2. Write informative/explanatory texts, including the narration of historical events or scientific procedures/experiments, in which they:</p> <ol style="list-style-type: none">Introduce a complex topic and organize the information so that each new piece of information builds on that which precedes it to create a unified whole; use formatting and graphics (e.g., headings, figures, tables, graphs, illustrations) as useful to clarify ideas.Develop a complex topic that has historical and scientific significance using the most significant and relevant facts, data, details, quotations, examples, extended definitions, or other information.Use varied transitional devices and sentence structures to create cohesion, clarify complex information and ideas, and link the major sections of the text.Use precise language, domain-specific and technical wording, and techniques such as metaphor, simile, and analogy to manage the complexity of the topic; convey a knowledgeable stance in a style that responds to the specific discipline and context as well as to the expertise of likely readers.Provide a well-developed conclusion that follows logically from the information or explanation provided and that articulates the implications or significance of the topic. |
| <p>3. Students' narrative skills continue to grow in these grades. The <i>Standards</i> require that students be able to incorporate narrative elements effectively into arguments and informative/explanatory texts. In history, students must be able to write narrative accounts about individuals or events of historical import. In science, students must be able to write precise enough descriptions of the step-by-step procedures they use in their investigations that others can replicate them and (possibly) reach the same results.</p> | <p>3. Students' narrative skills continue to grow in these grades. The <i>Standards</i> require that students be able to incorporate narrative elements effectively into arguments and informative/explanatory texts. In history, students must be able to write narrative accounts about individuals or events of historical import. In science, students must be able to write precise enough descriptions of the step-by-step procedures they use in their investigations that others can replicate them and (possibly) reach the same results.</p> | <p>3. Students' narrative skills continue to grow in these grades. The <i>Standards</i> require that students be able to incorporate narrative elements effectively into arguments and informative/explanatory texts. In history, students must be able to write narrative accounts about individuals or events of historical import. In science, students must be able to write precise enough descriptions of the step-by-step procedures they use in their investigations that others can replicate them and (possibly) reach the same results.</p> |

Writing Standards for History/Social Studies and Science 6–12

Grades 6–8 students:	Grades 9–10 students:	Grades 11–12 students:
<i>Production and Distribution of Writing</i>		
<p>4. Produce writing in which the organization, development, substance, and style are appropriate to task, purpose, and audience.</p> <p>5. With some guidance and support from peers and adults, strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach after rethinking how well questions of purpose and context have been addressed.</p> <p>6. Use technology, including the Internet, to present and cite information effectively in a digital format, including when publishing and responding to writing.</p>	<p>4. Produce writing in which the organization, development, substance, and style are appropriate to task, purpose, and audience.</p> <p>5. Strengthen writing as needed by planning, revising, editing, or trying a new approach, focusing on addressing what is most significant for a specific task and context.</p> <p>6. Use technology, including the Internet, to produce, publish, and collaborate on a shared writing product, incorporating diverse and sometimes conflicting feedback.</p>	<p>4. Produce writing in which the organization, development, substance, and style are appropriate to task, purpose, and audience.</p> <p>5. Strengthen writing as needed by planning, revising, editing, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.</p> <p>6. Demonstrate command of technology, including the Internet, to produce, publish, and update work in response to ongoing feedback, including fresh arguments or new information.</p>
<i>Research to Build Knowledge</i>		
<p>7. Perform short, focused research projects in response to a question or problem and generate additional related questions that allow for multiple avenues of exploration.</p> <p>8. Gather relevant information from multiple print and digital sources using effectively tailored searches; assess the credibility and accuracy of each source; and quote or paraphrase the evidence, avoiding plagiarism and following a standard format for citation.</p> <p>9. Write in response to informational sources, drawing on textual evidence to support analysis and reflection as well as to describe what they have learned.</p>	<p>7. Perform short, focused research projects and more sustained research; synthesize multiple sources on a subject to answer a question or solve a problem.</p> <p>8. Gather relevant information from multiple print and digital sources; assess the credibility, accuracy, and strengths and limitations of each source; and integrate selected information into the text, avoiding overreliance on any one source, avoiding plagiarism, and following a standard format for citation.</p> <p>9. Write in response to informational sources, drawing on textual evidence to support analysis and reflection as well as to describe what they have learned.</p>	<p>7. Perform short, focused research projects and more sustained research; synthesize multiple authoritative sources on a subject to answer a question or solve a problem.</p> <p>8. Gather relevant information from multiple print and digital sources; assess its credibility and accuracy and its usefulness in terms of purpose, task, and audience; and integrate selected information into the text, avoiding overreliance on any one source, avoiding plagiarism, and following a standard format for citation.</p> <p>9. Write in response to informational sources, drawing on textual evidence to support analysis and reflection as well as to describe what they have learned.</p>
<i>Range of Writing</i>		
<p>10. Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.</p>	<p>10. Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.</p>	<p>10. Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.</p>

COMMON CORE STATE STANDARDS

FOR Mathematics

DRAFT

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Introduction

Toward greater focus and coherence

The composite standards [of Hong Kong, Korea and Singapore] have a number of features that can inform an international benchmarking process for the development of K–6 mathematics standards in the US. First, the composite standards concentrate the early learning of mathematics on the number, measurement, and geometry strands with less emphasis on data analysis and little exposure to algebra. The Hong Kong standards for grades 1–3 devote approximately half the targeted time to numbers and almost all the time remaining to geometry and measurement.

Ginsburg, Leinwand and Decker, 2009

Mathematics experiences in early childhood settings should concentrate on (1) number (which includes whole number, operations, and relations) and (2) geometry, spatial relations, and measurement, with more mathematics learning time devoted to number than to other topics. The mathematical process goals should be integrated in these content areas. Children should understand the concepts and learn the skills exemplified in the teaching-learning paths described in this report.

National Research Council, 2009

In general, the US textbooks do a much worse job than the Singapore textbooks in clarifying the mathematical concepts that students must learn. Because the mathematics concepts in these textbooks are often weak, the presentation becomes more mechanical than is ideal. We looked at both traditional and non-traditional textbooks used in the US and found this conceptual weakness in both.

Ginsburg et al., 2005

Notable in the research base for these standards are conclusions from TIMSS and other studies of high-performing countries that the traditional US mathematics curriculum must become substantially more coherent and more focused in order to improve student achievement in mathematics. To deliver on the promise of common standards, the standards must address the problem of a curriculum that is ‘a mile wide and an inch deep.’ The draft Common Core State Standards for Mathematics are a substantial answer to this challenge.

It is important to recognize that “fewer standards” are no substitute for *focused* standards. Achieving “fewer standards” would be easy to do by simply resorting to broad, general statements. Instead, the draft Common Core State Standards for Mathematics aim for clarity and specificity.

Assessing the coherence of a set of standards is more difficult than assessing their focus. William Schmidt and Richard Houang (2002) have said that content standards and curricula are coherent if they are:

articulated over time as a sequence of topics and performances that are logical and reflect, where appropriate, the sequential or hierarchical nature of the disciplinary content from which the subject matter derives. That is, what and how students are taught should reflect not only the topics that fall within a certain academic discipline, but also the key ideas that determine how knowledge is organized and generated within that discipline. This implies that “to be coherent,” a set of content standards must evolve from particulars (e.g., the meaning and operations of whole numbers, including simple math facts and routine computational procedures associated with whole numbers and fractions) to deeper structures inherent in the discipline. This deeper structure then serves as a means for connecting the particulars (such as an understanding of the rational number system and its properties). (emphasis added)

The draft Common Core State Standards for Mathematics endeavor to follow such a design, not only by stressing conceptual understanding of the key ideas, but also by continually returning to organizing principles such as place value or the laws of arithmetic to structure those ideas.

The standards in this draft document define what students should understand and be able to do. Asking a student to understand something means asking a teacher to assess whether the student has understood it. But what does mathematical understanding look like? One hallmark of mathematical understanding is the ability to justify, in a way appropriate to the student’s mathematical maturity, *why* a particular mathematical statement is true or where a mathematical rule comes from. There is a world of difference between the student who can summon a mnemonic device such as “FOIL” to expand a product such as $(a + b)(x + y)$ and a student who can explain where that mnemonic comes from. Teachers often observe this difference firsthand, even if large-scale assessments in the year 2010 often do not. The student who can explain the rule understands the mathematics, and may have a better chance to succeed at a less familiar task such as expanding $(a + b + c)(x + y)$. Mathematical understanding and procedural skill are equally important, and both are assessable using mathematical tasks of sufficient richness.

The draft Common Core State Standards for Mathematics begin on the next page with eight Standards for Mathematical Practice. These are not a list of individual math topics, but rather a list of ways in which developing student-practitioners of mathematics increasingly ought to engage with those topics as they grow in mathematical maturity and expertise throughout the elementary, middle and high school years.

Grateful acknowledgment is here made to Dr. Cathy Kessel for editing the draft standards.

Mathematics | Standards for Mathematical Practice

Proficient students of all ages expect mathematics to make sense. They take an active stance in solving mathematical problems. When faced with a non-routine problem, they have the courage to plunge in and try something, and they have the procedural and conceptual tools to continue. They are experimenters and inventors, and can adapt known strategies to new problems. They think strategically.

The practices described below are encouraged in apprentices by expert mathematical thinkers. Students who engage in these practices, individually and with their classmates, discover ideas and gain insights that spur them to pursue mathematics beyond the classroom walls. They learn that effort counts in mathematical achievement. Encouraging these practices in students of all ages should be as much a goal of the mathematics curriculum as the learning of specific content.

1 Make sense of problems and persevere in solving them.

Mathematically proficient students start by explaining to themselves the meaning of a problem and looking for entry points to its solution. They analyze givens, constraints, relationships, and goals. They make conjectures about the form and meaning of the solution and plan a solution pathway rather than simply jumping into a solution attempt. They consider analogous problems, and try special cases and simpler forms of the original problem in order to gain insight into its solution. They monitor and evaluate their progress and change course if necessary. Older students might, depending on the context of the problem, transform algebraic expressions or change the viewing window on their graphing calculator to get the information they need.

Mathematically proficient students can explain correspondences between equations, verbal descriptions, tables, and graphs or draw diagrams of important features and relationships, graph data, and search for regularity or trends. Younger students might rely on using concrete objects or pictures to help conceptualize and solve a problem. Mathematically proficient students check their answers to problems using a different method, and they continually ask themselves, “Does this make sense?” They can understand the approaches of others to solving complex problems and identify correspondences between different approaches.

2 Reason abstractly and quantitatively.

Mathematically proficient students make sense of the quantities and their relationships in problem situations. Students bring two complementary abilities to bear on problems involving quantitative relationships: the ability to *decontextualize*—to abstract a given situation and represent it symbolically and manipulate the representing symbols as if they have a life of their own, without necessarily attending to their referents—and the ability to *contextualize*, to pause as needed during the manipulation process in order to probe into the referents for the symbols involved. Quantitative reasoning entails habits of creating a coherent representation of the problem at hand; considering the units involved; attending to the meaning of quantities, not just how to compute them; and knowing and flexibly using different properties of operations and objects.

3 Construct viable arguments and critique the reasoning of others.

Mathematically proficient students understand and use stated assumptions, definitions, and previously established results in constructing arguments. They make conjectures and build a logical progression of statements to explore the truth of their conjectures. They are able to analyze situations by breaking them into cases, and can recognize and use counterexamples. They justify their conclusions, communicate them to others, and respond to the arguments of others. They reason inductively about data, making plausible arguments that take into account the context from which the data arose. Mathematically proficient students are also able to compare the effectiveness of two plausible arguments, distinguish correct logic or reasoning from that which is flawed, and—if there is a flaw in an argument—explain what it is. Elementary students can construct arguments using concrete referents such as objects, drawings, diagrams, and actions. Such arguments can make sense and be correct, even though they are not generalized or made formal until later grades. Later, students learn to determine domains to which an argument applies. Students at all grades can listen or read the arguments of others, decide whether they make sense, and ask useful questions to clarify or improve the arguments.

4 Model with mathematics.

Mathematically proficient students can apply the mathematics they know to solve problems arising in everyday life, society, and the workplace. In early grades, this might be as simple as writing an addition equation to describe a situation. In middle grades, a

student might apply proportional reasoning to plan a school event or analyze a problem in the community. By high school, a student might use geometry to solve a design problem or use a function to describe how one quantity of interest depends on another. Mathematically proficient students who can apply what they know are comfortable making assumptions and approximations to simplify a complicated situation, realizing that these may need revision later. They are able to identify important quantities in a practical situation and map their relationships using such tools as diagrams, 2-by-2 tables, graphs, flowcharts and formulas. They can analyze those relationships mathematically to draw conclusions. They routinely interpret their mathematical results in the context of the situation and reflect on whether the results make sense, possibly improving the model if it has not served its purpose.

5 Use appropriate tools strategically.

Mathematically proficient students consider the available tools when solving a mathematical problem. These tools might include pencil and paper, concrete models, ruler, protractor, calculator, spreadsheet, computer algebra system, statistical package, or dynamic geometry software. Proficient students are sufficiently familiar with tools appropriate for their grade or course to make sound decisions about when each of these tools might be helpful, recognizing both the insight to be gained and their limitations. For example, mathematically proficient high school students interpret graphs of functions and solutions generated using a graphing calculator. They detect possible errors by strategically using estimation and other mathematical knowledge. When making mathematical models, they know that technology can enable them to visualize the results of varying assumptions, explore consequences, and compare predictions with data. Mathematically proficient students at various grade levels are able to identify relevant external mathematical resources, such as digital content located on a website, and use them to pose or solve problems. They are able to use technological tools to explore and deepen their understanding of concepts.

6 Attend to precision.

Mathematically proficient students try to communicate precisely to others. They try to use clear definitions in discussion with others and in their own reasoning. They state the meaning of the symbols they choose, are careful about specifying units of measure, and labeling axes to clarify the correspondence with quantities in a problem. They express numerical answers with a degree of precision appropriate for the problem context. In the elementary grades, students give carefully formulated explanations to each other. By the time they reach high school they have learned to examine claims and make explicit use of definitions.

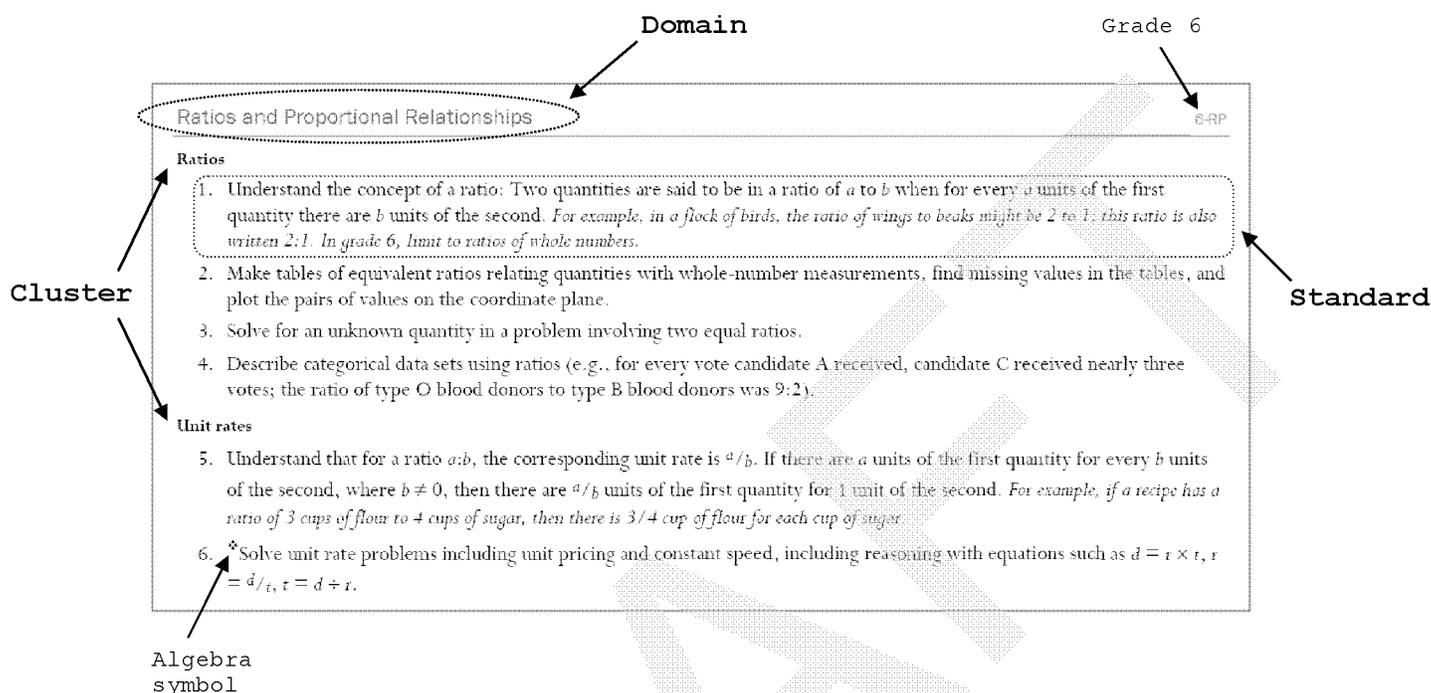
7 Look for and make use of structure.

Mathematically proficient students look closely to discern a pattern or structure. Young students, for example, might notice that three and seven more is the same amount as seven and three more, or they may sort a collection of shapes according to how many sides the shapes have. Later, students will see 7×8 equals the well remembered $7 \times 5 + 7 \times 3$, in preparation for learning about the distributive property. In the expression $x^2 + 9x + 14$, older students can see the 14 as 2×7 and the 9 as $2 + 7$. They recognize the significance of an existing line in a geometric figure and can use the strategy of drawing an auxiliary line for solving problems. They also can step back for an overview and shift perspective. They can see complicated things, such as some algebraic expressions, as single objects or as composed of several objects. For example, they can see $5 - 3(x - y)^2$ as 5 minus a positive number times a square and use that to realize that its value cannot be more than 5 for any real numbers x and y .

8 Look for and express regularity in repeated reasoning.

Mathematically proficient students notice if calculations are repeated, and look both for general methods and for shortcuts. Upper elementary students might notice when dividing 25 by 11 that they are repeating the same calculations over and over again, and conclude they have a repeating decimal. By paying attention to the calculation of slope as they repeatedly check whether points are on the line through (1, 2) with slope 3, middle school students might abstract the equation $(y - 2)/(x - 1) = 3$. Noticing the regularity in the way terms cancel when expanding $(x - 1)(x + 1)$, $(x - 1)(x^2 + x + 1)$, and $(x - 1)(x^3 + x^2 + x + 1)$ might lead them to the general formula for the sum of a geometric series. As they work to solve a problem, mathematically proficient students maintain oversight of the process, while attending to the details. They continually evaluate the reasonableness of their intermediate results.

How to read the grade level standards



Standards define what students should understand and be able to do. **Clusters** are groups of related standards. Note that standards from different clusters may sometimes be closely related, because mathematics is a connected subject. **Domains** are larger groups of related standards. For each grade level in Grades K–8, the standards are organized into four or five domains. Standards from different domains may sometimes be closely related.

Algebra Symbol: Key standards for the development of algebraic thinking in Grades K–5 are indicated by $*$.

Dotted Underlines: Dotted underlines, for example, decade, words, indicate terms that are explained in the Glossary. In each grade, underlining is used for the first occurrence of a defined term, but not in subsequent occurrences.

Note on Grade Placement of Topics. What students can learn at any particular grade level depends upon what they have learned before. Ideally then, each standard in this document might have been phrased in the form, "Students who already know A should next come to learn B." But in the year 2010 this approach is unrealistic—not least because existing education research cannot specify all such learning pathways. Of necessity therefore, grade placements for specific topics have been made on the basis of state and international comparisons and the collective experience and collective professional judgment of educators, researchers and mathematicians. One promise of common state standards is that over time they will allow research on learning progressions to inform and improve the design of standards to a much greater extent than is possible today. Learning opportunities will continue to vary across schools and school systems, and educators should make every effort to meet the needs of individual students based on their current understanding.

Note on Ordering of Topics within a Grade. These standards do not dictate curriculum. In particular, just because topic A appears before topic B in the standards for a given grade, it does not necessarily mean that topic A must be taught before topic B. A teacher might prefer to teach topic B before topic A, or might choose to highlight connections by teaching topic A and topic B at the same time. Or, a teacher might prefer to teach a topic of his or her own choosing that leads, as a byproduct, to students reaching the standards for topics A and B.

Overview of the Mathematics Standards Grades K–5

This table shows the domains and clusters in each grade K–5

	<i>K</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
Number— Counting and Cardinality	<ul style="list-style-type: none"> Number names Counting to tell the number of objects Comparing and ordering numbers 					
Number— Operations and the Problems They Solve	<ul style="list-style-type: none"> Composing and decomposing numbers; addition and subtraction 	<ul style="list-style-type: none"> Addition and subtraction Describing situations and solving problems with addition and subtraction 	<ul style="list-style-type: none"> Addition and subtraction Describing situations and solving problems with addition and subtraction 	<ul style="list-style-type: none"> Multiplication and division Describing situations and solving problems with multiplication and division 	<ul style="list-style-type: none"> Multiplication and Division Problem solving with the four operations 	
Number— Base Ten	<ul style="list-style-type: none"> Two-digit numbers Composing and decomposing ten 	<ul style="list-style-type: none"> Numbers up to 100 Adding and subtracting in base ten 	<ul style="list-style-type: none"> Numbers up to 1000 Adding and subtracting in base ten 	<ul style="list-style-type: none"> Numbers up to 10,000 Adding and subtracting in base ten Multiplying and dividing in base ten 	<ul style="list-style-type: none"> Numbers up to 100,000 Multiplying and dividing in base ten 	<ul style="list-style-type: none"> Whole numbers in base ten Decimal concepts Operations on decimals
Number— Fractions				<ul style="list-style-type: none"> Fractions as representations of numbers Fractional quantities 	<ul style="list-style-type: none"> Operations on fractions Decimal concepts 	<ul style="list-style-type: none"> Fraction equivalence Operations on fractions
Measurement and Data	<ul style="list-style-type: none"> Direct measurement Representing and interpreting data 	<ul style="list-style-type: none"> Length measurement Time measurement Representing and interpreting data 	<ul style="list-style-type: none"> Length measurement Time and money Representing and interpreting data 	<ul style="list-style-type: none"> The number line and units of measure Perimeter and area Representing and interpreting data 	<ul style="list-style-type: none"> The number line and units of measure Perimeter and area Angle measurement Representing and interpreting data 	<ul style="list-style-type: none"> Units of measure Volume Representing and interpreting data
Geometry	<ul style="list-style-type: none"> Shapes, their attributes, and spatial reasoning 	<ul style="list-style-type: none"> Shapes, their attributes, and spatial reasoning 	<ul style="list-style-type: none"> Shapes, their attributes, and spatial reasoning 	<ul style="list-style-type: none"> Properties of 2-dimensional shapes Structuring rectangular shapes 	<ul style="list-style-type: none"> Lines and angles Line symmetry 	<ul style="list-style-type: none"> Coordinates Plane figures

Overview of the Mathematics Standards Grades 6–8

This table shows the domains and clusters in each grade 6–8.

	Grade		
	6	7	8
Ratios and Proportional Relationships	<ul style="list-style-type: none"> Ratios Unit rates 	<ul style="list-style-type: none"> Analyzing proportional relationships Percent 	
The Number System	<ul style="list-style-type: none"> Operations The system of rational numbers 	<ul style="list-style-type: none"> The system of rational numbers The system of real numbers 	<ul style="list-style-type: none"> The system of real numbers
Expressions and Equations	<ul style="list-style-type: none"> Expressions Quantitative relationships and the algebraic approach to problems 	<ul style="list-style-type: none"> Expressions Quantitative relationships and the algebraic approach to solving problems 	<ul style="list-style-type: none"> Slopes of lines in the coordinate plane Linear equations and systems
Functions			<ul style="list-style-type: none"> Function concepts Functional relationships between quantities
Geometry	<ul style="list-style-type: none"> Properties of area, surface area, and volume 	<ul style="list-style-type: none"> Congruence and similarity Angles 	<ul style="list-style-type: none"> Congruence and similarity The Pythagorean Theorem Plane and solid geometry
Statistics and Probability	<ul style="list-style-type: none"> Variability and measures of center Summarizing and describing distributions 	<ul style="list-style-type: none"> Situations involving randomness Random sampling to draw inferences about a population Comparative inferences about two populations 	<ul style="list-style-type: none"> Patterns of association in bivariate data

Mathematics | Kindergarten

In Kindergarten, instructional time should focus on two critical areas: (1) representing, comparing and ordering whole numbers and joining and separating sets; (2) describing shapes and space. More learning time in Kindergarten should be devoted to number than to other topics.

(1) Students use numbers, including written numerals, to represent quantities and to solve quantitative problems, such as counting objects in a set; creating a set with a given number of objects; comparing and ordering sets or numerals; and modeling simple joining and separating situations with objects. They choose, combine, and apply effective strategies for answering quantitative questions, including quickly recognizing the cardinalities of small sets of objects, counting and producing sets of given sizes, counting the number of objects in combined sets, or counting the number of objects that remain in a set after some are taken away.

(2) Students describe their physical world using geometric ideas (e.g., shape, orientation, spatial relations) and vocabulary. They identify, name, and describe basic shapes, such as squares, triangles, circles, rectangles, (regular) hexagons, and (isosceles) trapezoids, presented in a variety of ways (e.g., with different sizes or orientations), as well as three-dimensional shapes such as spheres, cubes, and cylinders. They use basic shapes and spatial reasoning to model objects in their environment and to construct more complex shapes.

Number names

1. Say the number name sequence to 100.
2. Know the decade words to ninety and recite them in order (“ten, twenty, thirty, ...”).
3. Say the number name sequence forward or backward beginning from a given number within the known sequence (instead of always beginning at 1).
4. Write numbers from 1 to 20 in base-ten notation.

Counting to tell the number of objects

5. Count to answer “how many?” questions about as many as 20 things. *Objects may be arranged in a line, a rectangular array, a circle, or a scattered configuration.*
6. Understand that when counting objects,
 - a. The number names are said in the standard order.
 - b. Each object is paired with one and only one number name.
 - c. The last number name said tells the number of objects counted.
7. Understand that when counting forward, each successive number name refers to a quantity that is 1 larger.

Comparing and ordering numbers

8. Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group, e.g., by using matching and counting strategies. *Include groups with up to ten objects.*
9. Compare and put in order numbers between 1 and 10 presented in written symbols: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10.

Number—Operations and the Problems They Solve**Composing and decomposing numbers; addition and subtraction**

1. Understand addition as putting together—e.g., finding the number of objects in a group formed by putting two groups together. Understand subtraction as taking apart—e.g., finding the number of objects left when a one group is taken from another.
2. Represent addition and subtraction with objects, fingers, mental images, drawings, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations. *Note that drawings need not show details, but should show the mathematics in the problem. (This note also applies wherever drawings are mentioned in subsequent standards.)*
3. *Decompose numbers less than or equal to 10 into pairs in various ways, e.g., using objects or drawings, and record each decomposition by a drawing or equation (e.g., $5 = 2 + 3$). Compose numbers whose sum is less than or equal to 10, e.g., using objects or drawings, and record each composition by a drawing or equation (e.g., $3 + 1 = 4$).*
4. Compose and decompose numbers less than or equal to 10 in two different ways, and record compositions and decompositions by drawings or equations. *For example, 7 might be composed or decomposed in two different ways by a drawing showing how a group of 2 and a group of 5 together make the same number as do a group of 3 and a group of 4.*
5. *Understand that addition and subtraction are related. *For example, when a group of 9 is decomposed into a group of 6 and a group of 3, this means not only $9 = 6 + 3$ but also $9 - 3 = 6$ and $9 - 6 = 3$.*
6. *Solve addition and subtraction word problems, and calculate additions and subtractions within 10, e.g., using objects or drawings to represent the problem.
7. Fluently add and subtract, for sums and minuends of 5 or less.

Number—Base Ten**Two-digit numbers**

1. Understand that 10 can be thought of as a bundle of ones—a unit called a “ten.”
2. Understand that a teen number is composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones.
3. Compose and decompose teen numbers into a ten and some ones, e.g., by using objects or drawings, and record the compositions and decompositions in base-ten notation. *For example, $10 + 8 = 18$ and $14 = 10 + 4$.*
4. Put in order numbers presented in base-ten notation from 1 to 20 (inclusive), and be able to explain the reasoning.
5. Understand that a decade word refers to one, two, three, four, five, six, seven, eight, or nine tens.
6. Understand that the two digits of a two-digit number represent amounts of tens and ones. *In 29, for example, the 2 represents two tens and the 9 represents nine ones.*

Composing and decomposing ten

7. Decompose 10 into pairs of numbers, e.g., by using objects or drawings, and record each decomposition with a drawing or equation.
8. Compose numbers to make 10, e.g., by using objects or drawings, and record each composition with a drawing or equation.
9. *For any number from 1 to 9, find the number that makes 10 when added to the given number, e.g., by using objects or drawings, and record the answer with a drawing or equation.

Measurement and Data

K-MD

Direct measurement

1. Understand that objects have measurable attributes, such as length or weight. A single object might have several measurable attributes of interest.
2. Directly compare two objects with a measurable attribute in common, to see which object has “more of” the attribute. *For example, directly compare the heights of two books and identify which book is taller.*

Representing and interpreting data

3. Classify objects or people into given categories; count the numbers in each category and sort the categories by count. *Limit category counts to be less than or equal to 10.*

Geometry

K-G

Shapes, their attributes, and spatial reasoning

1. Describe objects in the environment using names of shapes, and describe the relative positions of these objects using terms such as *above*, *below*, *beside*, *in front of*, *behind*, and *next to*.
2. Understand that names of shapes apply regardless of the orientation or overall size of the shape. *For example, a square in any orientation is still a square. Students may initially need to physically rotate a shape until it is “level” before they can correctly name it.*
3. Understand that shapes can be two-dimensional (lying in a plane, “flat”) or three-dimensional (“solid”).
4. Understand that shapes can be seen as having parts, such as sides and vertices (“corners”), and that shapes can be put together to compose other shapes.
5. Analyze and compare a variety of two- and three-dimensional shapes, in different sizes and orientations, using informal language to describe their similarities, differences, component parts (e.g., number of sides and vertices) and other attributes (e.g., having sides of equal length).
6. Combine two- or three-dimensional shapes to solve problems such as deciding which puzzle piece will fit into a place in a puzzle.

Mathematics | Grade 1

In Grade 1, instructional time should focus on four critical areas: (1) developing understanding of addition, subtraction, and strategies for additions and subtractions within 20; (2) developing understanding of whole number relationships, including grouping in tens and ones, (3) developing understanding of linear measurement and measuring lengths, and (4) composing and decomposing geometric shapes.

(1) Students develop strategies for adding and subtracting whole numbers based on their prior work with small numbers. They use a variety of models, including discrete objects and length-based models (e.g., cubes connected to form lengths), to model “put together/take apart,” “add to,” “take from,” and “compare” situations to develop meaning for the operations of addition and subtraction, and to develop strategies to solve arithmetic problems with these operations. Students understand connections between counting and addition and subtraction (i.e., adding two is the same as counting on two). They use properties of addition (commutativity and associativity) to add whole numbers and to create and use increasingly sophisticated strategies based on these properties (e.g., “making tens”) to solve addition and subtraction problems within 20. By comparing a variety of solution strategies, children build their understanding of the inverse relationship between addition and subtraction.

(2) Students compare and order whole numbers (at least to 100), to develop understanding of and solve problems involving their relative sizes. They think of whole numbers between 10 and 100 in terms of tens and ones (especially recognizing the numbers 11 to 19 as composed of a ten and some ones). They understand the sequential order of the counting numbers and their relative magnitudes through activities such as representing numbers on paths of numbered things.

(3) Students develop an understanding of the meaning and processes of measurement, including underlying concepts such as partitioning (the mental activity of decomposing the length of an object into equal-sized units) and transitivity (e.g., in terms of length, if object A is longer than object B and object B is longer than object C, then object A is longer than object C). They understand linear measure as an iteration of units, and use rulers and other measurement tools with that understanding.

(4) Students compose and decompose plane and solid figures (e.g., put two congruent isosceles triangles together to make a rhombus), building understanding of part-whole relationships as well as the properties of the original and composite shapes. As they combine solid and plane figures, they recognize them from different perspectives and orientations, describe their geometric attributes, and determine how they are alike and different, to develop the background for measurement and for initial understandings of properties such as congruence and symmetry.

Addition and subtraction

1. * Understand the properties of addition.
 - a. Addition is commutative. For example, if 3 cups are added to a stack of 8 cups, then the total number of cups is the same as when 8 cups are added to a stack of 3 cups; that is, $8 + 3 = 3 + 8$.
 - b. Addition is associative. For example, $4 + 3 + 2$ can be found by first adding $4 + 3 = 7$ then adding $7 + 2 = 9$, or by first adding $3 + 2 = 5$ then adding $4 + 5 = 9$.
 - c. 0 is the additive identity.
2. * Explain and justify properties of addition and subtraction, e.g., by using representations such as objects, drawings, and story contexts. Explain what happens when:
 - a. The order of addends in a sum is changed in a sum with two addends.
 - b. 0 is added to a number.
 - c. A number is subtracted from itself.
 - d. One addend in a sum is increased by 1 and the other addend is decreased by 1. *Limit to two addends.*
3. * Understand that addition and subtraction have an inverse relationship. For example, if $8 + 2 = 10$ is known, then $10 - 2 = 8$ and $10 - 8 = 2$ are also known.
4. * Understand that when all but one of three numbers in an addition or subtraction equation are known, the unknown number can be found. *Limit to cases where the unknown number is a whole number.*
5. Understand that addition can be recorded by an expression (e.g., $6 + 3$), or by an equation that shows the sum (e.g., $6 + 3 = 9$). Likewise, subtraction can be recorded by an expression (e.g., $9 - 5$), or by an equation that shows the difference (e.g., $9 - 5 = 4$).

Describing situations and solving problems with addition and subtraction

6. Understand that addition and subtraction apply to situations of adding-to, taking-from, putting together, taking apart, and comparing. See *Glossary, Table 1*.
7. * Solve word problems involving addition and subtraction within 20, e.g., by using objects, drawings and equations to represent the problem. *Students should work with all of the addition and subtraction situations shown in the Glossary, Table 1, solving problems with unknowns in all positions, and representing these situations with equations that use a symbol for the unknown (e.g., a question mark or a small square). Grade 1 students need not master the more difficult problem types.*
8. Solve word problems involving addition of three whole numbers whose sum is less than or equal to 20.

Number—Base Ten**Numbers up to 100**

1. Read and write numbers to 100.
2. Starting at any number, count to 100 or beyond.
3. Understand that when comparing two-digit numbers, if one number has more tens, it is greater; if the amount of tens is the same in each number, then the number with more ones is greater.
4. Compare and order two-digit numbers based on meanings of the tens and ones digits, using $>$ and $<$ symbols to record the results of comparisons.

Adding and subtracting in base ten

5. Calculate mentally, additions and subtractions within 20.
 - a. Use strategies that include counting on; making ten (for example, $7 + 6 = 7 + 3 + 3 = 10 + 3 = 13$); and decomposing a number (for example, $17 - 9 = 17 - 7 - 2 = 10 - 2 = 8$).
6. Demonstrate fluency in addition and subtraction within 10.
7. Understand that in adding or subtracting two-digit numbers, one adds or subtracts like units (tens and tens, ones and ones) and sometimes it is necessary to compose or decompose a higher value unit.
8. Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count.
9. Add one-digit numbers to two-digit numbers, and add multiples of 10 to one-digit and two-digit numbers.
10. Explain addition of two-digit numbers using concrete models or drawings to show composition of a ten or a hundred.
11. * Add two-digit numbers to two-digit numbers using strategies based on place value, properties of operations, and/or the inverse relationship between addition and subtraction; explain the reasoning used.

Length measurement

1. Order three objects by length; compare the length of two objects indirectly by using a third object.
2. Understand that the length of an object can be expressed numerically by using another object as a length unit (such as a paper-clip, yardstick, or inch length on a ruler). The object to be measured is partitioned into as many equal parts as possible with the same length as the length unit. The length measurement of the object is the number of length units that span it with no gaps or overlaps. *For example, "I can put four paperclips end to end along the pencil, so the pencil is four paperclips long."*
3. Measure the length of an object by using another object as a length unit.

Time measurement

4. Tell time from analog clocks in hours and half- or quarter-hours.

Representing and interpreting data

5. Organize, represent, and interpret data with several categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.

Geometry**Shapes, their attributes, and spatial reasoning**

1. Distinguish between defining attributes (e.g., triangles are closed and three-sided) versus non-defining attributes (e.g., color, orientation, overall size) for a wide variety of shapes.
2. Understand that shapes can be joined together (composed) to form a larger shape or taken apart (decomposed) into a collection of smaller shapes. Composing multiple copies of some shapes creates tilings. *In this grade, "circles," "rectangles," and other shapes include their interiors as well as their boundaries.*
3. Compose two-dimensional shapes to create a unit, using cutouts of rectangles, squares, triangles, half-circles, and quarter-circles. Form new shapes by repeating the unit.
4. Compose three-dimensional shapes to create a unit, using concrete models of cubes, right rectangular prisms, right circular cones, and right circular cylinders. Form new shapes by repeating the unit. *Students do not need to learn formal names such as "right rectangular prism."*
5. Decompose circles and rectangles into two and four equal parts. Describe the parts using the words *halves*, *fourths*, and *quarters*, and using the phrases *half of*, *fourth of*, and *quarter of*. Describe the whole as two of, or four of the parts. Understand that decomposing into more equal shares creates smaller shares.
6. Decompose two-dimensional shapes into rectangles, squares, triangles, half-circles, and quarter-circles, including decompositions into equal shares.

Mathematics | Grade 2

In Grade 2, instructional time should focus on three critical areas: (1) developing understanding of base-ten notation; (2) developing fluency with additions and subtractions within 20 and fluency with multi-digit addition and subtraction; and (3) describing and analyzing shapes.

(1) Students develop an understanding of the base-ten system (at least to 1000). Their understanding of the base-ten system includes ideas of counting in units (twos, fives, and tens) and multiples of hundreds, tens, and ones, as well as number relationships, including comparing and ordering. They understand multi-digit numbers (up to 1000) written in base-ten notation, recognizing that the digits in each place represent thousands, hundreds, tens, or ones (e.g., 853 is 8 hundreds + 5 tens + 3 ones).

(2) Students use their understanding of addition to develop fluency with additions and subtractions within 20. They solve arithmetic problems by applying their understanding of models for addition and subtraction (such as combining or separating sets or using number lines that begin with zero), relationships and properties of numbers, and properties of addition. They develop, discuss, and use efficient, accurate, and generalizable methods to compute sums and differences of two-digit whole numbers. They select and accurately apply methods that are appropriate for the context and the numbers involved to mentally calculate sums and differences. They develop fluency with efficient procedures, including standard algorithms, for adding and subtracting whole numbers; understand and explain why the procedures work based on their understanding of base-ten notation and properties of operations; and use them to solve problems.

(3) Students describe and analyze shapes by examining their sides and angles. Students investigate, describe, and reason about decomposing and combining shapes to make other shapes. Through building, drawing, and analyzing two- and three-dimensional shapes, students develop a foundation for understanding attributes of two- and three-dimensional space such as area and volume, and properties such as congruence and symmetry that they will learn about in later grades.

Addition and subtraction

1. * Explain and justify properties of addition and subtraction, e.g., by using representations such as objects, drawings, and story contexts. Include properties such as:
 - a. Changing the order of addends does not change their sum.
 - b. Subtracting one addend from a sum of two numbers results in the other addend.
 - c. If more is subtracted from a number, the difference is decreased, and if less is subtracted the difference is increased.
 - d. In an addition equation, each addend can be decomposed and the parts can be recombined in any order without changing the sum. *For example, $5 + 3 = 8$. Because 5 decomposes as $4 + 1$, the first addend can be replaced by $4 + 1$, yielding $(4 + 1) + 3 = 8$. Recombining in two different orders: $4 + 4 = 8$, also $7 + 1 = 8$.*

Describing situations and solving problems with addition and subtraction

2. * Solve word problems involving addition and subtraction within 100, e.g., by using drawings or equations to represent the problem. *Students should work with all of the addition and subtraction situations shown in the Glossary, Table 1, solving problems with unknown sums, addends, differences, minuends, and subtrahends, and representing these situations with equations that use a symbol for the unknown (e.g., a question mark or a small square). Focus on the more difficult problem types.*
3. Solve two-step word problems involving addition and subtraction within 100, e.g., by using drawings or equations to represent the problem.

Number—Base Ten**Numbers up to 1000**

1. Understand that 100 can be thought of as a bundle of tens—a unit called a “hundred.”
2. Read and write numbers to 1000 using base-ten notation, number names, and expanded form.
3. Count within 1000; skip count by 2s, 5s, 10s, and 100s.
4. Understand that when comparing three-digit numbers, if one number has more hundreds, it is greater; if the amount of hundreds is the same in each number, then the number with more tens is greater. If the amount of tens and hundreds is the same in each number, then the number with more ones is greater.
5. Compare and order three-digit numbers based on meanings of the hundreds, tens, and ones digits.

Adding and subtracting in base ten

6. Fluently add and subtract within 20. By end of Grade 2, know from memory sums of one-digit numbers.
7. Mentally compute sums and differences of multiples of 10. *For example, mentally calculate $130 - 80$.*
8. Understand that in adding or subtracting three-digit numbers, one adds or subtracts like units (hundreds and hundreds, tens and tens, ones and ones) and sometimes it is necessary to compose or decompose a higher value unit.
9. Given a number from 100 to 900, mentally find 10 more or 10 less than the number, and mentally find 100 more or 100 less than the number, without counting.
10. Understand that algorithms are predefined steps that give the correct result in every case, while strategies are purposeful manipulations that may be chosen for specific problems, may not have a fixed order, and may be aimed at converting one problem into another. *For example, one might mentally compute $503 - 398$ as follows: $398 + 2 = 400$, $400 + 100 = 500$, $500 + 3 = 503$, so the answer is $2 + 100 + 3$, or 105.*
11. * Compute sums and differences of one-, two-, and three-digit numbers using strategies based on place value, properties of operations, and/or the inverse relationship between addition and subtraction; explain the reasoning used.
12. * Explain why addition and subtraction strategies and algorithms work, using place value and the properties of operations. *Include explanations supported by drawings or objects. A range of reasonably efficient algorithms may be covered, not only the standard algorithm.*
13. Compute sums of two three-digit numbers, and compute sums of three or four two-digit numbers, using the standard algorithm; compute differences of two three-digit numbers using the standard algorithm.

Measurement and Data**Length measurement**

1. Understand that 1 inch, 1 foot, 1 centimeter, and 1 meter are conventionally defined lengths used as standard units.
2. Measure lengths using measurement tools such as rulers, yardsticks and measuring tapes; understand that these tools are used to find out how many standard length units span an object with no gaps or overlaps, when the 0 mark of the tool is aligned with an end of the object.

3. Understand that when measuring a length, if a smaller unit is used, more copies of that unit are needed to measure the length than would be necessary if a larger unit were used.
4. Understand that units can be decomposed into smaller units, e.g., 1 foot can be decomposed into 12 inches and 1 meter can be decomposed into 100 centimeters. A small number of long units might compose a greater length than a large number of small units.
5. Understand that lengths can be compared by placing objects side by side, with one end lined up. The difference in lengths is how far the longer extends beyond the end of the shorter.
6. Understand that a sum of two whole numbers can represent a combination of two lengths; a difference of two whole numbers can represent a difference in length; find total lengths and differences in lengths using addition and subtraction.

Time and money

7. Find time intervals between hours in one day.
8. Solve word problems involving dollar bills, quarters, dimes, nickels and pennies. *Do not include dollars and cents in the same problem.*

Representing and interpreting data

9. Generate measurement data by measuring whole-unit lengths of several objects, or by making repeated measurements of the same object. Show the measurements by making a dot plot, where the horizontal scale is marked off in whole-number units.
10. Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with several categories. Connect representations on bar graph scales, rulers, and number lines that begin with zero. Solve simple Put Together/Take Apart and Compare problems using information presented in a bar graph. *See Glossary, Table 1.*

Geometry

2-G

Shapes, their attributes, and spatial reasoning

1. Understand that different categories of shapes (e.g., rhombuses, trapezoids, rectangles, and others) can be united into a larger category (e.g., quadrilaterals) on the basis of shared attributes (e.g., having four straight sides).
2. Identify and name polygons of up to six sides by the number of their sides or angles.
3. Recognize rectangles, rhombuses, squares and trapezoids as examples of quadrilaterals; draw examples of quadrilaterals that do not belong to any of these subcategories.
4. Draw and identify shapes that have specific attributes, such as number of equal sides or number of equal angles. *Sizes of lengths and angles are compared directly or visually, not compared by measuring.*
5. Recognize objects as resembling spheres, right circular cylinders, and right rectangular prisms. *Students do not need to learn formal names such as "right rectangular prism."*
6. Decompose circular and rectangular objects into two, three, or four equal parts. Describe the parts using the words *halves, thirds, half of, a third of*, etc.; describe the wholes as two halves, three thirds, four fourths. Recognize that a half, a third, or a fourth of a circular or rectangular object—a graham cracker, for example—is the same size regardless of its shape.

Mathematics | Grade 3

In Grade 3, instructional time should focus on four critical areas: (1) developing understanding of multiplication and division and strategies for multiplication and division within 100; (2) developing understanding of fractions, starting with unit fractions; (3) developing understanding of the structure of rectangular arrays and of area; and (4) describing and analyzing two-dimensional shapes. Multiplication, division, and fractions are the most important developments in Grade 3.

(1) Students develop an understanding of the meanings of multiplication and division of whole numbers through the use of representations such as equal-sized groups, arrays, area models, and equal jumps on number lines for multiplication; and successive subtraction, partitioning, and sharing for division. Through this process, numbers themselves take on new meaning and are no longer only counters for single objects. They represent groups, a number of groups (for example, 3 teams of 6 people), or a comparative factor (3 times as long).

Students use properties of operations to calculate products of whole numbers. They use increasingly sophisticated strategies based on these properties to solve multiplication and division problems involving single-digit factors. By comparing a variety of solution strategies, students learn the inverse relationship between multiplication and division.

(2) Students develop an understanding of a definition of a fraction, beginning with unit fractions. They use fractions to represent parts of a whole or distances on a number line that begins with zero. Students understand that the size of a fractional part is relative to the size of the whole (for example, $\frac{1}{4}$ of a mile is longer than $\frac{3}{4}$ of a foot, even though $\frac{1}{4} < \frac{3}{4}$), and they are able to use fractions to represent numbers equal to, less than, and greater than one. They solve problems that involve comparing and ordering fractions using by models or strategies based on noticing common numerators or denominators.

(3) Students recognize area as an attribute of two-dimensional regions. They understand that area can be quantified by finding the total number of same-size units of area required to cover the shape without gaps or overlaps. They understand that a 1-unit by 1-unit square is the standard unit for measuring area. Students understand that rectangular arrays can be decomposed into identical rows or into identical columns. By decomposing rectangles into rectangular arrays of squares, students connect area measure to the area model used to represent multiplication, and they use this connection to justify using multiplication to determine the area of a rectangle. Students contrast area with perimeter.

(4) Students describe, analyze, and compare properties of two-dimensional shapes. They compare and classify the shapes by their sides and angles, and connect these with definitions of shapes. Students investigate, describe, and reason about decomposing and combining polygons to make other polygons. Through building, drawing, and analyzing two-dimensional shapes, students deepen their understanding of attributes and properties of two-dimensional objects.

Multiplication and division

1. Understand that multiplication of whole numbers is repeated addition. *For example, 5×7 means 7 added to itself 5 times. Products can be represented by rectangular arrays, with one factor the number of rows and the other the number of columns.*
2. *Understand the properties of multiplication.
 - a. Multiplication is **commutative**. *For example, the total number in 3 groups with 6 things each is the same as the total number in 6 groups with 3 things each, that is, $3 \times 6 = 6 \times 3$.*
 - b. Multiplication is **associative**. *For example, $4 \times 3 \times 2$ can be calculated by first calculating $4 \times 3 = 12$ then calculating $12 \times 2 = 24$, or by first calculating $3 \times 2 = 6$ then calculating $4 \times 6 = 24$.*
 - c. 1 is the multiplicative identity.
 - d. Multiplication distributes over addition (the **distributive property**). *For example, $5 \times (3 + 4) = (5 \times 3) + (5 \times 4)$.*
3. *Explain and justify properties of multiplication and division, e.g., by using representations such as objects, drawings, and story contexts. Include properties such as:
 - a. Changing the order of two factors does not change their product.
 - b. The product of a number and 1 is the number.
 - c. Dividing a nonzero number by itself yields 1.
 - d. Multiplying a quantity by a nonzero number, then dividing by the same number, yields the original quantity.
 - e. When one factor in a product is multiplied by a number and another factor divided by the same number, the product is unchanged. *Limit to multiplying and dividing by numbers that result in whole-number quotients.*
 - f. Products where one factor is a one-digit number can be computed by decomposing one factor as the sum of two numbers, multiplying each number by the other factor, and adding the two products.
4. *Understand that multiplication and division have an inverse relationship. *For example, if $5 \times 7 = 35$ is known, then $35 \div 5 = 7$ and $35 \div 7 = 5$ are also known. The division $35 \div 5$ means the number which yields 35 when multiplied by 5; because $5 \times 7 = 35$, then $35 \div 5 = 7$.*
5. *Understand that when all but one of three numbers in a multiplication or division equation are known, the unknown number can be found. *Limit to cases where the unknown number is a whole number.*

Describing situations and solving problems with multiplication and division

6. Understand that multiplication and division apply to situations with equal groups, arrays or area, and comparing. *See Glossary, Table 2.*
7. *Solve word problems involving **multiplication and division within 100**, using an equation with a symbol for the unknown to represent the problem. *This standard is limited to problems with whole-number quantities and whole-number quotients. Focus on situations described in the Glossary, Table 2.*
8. *Solve one- or two-step word problems involving the four operations. *This standard is limited to problems with whole-number quantities and whole-number quotients.*
9. Understand that multiplication and division can be used to compare quantities (see Glossary, Table 2); solve multiplicative comparison problems with whole numbers (problems involving the notion of “times as much”).

Number—Base Ten**Numbers up to 10,000**

1. Understand that 1000 can be thought of as a bundle of hundreds—a unit called a “thousand.”
2. Read and write numbers to 10,000 using base-ten notation, number names, and **expanded form**.
3. Count within 10,000; skip count by 10s, 100s and 1000s.
4. Understand that when comparing four-digit numbers, if one number has more thousands, it is greater; if the amount of thousands is the same in each number, then the number with more hundreds is greater; and so on. Compare and order four-digit numbers based on meanings of the digits.

Adding and subtracting in base ten

5. Mentally calculate sums and differences of multiples of 10, 100, and 1000. *For example, mentally calculate $1300 - 800$*
6. Given a number from 1000 to 9000, mentally find 100 more or 100 less than the number, and mentally find 1000 more or 1000 less than the number, without counting.

Multiplying and dividing in base ten

7. * Understand that the distributive property is at the heart of strategies and algorithms for multiplication and division computations with numbers in base-ten notation; use the distributive property and other properties of operations to explain patterns in the multiplication table and to derive new multiplication and division equations from known ones. *For example, the distributive property makes it possible to multiply 4×7 by decomposing 7 as $5 + 2$ and using $4 \times 7 = 4 \times (5 + 2) = (4 \times 5) + (4 \times 2) = 20 + 8 = 28$.*
8. Fluently multiply one-digit numbers by 10.
9. Use a variety of strategies for multiplication and division within 100. By end of Grade 3, know from memory products of one-digit numbers where one of the factors is 2, 3, 4, or 5.

Number—Fractions

3-NF

Fractions as representations of numbers

1. Understand that a unit fraction corresponds to a point on a number line. *For example, $1/3$ represents the point obtained by decomposing the interval from 0 to 1 into three equal parts and taking the right-hand endpoint of the first part. In Grade 3, all number lines begin with zero.*
2. Understand that fractions are built from unit fractions. *For example, $5/4$ represents the point on a number line obtained by marking off five lengths of $1/4$ to the right of 0.*
3. Understand that two fractions are equivalent (represent the same number) when both fractions correspond to the same point on a number line. Recognize and generate equivalent fractions with denominators 2, 3, 4, and 6 (e.g., $1/2 = 2/4$, $4/6 = 2/3$), and explain the reasoning.
4. Understand that whole numbers can be expressed as fractions. *Three important cases are illustrated by the examples $1 = 4/4$, $6 = 6/1$, and $7 = (4 \times 7)/4$. Expressing whole numbers as fractions can be useful for solving problems or making calculations.*

Fractional quantities

5. Understand that fractions apply to situations where a whole is decomposed into equal parts; use fractions to describe parts of wholes. *For example, to show $1/3$ of a length, decompose the length into 3 equal parts and show one of the parts.*
6. Compare and order fractional quantities with equal numerators or equal denominators, using the fractions themselves, tape diagrams, number line representations, and area models. Use $>$ and $<$ symbols to record the results of comparisons.

Measurement and Data

3-MD

The number line and units of measure

1. Understand that a number line has an origin (0) and a unit (1), with whole numbers one unit distance apart. Use number lines to represent problems involving distances, elapsed time, amounts of money and other quantities. *In such problems, the interval from 0 to 1 may represent a unit of distance, time, money, etc.*
2. Understand that a unit of measure can be decomposed into equal-sized parts, whose sizes can be represented as fractions of the unit. Convert measurements in one unit to measurements in a smaller or a larger unit, and solve problems involving such mixed units (e.g., feet and inches, weeks and days).

Perimeter and area

3. Understand and use concepts of area measurement.
 - a. A square with side length 1 unit, called “a unit square,” is said to have “one square unit” of area, and can be used to measure area.
 - b. A plane figure which can be covered without gaps or overlaps by n unit squares has an area of n square units. Areas of some other figures can be measured by using fractions of unit squares or using figures whose areas have been found by decomposing other figures.
 - c. When measuring an area, if a smaller unit of measurement is used, more units must be iterated to measure the area in those units.
 - d. Determine and compare areas by counting square units. *Use cm^2 , m^2 , in^2 , ft^2 , and improvised units.*
4. Understand that multiplication of whole numbers can be represented by area models; a rectangular region that is a length units by b length units (where a and b are whole numbers) and tiled with unit squares illustrates why the rectangle encloses an area of $a \times b$ square units.
5. Solve problems involving perimeters of polygons.
 - a. Add given side lengths, and multiply for the case of equal side lengths.
 - b. * Find an unknown length of a side in a polygon given the perimeter and all other side lengths; represent these problems with equations involving a letter for the unknown quantity.
 - c. Exhibit rectangles with the same perimeter and different area, and with the same area and different perimeter.

Representing and interpreting data

6. Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step “how many more” and “how many less” problems using information presented in scaled bar graphs. *Include single-unit scales and multiple-unit scales; for example, each square in the bar graph might represent 1 pet, 5 pets, or 10 pets.*
7. Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a dot plot, where the horizontal scale is marked off in appropriate units—whole numbers, halves, or quarters.

Geometry

3-G

Properties of 2-dimensional shapes

1. Understand that a given category of plane figures (e.g., triangles) has subcategories (e.g., isosceles triangles) defined by special properties.
2. Describe, analyze, compare and classify two-dimensional shapes by their properties and connect these properties to the classification of shapes into categories and subcategories (e.g., squares are “special rectangles” as well as “special rhombuses”). *Focus on triangles and quadrilaterals.*

Structuring rectangular shapes

3. Understand that rectangular regions can be tiled with squares in rows and columns, or decomposed into such arrays.
4. Structure a rectangular region spatially by decomposing it into rows and columns of squares. Determine the number of squares in the region using that spatial structure (e.g., by multiplication or skip counting).
5. Understand that shapes can be decomposed into parts with equal areas; the area of each part is a unit fraction of the whole. *For example, when a shape is partitioned into 4 parts with equal area, the area of each part is $\frac{1}{4}$ of the area of the shape.*

Mathematics | Grade 4

In Grade 4, instructional time should focus on four critical areas: (1) continuing to develop understanding and fluency with whole number multiplication, and developing understanding of multi-digit whole number division; (2) developing an understanding of addition and subtraction of fractions with like denominators, multiplication of fractions by whole numbers, and division of whole numbers with fractional answers; (3) developing an understanding of area; and (4) understanding that geometric figures can be analyzed and classified using properties such as having parallel sides, perpendicular sides, particular angle measures, and symmetry.

(1) Students use understandings of multiplication to develop fluency with multiplication and division within 100. They apply their understanding of models for multiplication (equal-sized groups, arrays, area models, equal intervals on a number line), place value, and properties of operations, in particular the distributive property, as they develop, discuss, and use efficient, accurate, and generalizable methods to compute products of multi-digit whole numbers. Depending on the numbers and the context, they select and accurately apply appropriate methods to estimate products or mentally calculate products. They develop fluency with efficient procedures, including the standard algorithm, for multiplying whole numbers; understand and explain why the procedures work based on place value and properties of operations; and use them to solve problems. Students apply their understanding of models for division, place value, properties of operations, and the relationship of division to multiplication as they develop, discuss, and use efficient, accurate, and generalizable procedures to find quotients involving multi-digit dividends. They select and accurately apply appropriate methods to estimate quotients and mentally calculate quotients, depending upon the context and the numbers involved.

(2) Students develop understanding of operations with fractions. They apply their understandings of fractions as built from unit fractions, and use fraction models to represent the addition and subtraction of fractions with like denominators. Students use the meaning of fractions and the meaning of multiplication to understand and explain why the procedure for multiplying a fraction by a whole number makes sense. They understand and explain the connection between division and fractions.

(3) Students develop their understanding of area. They understand and apply the area formula for rectangles and also find areas of shapes that can be decomposed into rectangles. They select appropriate units, strategies (e.g., decomposing shapes), and tools for solving problems that involve estimating and measuring area.

(4) Students describe, analyze, compare, and classify two-dimensional shapes. Through building, drawing, and analyzing two-dimensional shapes, students deepen their understanding of properties of two-dimensional objects and the use of them to solve problems involving symmetry.

Multiplication and division

1. Find the factor pairs for a given whole number less than or equal to 100; recognize prime numbers as numbers greater than 1 with exactly one factor pair. *Example: The factor pairs of 42 are {42, 1}, {21, 2}, {14, 3}, {7, 6}.*

Problem solving with the four operations

2. ✦ Solve multistep word problems involving the four operations with whole numbers.
3. ✦ Solve problems posed with both whole numbers and fractions. Understand that while quantities in a problem might be described with whole numbers, fractions, or decimals, the operations used to solve the problem depend on the relationships between the quantities regardless of which number representations are involved.
4. Assess the reasonableness of answers using mental computation and estimation strategies including rounding to the nearest 10 or 100.

Number—Base Ten**Numbers up to 100,000**

1. Understand that a digit in one place represents ten times what it represents in the place to its right. *For example, 7 in the thousands place represents 10 times as many as 7 in the hundreds place.*
2. Read, write and compare numbers to 100,000 using base-ten notation, number names, and expanded form.

Multiplying and dividing in base ten

3. Understand how the distributive property and the expanded form of a multi-digit number can be used to calculate products of multi-digit numbers.
 - a. ✦ The product of a one-digit number times a multi-digit number is the sum of the products of the one-digit number with the summands in the expanded form of the multi-digit number. Illustrate this numerically and visually using equations, rectangular arrays, area models, and tape diagrams.
 - b. Algorithms for multi-digit multiplication can be derived and explained by writing multi-digit numbers in expanded form and applying the distributive property.
4. Fluently multiply and divide within 100. By end of Grade 4, know from memory products of one-digit numbers where one of the factors is 6, 7, 8, or 9.
5. Mentally calculate products of one-digit numbers and one-digit multiples of 10, 100, and 1000 (e.g., 7×6000). Mentally calculate whole number quotients with divisors of 10 and 100.
6. Compute products and whole number quotients of two-, three- or four-digit numbers and one-digit numbers, and compute products of two two-digit numbers, using strategies based on place value, the properties of operations, and/or the inverse relationship between multiplication and division; explain the reasoning used.
7. Explain why multiplication and division strategies and algorithms work, using place value and the properties of operations. *Include explanations supported by drawings, equations, or both. A range of reasonably efficient algorithms may be covered, not only the standard algorithms.*
8. Compute products of two-digit numbers using the standard algorithm, and check the result using estimation.
9. Given two whole numbers, find an equation displaying the largest multiple of one which is less than or equal to the other. *For example, given 325 and 7, the equation $325 = 46 \times 7 + 3$ shows the largest multiple of 7 less than or equal to 325.*

Number—Fractions**Operations on fractions**

1. Understand addition of fractions:
 - a. Adding or subtracting fractions with the same denominator means adding or subtracting copies of unit fractions. *For example, $2/3 + 4/3$ is 2 copies of $1/3$ plus 4 copies of $1/3$, or 6 copies of $1/3$ in all, that is $6/3$.*
 - b. Sums of related fractions can be computed by replacing one with an equivalent fraction that has the same denominator as the other. *For example, the sum of the related fractions $2/3$ and $1/6$ can be computed by rewriting $2/3$ as $4/6$ and computing $4/6 + 1/6 = 5/6$.*
2. Compute sums and differences of fractions with like denominators, add and subtract related fractions within 1 (e.g., $1/2 + 1/4$, $3/10 + 4/100$, $7/8 - 1/4$), and solve word problems involving these operations.
3. ✦ Understand that the meaning of multiplying a fraction by a whole number comes from interpreting multiplication by a whole number as repeated addition. *For example, $3 \times 2/5 = 6/5$ because $3 \times 2/5 = 2/5 + 2/5 + 2/5 = 6/5$.*

- Solve word problems that involve multiplication of fractions by whole numbers; represent multiplication of fractions by whole numbers using tape diagrams and area models that explain numerical results.
- ✧ Understand that fractions give meaning to the quotient of any whole number by any non-zero whole number. *For example, $3 \div 4 = 3/4$, because $3/4$ multiplied by 4 equals 3. (The division $3 \div 4$ means the number which yields 3 when multiplied by 4.)*
- Solve word problems that involve non-whole number quotients of whole numbers; represent quotients of whole numbers using tape diagrams and area models that explain numerical results.

Decimal concepts

- Understand that a two-digit decimal is a sum of fractions with denominators 10 and 100. *For example, 0.34 is $3/10 + 4/100$.*
- Use decimals to hundredths to describe parts of wholes; compare and order decimals to hundredths based on meanings of the digits; and write fractions of the form $a/10$ or $a/100$ in decimal notation. *Use $>$ and $<$ symbols to record the results of comparisons.*

Measurement and Data

4-MD

The number line and units of measure

- Understand that the unit length on a number line (interval from 0 to 1) can be divided into parts of equal fractional length. Draw number line representations of problem situations involving length, height, and distance including fractional or decimal units. *For example, show distances along a race course to tenths of a mile on a number line, by dividing the unit length into 10 equal parts to get parts of length $1/10$; the endpoint of the segment of $1/10$ length from 0 represents $1/10$ of a mile from the starting point of the race. In Grade 4, all numbers lines begin with zero.*

Perimeter and area

- Understand that if a region is decomposed into several disjoint pieces, then the area of the region can be found by adding the areas of the pieces (when these areas are expressed in the same units).
- ✧ Apply the formulas for area of squares and rectangles. Measure and compute whole-square-unit areas of objects and regions enclosed by geometric figures which can be decomposed into rectangles. *Limit to situations requiring products of one-or two-digit numbers.*
- ✧ Find one dimension of a rectangle, given the other dimension and the area or perimeter; find the length of one side of a square, given the area or perimeter. Represent these problems using equations involving a letter for the unknown quantity.

Angle measurement

- Understand what an angle is and how it is measured:
 - An angle is formed by two rays with a common endpoint.
 - An angle is measured by reference to a circle with its center at the common endpoint of the rays. The measure of an angle is based on the fraction of the circle between the points where the two rays intersect the circle.
 - A one-degree angle turns through $1/360$ of a circle, where the circle is centered at the common endpoint of its rays; the measure of a given angle is the number of one-degree angles turned with no gaps or overlaps.
- Measure angles in whole-number degrees using a protractor; sketch angles of specified measure; ✧ find the measure of a missing part of an angle, given the measure of the angle and the measure of a part of it, representing these problems with equations involving a letter for the unknown quantity.

Representing and interpreting data

- Make a dot plot to display a data set of measurements in fractions of a unit ($1/2$, $1/4$, $1/8$). Solve problems involving addition and subtraction of fractions by using information presented in dot plots. *For example, from a dot plot find and interpret the difference in length between the longest and shortest specimens in an insect collection.*

Geometry

4-G

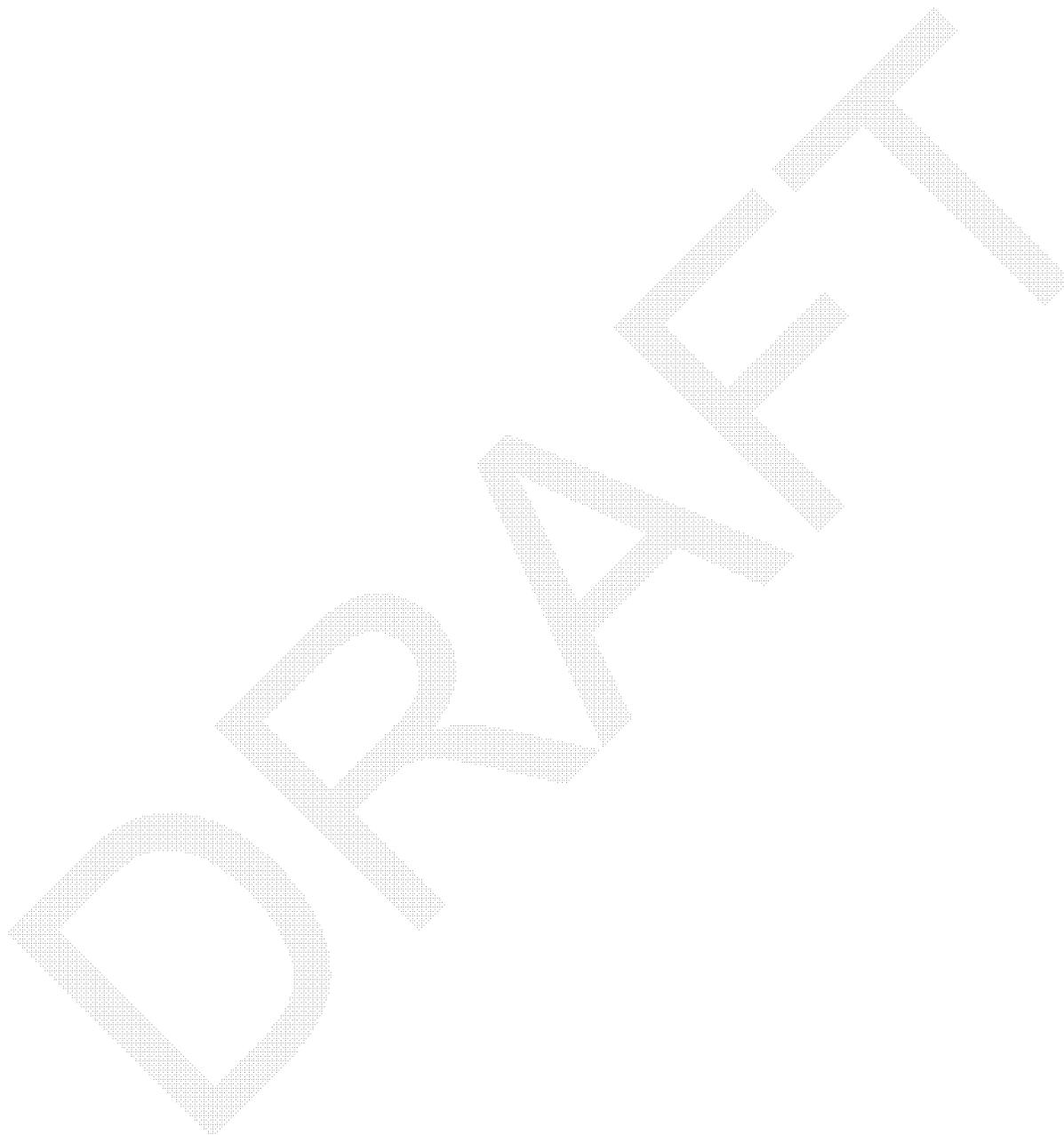
Lines and angles

- Draw points, lines, line segments, rays, angles, and perpendicular and parallel lines; identify these in plane figures.
- Identify right angles, and angles smaller than or greater than a right angle in geometric figures; recognize right triangles.
- Classify shapes based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of specified size.

Line symmetry

- Understand that a line of symmetry for a geometric figure is a line across the figure such that the figure can be folded along the line into matching parts

5. Identify line-symmetric figures; given a horizontal or vertical line and a drawing that is not a closed figure, complete the drawing to create a figure that is symmetric with respect to the given line.



Mathematics | Grade 5

In Grade 5, instructional time should focus on four critical areas: (1) developing fluency with addition and subtraction of fractions, developing understanding of the multiplication of fractions and of division of fractions in limited cases (fractions divided by whole numbers and whole numbers divided by unit fractions); (2) developing understanding of and fluency with division of multi-digit whole numbers; (3) developing understanding of and fluency with addition, subtraction, multiplication, and division of decimals; and (4) developing understanding of volume.

(1) Students apply their understanding of fractions and fraction models to represent the addition and subtraction of fractions with unlike denominators as equivalent calculations with like denominators. They develop fluency in calculating sums and differences of fractions, and make reasonable estimates of them. Students also use the meaning of fractions, of multiplication and division, and the inverse relationship between multiplication and division to understand and explain why the procedures for multiplying and dividing fractions make sense. (Note: this is limited to the case of dividing fractions by whole numbers and whole numbers by unit fractions.)

(2) Students develop fluency with division of whole numbers; understand why procedures work based on the meaning of base-ten notation and properties of operations; and use these procedures to solve problems. Based on the context of a problem situation, they select the most useful form of the quotient for the answer and interpret it appropriately.

(3) Students apply their understandings of models for decimals, decimal notation, and properties of operations to compute sums and differences of finite decimals. They develop fluency in these computations, and make reasonable estimates of their results. Students use the relationship between decimals and fractions, as well as the relationship between finite decimals and whole numbers (i.e., a finite decimal multiplied by an appropriate power of 10 is a whole number), to understand and explain why the procedures for multiplying and dividing finite decimals make sense. They compute products and quotients of finite decimals efficiently and accurately.

(4) Students recognize volume as an attribute of three-dimensional space. They understand that volume can be quantified by finding the total number of same-size units of volume required to fill the space without gaps or overlaps. They understand that a 1-unit by 1-unit by 1-unit cube is the standard unit for measuring volume. They select appropriate units, strategies, and tools for solving problems that involve estimating and measuring volume. They decompose three-dimensional shapes and find volumes of right rectangular prisms by viewing them as decomposed into layers of arrays of cubes. They measure necessary attributes of shapes in order to determine volumes to solve problems.

Whole numbers in base ten

1. Compute quotients of two-, three-, and four-digit whole numbers and two-digit whole numbers using strategies based on place value, the properties of operations, and/or the inverse relationship between multiplication and division; explain the reasoning used.
2. Explain why division strategies and algorithms work, using place value and the properties of operations. *Include explanations supported by drawings, equations, or both. A range of reasonably efficient algorithms may be covered, not only the standard algorithm.*
3. Use the standard algorithm to compute quotients of two-, three- and four-digit whole numbers and two-digit whole numbers, expressing the results as an equation (e.g., $145 = 11 \times 13 + 2$ or $120 \div 7 = 17 \frac{1}{7}$).
4. Fluently add, subtract and multiply whole numbers using the standard algorithm for each operation.

Decimal concepts

5. Read, write, and compare numbers expressed as decimals. Understand that a digit in one place represents ten times what it represents in the place to its right. *For example, 7 in the hundredths place represents 10 times as many as 7 in the thousandths place.*
6. Round decimals (to hundredths) to the nearest whole number.
7. Write fractions in decimal notation for fractions with denominators 2, 4, 5, 8, 10, and 100.

Operations on decimals

8. Understand that in adding or subtracting finite decimals, one adds or subtracts like units (tenths and tenths, hundredths and hundredths, etc.) and sometimes it is necessary to compose or decompose a higher value unit.
9. Fluently find 0.1 more than a number and less than a number; 0.01 more than a number and less than a number; and 0.001 more than a number and less than a number, for numbers expressed as finite decimals.
10. Compute sums and differences of finite decimals by expressing the decimals as fractions and adding the fractions. *For example, $0.05 + 0.91 = 5/100 + 91/100 = 96/100$ or 0.96.*
11. Compute sums, differences, products, and quotients of finite decimals using strategies based on place value, the properties of operations, and/or the inverse relationships between addition and subtraction and between multiplication and division; explain the reasoning used. *For example, transform $1.5 \div 0.3$ into $15 \div 3 = 5$.*
12. Explain why strategies and algorithms for computations with finite decimals work. *Include explanations supported by drawings, equations, or both. A range of reasonably efficient algorithms may be covered, not only the standard algorithm.*
13. Use the standard algorithm for each of the four operations on decimals (to hundredths).
14. Solve word problems involving operations on decimals.

Number—Fractions**Fraction equivalence**

1. ✧ Understand fraction equivalence:
 - a. Multiplying the numerator and denominator of a fraction by the same nonzero whole number produces an equivalent fraction. *For example, $2/3 = (2 \times 4)/(3 \times 4) = 8/12$. ($1/3$ is 4 copies of $1/12$, so $2/3$ is 8 copies of $1/12$.)*
 - b. Equivalent fractions correspond to the same point on a number line. *In Grade 5, all numbers lines begin with zero.*
 - c. When the numerators of equivalent fractions are divided by their denominators, the resulting quotients are the same.
2. Identify pairs of equivalent fractions; given two fractions with unlike denominators, find two fractions with the same denominator and equivalent to each.
3. Compare and order fractions with like or unlike denominators, e.g., by finding equivalent fractions with the same denominator, and describe the sizes of fractional quantities from a context with reference to the context. *Compare using the fractions themselves, tape diagrams or number line representations, and area models.*

Operations on fractions

4. Understand that sums and differences of fractions with unlike denominators can be computed by replacing each with an equivalent fraction so that the resulting fractions have the same denominator. *For example, $2/3 + 5/4 = 8/12 + 15/12 = 23/12$.*
5. Compute sums and differences of fractions with like or unlike denominators, and solve word problems involving addition and subtraction of fractions. Estimate fraction sums and differences to assess the reasonableness of results.
6. ✧ Understand that multiplying a fraction by a/b means taking a parts of a decomposition of the fraction into b equal parts. *For example, to multiply $2/3 \times 4/5 = 8/15$, one may decompose a whole of size $4/5$ into 3 equal parts; each part has size $4/15$. Two*

of these parts then make $8/15$, so $2/3 \times 4/5 = 8/15$. (In general, $a/b \times p/q = ap/bq$.) This standard includes multiplication of a whole number by a fraction, by writing the whole number as fraction with denominator 1.

7. Understand that the area of a rectangle with side lengths a/b and c/d is the product $a/b \times p/q$. This extends the area formula for rectangles to fractional side lengths, and also allows products of fractions to be represented visually as areas of rectangles.
8. *Explain and justify the properties of operations with fractions, e.g., by using equations, number line representations, area models, and story contexts.
9. Understand division of unit fractions by whole numbers and division of whole numbers by unit fractions:
 - a. Dividing a unit fraction $1/b$ by a whole number a results in a smaller unit fraction $1/a \times b$. For example, $1/3 \div 2 = 1/6$ because when $1/3$ is divided into 2 equal parts, the size of each part is $1/6$; a third of a pound of cheese shared between two people will give each person a sixth of a pound. (Using the inverse relationship between multiplication and division: $1/3 \div 2 = 1/6$ because $1/6 \times 2 = 1/3$.)
 - b. Dividing a whole number a by a unit fraction $1/b$ results in a greater whole number $a \times b$. For example, $2 \div 1/3 = 6$ because 6 is the number of $1/3$ s in 2; two pounds of cheese will make six portions of a third of a pound each. (Using the inverse relationship between multiplication and division: $2 \div 1/3 = 6$ because $6 \times 1/3 = 2$.)
10. Calculate products of fractions, and quotients of unit fractions and nonzero whole numbers (with either as divisor), and solve word problems involving these operations. Represent these operations using equations, area models and length models.
11. Understand that a mixed number such as $3 \frac{2}{5}$ represents the sum of a whole number and a fraction less than one. Because a whole number can be represented as a fraction ($3 = 3/1$), and the sum of two fractions is also a fraction, a mixed number also represents a fraction ($3 \frac{2}{5} = 3 + 2/5 = 15/5 + 2/5 = 17/5$). Write fractions as equivalent mixed numbers and vice versa.

Measurement and Data

5-MD

Units of measure

1. Understand that quantities expressed in like units can be added or subtracted giving a sum or difference with the same unit; different quantities may be multiplied to obtain a new kind of quantity (e.g., as when two lengths are multiplied to compute an area, or when an area and a length are multiplied to compute a volume).
2. Understand that when measuring a quantity, if a smaller unit is used, more units must be iterated to measure the quantity in those units.
3. Convert among different-sized standard measurement units within a given measurement system (e.g., feet to yards, centimeters to meters) and use conversion in solving multi-step word problems.

Volume

4. Understand concepts of volume measurement:
 - a. A cube with side length 1 unit (a unit cube) is said to have "one cubic unit" of volume, and can be used to measure volume.
 - b. The volume of a right rectangular prism with whole-unit side lengths can be found by packing it with unit cubes and using multiplication to count their number. For example, decomposing a right rectangular prism 3 length units wide by 5 units deep by 2 units tall shows that its volume is $3 \times 5 \times 2$ cubic units. The base of the prism has area 3×5 square units, so the volume can also be expressed as the height times the area of the base.
 - c. When measuring a volume, if a smaller unit is used, more units must be iterated to measure the volume in those units.
 - d. If a solid figure is decomposed into several disjoint pieces, then the volume enclosed by the figure can be found by adding the volumes of the pieces (when these volumes are expressed in the same units).
5. Decompose right rectangular prisms into layers of arrays of cubes; determine and compare volumes of right rectangular prisms, and objects well described as right rectangular prisms, by counting cubic units (using cm^3 , m^3 , in^3 , ft^3 , and improvised units).

Representing and interpreting data

6. Make a dot plot to display a data set of measurements in fractions of a unit ($1/2$, $1/4$, $1/8$). Use operations on fractions for this grade to solve problems involving information presented in dot plots. For example, given different measurements of liquid in identical beakers, find the amount of liquid each beaker would contain if the total amount in all the beakers were redistributed equally.

Geometry

5-G

Coordinates

1. Understand that a pair of perpendicular number lines, called axes, defines a coordinate system.
 - a. Their intersection is called the origin, usually arranged to coincide with the 0 on each line.
 - b. A given point in the plane can be located by using an ordered pair of numbers, called its coordinates. The first number indicates how far to travel from the origin in the direction of one axis, the second number indicates how far to travel in the direction of the second axis.
 - c. To avoid ambiguity, conventions dictate that the names of the two axes and the coordinates correspond (e.g., x -axis and x -coordinate, y -axis and y -coordinate).
2. Graph points in the first quadrant of the coordinate plane, and identify the coordinates of graphed points. Where ordered pairs arise in a problem situation, interpret the coordinate values in the context of the situation.

Plane figures

3. Understand that properties belonging to a category of plane figures also belong to all subcategories of that category. *For example, all rectangles have four right angles and squares are rectangles, so all squares have four right angles.*
4. Classify plane figures in a hierarchy based on properties.

Mathematics | Grade 6

In Grade 6, instructional time should focus on four critical areas: (1) connecting ratio and rate to whole number multiplication and division; (2) developing understanding of and fluency with division of fractions and developing fluency with multiplication of fractions; (3) developing understanding of and using formulas to determine areas of two-dimensional shapes and distinguishing between volume and surface area of three-dimensional shapes; and (4) writing, interpreting, and using expressions and equations.

(1) Students use reasoning about multiplication and division with quantities to solve ratio and rate problems. By viewing equivalent ratios and rates as deriving from, and extending, pairs of rows (or columns) in the multiplication table, and by analyzing simple drawings that indicate the relative size of quantities, students extend whole number multiplication and division to ratios and rates. Thus students expand their repertoires of problems in which multiplication and division can be used to solve problems, and they build on their understanding of fractions to understand ratios. Students solve a wide variety of problems involving ratios and rates.

(2) Students use the meaning of fractions, the meanings of multiplication and division, and the inverse relationship between multiplication and division to understand and explain why the procedures for dividing fractions make sense. Students are able to add, subtract, multiply, and divide fractions fluently, and use these operations to solve problems, including multi-step problems and problems involving measurement.

(3) Students reason about relationships among shapes to determine area and surface area. They find areas of right triangles, other triangles, and special quadrilaterals by decomposing these shapes, rearranging or removing pieces, and relating the shapes to rectangles. Using these methods, students discuss, develop, and justify formulas for areas of triangles and parallelograms. Students find areas of polygons and surface areas of prisms and pyramids by decomposition into pieces whose area they can determine.

(4) Students write mathematical expressions and equations that correspond to given situations, they evaluate expressions, and they use expressions and formulas to solve problems. Students understand that a variable is a letter standing for a number, where the number is unknown, or where, for the purpose at hand, it can be any number in the domain of interest. Students understand that expressions in different forms can be equivalent, and they use the laws of arithmetic to rewrite expressions to represent a total quantity in a different way (such as to represent it more compactly or to feature different information). Students know that the solutions of an equation are the values of the variables that make the equation true. Students use properties of operations and the idea of maintaining the equality of both sides of an equation to solve simple one-step equations. Students construct and analyze tables, such as tables of quantities that are in equivalent ratios, and they use equations (such as $3x = y$) to describe relationships in a table.

Having represented and analyzed data in Grades K–5, students in Grade 6 begin a serious engagement with statistics. The study of variability in data distinguishes statistics from mathematics. Students beginning their study of variability must first recognize statistical questions as those that anticipate variability in the answers. From this conceptual beginning, they learn to describe and summarize distributions of data—an activity that goes beyond merely computing summary statistics to include assessing the shape of a distribution and considering other issues as described in the standards.

Ratios

1. Understand the concept of a ratio: Two quantities are said to be in a ratio of a to b when for every a units of the first quantity there are b units of the second. *For example, in a flock of birds, the ratio of wings to beaks might be 2 to 1; this ratio is also written 2:1. In Grade 6, limit to ratios of whole numbers.*
2. Make tables of equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane.
3. Solve for an unknown quantity in a problem involving two equal ratios.
4. Describe categorical data sets using ratios (e.g., for every vote candidate A received, candidate C received nearly three votes; the ratio of type O blood donors to type B blood donors was 9:2).

Unit rates

5. Understand that for a ratio $a:b$, the corresponding unit rate is a/b . If there are a units of the first quantity for every b units of the second, where $b \neq 0$, then there are a/b units of the first quantity for 1 unit of the second. *For example, if a recipe has a ratio of 3 cups of flour to 4 cups of sugar, then there is $3/4$ cup of flour for each cup of sugar.*
6. ✦ Solve unit rate problems including unit pricing and constant speed, including reasoning with equations such as $d = r \times t$, $r = d/t$, $t = d \div r$.

The Number System**Operations**

1. Understand that the properties of operations apply to, and can be used with, addition and multiplication of fractions.
2. Understand that division of fractions is defined by viewing a quotient as the solution for an unknown-factor multiplication problem. *For example, $(2/3) \div (5/7) = 14/15$ because $(5/7) \times (14/15) = (2/3)$.*
3. Solve word problems requiring arithmetic with fractions, using the properties of operations and converting between forms as appropriate; estimate to check reasonableness of answers.
4. Fluently divide whole numbers using the standard algorithm.

The system of rational numbers

5. Understand that a number is a point on the number line.
6. Understand that some quantities have opposite directions, such as elevation above and below sea level or money received and spent. These quantities can be described using positive and negative numbers.
7. Understand that number lines familiar from previous grades can be extended to represent negative numbers to the left of zero. *Number lines can also be vertically oriented, as when a coordinate system is formed. Then the conventional terms “to the right of 0” and “to the left of 0” conventionally become “above 0” and “below 0.”*
 - a. Two different numbers, such as 7 and -7 , that are equidistant from zero on a number line are said to be opposites of one another. The opposite of the opposite of a number is the number itself, e.g., $-(-3) = 3$. The opposite of 0 is 0.
 - b. The absolute value of a number q , written $|q|$, is its distance from zero, and is always positive or zero.
 - c. Fractions and their opposites form a system of numbers called the rational numbers, represented by points on a number line. Whole numbers and their opposites form the integers, which are contained in the rational numbers.
 - d. Previous ways of comparing positive numbers can be extended to the rational numbers. The statement $p > q$ means that p is located to the right of q on a number line, while $p < q$ means that p is located to the left of q on a number line. Comparisons can also be made by reasoning appropriately about signed quantities (e.g., $-3 > -7$ makes sense because -3°C is a higher temperature than -7°C). The way two numbers compare does not always agree with the way their absolute values compare; for example, $-3 > -7$, but $|-3| < |-7|$.
8. Find and position rational numbers, including integers, on a number line.
9. Use rational numbers to describe quantities such as elevation, temperature, account balance and so on. Compare these quantities, recording the results of comparisons using $>$ and $<$ symbols.
10. Graph points and identify coordinates of points on the coordinate plane in all four quadrants. Where ordered pairs arise in a problem situation, interpret the coordinate values in the context of the situation.

Expressions

1. Understand that an expression records operations with numbers or with letters standing for numbers. *For example, the expression $2 \cdot (8 + 7)$ records adding 8 and 7 then multiplying by 2; the expression $5 - y$ records subtracting y from 5. Focus on the operations of addition, subtraction, multiplication and division, with some attention to square or cube roots.*
2. Understand the use of variables in expressions and algebraic conventions:
 - a. A letter is used to stand for a number in an expression in cases where the number is unknown, or where, for the purpose at hand, it can be any number in a domain of interest. Such a letter is called a variable.
 - b. If a variable appears in an expression more than once (e.g., as in $t + 3t$), that variable is understood to refer to the same number in each instance.
 - c. The multiplication symbol can be omitted when writing products of two or more variables or of a number and a variable. *For example, the expressions xy and $2a$ indicate $x \times y$ and $2 \times a$, respectively.*
3. Describe the structure and elements of simple expressions using correct terminology (sum, term, product, factor, quotient, coefficient); describe an expression by viewing one or more of its parts as a single entity. *For example, describe the expression $2 \cdot (8 + 7)$ as a product of two factors, by viewing $(8 + 7)$ as a single entity. The second factor is itself a sum of two terms.*
4. Understand and generate equivalent expressions:
 - a. Understand that two expressions are equivalent if they name the same number regardless of which numbers the variables in them stand for. *For example, the expressions $x + 3$ and $4x$ are not equivalent, even though they happen to name the same number in the case when x stands for 1.*
 - b. Understand that applying the laws of arithmetic to an expression results in an equivalent expression. *For example, applying the distributive law to the expression $3 \cdot (2 + x)$ leads to the equivalent expression $6 + 3x$. Applying the distributive law to $y + y + y$ leads to the equivalent expression $y \times (1 + 1 + 1)$, i.e., $y \times 3$ and then the commutative law of multiplication leads to the equivalent expression $3y$.*
 - c. Generate equivalent expressions to reinterpret the meaning of an expression. *For example, $2t + 3t$ records the addition of twice a quantity to three times itself; applying the distributive law leads to the equivalent expression $5t$, so that the original expression can be reinterpreted as recording five times the quantity.*

Quantitative relationships and the algebraic approach to problems

5. Understand that an equation is a statement that two expressions are equal, and a solution to an equation is a replacement value of the variable (or replacement values for all the variables if there is more than one) that makes the equation true.
6. Using the idea of maintaining equality between both sides of the equation, solve equations of the form $x + p = q$ and $px = q$ for cases in which p , q and x are all nonnegative rational numbers.
7. Choose variables to represent quantities in a word problem, and construct simple expressions or equations to solve the problem by reasoning about the quantities.
8. Understand that a variable can be used to represent a quantity that can change, often in relationship to another changing quantity, and an equation can express one quantity, thought of as the dependent variable, in terms of other quantities, thought of as the independent variables; represent a relationship between two quantities using equations, graphs, and tables; translate between any two of these representations. *For example, describe the terms in a sequence $t = 3, 6, 9, 12, \dots$ of multiples of 3 by writing the equation $t = 3n$ for $n = 1, 2, 3, 4, \dots$*

Geometry**Properties of area, surface area, and volume**

1. Understand that plane figures can be decomposed, reassembled, and completed into new figures; use this technique to derive area formulas.
2. Find the areas enclosed by right triangles, other triangles, special quadrilaterals, and polygons (by composing into rectangles or decomposing into triangles and other shapes).
3. Understand that three-dimensional figures can be formed by joining rectangles and triangles along their edges to enclose a solid region with no gaps or overlaps. The surface area is the sum of the areas of the enclosing rectangles and triangles.
4. Find the surface area of cubes, prisms and pyramids (include the use of nets to represent these figures).
5. Solve problems involving area, volume and surface area of objects.
6. Give examples of right rectangular prisms with the same surface area and different volumes, and with the same volume and different surface areas.

7. *Use exponents and symbols for square roots and cube roots to express the area of a square and volume of a cube in terms of their side lengths, and to express their side lengths in terms of their area or volume.

Statistics and Probability

6-SP

Variability and measures of center

1. Understand that a statistical question is one that anticipates variability in the data related to the question and accounts for it in the answers. *For example, “How old am I?” is not a statistical question, but “How old are the students in my school?” is a statistical question because one anticipates variability in students’ ages.*
2. Understand that a set of data generated by answers to a statistical question typically shows variability—not all of the values are the same—and yet often the values show an overall pattern, often with a tendency to cluster.
 - a. A measure of center for a numerical data set summarizes all of its values using a single number. The median is a measure of center in the sense that approximately half the data values are less than the median, while approximately half are greater. The mean is a measure of center in the sense that it is the value that each data point would take on if the total of the data values were redistributed fairly, and in the sense that it is the balance point of a data distribution shown on a dot plot.
 - b. A measure of variation for a numerical data set describes how its values vary using a single number. The interquartile range and the mean absolute deviation are both measures of variation.

Summarizing and describing distributions

3. Display numerical data in plots on a number line, including dot plots, histograms, and box plots.
4. Summarize numerical data sets, such as by:
 - a. Reporting the number of observations.
 - b. Describing the nature of the variable, including how it was measured and its units of measurement. *Data sets can include fractional values at this grade but not negative values.*
 - c. Describing center and variation, as well as describing any overall pattern and any striking deviations from the overall pattern.
5. Relate the choice of the median or mean as a measure of center to the shape of the data distribution being described and the context in which it is being used. Do the same for the choice of interquartile range or mean average deviation as a measure of variation. *For example, why are housing prices often summarized by reporting the median selling price, while students’ assigned grades are often based on mean homework scores?*

Mathematics | Grade 7

In Grade 7, instructional time should focus on four critical areas: (1) developing understanding of and applying proportional relationships; (2) developing understanding of operations with rational numbers and solving linear equations; (3) analyzing two- and three-dimensional space and figures using distance, angle, similarity, and congruence; and (4) drawing inferences about populations based on samples.

(1) Students extend their understanding of ratios and develop understanding of proportionality to solve single- and multi-step problems. Students use their understanding of ratios and proportionality to solve a wide variety of percent problems, including those involving discounts, interest, taxes, tips, and percent increase or decrease. Students solve problems about similar objects (including geometric figures) by using scale factors that relate corresponding lengths between the objects or by using the fact that relationships of lengths within an object are preserved in similar objects. Students graph proportional relationships and understand the unit rate informally as a measure of the steepness of the related line, called the slope. They distinguish proportional relationships from other relationships.

(2) Students develop a unified understanding of number, recognizing fractions, decimals, and percents as different representations of rational numbers. Students extend addition, subtraction, multiplication, and division and their properties to all rational numbers, including integers and numbers represented by complex fractions and negative fractions. By applying the laws of arithmetic, and by viewing negative numbers in terms of everyday contexts (e.g., amounts owed or temperatures below zero), students explain why the rules for adding, subtracting, multiplying, and dividing with negative numbers make sense. They use the arithmetic of rational numbers as they formulate and solve linear equations in one variable and use these equations to solve problems.

(3) Students use ideas about distance and angles, how they behave under dilations, translations, rotations and reflections, and ideas about congruence and similarity to describe and analyze figures and situations in two- and three-dimensional space and to solve problems, including multi-step problems. Students prove that various configurations of lines give rise to similar triangles because of the angles created when a transversal cuts parallel lines. Students apply this reasoning about similar triangles to solve problems, such as finding heights and distances. Students see the plausibility of the formulas for the circumference and area of a circle. For example, in the case of area, they may do so by reasoning about how lengths and areas scale in similar figures or by decomposing a circle or circular region and rearranging the pieces.

(4) Students build on their previous work with single data distributions to compare two data distributions and address questions about differences between populations. They begin informal work with random sampling to generate data sets and learn about the importance of representative samples for drawing inferences.

Analyzing proportional relationships

1. Form ratios of nonnegative rational numbers and compute corresponding unit rates. *For example, a person might walk $\frac{1}{2}$ mile in each $\frac{1}{4}$ hour; the unit rate for this ratio is $(1/2)/(1/4)$ miles per hour, equivalently 2 miles per hour. Include ratios of lengths, areas and other quantities, including when quantities being compared are measured in different units.*
2. Recognize situations in which two quantities covary and have a constant ratio. (The quantities are then said to be in a proportional relationship and the unit rate is called the constant of proportionality.) Decide whether two quantities that covary are in a proportional relationship, e.g., by testing for equivalent ratios or graphing on a coordinate plane.
3. Compute unit rates and solve proportional relationship problems in everyday contexts, such as shopping, cooking, carpentry, party planning, etc. Represent proportional relationships by equations that express how the quantities are related via the constant of proportionality or unit rate. *For example, total cost, t , is proportional to the number, n , purchased at a constant price, p ; this relationship can be expressed as $t = pn$.*
4. Plot proportional relationships on a coordinate plane where each axis represents one of the two quantities involved, observe that the graph is a straight line through the origin, and find unit rates from a graph. Explain what a point (x, y) means in terms of the situation, with special attention to the points $(0, 0)$ and $(1, r)$ where r is the unit rate.
5. Compare tables, graphs, formulas, diagrams, and verbal descriptions that represent or partially represent proportional relationships; explain correspondences among the representations including how the unit rate is shown in each.

Percent

6. Understand that percentages are rates per 100. For example, 30% of a quantity means $30/100$ times the quantity. A percentage can be a complex fraction, as in $3.75\% = 3.75/100$.
7. Find a percentage of a quantity; solve problems involving finding the whole given a part and the percentage.
8. Solve multistep percent problems. *Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error, expressing monthly rent as a percentage of take-home pay.*

The Number System**The system of rational numbers**

1. Understand that the rules for manipulating fractions extend to complex fractions.
2. Understand and perform addition and subtraction with rational numbers:
 - a. Understand that on a number line, the sum $p + q$ is the number located a distance $|q|$ from p , to the right of p if q is positive and to the left of p if q is negative. A number and its opposite are additive inverses (i.e., their sum is zero).
 - b. Compute sums of signed numbers using the laws of arithmetic. *For example, $7 + (-3) = 4$ because $7 + (-3) = (4 + 3) + (-3) = 4 + [3 + (-3)] = 4 + [0] = 4$.*
 - c. Understand that subtraction of rational numbers is defined by viewing a difference as the solution of an unknown-addend addition problem. Subtraction of a rational number gives the same answer as adding its additive inverse.
 - d. Explain and justify rules for adding and subtracting rational numbers, using a number line and practical contexts. *For example, relate $r + (-s) = r - s$ to a bank transaction; explain why $p - (q + r) = p - q - r$.*
 - e. Understand that the additive inverse of a sum is the sum of the additive inverses, that is $-(p + q) = -p + -q$. *For example, $-(6 + -2) = (-6) + 2$ because $[6 + (-2)] + [(-6) + 2] = [6 + (-6)] + [(-2) + 2] = [0] + [0] = 0$.*
3. Understand and perform multiplication and division with rational numbers:
 - a. Understand that the extension of multiplication from fractions to rational numbers is determined by the requirement that multiplication and addition satisfy the laws of arithmetic, particularly the distributive law, leading to products such as $(-1)(-1) = 1$ and the rules for multiplying signed numbers.
 - b. Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with non-zero divisor) is a rational number. If p/q is a rational number, then $-(p/q) = (-p)/q = p/(-q)$.
 - c. Calculate products and quotients of rational numbers, and use multiplication and division to solve word problems. *Include signed quantities.*

The system of real numbers

4. Understand that there are numbers that are not rational numbers, called irrational numbers, e.g., π and $\sqrt{2}$. Together the rational and irrational numbers form the real number system. In school mathematics, the real numbers are assumed to satisfy the laws of arithmetic.

Expressions and Equations

Expressions

1. Interpret numerical expressions at a level necessary to calculate their value using a calculator or spreadsheet. For expressions with variables, use and interpret conventions of algebraic notation, such as $y/2$ is $y \div 2$ or $1/2 \times y$; $(3 \pm y)/5$ is $(3 \pm y) \div 5$ or $1/5 \times (3 \pm y)$; a^2 is $a \times a$, a^3 is $a \times a \times a$, a^2b is $a \times a \times b$.
2. Generate equivalent expressions from a given expression using the laws of arithmetic and conventions of algebraic notation. Include:
 - a. Adding and subtracting linear expressions, as in $(2x + 3) + x + (2 - x) = 2x + 5$.
 - b. Factoring, as in $4x + 4y = 4(x + y)$ or $5x + 7x + 10y + 14y = 12x + 24y = 12(x + 2y)$.
 - c. Simplifying, as in $-2(3x - 5) + 4x = 10 - 2x$ or $x/3 + (x - 2)/4 = 7x/12 - 1/2$.

Quantitative relationships and the algebraic approach to problems

3. Choose variables to represent quantities in a word problem, and construct simple equations to solve the problem by reasoning about the quantities.
 - a. Solve word problems leading to equations of the form $px + q = r$ and $p(x + q) = r$, where p , q , and r are nonnegative rational numbers and the solution is a nonnegative rational number. Fluently solve equations of these forms, e.g., by undoing the operations involved in producing the expression on the left.
 - b. Solve the same word problem arithmetically and algebraically. *For example, "J. has 4 packages of balloons and 5 single balloons. In all, he has 21 balloons. How many balloons are in a package?" Solve this problem arithmetically (using a sequence of operations on the given numbers), and also solve it by using a variable to stand for the number of balloons in a package, constructing an equation such as $4b + 5 = 21$ to describe the situation then solving the equation.*
 - c. Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related. *For example, $P + 0.05P = 1.05P$ means that "increase by 5%" is the same as "multiply by 1.05."*

Geometry

7-G

Congruence and similarity

1. Verify experimentally the fact that a rigid motion (a sequence of rotations, reflections, and translations) preserves distance and angle, e.g., by using physical models, transparencies, or dynamic geometry software:
 - a. Lines are taken to lines, and line segments to line segments of the same length.
 - b. Angles are taken to angles of the same measure.
 - c. Parallel lines are taken to parallel lines.
2. Understand the meaning of congruence: a plane figure is congruent to another if the second can be obtained from the first by a rigid motion.
3. Verify experimentally that a dilation with scale factor k preserves lines and angle measure, but takes a line segment of length L to a line segment of length kL .
4. Understand the meaning of similarity: a plane figure is similar to another if the second can be obtained from the first by a similarity transformation (a rigid motion followed by a dilation).
5. Solve problems involving similar figures and scale drawings. *Include computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.*
6. Use informal arguments involving approximation by lines, squares, and cubes to see that a similarity transformation with a scale factor of k leaves angle measures unchanged, changes lengths by a factor of k , changes areas by a factor of k^2 , and changes volumes by a factor of k^3 .
7. Know the formulas relating the area, radius and circumference of a circle and solve problems requiring the use of these formulas; give an informal derivation of the relationship between the circumference and area of a circle.

Angles

8. Justify facts about the angle sum of triangles, exterior angles, and alternate interior angles created when parallel lines are cut by a transversal, e.g., by using physical models, transparencies, or dynamic geometry software to make rigid motions and give informal arguments. *For example, arrange three copies of the same triangle so that the three angles appear to form a line, and give an argument in terms of transversals why this is so.*
9. Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.

Situations involving randomness

1. Simulate situations involving randomness using random numbers generated by a calculator or a spreadsheet or taken from a table. *For example, if you guess at all ten true/false questions on a quiz, how likely are you to get at least seven answers correct?*
2. Use proportional reasoning to predict relative frequencies of outcomes for situations involving randomness, but for which a theoretical answer can be determined. *For example, when rolling a number cube 600 times, one would predict that a 3 or 6 would be rolled roughly 200 times, but probably not exactly 200 times. How far off might your prediction be? Use technology to generate multiple samples to approximate a distribution of sample proportions. Repeat the process for smaller sample sizes.*

Random sampling to draw inferences about a population

3. Understand that statistics can be used to gain information about a population by examining a sample of the population; generalizations about a population from a sample are valid only if the sample is representative of that population. Understand that random sampling tends to produce representative samples and support valid inferences.
4. Understand the importance of measures of variation in sample quantities (like means or proportions) in reasoning about how well a sample quantity estimates or predicts the corresponding population quantity.
5. Use data from a random sample to draw inferences about a population with an unknown characteristic of interest. Generate multiple samples (or simulated samples) of the same size to gauge the variation in estimates or predictions. *For example, estimate the mean word length in a book by randomly sampling words from the book; predict the winner of a school election based on randomly sampled survey data. Gauge how far off the estimate or prediction might be.*

Comparative inferences about two populations

6. Informally assess the degree of visual overlap of two numerical data distributions with similar variabilities, measuring the difference between the centers by expressing it as a multiple of a measure of variability. *For example, the mean height of players on the basketball team is 10 cm greater than the mean height of players on the soccer team, about twice the variability (mean average deviation) on either team; on a dot plot, the separation between the two distributions of heights is noticeable.*
7. Use measures of center and measures of variability for numerical data from uniform random samples to draw informal comparative inferences about two populations. *For example, decide whether the words in a chapter of a seventh-grade book are generally longer than the words in a chapter of a sixth-grade book.*

Mathematics | Grade 8

In Grade 8, instructional time should focus on three critical areas: (1) solving linear equations and systems of linear equations; (2) grasping the concept of a function and using functions to describe quantitative relationships; (3) understanding and applying the Pythagorean Theorem.

(1) Students use linear equations, and systems of linear equations to represent, analyze, and solve a variety of problems. Students recognize proportions ($y/x = m$ or $y = mx$) as a special case of linear equations, $y = mx + b$, understanding that the constant of proportionality (m) is the slope and the graphs are lines through the origin. They understand that the slope (m) of a line is a constant rate of change, so that if the input or x -coordinate changes by an amount A , the output or y -coordinate changes by the amount mA . Students also formulate and solve linear equations in one variable and use these equations to solve problems. Students also use a linear equation to describe the association between two quantities in a data set (such as arm span vs. height for students in a classroom). At this grade, fitting the model, and assessing its fit to the data are done informally. Interpreting the model in the context of the data requires students to express a relationship between the two quantities in question.

Students strategically choose and efficiently implement procedures to solve linear equations in one variable, understanding that when they use the properties of equality and the concept of logical equivalence, they maintain the solutions of the original equation. Students solve systems of two linear equations in two variables and relate the systems to pairs of lines in the plane; these intersect, are parallel, or are the same line. Students use linear equations, systems of linear equations, linear functions, and their understanding of slope of a line to analyze situations and solve problems.

(2) Students grasp the concept of a function as a rule that assigns to each element of its domain exactly one element of its range. They use function notation and understand that functions describe situations where one quantity determines another. They can translate among verbal, tabular, graphical, and algebraic representations of functions (noting that tabular and graphical representations are usually only partial representations), and they describe how aspects of the function are reflected in the different representations.

(3) Students understand the statement of the Pythagorean Theorem and its converse, and can explain why the Pythagorean Theorem is valid, for example, by decomposing a square in two different ways. They apply the Pythagorean Theorem to find distances between points on the coordinate plane, to find lengths, and to analyze polygons.

The system of real numbers

1. Understand informally that every number on a number line has a decimal expansion, which can be found for rational numbers using long division. Rational numbers are those with repeating decimal expansions (this includes finite decimals which have an expansion that ends in a sequence of zeros).
2. Informally explain why $\sqrt{2}$ is irrational.
3. Use rational approximations (including those obtained from truncating decimal expansions) to compare the size of irrational numbers, locate them approximately on a number line, and estimate the value of expressions (e.g., π^2). *For example, show that the square root of 2 is between 1 and 2, then between 1.4 and 1.5, and explain how to continue on to get better approximations.*

Expressions and Equations**Linear equations in one variable**

1. Understand that a linear equation in one variable might have one solution, infinitely many solutions, or no solutions. Which of these possibilities is the case can be determined by successively transforming the given equation into simpler forms, until an equivalent equation of the form $x = a$, $a = a$, or $a = b$ results (where a and b are different numbers).
2. Solve linear equations with rational number coefficients, including equations that require expanding expressions using the distributive law and collecting like terms.

Linear equations in two variables

3. Understand that the slope of a non-vertical line in the coordinate plane has the same value for any two distinct points used to compute it. This can be seen using similar triangles.
4. Understand that two lines with well-defined slopes are parallel if and only if their slopes are equal.
5. Understand that the graph of a linear equation in two variables is a line, the set of pairs of numbers satisfying the equation. If the equation is in the form $y = mx + b$, the graph can be obtained by shifting the graph of $y = mx$ by b units (upwards if b is positive, downwards if b is negative). The slope of the line is m .
6. Understand that a proportional relationship between two variable quantities y and x can be represented by the equation $y = mx$. The constant m is the unit rate, and tells how much of y per unit of x .
7. Graph proportional relationships and relationships defined by a linear equation; find the slope and interpret the slope in context.
8. Compare two different proportional relationships represented in different ways. *For example, compare a distance-time graph to a distance-time equation to determine which of two moving objects has greater speed.*

Systems of linear equations

9. Understand that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs, because points of intersection satisfy both equations simultaneously.
10. Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection. *For example, $3x + 2y = 5$ and $3x + 2y = 6$ have no solution because the quantity $3x + 2y$ cannot simultaneously be 5 and 6.*
11. Solve and explain word problems leading to two linear equations in two variables.
12. Solve problems involving lines and their equations. *For example, decide whether a point with given coordinates lies on the line with a given equation; construct an equation for a line given two points on the line or one point and the slope; given coordinates for two pairs of points, determine whether the line through the first pair of points intersects the line through the second pair.*

Functions**Function concepts**

1. Understand that a function from one set (called the domain) to another set (called the range) is a rule that assigns to each element of the domain (an input) exactly one element of the range (the corresponding output). The graph of a function is the set of ordered pairs consisting of an input and the corresponding output. *Function notation is not required in Grade 8.*
2. Evaluate expressions that define functions, and solve equations to find the input(s) that correspond to a given output.
3. Compare properties of two functions represented in different ways (algebraically, graphically, numerically in tables, or by verbal descriptions). *For example, given a linear function represented by a table of values and a linear function represented by an algebraic expression, determine which function has the greater rate of change.*

4. Understand that a function is linear if it can be expressed in the form $y = mx + b$ or if its graph is a straight line. *For example, the function $y = x^2$ is not a linear function because its graph contains the points $(1, 1)$, $(-1, 1)$ and $(0, 0)$, which are not on a straight line.*

Functional relationships between quantities

5. Understand that functions can describe situations where one quantity determines another.
6. Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship; from two (x, y) values, including reading these from a table; or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.
7. Describe qualitatively the functional relationship between two quantities by reading a graph (e.g., where the function is increasing or decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described verbally.

Geometry

8-G

Congruence and similarity

1. Use coordinate grids to transform figures and to predict the effect of dilations, translations, rotations and reflections.
2. Explain using rigid motions the meaning of congruence for triangles as the equality of all pair of sides and all pairs of angles.
3. Give an informal explanation using rigid motions of the SAS and ASA criteria for triangle congruence, and use them to prove simple theorems.
4. Explain using similarity transformations the meaning of similarity for triangles as the equality of all pairs of angles and the proportionality of all pairs of sides.
5. Give an informal explanation using similarity transformations of the AA and SAS criteria for triangle similarity, and use them to prove simple theorems.

The Pythagorean Theorem

6. The side lengths of a right triangle are related by the Pythagorean Theorem. Conversely, if the side lengths of a triangle satisfy the Pythagorean Theorem, it is a right triangle.
7. Explain a proof of the Pythagorean Theorem and its converse.
8. Use the Pythagorean Theorem to determine unknown side lengths in right triangles and to solve problems in two and three dimensions.
9. Use the Pythagorean Theorem to find the distance between two points in a coordinate system.

Plane and solid geometry

10. Draw (freehand, with ruler and protractor, and with technology) geometric shapes from given conditions. Focus on constructing triangles from three measures of angles or sides, noticing when the triangle is uniquely defined, ambiguously defined or nonexistent.
11. Understand that slicing a three-dimensional figure with a plane produces a two-dimensional figure. Describe plane sections of right rectangular prisms and right rectangular pyramids.
12. Use hands-on activities to demonstrate and describe properties of: parallel lines in space, the line perpendicular to a given line through a given point, lines perpendicular to a given plane, lines parallel to a given plane, the plane or planes passing through three given points, and the plane perpendicular to a given line at a given point.

Statistics and Probability

8-SP

Patterns of association in bivariate data

1. Understand that scatter plots for bivariate measurement data may reveal patterns of association between two quantities.
2. Construct and interpret scatter plots for bivariate measurement data. Describe patterns such as clustering, outliers, positive or negative association, linear association, nonlinear association.
3. Understand that a straight line is a widely used model for exploring relationships between two quantitative variables. For scatter plots that suggest a linear association, informally fit a straight line, and informally assess the model fit by judging the closeness of the data points to the line.
4. Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept. *For example, in a linear model for a biology experiment, an additional hour of sunlight each day is associated with an additional 1.5 cm in mature plant height.*
5. Understand that patterns of association can also be seen in bivariate categorical data by displaying frequencies and relative frequencies in a two-way table. Construct and interpret a two-way table summarizing data on two categorical variables

collected from the same subjects. Use relative frequencies calculated for rows or columns to describe possible association between the two variables. *For example, collect data from students in your class on whether or not they have a curfew on school nights and whether or not they have assigned chores at home. Is there evidence that those who have a curfew also tend to have chores?*

DRAFT

Mathematics Standards for High School

Where is the College-and-Career-Readiness line drawn?

The high school standards specify the mathematics that all students should learn in order to be college and career ready. The high school standards also describe additional mathematics that students should learn to pursue careers and majors in science, technology, engineering and mathematics (STEM) fields. Other forms of advanced work are possible (for example in discrete mathematics or advanced statistics) and can be eventually added to the standards.

Standards beyond the college and career readiness level that are necessary for STEM careers are prefixed with a symbol STEM, as in this example:

^{STEM} Graph complex numbers in polar form and interpret arithmetic operations on complex numbers geometrically.

Any standard without this tag is understood to be in the common core mathematics curriculum for all students.

How are the high school standards organized?

The high school standards are listed in conceptual categories, as shown in the Table below. **Appendix A (online) contains drafts of model course descriptions based on these standards.** Conceptual categories portray a coherent view of core high school mathematics; a student's work with Functions, for example, crosses a number of traditional course boundaries, potentially up through and including Calculus.

CCRS Draft September 17 th	High School Standards Draft March 10
Number	Number and Quantity
Quantity	
Expressions	Algebra
Equations	
Coordinates	
Functions	Functions
Geometry	Geometry
Statistics	Statistics and Probability
Probability	
Modeling	Modeling**

* Standards formerly appearing under Coordinates now appear under other headings.

** Making mathematical models is now a Standard for Mathematical Practice. Standards formerly appearing under Modeling are now distributed under other major headings. High school standards with relevance to modeling are flagged with a (★) symbol. A narrative description of modeling remains in the high school standards, but there are no specific standard statements in that narrative description.

Mathematics | High School—Number and Quantity

Numbers and Number Systems. During the years from kindergarten to eighth grade, students must repeatedly extend their conception of number. At first, “number” means “counting number”: 1, 2, 3, ... Soon after that, 0 is used to represent “none” and the whole numbers are formed by the counting numbers together with zero. The next extension is fractions. At first, fractions are barely numbers and tied strongly to pictorial representations. Yet by the time students understand division of fractions, they have a strong concept of fractions as numbers and have connected them, via their decimal representations, with the base-ten system used to represent the whole numbers. During middle school, fractions are augmented by negative fractions to form the rational numbers. In Grade 7, students extend this system once more, augmenting the rational numbers with the irrational numbers to form the real numbers. In high school, students will be exposed to yet another extension of number, when the real numbers are augmented by the imaginary numbers to form the complex numbers.

Students sometimes have difficulty accepting new kinds of numbers when these differ in appearance and properties from those of a familiar system. For example, students might decide that complex numbers are not numbers because they are not written with numerical digits, or because they do not describe positive or negative quantities. Indeed, this ascent through number systems makes it fair to ask: what does the word *number* mean that it can mean all of these things? One possible answer is that a number is something that can be used to do mathematics: calculate, solve equations, or represent measurements. Historically, number systems have been extended when there is an intellectual or practical benefit in using the new numbers to solve previously insoluble problems.¹

Although the referent of “number” changes, the four operations stay the same in important ways. The commutative, associative, and distributive laws extend the properties of operations to the integers, rational numbers, real numbers, and complex numbers. The inverse relationships between addition and subtraction, and multiplication and division are maintained in these larger systems.

Calculators are useful in this strand to generate data for numerical experiments, to help understand the workings of matrix, vector, and complex number algebra, and to experiment with non-integer exponents.

Quantities. In their work in measurement up through Grade 8, students primarily measure commonly used attributes such as length, area, volume, and so forth. In high school, students encounter novel situations in which they themselves must conceive the attributes of interest. Such a conceptual process might be called quantification. Quantification is important for science, as when surface area suddenly “stands out” as an important variable in evaporation. Quantification is also important for companies, who must conceptualize relevant attributes and create or choose suitable metrics by which to measure them.

Content Outline

The Real Number System

Quantities

The Complex Number System

Vector Quantities and Matrices

¹ See Harel, G., “A Standpoint of Research on Middle/Higher Number and Quantity,” a research review provided for the Common Core State Standards Initiative.

1. Understand that the laws of exponents for positive integer exponents follow from an understanding of exponents as indicating repeated multiplication, and from the associative law for multiplication.
2. Understand that the definition of the meaning of zero, positive rational, and negative exponents follows from extending the laws of exponents to those values, allowing for a notation for radicals in terms of rational exponents. *For example, since $(5^{1/3})^3 = 5^{(1/3) \cdot 3} = 5^1 = 5$, $5^{1/3}$ is a cube root of 5.*
3. Understand that sums and products of rational numbers are rational.
4. Understand that the sum of a rational number and an irrational number is irrational, and that the product of a nonzero rational number and an irrational number is irrational.
5. Rewrite expressions using the laws of exponents. *For example, $(5^{1/2})^3 = 5^{3/2}$ and $1/5 = 5^{-1}$.*

Quantities*

1. Understand that the magnitude of a quantity is independent of the unit used to measure it. *For example, the density of a liquid does not change when it is measured in another unit. Rather, its measure changes. The chosen unit “measures” the quantity by giving it a numerical value (“the density of lead is 11.3 times that of water”).*
2. Use units as a way to understand problems and to guide the solution of multi-step problems, involving, e.g., acceleration, currency conversions, derived quantities such as person-hours and heating degree days, social science rates such as per-capita income, and rates in everyday life such as points scored per game.
3. Define metrics for the purpose of descriptive modeling. *For example, find a good measure of overall highway safety; propose and debate measures such as fatalities per year, fatalities per year per driver, or fatalities per vehicle-mile traveled.*
4. Add, subtract, multiply, and divide numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities (e.g., use millimeters per year for seafloor spreading). Interpret scientific notation that has been generated by technology.
5. Use and interpret quantities and units correctly in algebraic formulas.
6. Use and interpret quantities and units correctly in graphs and data displays (function graphs, data tables, scatter plots, and other visual displays of quantitative information). Generate graphs and data displays using technology.

The Complex Number System

1. Understand that the relation $i^2 = -1$ and the commutative, associative, and distributive laws can be used to calculate with complex numbers.
2. STEM Understand that polynomials can be factored over the complex numbers, e.g., as in $x^2 + 4 = (x + 2i)(x - 2i)$.
3. STEM Understand that complex numbers can be visualized on the complex plane. Real numbers correspond to points on the horizontal (real) axis, and imaginary numbers to points on the vertical axis.
4. STEM Understand that on the complex plane, arithmetic of complex numbers can be interpreted geometrically: addition is analogous to vector addition, and multiplication can be understood as rotation and dilation about the origin. Complex conjugation is reflection across the real axis.
5. STEM Understand that on the complex plane, as on the real line, the distance between numbers is the absolute value of the difference, and the midpoint of a segment is the average of the numbers at its endpoints.
6. Add, subtract, and multiply complex numbers.
7. STEM Find the conjugate of a complex number; use conjugates to find absolute values and quotients of complex numbers.
8. STEM Solve quadratic equations with real coefficients that have complex solutions using a variety of methods.
9. STEM Graph complex numbers in rectangular form.
10. STEM Graph complex numbers in polar form and interpret arithmetic operations on complex numbers geometrically.
11. STEM Explain why the rectangular and polar forms of a complex number represent the same number.

* Standard with close connection to modeling.

1. STEM Understand that vector quantities have both magnitude and direction. Vector quantities are typically represented by directed line segments. The magnitude of a vector \mathbf{v} is commonly denoted $|\mathbf{v}|$ or $\|\mathbf{v}\|$.
2. STEM Understand that vectors are determined by the coordinates of their initial and terminal points, or by their components.
3. STEM Understand that vectors can be added end-to-end, component-wise, or by the parallelogram rule. The magnitude of a sum of two vectors is typically not the sum of the magnitudes.
4. STEM Understand that a vector \mathbf{v} can be multiplied by a real number c (called a scalar in this context) to form a new vector $c\mathbf{v}$ with magnitude $|c|v$. When $|c|v \neq 0$, the direction of $c\mathbf{v}$ is either along \mathbf{v} (for $c > 0$) or against \mathbf{v} (for $c < 0$). Scalar multiplication can be shown graphically by scaling vectors and possibly reflecting them in the origin; scalar multiplication can also be performed component-wise, e.g., as $c(v_x, v_y) = (cv_x, cv_y)$.
5. STEM Understand that vector subtraction $\mathbf{v} - \mathbf{w}$ is defined as $\mathbf{v} + (-\mathbf{w})$. Two vectors can be subtracted graphically by connecting the tips in the appropriate order.
6. STEM Understand that matrices can be multiplied by scalars to produce new matrices, e.g., as when all of the payoffs in a game are doubled. Matrices of the same dimensions can be added or subtracted. Matrices with compatible dimensions can be multiplied. Unlike multiplication of numbers, matrix multiplication is not a commutative operation, but still satisfies the associative and distributive laws.
7. STEM Understand that a vector, when regarded as a matrix with one column, can be multiplied by a matrix of suitable dimensions to produce another vector. A 2×2 matrix can be viewed as a transformation of the plane.
8. STEM Understand that a system of linear equations can be represented as a single matrix equation in a vector variable.
9. STEM Understand that the zero and identity matrices play a role in matrix addition and multiplication similar to the role of 0 and 1 in the real numbers. The determinant of a square matrix is nonzero if and only if the matrix has a multiplicative inverse.
10. STEM Perform basic vector operations (addition, subtraction, scalar multiplication) both graphically and algebraically.
11. STEM Given two vectors in magnitude and direction form, determine the magnitude and direction of their sum.
12. STEM Solve problems involving velocity and quantities that can be represented by vectors. *
13. STEM Add, subtract, and multiply matrices of appropriate dimensions.
14. STEM Use matrices to store and manipulate data, e.g., to represent payoffs or incidence relationships in a network.
15. STEM Represent systems of linear equations as matrix equations.
16. STEM Find the inverse of a matrix if it exists and use it to solve systems of linear equations (using technology for matrices of dimension greater than 3×3).

* Standard with close connection to modeling.

Mathematics | High School—Algebra

Expressions. An expression is a description of a computation on numbers and symbols that represent numbers, using arithmetic operations and the operation of raising a number to rational exponents. Conventions about the use of parentheses and the order of operations assure that each expression is unambiguous. Creating an expression that describes a computation involving a general quantity requires the ability to express the computation in general terms, abstracting from specific instances.

Reading an expression with comprehension involves analysis of its underlying structure. This may suggest a different but equivalent way of writing the expression that exhibits some different aspect of its meaning. For example, $p + 0.05p$ can be interpreted as the addition of a 5% tax to a price p . Rewriting $p + 0.05p$ as $1.05p$ shows that adding a tax is the same as multiplying the price by a constant factor.

Algebraic manipulations are governed by deductions from the commutative, associative, and distributive laws and the inverse relationships between the four operations, and the conventions of algebraic notation. These extend what students have learned about arithmetic expressions in K–8 to expressions that involve exponents, radicals, and representations of real numbers, and, for STEM-intending students, complex numbers.

At times, an expression is the result of applying operations to simpler expressions. Viewing such an expression by singling out these simpler expressions can sometimes clarify its underlying structure.

A spreadsheet or a CAS environment can be used to experiment with algebraic expressions, perform complex algebraic manipulations, and understand how algebraic manipulations behave.

Equations and inequalities. An equation is a statement that two expressions are equal. Solutions to an equation are numbers that make the equation true when assigned to the variables in it. If the equation is true for all numbers, then it is called an identity; identities are often discovered by using the laws of arithmetic or the laws of exponents to transform one expression into another.

The solutions of an equation in one variable form a set of numbers; the solutions of an equation in two variables form a set of ordered pairs of numbers, which can be graphed in the coordinate plane. Two or more equations and/or inequalities form a system. A solution for such a system must satisfy every equation and inequality in the system.

An equation can often be solved by successively transforming it into one or more simpler equations. The process is governed by deductions based on the properties of equality. For example, one can add the same constant to both sides without changing the solutions, but squaring both sides might lead to extraneous solutions. Strategic competence in solving includes looking ahead for productive manipulations and anticipating the nature and number of solutions.

Some equations have no solutions in a given number system, stimulating the extension of that system. For example, the solution of $x + 1 = 0$ is an integer, not a whole number; the solution of $2x + 1 = 0$ is a rational number, not an integer; the solutions of $x^2 - 2 = 0$ are real numbers, not rational numbers; and the solutions of $x^2 + 2 = 0$ are complex numbers, not real numbers.

The same solution techniques used to solve equations can be used to rearrange formulas. For example, the formula for the area of a trapezoid, $A = ((b_1 + b_2)/2)h$, can be solved for h using the same deductive process.

Inequalities can be solved by reasoning about the properties of inequality. Many, but not all, of the properties of equality continue to hold for inequalities and can be useful in solving them.

Connections to Functions and Modeling. Expressions can define functions, and equivalent expressions define the same function. Equations in two variables may also define functions. Asking when two functions have the same value leads to an equation; graphing the two functions allows for the approximate solution of the equation. Converting a verbal description to an equation, inequality, or system of these is an essential skill in modeling.

Content Outline

Seeing Structure in Expressions

Arithmetic with Polynomials and Rational Expressions

Creating Equations that Describe Numbers or Relationships

Reasoning with Equations and Inequalities

- Understand that different forms of an expression may reveal different properties of the quantity in question; a purpose in transforming expressions is to find those properties. *Examples: factoring a quadratic expression reveals the zeros of the function it defines, and putting the expression in vertex form reveals its maximum or minimum value; the expression 1.15^t can be rewritten as $(1.15^{1/12})^{12t} \approx 1.012^{12t}$ to reveal the approximate equivalent monthly interest rate if the annual rate is 15%.*
- Understand that complicated expressions can be interpreted by viewing one or more of their parts as single entities.
- Interpret an expression that represents a quantity in terms of the context. *Include interpreting parts of an expression, such as terms, factors and coefficients.* *
- Factor, expand, and complete the square in quadratic expressions.
- See expressions in different ways that suggest ways of transforming them. *For example, see $x^4 - y^4$ as $(x^2)^2 - (y^2)^2$, thus recognizing it as a difference of squares that can be factored as $(x^2 - y^2)(x^2 + y^2)$.*
- Rewrite expressions using the laws of exponents. *For example, $(x^{1/2})^3 = x^{3/2}$ and $1/x = x^{-1}$.*
- Use the laws of exponents to interpret expressions for exponential functions, recognizing positive rational exponents as indicating roots of the base and negative exponents as indicating the reciprocal of a power. *For example, identify the per unit percentage change in functions such as $y = (1.02)^t$, $y = (0.97)^t$, $y = (1.01)^{12t}$, $y = (1.2)^{t/10}$, and conclude whether it represents exponential growth or decay. Recognize that any nonzero number raised to the zero power is 1, for example, $12(1.05)^0 = 12$. Avoid common errors such as confusing $6(1.05)^t$ with $(6 \cdot 1.05)^t$ and $5(0.03)^t$ with $5(1.03)^t$.*
- STEM Prove the formula for the sum of a geometric series, and use the formula to solve problems.

Arithmetic with Polynomials and Rational Expressions

- Understand that polynomials form a system analogous to the integers, namely, they are closed under the operations of addition, subtraction, and multiplication.
- Understand that polynomial identities become true statements no matter which real numbers are substituted. *For example, the polynomial identity $(x^2 + y^2)^2 = (x^2 - y^2)^2 + (2xy)^2$ can be used to generate Pythagorean triples.*
- Understand the Remainder Theorem: For a polynomial $p(x)$ and a number a , the remainder on division by $x - a$ is $p(a)$, so $p(a) = 0$ if and only if $(x - a)$ is a factor of $p(x)$.
- STEM Understand that the Binomial Theorem gives the expansion of $(x + a)^n$ in powers of x for a positive integer n and a real number a , with coefficients determined for example by Pascal's Triangle. The Binomial Theorem can be proved by mathematical induction or by a combinatorial argument.
- STEM Understand that rational expressions are quotients of polynomials. They form a system analogous to the rational numbers, closed under division by a nonzero rational function.
- Add, subtract and multiply polynomials.
- Identify zeros of polynomials when suitable factorizations are available, and use the zeros to construct a rough graph of the polynomial.
- Transform simple rational expressions using the commutative, associative, and distributive laws, and the inverse relationship between multiplication and division.
- Divide a polynomial $p(x)$ by a divisor of the form $x - a$ using long division.
- STEM Identify zeros and asymptotes of rational functions, when suitable factorizations are available, and use the zeros and asymptotes to construct a rough graph of the function.
- STEM Divide polynomials, using long division for linear divisors and long division or a computer algebra system for higher degree divisors.

Creating Equations That Describe Numbers or Relationships

- Understand that equations in one variable are often created to describe properties of a specific but unknown number.
- Understand that equations in two or more variables that represent a relationship between quantities can be built by experimenting with specific numbers in the relationship.
- Write equations and inequalities that specify an unknown quantity or to express a relationship between two or more quantities. Use the equations and inequalities to solve problems. *Include equations arising from linear and quadratic functions, and simple rational and exponential functions.*

* Standard with close connection to modeling.

4. Rearrange formulas to highlight a quantity of interest. *For example, transform Ohm's law $V = IR$ to highlight resistance R ; in motion with constant acceleration, transform $v_{fx}^2 - v_{ix}^2 = 2a_x(x_f - x_i)$ to highlight the change in position along the x -axis, $x_f - x_i$.*

Reasoning with Equations and Inequalities

A-REI

1. Understand that to solve an equation algebraically, one makes logical deductions from the equality asserted by the equation, often in steps that replace it with a simpler equation whose solutions include the solutions of the original one.
2. Understand that the method of completing the square can transform any quadratic equation in x into an equivalent equation of the form $(x - p)^2 = q$. This leads to the quadratic formula.
3. Understand that given a system of two linear equations in two variables, adding a multiple of one equation to another produces a system with the same solutions. This principle, combined with principles already encountered with equations in one variable, allows for the simplification of systems.
4. Understand that the graph of an equation in two variables is the set of its solutions plotted in the coordinate plane, often forming a curve or a line.
5. Understand that solutions to two equations in two variables correspond to points of intersection of their graphs, because points of intersection satisfy both equations simultaneously.
6. Understand that the solutions to a linear inequality in two variables can be graphed as a half-plane (excluding the boundary in the case of a strict inequality).
7. Understand that solutions to several linear inequalities in two variables correspond to points in the intersection of the regions in the plane defined by the solutions to the inequalities.
8. Understand that equations and inequalities can be viewed as constraints in a problem situation, e.g., inequalities describing nutritional and cost constraints on combinations of different foods. ^{*}
9. STEM Understand that the relationship between an invertible function f and its inverse function can be used to solve equations of the form $f(x) = c$.
10. Solve simple rational and radical equations in one variable, noting and explaining extraneous solutions.
11. Solve linear equations in one variable, including equations with coefficients represented by letters.
12. Solve quadratic equations in one variable. *Include methods such as inspection (e.g. for $x^2 = 49$), square roots, completing the square, the quadratic formula and factoring. Recognize when the quadratic formula gives complex solutions and write them as $a \pm bi$ for real numbers a and b .*
13. Solve equations $f(x) = g(x)$ approximately by finding the intersections of the graphs of $f(x)$ and $g(x)$, e.g. using technology to graph the functions. *Include cases where $f(x)$ and/or $g(x)$ are linear, polynomial, rational, exponential, and logarithmic functions.*
14. Solve linear inequalities in one variable and graph the solution set on a number line.
15. Solve systems of linear equations algebraically and graphically, focusing on pairs of linear equations in two variables.
16. Solve algebraically a simple system consisting of one linear equation and one quadratic equation in two variables; for example, find points of intersection between the line $y = -3x$ and the circle $x^2 + y^2 = 3$.
17. Graph the solution set of a system of linear inequalities in two variables.
18. In modeling situations, represent constraints by systems of equations and/or inequalities, and interpret solutions of these systems as viable or non-viable options in the modeling context. ^{*}
19. In the context of exponential models, solve equations of the form $ab^c = d$ where a , c , and d are specific numbers and the base b is 2, 10, or e . ^{*}
20. STEM Relate the properties of logarithms to the laws of exponents and solve equations involving exponential functions.
21. STEM Use inverse functions to solve equations of the form $a \sin(bx + c) = d$, $a \cos(bx + c) = d$, and $a \tan(bx + c) = d$.

^{*} Standard with close connection to modeling.

Mathematics | High School—Functions

Functions describe situations where one quantity determines another. For example, the return on \$10,000 invested at an annualized percentage rate of 4.25% is a function of the length of time the money is invested. Because nature and society are full of dependencies between quantities, functions are important tools in the construction of mathematical models.

In school mathematics, functions usually have numerical inputs and outputs and are often defined by an algebraic expression. For example, the time in hours it takes for a car to drive 100 miles is a function of the car’s speed in miles per hour, v ; the rule $T(v) = 100/v$ expresses this relationship algebraically and defines a function whose name is T .

The set of inputs to a function is called its domain. We often infer the domain to be all inputs for which the expression defining a function has a value, or for which the function makes sense in a given context.

A function can be described in various ways, such as by a graph (e.g., the trace of a seismograph); by a verbal rule, as in, “I’ll give you a state, you give me the capital city”; or by an algebraic expression like $f(x) = a + bx$. The graph of a function is often a useful way of visualizing the relationship the function models, and manipulating a mathematical expression for a function can throw light on the function’s properties. Graphing technology and spreadsheets are also useful tools in the study of functions.

Functions presented as expressions can model many important phenomena. Two important families of functions characterized by laws of growth are linear functions, which grow at a constant rate, and exponential functions, which grow at a constant percent rate. Linear functions with a constant term of zero describe proportional relationships.

A graphing utility or a CAS can be used to experiment with properties of the functions and their graphs and to build computational models of functions, including recursively defined functions.

Connections to Expressions, Equations, Modeling and Coordinates. Determining an output value for a particular input involves evaluating an expression; finding inputs that yield a given output involves solving an equation. Questions about when two functions have the same value lead to equations, whose solutions can be visualized from the intersection of their graphs. Because functions describe relationships between quantities, they are frequently used in modeling. Sometimes functions are defined by a recursive process, which can be displayed effectively using a spreadsheet or other technology.

Content Outline

Interpreting Functions

Building Functions

Linear, Quadratic, and Exponential Models

Trigonometric Functions

Limits and Continuity†

Differential Calculus†

Applications of Derivatives†

Integral Calculus†

Applications of Integration†

Infinite Series†

† Specific standards for calculus domains are not listed.

1. Understand that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range. If f is a function and x is an element of its domain, then $f(x)$ denotes the output of f corresponding to the input x .
2. Understand that functions of a single variable have key characteristics, including: zeros; extreme values; average rates of change (over intervals); intervals of increasing, decreasing and/or constant behavior; and end behavior.
3. Understand that a function defined by an expression may be written in different but equivalent forms, which can reveal different properties of the function.
4. Use function notation and evaluate functions for inputs in their domains.
5. Describe qualitatively the functional relationship between two quantities by reading a graph (e.g., where the function is increasing or decreasing, what its long-run behavior appears to be, and whether it appears to be periodic).*
6. Sketch a graph that exhibits the qualitative features of a function that models a relationship between two quantities.*
7. Compare properties of two functions represented in different ways (algebraically, graphically, numerically in tables, or by verbal descriptions). *For example, draw conclusions about the graph of a quadratic function from its algebraic expression.*
8. Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes. *For example, if the function $h(n)$ gives the number of person-hours it takes to assemble n engines in a factory, then the positive integers would be an appropriate domain for the function.**
9. Describe the qualitative behavior of functions presented in graphs and tables. *Identify: intercepts; intervals where the function is increasing, decreasing, positive or negative; relative maximums and minimums; symmetries; end behavior; and periodicity.**
10. Use technology to exhibit the effects of parameter changes on the graphs of linear, power, quadratic, square root, cube root, and polynomial functions, and simple rational, exponential, logarithmic, sine, cosine, absolute value, and step functions.*
11. Transform quadratic polynomials algebraically to reveal different features of the function they define, such as zeros, extreme values, and symmetry of the graph.

Building Functions

1. Understand that functions can be described by specifying an explicit expression, a recursive process or steps for calculation.
2. Understand that sequences are functions whose domain is a subset of the nonnegative integers.
3. STEM Understand that composing a function f with a function g creates a new function called the composite function—for an input number x , the output of the composite function is $f(g(x))$.
4. STEM Understand that the inverse of an invertible function “undoes” what the function does; that is, composing the function with its inverse in either order returns the original input. One can sometimes produce an invertible function from a non-invertible function by restricting the domain (e.g., squaring is not an invertible function on the real numbers, but squaring is invertible on the nonnegative real numbers).
5. Write a function that describes a relationship between two quantities, for example by varying parameters in and combining standard function types (such as linear, quadratic or exponential functions). Use technology to experiment with parameters and to illustrate an explanation of the behavior of the function when parameters vary.*
6. Solve problems involving linear, quadratic, and exponential functions.*
7. Identify the effect on the graph of replacing $f(x)$ by $f(x) + k$, $kf(x)$, $f(kx)$, and $f(x + k)$ for specific values of k (both positive and negative); find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology.
8. Generate an arithmetic or geometric sequence given a recursive rule for the sequence.*
9. As a way to describe routine modeling situations, write arithmetic and geometric sequences both recursively and in closed form, and translate between the two forms.*
10. STEM Evaluate composite functions and compose functions symbolically.
11. STEM Read values of an inverse function from a graph or a table, given that the function has an inverse.
12. STEM For linear or simple exponential functions, find a formula for an inverse function by solving an equation.
13. STEM Verify symbolically by composition that one function is the inverse of another.

Linear, Quadratic, and Exponential Models

- Understand that a linear function, defined by $f(x) = mx + b$ for some constants m and b , models a situation in which a quantity changes at a constant rate, m , relative to another. *
- Understand that quadratic functions have maximum or minimum values and can be used to model problems with optimum solutions. *
- Understand that an exponential function, defined by $f(x) = ab^x$ or by $f(x) = a(1 + r)^x$ for some constants a , $b > 0$ and $r > -1$, models a situation where a quantity grows or decays by a constant factor or a constant percentage change over each unit interval. *
- Understand that linear functions grow by equal differences over equal intervals; exponential functions grow by equal factors over equal intervals. *
- Understand that in an arithmetic sequence, differences between consecutive terms form a constant sequence, and second differences are zero. Conversely, if the second differences are zero, the sequence is arithmetic. Arithmetic sequences can be seen as linear functions. *
- Understand that in a sequence that increases quadratically (e.g., $a_n = 3n^2 + 2n + 1$), differences between consecutive terms form an arithmetic sequence, and second differences form a constant sequence. Conversely, if the second differences form a constant sequence with nonzero value, the sequence increases quadratically. *
- Understand that in a geometric sequence, ratios of consecutive terms are all the same. *
- Understand that a quantity increasing exponentially eventually exceeds a quantity increasing linearly, quadratically, or (more generally) as a polynomial function. *
- Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph. *
- Construct a function to describe a linear relationship between two quantities. Determine the rate of change and constant term of a linear function from a graph, a description of a relationship, or from two (x, y) values (include reading these from a table). *
- Use quadratic functions to model problems, e.g., in situations with optimum solutions. *
- Construct an exponential function in the form $f(x) = a(1 + r)^x$ or $f(x) = ab^x$ to describe a relationship in which one quantity grows with respect to another at a constant percent growth rate or a with a constant growth factor. *
- Interpret the rate of change and constant term of a linear function or sequence in terms of the situation it models, and in terms of its graph or a table of values. *
- Calculate and interpret the growth factor for an exponential function (presented symbolically or as a table) given a fixed interval. Estimate the growth factor from a graph. *
- Recognize a quantitative relationship as linear, exponential, or neither from description of a situation. *
- Compare quantities increasing exponentially to quantities increasing linearly or as a polynomial function. *

Trigonometric Functions

F-TF

- STEM Understand that the unit circle in the coordinate plane enables one to define the sine, cosine, and tangent functions for real numbers.
- STEM Understand that trigonometric functions are periodic by definition, and sums and products of functions with the same period are periodic.
- STEM Understand that restricting trigonometric functions to a domain on which they are always increasing or always decreasing allows for the construction of an inverse function.
- STEM Revisit trigonometric functions and their graphs in terms of radians.
- STEM Use the unit circle to determine geometrically the values of sine, cosine, tangent for integer multiples of $\pi/4$ and $\pi/6$.
- STEM Use the unit circle to explain symmetry (odd and even) and periodicity of trigonometric functions.
- STEM Solve simple trigonometric equations formally using inverse trigonometric functions and evaluate the solutions numerically using technology. *Solving trigonometric equations by means of the quadratic formula is optional.*

Limits and Continuity†

F-LC

* Standard with close connection to modeling.

† Specific standards for calculus domains are not listed.

Differential Calculus[†] F-DC

Applications of Derivatives[†] F-AD

Integral Calculus[†] F-IC

Applications of Integration[†] F-AI

Infinite Series[†] F-IS

[†] Specific standards for calculus domains are not listed.

Mathematics | High School—Modeling

Modeling links classroom mathematics and statistics to everyday life, work, and decision-making. Modeling is the process of choosing and using appropriate mathematics and statistics to analyze empirical situations, to understand them better, and to improve decisions. Quantities and their relationships in physical, economic, public policy, social and everyday situations can be modeled using mathematical and statistical methods. When making mathematical models, technology is valuable for varying assumptions, exploring consequences, and comparing predictions with data.

A model can be very simple, such as writing total cost as a product of unit price and number bought, or using a geometric shape to describe a physical object like a coin. Even such simple models involve making choices. It is up to us whether to model a coin as a three-dimensional cylinder, or whether a two-dimensional disk works well enough for our purposes. Other situations—modeling a delivery route, a production schedule, or a comparison of loan amortizations—need more elaborate models that use other tools from the mathematical sciences. Real-world situations are not organized and labeled for analysis; formulating tractable models, representing such models, and analyzing them is appropriately a creative process. Like every such process, this depends on acquired expertise as well as creativity.

Some examples of such situations might include:

- Estimating how much water and food is needed for emergency relief in a devastated city of 3 million people, and how it might be distributed.
- Planning a table tennis tournament for 7 players at a club with 4 tables, where each player plays against each other player.
- Designing the layout of the stalls in a school fair so as to raise as much money as possible.
- Analyzing stopping distance for a car.
- Modeling savings account balance, bacterial colony growth, or investment growth.
- Critical path analysis, e.g., applied to turnaround of an aircraft at an airport.
- Risk situations, like extreme sports, pandemics and terrorism.
- Relating population statistics to individual predictions.

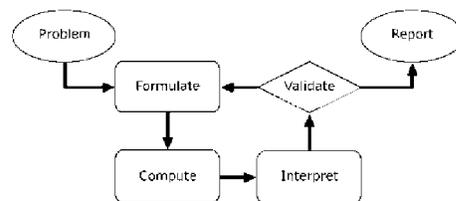
In situations like these, the models devised depend on a number of factors: How precise an answer do we want or need? What aspects of the situation do we most need to understand, control, or optimize? What resources of time and tools do we have? The range of models that we can create and analyze is also constrained by the limitations of our mathematical, statistical, and technical skills, and our ability to recognize significant variables and relationships among them. Diagrams of various kinds, spreadsheets and other technology, and algebra are powerful tools for understanding and solving problems drawn from different types of real-world situations.

One of the insights provided by mathematical modeling is that essentially the same mathematical or statistical structure can model seemingly different situations. Models can also shed light on the mathematical structures themselves, for example as when a model of bacterial growth makes more vivid the explosive growth of the exponential function.

The basic modeling cycle is summarized in the diagram. It involves (1) identifying variables in the situation and selecting those that represent essential features, (2) formulating a model by creating and selecting geometric, graphical, tabular, algebraic, or statistical representations that describe relationships between the variables, (3) analyzing and performing operations on these relationships to draw conclusions, (4) interpreting the results of the mathematics in terms of the original situation, (5) validating the conclusions by comparing them with the situation, and then, either improving the model or, if it is acceptable, (6) reporting on the conclusions and the reasoning behind them. Choices, assumptions and approximations are present throughout this cycle.

In descriptive modeling, a model simply describes the phenomena or summarizes them in a compact form. Graphs of observations are a familiar descriptive model—for example, graphs of global temperature and atmospheric CO₂ over time.

Analytic modeling seeks to explain data on the basis of deeper theoretical ideas, albeit with parameters that are empirically based; for example, exponential growth of bacterial colonies (until cut-off mechanisms such as pollution or starvation intervene) follows from a constant reproduction rate. Functions are an important tool for analyzing such



problems.

Graphing utilities, spreadsheets, CAS environments, and dynamic geometry software are powerful tools that can be used to model purely mathematical phenomena (e.g., the behavior of polynomials) as well as physical phenomena.

Modeling Standards

Modeling is best interpreted not as a collection of isolated topics but rather in relation to other standards. Making mathematical models is a Standard for Mathematical Practice, and specific modeling standards appear throughout the high school standards indicated by a star symbol (★).

Mathematics | High School—Statistics and Probability*

Decisions or predictions are often based on data—numbers in context. These decisions or predictions would be easy if the data always sent a clear message, but the message is often obscured by variability. Statistics provides tools for describing variability in data and for making informed decisions that take it into account.

Data are gathered, displayed, summarized, examined, and interpreted to discover patterns and deviations from patterns. Quantitative data can be described in terms of key characteristics: measures of shape, center, and spread. The shape of a data distribution might be described as symmetric, skewed, flat, or bell shaped, and it might be summarized by a statistic measuring center (such as mean or median) and a statistic measuring spread (such as standard deviation or interquartile range). Different distributions can be compared numerically using these statistics or compared visually using plots. Knowledge of center and spread are not enough to describe a distribution. Which statistics to compare, which plots to use, and what the results of a comparison might mean, depend on the question to be investigated and the real-life actions to be taken.

Randomization has two important uses in drawing statistical conclusions. First, collecting data from a random sample of a population makes it possible to draw valid conclusions about the whole population, taking variability into account. Second, randomly assigning individuals to different treatments allows a fair comparison of the effectiveness of those treatments. A statistically significant outcome is one that is unlikely to be due to chance alone, and this can be evaluated only under the condition of randomness. The conditions under which data are collected are important in drawing conclusions from the data; in critically reviewing uses of statistics in public media and other reports it is important to consider the study design, how the data were gathered, and the analyses employed as well as the data summaries and the conclusions drawn.

Random processes can be described mathematically by using a probability model. One begins to make a probability model by listing or describing the possible outcomes (the sample space) and assigning probabilities. In situations such as flipping a coin, rolling a number cube, or drawing a card, it might be reasonable to assume various outcomes are equally likely. In a probability model, sample points represent outcomes and combine to make up events; probabilities of events can be computed by applying the additive and multiplicative laws of probability. Interpreting these probabilities relies on an understanding of independence and conditional probability, which can be approached through the analysis of two-way tables.

Technology plays an important role in statistics and probability by making it possible to generate plots, functional models, and correlation coefficients, and to simulate many possible outcomes in a short amount of time.

Connections to Functions and Modeling. Functional models may be used to approximate data; if the data are approximately linear, the relationship may be modeled with a regression line and the strength and direction of such a relationship may be expressed through a correlation coefficient.

Content Outline

Summarizing Categorical and Measurement Data

Probability Models

Independently Combined Probability Models

Making Inferences and Justifying Conclusions Drawn from Data

Conditional Probability and the Laws of Probability

Experimenting and Simulating to Model Probabilities

Using Probability to Make Decisions

* Most or all of the standards in Statistics and Probability have a close connection to modeling.

1. Understand that statistical methods take variability into account to support making informed decisions based on data collected to answer specific questions.
2. Understand that visual displays and summary statistics condense the information in data sets into usable knowledge.
3. Understand that patterns of association or relationships between variables may emerge through careful analysis of multi-variable data.
4. Summarize comparative or bivariate categorical data in two-way frequency tables. Interpret joint, marginal and conditional relative frequencies in the context of the data, recognizing possible associations and trends in bivariate categorical data.
5. Compare data on two or more count or measurement variables by using plots on the real number line (dot plots, histograms, and box plots). Use statistics appropriate to the shape of the data distribution to summarize center (median, mean) and spread (interquartile range, standard deviation) of the data sets. Interpret changes in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers).
6. Represent bivariate quantitative data on a scatter plot and describe how the variables are related.
7. Fit a linear function for scatter plots that suggest a linear association. Informally assess the fit of the model function by plotting and analyzing residuals.
8. Use a model function fitted to the data to solve problems in the context of the data, interpreting the slope (rate of change) and the intercept (constant term).
9. Compute (using technology) and interpret the correlation coefficient for a linear relationship between variables.
10. Distinguish between correlation and causation.

Probability Models

S-PM

1. Understand that in a probability model, individual outcomes have probabilities that sum to 1. When outcomes are categorized, the probability of a given type of outcome is the sum of the probabilities of all the individual outcomes of that type.
2. Understand that uniform probability models are useful models for processes such as (i) the selection of a person from a population; (ii) the selection of a number in a lottery; (iii) any physical situation in which symmetry suggests that different individual outcomes are equally likely.
3. Understand that two different empirical probability models for the same process will rarely assign exactly the same probability to a given type of outcome. But if the data sets are large and the methods used to collect the data for the two data sets are consistent, the agreement between the models is likely to be reasonably good.
4. Understand that a (theoretical) uniform probability model may be judged by comparing it to an empirical probability model for the same process. If the theoretical assumptions are appropriate and the data set is large, then the two models should agree approximately. If the agreement is not good, then it may be necessary to modify the assumptions underlying the theoretical model or look for factors that might have affected the data used to create the empirical model.
5. Use a uniform probability model to compute probabilities for a process involving uncertainty, including the random selection of a person from a population and physical situations where symmetry suggests that different individual outcomes are equally likely.
 - a. List the individual outcomes to create a sample space.
 - b. Label the individual outcomes in the sample space to reflect important characteristics or quantities associated with them.
 - c. Determine probabilities of individual outcomes, and determine the probability of a type or category of outcome as the fraction of individual outcomes it includes.
6. Generate data by sampling, repeated experimental trials, and simulations. Record and appropriately label such data, and use them to construct an empirical probability model. Compute probabilities in such models.
7. Compare probabilities from a theoretical model to probabilities from a corresponding empirical model for the same situation. If the agreement is not good, explain possible sources of the discrepancies.

Independently Combined Probability Models

S-IPM

1. Understand that to describe a pair of random processes (such as tossing a coin and rolling a number cube), or one random process repeated twice (such as randomly selecting a student in the class on two different days), two probability models can be combined into a single model.

- a. The sample space for the combined model is formed by listing all possible ordered pairs that combine an individual outcome from the first model with an individual outcome from the second. Each ordered pair is an individual outcome in the combined model.
- b. The total number of individual outcomes (ordered pairs) in the combined model is the product of the number of individual outcomes in each of the two original models.
2. Understand that when two probability models are combined independently, the probability that one type of outcome in the first model occurs together with another type of outcome in the second model is the product of the two corresponding probabilities in the original models (the Multiplication Rule).
3. Combine two uniform models independently to compute probabilities for a pair of random processes (e.g., flipping a coin twice, selecting one person from each of two classes).
 - a. Use organized lists, tables and tree diagrams to represent the combined sample space.
 - b. Determine probabilities of ordered pairs in the combined model, and determine the probability of a particular type or category of outcomes in the combined model, as the fraction of ordered pairs corresponding to it.
4. For two independently combined uniform models, use the Multiplication Rule to determine probabilities.

Making Inferences and Justifying Conclusions

S-IC

1. Understand that statistics is a process for making inferences about population parameters based on a sample from that population; randomness is the foundation for statistical inference.
2. Understand that the design of an experiment or sample survey is of critical importance to analyzing the data and drawing conclusions.
3. Understand that simulation-based techniques are powerful tools for making inferences and justifying conclusions from data.
4. Use probabilistic reasoning to decide if a specified model is consistent with results from a given data-generating process. (For example, a model says a spinning coin falls heads up with probability 0.5. Would a result of 5 tails in a row cause you to question the model?)
5. Recognize the purposes of and differences among sample surveys, experiments and observational studies; explain how randomization relates to each.
6. Use data from a sample survey to estimate a population mean or proportion; develop a margin of error through the use of simulation models for random sampling.
7. Use data from a randomized experiment to compare two treatments; justify significant differences between parameters through the use of simulation models for random assignment.
8. Evaluate reports based on data.

Conditional Probability and the Laws of Probability

S-CP

1. Understand that events are subsets of a sample space; often, events of interest are defined by using characteristics (or categories) of the sample points, or as unions, intersections, or complements thereof (“and,” “or,” “not”). A sample point may belong to several events (categories).
2. Understand that if A and B are two events, then in a uniform model the conditional probability of A given B, denoted by $P(A | B)$, is the fraction of B’s sample points that also lie in A.
3. Understand that the laws of probability allow one to use known probabilities to determine other probabilities of interest.
4. Compute probabilities by constructing and analyzing sample spaces, representing them by tree diagrams, systematic lists, and Venn diagrams.
5. Use the laws of probability to compute probabilities.
6. Apply concepts such as intersections, unions and complements of events, and conditional probability and independence to define or analyze events, calculate probabilities and solve problems.
7. Construct and interpret two-way tables to show probabilities when two characteristics (or categories) are associated with each sample point. Use a two-way table to determine conditional probabilities. *
8. Recognize and explain the concepts of conditional probability and independence in everyday language and everyday situations. *
9. Use permutations and combinations to compute probabilities of compound events and solve problems.

* Standard with close connection to modeling.

1. Understand that sets of data obtained from surveys, simulations or other means can be used as probability models, by treating the data set itself as a sample space, in which the sample points are the individual pieces of data.
2. Understand that the probability of an outcome can be interpreted as an assertion about the long-run proportion of the outcome's occurrence if the random experiment is repeated a large number of times.
3. Calculate experimental probabilities by performing simulations or experiments involving a probability model and using relative frequencies of outcomes.
4. Compare the results of simulations with predicted probabilities. When there are substantial discrepancies between predicted and observed probabilities, explain them.
5. Use the mean and standard deviation of a data set to fit it to a normal distribution and to estimate population percentages. Recognize that there are data sets for which such a procedure is not appropriate. Use calculators, spreadsheets and tables to estimate areas under the normal curve.

Using Probability to Make Decisions

1. Understand that the expected value of a random variable is the weighted average of its possible values, with weights given by their respective probabilities.
2. Understand that when the possible outcomes of a decision can be assigned probabilities and payoff values, the decision can be analyzed as a random variable with an expected value, e.g., of an investment.
3. Calculate expected value, e.g. to determine the fair price of an investment.
4. Use probabilities to make fair decisions (e.g., drawing by lots, using a random number generator).
5. Evaluate and compare two investments or strategies with the same expected value, where one investment or strategy is safer than the other.
6. Evaluate and compare two investments or strategies, where one investment or strategy is safer but has lower expected value. Include large and small investments, and situations with serious consequences.
7. Analyze decisions and strategies using probability concepts (e.g. product testing, medical testing, pulling a hockey goalie at the end of a game).

Mathematics | High School—Geometry

An understanding of the attributes and relationships of geometric objects can be applied in diverse contexts—interpreting a schematic drawing, estimating the amount of wood needed to frame a sloping roof, rendering computer graphics, or designing a sewing pattern for the most efficient use of material.

Understanding the attributes of geometric objects often relies on measurement: a circle is a set of points in a plane at a fixed distance from a point; a cube is bounded by six squares of equal area; when two parallel lines are crossed by a transversal, pairs of corresponding angles are congruent.

The concepts of congruence, similarity and symmetry can be united under the concept of geometric transformation. Reflections and rotations each explain a particular type of symmetry, and the symmetries of an object offer insight into its attributes—as when the reflective symmetry of an isosceles triangle assures that its base angles are congruent. Applying a scale transformation to a geometric figure yields a similar figure. The transformation preserves angle measure, and lengths are related by a constant of proportionality.

The definitions of sine, cosine and tangent for acute angles are founded on right triangle similarity, and, with the Pythagorean theorem, are fundamental in many real-world and theoretical situations.

Coordinate geometry is a rich field for exploration. How does a geometric transformation such as a translation or reflection affect the coordinates of points? How is the geometric definition of a circle reflected in its equation? Coordinates can describe locations in three dimensions and extend the use of algebraic techniques to problems involving the three-dimensional world we live in.

Dynamic geometry environments provide students with experimental and modeling tools that allow them to investigate geometric phenomena in much the same way as CAS environments allow them to experiment with algebraic phenomena.

Connections to Equations and Inequalities. The correspondence between numerical coordinates and geometric points allows methods from algebra to be applied to geometry and vice versa. The solution set of an equation becomes a geometric curve, making visualization a tool for doing and understanding algebra. Geometric shapes can be described by equations, making algebraic manipulation into a tool for geometric understanding, modeling and proof.

Content Outline

Congruence

Similarity, Right Triangles, and Trigonometry

Circles

Expressing Geometric Properties with Equations

Trigonometry of General Triangles

Geometric Measurement and Dimension

Modeling with Geometry

- Understand that two geometric figures are congruent if there is a sequence of rigid motions (rotations, reflections, translations) that carries one onto the other. This is the principle of superposition.
- Understand that criteria for triangle congruence are ways to specify enough measures in a triangle to ensure that all triangles drawn with those measures are congruent.
- Understand that criteria for triangle congruence (ASA, SAS, and SSS) can be established using rigid motions.
- Understand that geometric diagrams can be used to test conjectures and identify logical errors in fallacious proofs.
- Know and use (in reasoning and problem solving) definitions of angles, polygons, parallel, and perpendicular lines, rigid motions, parallelograms and rectangles.
- Prove theorems about lines and angles. *Theorems include: vertical angles are congruent; when a transversal crosses parallel lines, alternate interior angles are congruent and corresponding angles are congruent; two lines parallel to a third are parallel to each other; points on a perpendicular bisector of a segment are exactly those equidistant from the segment's endpoints.*
- Prove theorems about triangles. *Theorems include: measures of interior angles of a triangle sum to 180° ; base angles of isosceles triangles are congruent, the triangle inequality, the longest side of a triangle faces the angle with the greatest measure and vice-versa, the exterior-angle inequality, and the segment joining midpoints of two sides of a triangle parallel to the third side and half the length.*
- Use and prove properties of and relationships among special quadrilaterals: parallelogram, rectangle, rhombus, square, trapezoid and kite.
- Characterize parallelograms in terms of equality of opposite sides, in terms of equality of opposite angles, and in terms of bisection of diagonals; characterize rectangles as parallelograms with equal diagonals.
- Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc). *Copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines, including the perpendicular bisector of a line segment; and constructing a line parallel to a given line through a point not on the line.*
- Construct an equilateral triangle, a square and a regular hexagon inscribed in a circle.
- Use two-dimensional representations to transform figures and to predict the effect of translations, rotations, and reflections.
- Use two-dimensional representations to transform figures and to predict the effect of dilations.

Similarity, Right Triangles, and Trigonometry

- Understand that dilating a line produces a line parallel to the original. (In particular, lines passing through the center of the dilation remain unchanged.)
- Understand that the dilation of a given segment is parallel to the given segment and longer or shorter in the ratio given by the scale factor. A dilation leaves a segment unchanged if and only if the scale factor is 1.
- Understand that the assumed properties of dilations can be used to establish the AA, SAS, and SSS criteria for similarity of triangles.
- Understand that by similarity, side ratios in right triangles are properties of the angles in the triangle, leading to definitions of sine, cosine, and tangent.
- Understand that a line parallel to one side of a triangle divides the other two proportionally, and conversely.
- Use triangle similarity criteria to solve problems and to prove relationships in geometric figures. *Include a proof of the Pythagorean theorem using triangle similarity.*
- Use and explain the relationship between the sine and cosine of complementary angles.
- Use sine, cosine, tangent, and the Pythagorean Theorem to solve right triangles² in applied problems.
- STEM Give an informal explanation using successive approximation that a dilation of scale factor r changes the length of a curve by a factor of r and the area of a region by a factor of r^2 .

Circles

- Understand that dilations can be used to show that all circles are similar.
- Understand that there is a unique circle through three non-collinear points, and four circles tangent to three non-concurrent lines.

² A right triangle has five parameters, its three lengths and two acute angles. Given a length and any other parameter, "solving a right triangle" means finding the remaining three parameters.

3. Identify and define radius, diameter, chord, tangent, secant, and circumference.
4. Identify and describe relationships among angles, radii, and chords. *Include the relationship between central, inscribed and circumscribed angles; inscribed angles on a diameter are right angles; the radius of a circle is perpendicular to the tangent where the radius intersects the circle.*
5. Determine the arc lengths and the areas of sectors of circles, using proportions.
6. STEM Construct a tangent line from a point outside a given circle to the circle.
7. STEM Prove and use theorems about circles, and use these theorems to solve problems involving:
 - a. Symmetries of a circle
 - b. Similarity of a circle to any other
 - c. Tangent line, perpendicularity to a radius
 - d. Inscribed angles in a circle, relationship to central angles, and equality of inscribed angles
 - e. Properties of chords, tangents, and secants as an application of triangle similarity.

Expressing Geometric Properties with Equations

G-GPE

1. Understand that two lines with well-defined slopes are perpendicular if and only if the product of their slopes is equal to -1 .
2. Understand that the equation of a circle can be found using its definition and the Pythagorean Theorem.
3. Understand that transforming the graph of an equation by reflecting in the axes, translating parallel to the axes, or applying a dilation in one of the coordinate directions corresponds to substitutions in the equation.
4. STEM Understand that an ellipse is the set of all points whose distances from two fixed points (the foci) are a constant sum. The graph of $x^2/a^2 + y^2/b^2 = 1$ is an ellipse with foci on one of the axes.
5. STEM Understand that a parabola is the set of points equidistant from a fixed point (the focus) and a fixed line (the directrix). The graph of any quadratic function is a parabola, and all parabolas are similar.
6. STEM Understand that the formula $A = \pi ab$ for the area of an ellipse can be derived from the formula for the area of a circle.*
7. Use the slope criteria for parallel and perpendicular lines to solve geometric problems (e.g., find the equation of a line parallel or perpendicular to a given line that passes through a given point).
8. Find the point on the segment between two given points that divides the segment in a given ratio.
9. Use coordinates to compute perimeters of polygons and areas for triangles and rectangles, e.g. using the distance formula.*
10. Decide whether a point with given coordinates lies on a circle defined by a given equation.
11. Use coordinates to prove simple geometric theorems algebraically. For example, prove or disprove that a figure defined by four given points in the coordinate plane is a rectangle; prove or disprove that the point $(1, \sqrt{3})$ lies on the circle centered at the origin and containing the point $(0, 2)$.
12. Complete the square to find the center and radius of a circle given by an equation.
13. STEM Find an equation for an ellipse given in the coordinate plane with major and minor axes parallel to the coordinate axes.
14. STEM Calculate areas of ellipses to solve problems.*

Trigonometry of General Triangles

G-TGT

1. STEM Understand that the formula $A = \frac{1}{2} ab \sin(C)$ for the area of a triangle can be derived by drawing an auxiliary line from a vertex perpendicular to the opposite side. Applying this formula in three different ways leads to the Law of Sines.
2. STEM Understand that the Law of Cosines generalizes the Pythagorean Theorem.
3. STEM Understand that the sine, cosine and tangent of the sum or difference of two angles can be expressed in terms of sine, cosine, and tangent of the angles themselves using the addition formulas.
4. STEM Understand that the Laws of Sines and Cosines embody the triangle congruence criteria, in that three pieces of information are usually sufficient to completely solve a triangle. Furthermore, these laws yield two possible solutions in the ambiguous case, illustrating that “Side-Side-Angle” is not a congruence criterion.
5. STEM Explain proofs of the Law of Sines and the Law of Cosines.

* Standard with close connection to modeling.

6. STEM Use the Law of Sines and the Law of Cosines to find unknown measurements in right and non-right triangles (e.g., surveying problems, resultant forces).

Geometric Measurement and Dimension

G-GMD

1. Understand that the area of a decomposed figure is the sum of the areas of its components and is independent of the choice of dissection.
2. STEM Understand that lengths of curves and areas of curved regions can be defined using the informal notion of limit.
3. STEM Understand that Cavalieri's principle allows one to understand volume formulas informally by visualizing volumes as stacks of thin slices.
4. Find areas of polygons by dissecting them into triangles.
5. Explain why the volume of a cylinder is the area of the base times the height, using informal arguments.
6. For a pyramid or a cone, give a heuristic argument to show why its volume is one-third of its height times the area of its base.
7. Apply formulas and solve problems involving volume and surface area of right prisms, right circular cylinders, right pyramids, cones, spheres and composite figures.
8. STEM Identify cross-sectional shapes of slices of three-dimensional objects, and identify three-dimensional objects generated by rotations of two-dimensional objects.
9. STEM Use the behavior of length and area under dilations to show that the circumference of a circle is proportional to the radius and the area of a circle is proportional to the square of the radius. Identify the relation between the constants of proportionality with an informal argument involving dissection and recomposition of a circle into an approximate rectangle.

Modeling with Geometry

G-MG

1. Understand that models of objects and structures can be built from a library of standard shapes; a single kind of shape can model seemingly different objects.*
2. Use geometric shapes, their measures and their properties to describe objects (e.g., modeling a tree trunk or a human torso or as a cylinder).*
3. Apply concepts of density based on area and volume in modeling situations (e.g., persons per square mile, BTUs per cubic foot).*
4. Apply geometric methods to solve design problems (e.g., designing an object or structure to satisfy constraints or minimize cost; working with typographic grid systems based on ratios).*

* Standard with close connection to modeling.

Glossary

Addition and subtraction within 10, 20, or 100. Addition or subtraction of whole numbers with whole number answers, and with sum or minuend at most 10, 20, or 100. Example: $8 + 2 = 10$ is an addition within 10, $14 - 5 = 9$ is a subtraction within 20, and $55 - 18 = 37$ is a subtraction within 100.

Additive inverses. Two numbers whose sum is 0 are additive inverses of one another. Example: $\frac{3}{4}$ and $-\frac{3}{4}$ are additive inverses of one another because $\frac{3}{4} + (-\frac{3}{4}) = (-\frac{3}{4}) + \frac{3}{4} = 0$.

Box plot. A method of visually displaying a distribution of data values by using the median, quartiles, and extremes of the data set. A box shows the middle 50% of the data.³

Complex fraction. A fraction $\frac{A}{B}$ where A and/or B are fractions.

Congruent. Two plane or solid figures are congruent if one can be obtained from the other by a sequence of rigid motions (rotations, reflections, and translations).

Counting on. A strategy for finding the number of objects in a group without having to count every member of the group. For example, if a stack of books is known to have 8 books and 3 more books are added to the top, it is not necessary to count the stack all over again; one can find the total by *counting on*—pointing to the top book and saying “eight,” following this with “nine, ten, eleven. There are eleven books now.”

Decade word. A word referring to a single-digit multiple of ten, as in *twenty, thirty, forty*, etc.

Dot plot. A method of visually displaying a distribution of data values where each data value is shown as a dot or mark above a number line. Also known as a line plot.⁴

Dilation. A transformation that moves each point along the ray through the point emanating from a fixed center, and multiplies distances from the center by a common scale factor.

Empirical probability model. A probability model based on a data set for a random process in which the probability of a particular type or category of outcome equals the percentage of data points included in the category. Example: If a coin is tossed 10 times and 4 of the tosses are Heads, then the empirical probability of Heads in the empirical probability model is $\frac{4}{10}$ (equivalently 0.4 or 40%).

Equivalent fractions. Two fractions $\frac{a}{b}$ and $\frac{c}{d}$ that represent the same number.

Expanded form. A multidigit number is expressed in expanded form when it is written as a sum of single-digit multiples of powers of ten. For example, $643 = 600 + 40 + 3$.

First quartile. For a data set with median M , the first quartile is the median of the data values less than M . Example: For the data set $\{1, 3, 6, 7, 10, 12, 14, 15, 22, 120\}$, the first quartile is 6.⁵ See also [median](#), [third quartile](#), [interquartile range](#).

Fraction. A number expressible in the form $\frac{a}{b}$ where a is a whole number and b is a positive whole number. (The word *fraction* in these standards always refers to a nonnegative number.) See also [rational number](#).

Independently combined probability models. Two probability models are said to be combined independently if the probability of each ordered pair in the combined model equals the product of the original probabilities of the two individual outcomes in the ordered pair.

Integer. A number expressible in the form a or $-a$ for some whole number a .

Interquartile Range. A measure of variation in a set of numerical data, the interquartile range is the distance between the first and third quartiles of the data set. Example: For the data set $\{1, 3, 6, 7, 10, 12, 14, 15, 22, 120\}$, the interquartile range is $15 - 6 = 9$. See also [first quartile](#), [third quartile](#).

Laws of arithmetic. See Table 3 in this Glossary.

Line plot. See [dot plot](#).

Mean. A measure of center in a set of numerical data, computed by adding the values in a list and then dividing by the number of values in the list.⁶ Example: For the data set $\{1, 3, 6, 7, 10, 12, 14, 15, 22, 120\}$, the mean is 21.

Mean absolute deviation. A measure of variation in a set of numerical data, computed by adding the distances between each data value and the mean, then dividing by the number of data values. Example: For the data set $\{2, 3, 6, 7, 10, 12, 14, 15, 22, 120\}$, the mean absolute deviation is 20.

Median. A measure of center in a set of numerical data. The median of a list of values is the value appearing at the center of a sorted version of the list—or the mean of the two central values, if the list contains an even number of values. Example: For the data set $\{2, 3, 6, 7, 10, 12, 14, 15, 22, 90\}$, the median is 11.

³ Adapted from Wisconsin Department of Public Instruction, <http://dpi.wi.gov/standards/mathglos.html>, accessed March 2, 2010.

⁴ Adapted from Wisconsin Department of Public Instruction, *op. cit.*

⁵ Many different methods for computing quartiles are in use. The method defined here is sometimes called the Moore and McCabe method. See Langford, E., “Quartiles in Elementary Statistics,” *Journal of Statistics Education* Volume 14, Number 3 (2006),

⁶ To be more precise, this defines the *arithmetic mean*.

Multiplication and division within 100. Multiplication or division of whole numbers with whole number answers, and with product or dividend at most 100. Example: $72 \div 8 = 9$.

Multiplicative inverses. Two numbers whose product is 1 are multiplicative inverses of one another. Example: $\frac{3}{4}$ and $\frac{4}{3}$ are multiplicative inverses of one another because $\frac{3}{4} \times \frac{4}{3} = \frac{4}{3} \times \frac{3}{4} = 1$.

Properties of equality. See Table 4 in this Glossary.

Properties of inequality. See Table 5 in this Glossary.

Properties of operations. Associativity and commutativity of addition and multiplication, distributivity of multiplication over addition, the additive identity property of 0, and the multiplicative identity property of 1. See Table 3 in this Glossary.

Probability. A number between 0 and 1 used to quantify likelihood for processes that have uncertain outcomes (such as tossing a coin, selecting a person at random from a group of people, tossing a ball at a target, testing for a medical condition).

Rational number. A number expressible in the form $\frac{a}{b}$ or $-\frac{a}{b}$ for some fraction $\frac{a}{b}$. The rational numbers include the integers.

Related fractions. Two fractions are said to be related if one denominator is a factor of the other.⁷

Rigid motion. A transformation of points in space consisting of one or more translations, reflections, and/or rotations. Rigid motions are here assumed to preserve distances and angle measures.

Sample space. In a probability model for a random process, a list of the individual outcomes that are to be considered.

Scatter plot. A graph in the coordinate plane representing a set of bivariate data. For example, the heights and weights of a group of people could be displayed on a scatter plot.⁸

Similarity transformation. A rigid motion followed by a dilation.

Tape diagrams. Drawings that look like a segment of tape, used to illustrate number relationships. Also known as strip diagrams, bar models or graphs, fraction strips, or length models.

Teen number. A whole number that is greater than or equal to 11 and less than or equal to 19.

Third quartile. For a data set with median M , the third quartile is the median of the data values greater than M . Example: For the data set $\{2, 3, 6, 7, 10, 12, 14, 15, 22, 120\}$, the third quartile is 15. See also [median](#), [first quartile](#), [interquartile range](#).

Uniform probability model. A probability model in which the individual outcomes all have the same probability ($\frac{1}{N}$ if there are N individual outcomes in the sample space). If a given type of outcome consists of M individual outcomes, then the probability of that type of outcome is $\frac{M}{N}$. Example: if a uniform probability model is used to model the process of randomly selecting a person from a class of 32 students, and if 8 of the students are left-handed, then the probability of randomly selecting a left-handed student is $\frac{8}{32}$ (equivalently $\frac{1}{4}$, 0.25 or 25%).

Whole numbers. The numbers 0, 1, 2, 3,

⁷ See Ginsburg, Leinwand and Decker (2009), *Informing Grades 1-6 Mathematics Standards Development: What Can Be Learned from High-Performing Hong Kong, Korea, and Singapore?*, Table A1, p. A-5, grades 3 and 4.

⁸ Adapted from Wisconsin Department of Public Instruction, *op. cit.*.

TABLE 1. Common addition and subtraction situations.⁹

	Result Unknown	Change Unknown	Start Unknown
Add to	Two bunnies sat on the grass. Three more bunnies hopped there. How many bunnies are on the grass now? $2 + 3 = ?$	Two bunnies were sitting on the grass. Some more bunnies hopped there. Then there were five bunnies. How many bunnies hopped over to the first two? $2 + ? = 5$	Some bunnies were sitting on the grass. Three more bunnies hopped there. Then there were five bunnies. How many bunnies were on the grass before? $? + 3 = 5$
Take from	Five apples were on the table. I ate two apples. How many apples are on the table now? $5 - 2 = ?$	Five apples were on the table. I ate some apples. Then there were three apples. How many apples did I eat? $5 - ? = 3$	Some apples were on the table. I ate two apples. Then there were three apples. How many apples were on the table before? $? - 2 = 3$
	Total Unknown	Addend Unknown	Both Addends Unknown ¹⁰
Put Together/ Take Apart¹¹	Three red apples and two green apples are on the table. How many apples are on the table? $3 + 2 = ?$	Five apples are on the table. Three are red and the rest are green. How many apples are green? $3 + ? = 5, 5 - 3 = ?$	Grandma has five flowers. How many can she put in her red vase and how many in her blue vase? $5 = 0 + 5, 5 = 5 + 0$ $5 = 1 + 4, 5 = 4 + 1$ $5 = 2 + 3, 5 = 3 + 2$
	Difference Unknown	Bigger Unknown	Smaller Unknown
Compare¹²	(“How many more?” version): Lucy has two apples. Julie has five apples. How many more apples does Julie have than Lucy? (“How many fewer?” version): Lucy has two apples. Julie has five apples. How many fewer apples does Lucy have than Julie? $2 + ? = 5, 5 - 2 = ?$	(Version with “more”): Julie has three more apples than Lucy. Lucy has two apples. How many apples does Julie have? (Version with “fewer”): Lucy has 3 fewer apples than Julie. Lucy has two apples. How many apples does Julie have? $2 + 3 = ?, 3 + 2 = ?$	(Version with “more”): Julie has three more apples than Lucy. Julie has five apples. How many apples does Lucy have? (Version with “fewer”): Lucy has 3 fewer apples than Julie. Julie has five apples. How many apples does Lucy have? $5 - 3 = ?, ? + 3 = 5$

⁹ Adapted from Box 2-4 of National Research Council (2009, op. cit., pp. 32, 33).

¹⁰ These *take apart* situations can be used to show all the decompositions of a given number. The associated equations, which have the total on the left of the equal sign, help children understand that the = sign does not always mean *makes or results in* but always does mean *is the same number as*.

¹¹ Either addend can be unknown, so there are three variations of these problem situations. Both Addends Unknown is a productive extension of this basic situation especially for small numbers less than or equal to 10.

¹² For the Bigger Unknown or Smaller Unknown situations, one version directs the correct operation (the version using *more* for the bigger unknown and using *less* for the smaller unknown). The other versions are more difficult.

TABLE 2. Common multiplication and division situations.¹³

	Unknown Product	Group Size Unknown (“How many in each group?” Division)	Number of Groups Unknown (“How many groups?” Division)
	$3 \times 6 = ?$	$3 \times ? = 18$ and $18 \div 3 = ?$	$? \times 6 = 18$ and $18 \div 6 = ?$
Equal Groups	There are 3 bags with 6 plums in each bag. How many plums are there in all? <i>Measurement example.</i> You need 3 lengths of string, each 6 inches long. How much string will you need altogether?	If 18 plums are shared equally into 3 bags, then how many plums will be in each bag? <i>Measurement example.</i> You have 18 inches of string, which you will cut into 3 equal pieces. How long will each piece of string be?	If 18 plums are to be packed 6 to a bag, then how many bags are needed? <i>Measurement example.</i> You have 18 inches of string, which you will cut into pieces that are 6 inches long. How many pieces of string will you have?
Arrays,¹⁴ Area¹⁵	There are 3 rows of apples with 6 apples in each row. How many apples are there? <i>Area example.</i> What is the area of a 3 cm by 6 cm rectangle?	If 18 apples are arranged into 3 equal rows, how many apples will be in each row? <i>Area example.</i> A rectangle has area 18 square centimeters. If one side is 3 cm long, how long is a side next to it?	If 18 apples are arranged into equal rows of 6 apples, how many rows will there be? <i>Area example.</i> A rectangle has area 18 square centimeters. If one side is 6 cm long, how long is a side next to it?
Compare	A blue hat costs \$6. A red hat costs 3 times as much as the blue hat. How much does the red hat cost? <i>Measurement example.</i> A rubber band is 6 cm long. How long will the rubber band be when it is stretched to be 3 times as long?	A red hat costs \$18 and that is 3 times as much as a blue hat costs. How much does a blue hat cost? <i>Measurement example.</i> A rubber band is stretched to be 18 cm long and that is 3 times as long as it was at first. How long was the rubber band at first?	A red hat costs \$18 and a blue hat costs \$6. How many times as much does the red hat cost as the blue hat? <i>Measurement example.</i> A rubber band was 6 cm long at first. Now it is stretched to be 18 cm long. How many times as long is the rubber band now as it was at first?
General	$a \times b = ?$	$a \times ? = p$ and $p \div a = ?$	$? \times b = p$ and $p \div b = ?$

¹³ The first examples in each cell are examples of discrete things. These are easier for students and should be given before the measurement examples.

¹⁴ The language in the array examples shows the easiest form of array problems. A harder form is to use the terms rows and columns: The apples in the grocery window are in 3 rows and 6 columns. How many apples are in there? Both forms are valuable.

¹⁵ Area involves arrays of squares that have been pushed together so that there are no gaps or overlaps, so array problems include these especially important measurement situations.

TABLE 3. The laws of arithmetic, including the properties of operations (identified with \circ). Here a , b and c stand for arbitrary numbers in a given number system. The laws of arithmetic apply to the rational number system, the real number system, and the complex number system.

\circ Associative law of addition	$(a + b) + c = a + (b + c)$
\circ Commutative law of addition	$a + b = b + a$
\circ Additive identity property of 0	$a + 0 = 0 + a = a$
Existence of additive inverses	For every a there exists $-a$ so that $a + (-a) = (-a) + a = 0$.
\circ Associative law of multiplication	$(a \times b) \times c = a \times (b \times c)$
\circ Commutative law of multiplication	$a \times b = b \times a$
\circ Multiplicative identity property of 1	$a \times 1 = 1 \times a = a$
Existence of multiplicative inverses	For every $a \neq 0$ there exists $1/a$ so that $a \times 1/a = 1/a \times a = 1$.
\circ Distributive law of multiplication over addition	$a \times (b + c) = a \times b + a \times c$

TABLE 4. The properties of equality. Here a , b and c stand for arbitrary numbers in the rational, real, or complex number systems.

Reflexive property of equality	$a = a$
Symmetric property of equality	If $a = b$, then $b = a$.
Transitive property of equality	If $a = b$ and $b = c$, then $a = c$.
Addition property of equality	If $a = b$, then $a + c = b + c$.
Subtraction property of equality	If $a = b$, then $a - c = b - c$.
Multiplication property of equality	If $a = b$, then $a \times c = b \times c$.
Division property of equality	If $a = b$ and $c \neq 0$, then $a \div c = b \div c$.
Substitution property of equality	If $a = b$, then b may be substituted for a in any expression containing a .

TABLE 5. The properties of inequality. Here a , b and c stand for arbitrary numbers in the rational or real number systems.

<p>Exactly one of the following is true: $a < b$, $a = b$, $a > b$.</p> <p>If $a > b$ and $b > c$ then $a > c$.</p> <p>If $a > b$, then $b < a$.</p> <p>If $a > b$, then $-a < -b$.</p> <p>If $a > b$, then $a \pm c > b \pm c$.</p> <p>If $a > b$ and $c > 0$, then $a \times c > b \times c$.</p> <p>If $a > b$ and $c < 0$, then $a \times c < b \times c$.</p> <p>If $a > b$ and $c > 0$, then $a \div c > b \div c$.</p> <p>If $a > b$ and $c < 0$, then $a \div c < b \div c$.</p>

Sample of Works Consulted

- Existing state standards documents.
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NATIONAL CENTER FOR EDUCATION STATISTICS

Statistical Analysis Report

February 2000

**Early Childhood Longitudinal Study - Kindergarten
Class of 1998-99, Fall 1998**

America's Kindergartners

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Executive Summary

Kindergarten is a critical period in children's early school careers. It sets them on a path that influences their subsequent learning and school achievement. For most children, kindergarten represents the first step in a journey through the world of formal schooling. However, children entering kindergarten in the United States in the 1990s are different from those who entered kindergarten in prior decades. They come from increasingly diverse racial, ethnic, cultural, social, economic and language backgrounds. Many kindergartners now come from single-parent families and from step-parent families. They also differ in the level and types of early care and educational experiences that they have had prior to kindergarten (Zill et al. 1995).

Our nation's schools face new opportunities and new challenges. Schools are expected to meet the educational needs of each child regardless of their background and experience. Services, such as meals and before- and after-school child care, that were provided by other institutions in the past are now being provided by schools. Teachers are faced with classrooms of children with increasingly diverse needs. In addition, growing pressure to raise academic standards and to assess all students' progress towards meeting those standards places even more burden on schools and teachers.

Much of the literature on the status of children in our nation's schools is focused on elementary (e.g., fourth-graders in the National Assessment of Educational Progress) and secondary school children (e.g., twelfth-graders in the National Assessment of Educational Progress and eighth-, tenth- and twelfth-graders in the National Education Longitudinal Study of 1988). Little information is available on kindergarten programs in the United States and on the nation's children as they enter kindergarten and move through the primary grades. Information about the entry status of the nation's kindergartners can inform educational policy and practice, and especially those policies and practices that are targeted to meeting the needs of a diverse population of children entering kindergarten for the first time.

In the fall of 1998, about 4 million children were attending kindergarten in the United States, approximately 95 percent of them for the first time. Of the children attending kindergarten, 85 percent were in public school, 15 percent in private school, 55 percent were in full day programs and 45 percent were in part day program.¹

¹ U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99, Fall 1998.

Whether or not children succeed in school is in part related to events and experiences that occur prior to their entering kindergarten for the first time. Children's preparedness for school and their later school success are related to multiple aspects of their development. Children's physical well-being, social development, cognitive skills and knowledge and how they approach learning are all factors that contribute to their chance for success in school (Kagan et al. 1995). Additionally, the differences we see in children's knowledge and skill as they enter kindergarten can be contributed to a variation in family characteristics (e.g., maternal education, family type) and home experiences (home educational activities, nonparental care). A complex and continuous collaboration exists between the child and the family; and, the family can provide the resources and support that children require to increase their chances of succeeding in school (Maccoby 1992). For some children, the absence of resources and support place them at increased risk for school failure.

This report presents the first findings from a new national study of kindergartners, their schools, classrooms, teachers and families. The Early Childhood Longitudinal Study, Kindergarten Class of 1998-99 (ECLS-K), sponsored by the U.S. Department of Education, National Center for Education Statistics (NCES), began following a nationally representative sample of some 22,000 kindergartners in the fall of 1998. The ECLS-K will follow the same cohort of children from their entry to kindergarten through their fifth grade year. Data will be collected not only in the fall of kindergarten but also spring kindergarten, fall first grade, spring first grade, spring third grade and spring fifth grade. In the fall of kindergarten, data were collected from children, their parents and their teachers. Information from children was gathered during an individualized in-person assessment with the child in the child's school, parents were interviewed over the phone and teachers were given self-administered questionnaires. Westat, Inc. is conducting the kindergarten and first grade collections for NCES.

This report is based on the 95 percent of children entering kindergarten for the first time in the fall of 1998. Future reports will provide information on those children who repeated kindergarten in the fall of 1998.

Cognitive Skills and Knowledge

Children's cognitive skills and knowledge are frequently thought of as core ingredients in the recipe for success in school. Researchers have conceived cognitive development as an extended set of

multidimensional skills and proficiencies which include language/literacy, reasoning and general knowledge (Kagan et al. 1995). Children's language and literacy refers to both their oral communication (language) and understanding of the written word (literacy). Children's reasoning refers to their mathematical skills. The concept of general knowledge refers to children's conceptions and understandings of the world around them.

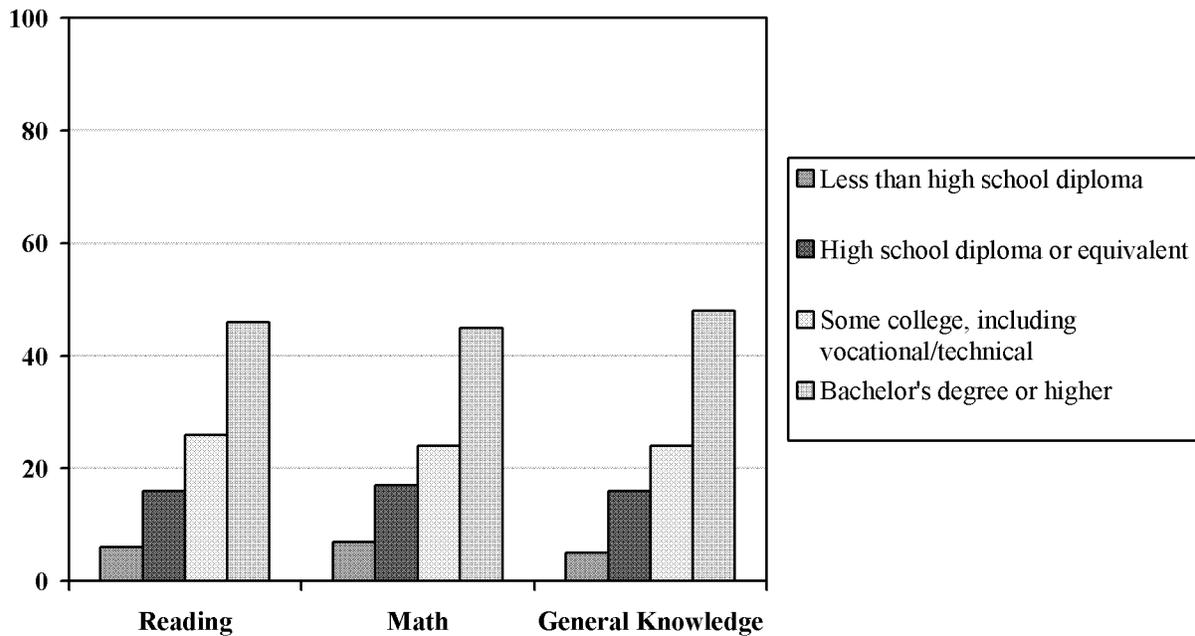
As children enter kindergarten for the first time, they differ in their cognitive skills and knowledge. Children's reading, mathematics and general knowledge are related to their age as they enter kindergarten, the level of their mother's education (see figure A), their family type, the primary language spoken in the home and their race-ethnicity.

- In reading, mathematics and general knowledge, older kindergartners (born in 1992) outperform the younger kindergartners (born September through December 1993). The older kindergartners are more likely to score in the highest quartile of the distribution of scores than the younger kindergartners. However, some of the youngest children, those just turning 5, also score in the highest quartile (16 percent in reading, 12 percent in mathematics and 12 percent in general knowledge). Additionally, some of the older kindergartners (born in 1992) are scoring in the lowest quartile (15-19 percent in reading, 13-17 percent in mathematics and 11-16 percent in general knowledge).
- Children's performance in reading, mathematics and general knowledge increases with the level of their mothers' education. Kindergartners whose mothers have more education are more likely to score in the highest quartile in reading, mathematics and general knowledge than all other children. However, some children whose mothers have less than a high school education also score in the highest quartile (6 percent in reading, 7 percent in mathematics and 4 percent in general knowledge). Additionally, some children whose mothers have a bachelor's degree or higher are scoring in the lowest quartile (8 percent in reading, 18 percent in mathematics and 10 percent in general knowledge).
- Children's performance in reading, mathematics and general knowledge differs by their family type: kindergartners from two-parent families are more likely to score in the highest quartile in reading, mathematics and general knowledge than children from single-mother families. However, some children with single mothers also score in the highest quartile (14 percent in reading, 14 percent in mathematics and 12 percent in general knowledge). Additionally, some children from two-parent families are scoring in the lowest quartile (22 percent in reading, 21 percent in mathematics and 20 percent in general knowledge).

In terms of their specific skills in reading and math, 66 percent of first-time kindergartners are proficient in recognizing their letters, 29 percent are proficient in understanding the beginning sounds (letter sound relationship at the beginning of words) and about 17 percent are proficient in understanding the ending sounds (letter sound relationship at the end of words). In math, nearly all (94 percent) first-time kindergartners are proficient in number and shape (recognizing numbers, shapes and counting to 10),

58 percent are proficient in understanding relative size (sequencing patterns and using nonstandard units of length to compare objects) and 20 percent are proficient in understanding ordinal sequence (identification of the ordinal position of an object in a sequence—e.g., fifth in line).

Figure A.—Percentage of first-time kindergartners scoring in the highest quartile of reading, math and general knowledge, by maternal education: Fall 1998



SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99, Fall 1998.

Social Skills

Children’s social skills relate both to the quality and success of their school experiences (Meisels et al. 1996). Young children construct knowledge by interacting with others and their environment (Bandura 1986). In order to interact successfully in a variety of circumstances and with a variety of people, children need to possess interpersonal skills. They need to feel secure enough to join, question and listen to their peers and adults. This report explores indicators of children’s social development by looking at children’s interpersonal skills and behavioral patterns as rated by their parents and teachers.

For the most part, parents and teachers report a high incidence of prosocial behaviors and a low incidence of problem behaviors. Parents report that about 82-89 percent of first-time kindergartners often to very often join others in play, make friends and comfort others. Teachers report that about 75 percent of first-time kindergartners are accepting of peer ideas and form friendships. In terms of more problematic behaviors (e.g., fighting and arguing), parents report that about 33 percent of first-time kindergartners argue with others often to very often and less than 20 percent of first-time kindergartners fight with others and get angry easily often to very often. Teacher ratings are lower, with about 10 percent of first-time kindergartners arguing with others, fighting with others and easily getting angry often to very often. Teacher ratings of children's prosocial and problem behaviors differ by children's family type and minority status.

- Kindergarten teachers rate children with some characteristics of risk for school difficulty (those whose mothers have less than a high school education, are single mothers or whose families have received or are receiving public assistance) less likely than children whose mothers have at least a high school diploma, who come from two-parent families and whose families have never utilized public assistance to accept peer ideas and form friendships.
- Reports of children's problem behaviors vary by race/ethnicity. The pattern of these differences and their magnitude depends on who is rating the children's behavior. When teachers rate the children in their classrooms, black children are more likely than white and Asian children to be seen as exhibiting higher levels of problem behaviors (arguing with others, fighting with others, getting angry easily). When parents rate their children, we see fewer differences between black and white children. Instead, we see more differences between Asian children and white, black and Hispanic children. Asian children are less likely than children in these other groups to be seen as arguing or fighting often to very often by their parents.

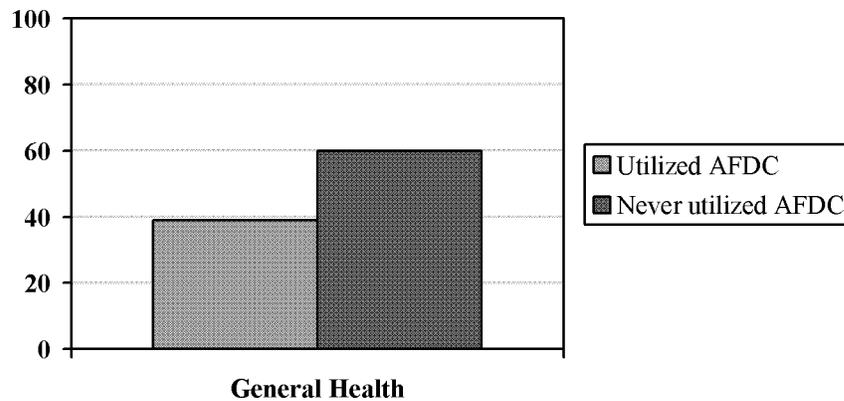
Physical Health and Well-Being

Information on children's physicality helps untangle the diverse skill set children possess at entry to kindergarten. An important part of learning relates to children having enough rest, enough good foods to eat and good physical health (Kagan et al. 1995). The concept of physical health and well-being is broad; it not only includes a disease-free state but also having gross and fine motor skills appropriate to the child's age.

The average first-time kindergartner in 1998 was about 45 inches tall and weighed about 46 pounds. About 12 percent of boys and 11 percent of girls have a body mass index which classifies them as at risk for being overweight. Kindergartners are generally healthy (see figure B)—though their general health differs by their family type, the level of their mothers education and whether or not they utilized

public assistance (i.e., Aid for Families with Dependent Children). A small percentage of kindergartners are showing signs of developmental difficulty (e.g., high activity level, low attention span).

Figure B.—Percentage of first-time kindergartners who are in excellent general health, by utilization of public assistance (Aid for Families with Dependent Children-AFDC): Fall 1998



SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99, Fall 1998.

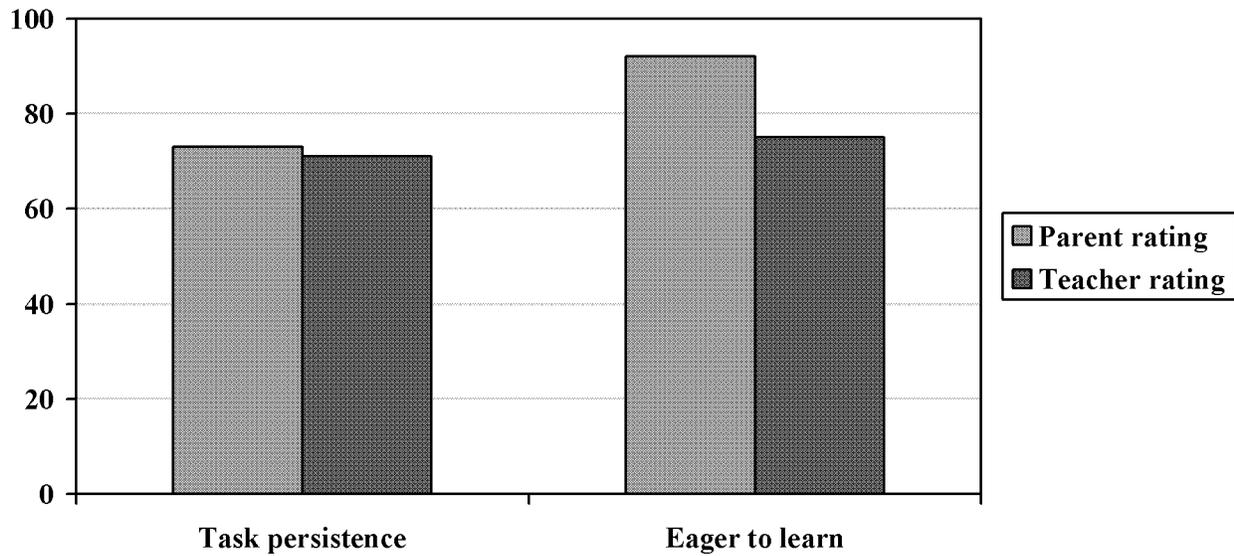
Approaches to Learning

How children approach learning is central to their chances for success in school. Children’s learning styles reflect how they address the task of learning (Kagan et al. 1995). Children need to be able to persist at tasks, be eager to learn and be creative in their work. These characteristics tend to manifest themselves at a relatively early age, and children demonstrate diversity in their approaches and behaviors toward learning.

As children enter kindergarten for the first time, parents report that about 75 percent persist at tasks often to very often (figure C), about 92 percent seem eager to learn (figure C) and 85 percent demonstrate creativity in their work. Teachers are slightly more conservative in their ratings (figure C), reporting that about two-thirds to three-quarters of beginning kindergartners persist at tasks, seem eager to learn and are able to pay attention. Teacher ratings of kindergartners approaches to learning differ by child characteristics, such as their gender, age at entry, level of mother’s education and minority status.

- Both parents and teachers report that girls persist at tasks more often than boys, older kindergartners (born in 1992) persist at tasks more often than the younger (born September through December 1993) and children not at risk persist at tasks more often than children at risk for school difficulty (mother's education less than high school, single-mother and receipt of public assistance), except on the basis of home language.

Figure C.—Percentage of first-time kindergartners teacher rate as persisting at tasks often to very often, by age of entry: Fall 1998



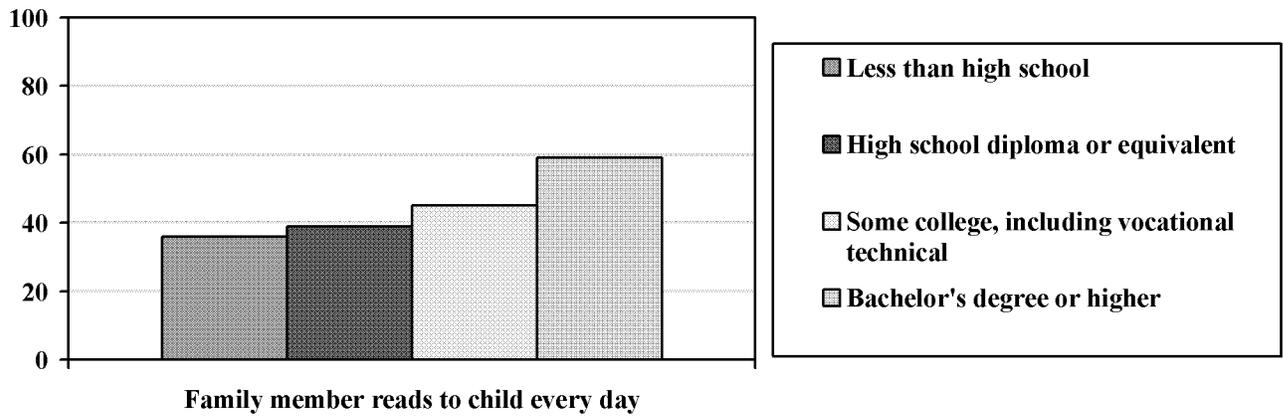
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99, Fall 1998.

The Child and the Family

The nature and frequency of family interactions relate not only to children's development but also to children's preparedness for school. The frequency with which parents interact in positive ways with their children may indicate the investment parents make in their children's education. Home activities—such as reading to the child or interacting through play—are related to children's school preparedness and chances for success in school.

The majority of parents report having more than 25 children's books in the home, and more than half of parents report having more than five children's records, audio tapes or CDs in the home. Nearly half of parents report a family member reading to the child or singing songs with the child every day. Activities such as reading to children vary by level of mother's education (see figure D), family type, receipt of public assistance and minority status.

Figure D.—Percentage of first-time kindergartners read to every day by a family member, by family type: Fall 1998



SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99, Fall 1998.

As the labor force participation rate of mothers with young children has increased, the percentage of children receiving care from someone other than their parents has increased as well. In the 1990s, a large majority of children have been cared for on a regular basis by someone other than their parents prior

to entering first grade (West et al. 1992). Today, many kindergarten and primary school children receive before- and after-school care regularly from persons other than their parents (Brimhall et al. 1999).

Prior to starting kindergarten, about four out of five first-time kindergartners received care on a regular basis from someone other than their parents. Upon entering kindergarten, about half of children currently receive care on a regular basis before or after school from someone other than their parents. Both the care children received prior to kindergarten and their current care (e.g., relative, nonrelative, center-based) varies by characteristics such as level of mother's education and race/ethnicity status.

At kindergarten entry, children whose mothers have less than a high school education are more likely to receive before- and/or after-school care from a relative than from a nonrelative or center-based provider. In contrast, kindergartners whose mothers have a college education are more likely to receive care in a center-based setting than in either of the two home-based settings.

- At kindergarten entry, black children are more likely than white, Asian or Hispanic children to receive before- and/or after-school care.

Summary

While first-time kindergartners are similar in many ways, this report demonstrates that differences exist in children's skills and knowledge in relation to their characteristics, background and experiences. The report adds to our understanding of the diversity of young children's skills and knowledge. Even as they are just beginning their formalized educational experience, children are different. They demonstrate differences in their cognitive skills and knowledge, social skills, health and approaches to learning, and bring with them differences in their home educational experiences and environments. This report is highly descriptive in nature, presenting a broad array of information on children's status as they begin their journey to school. Future reports based on the Early Childhood Longitudinal Study, Kindergarten Class of 1998-99 (ECLS-K), will take more analytical approach and examine specific issues more in depth. This report and future data from the ECLS-K will help to inform researchers, practitioners, educators, parents and policymakers on issues concerning young children's education during the elementary grades.

Future Directions

The findings in this report bring to light some areas for further investigation and some interesting patterns emerge across domains. For instance, differences exist in parent and teacher perceptions of children's prosocial skills, problem behaviors and approaches to learning. Primarily, we presented the data by looking at parent perceptions in relation to child and family characteristics and teacher perceptions in relation to child and family characteristics. However, future analysis can compare the similarities and the differences in parent and teacher perceptions of the same child. For example, in terms of approaches to learning, specifically children's eagerness to learn, the racial/ethnic differences seem much greater in the teacher ratings than in the parent ratings in the aggregate.

Furthermore, in this report, we look at the constructs by a specific set of child and family characteristics (e.g., child's sex, age at entry, race/ethnicity, maternal education). Future reports can take a different perspective, and analyze the constructs in terms of additional family characteristics and school characteristics. For example, the data can be analyzed in terms of pre-school attendance, kindergarten program type (i.e., full day/part day) and school type (e.g., public/nonpublic). These types of analysis may have policy implications.

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Introduction

Kindergarten is a critical period in children's early school careers. It sets children on a path that influences their subsequent learning and school achievement. For most children, kindergarten represents the first step in a journey through the world of formal schooling. However, children entering kindergarten in the United States in the 1990s are different from those who entered kindergarten in prior decades. They come from increasingly diverse racial, ethnic, cultural, social, economic and language backgrounds. Many kindergartners now come from single-parent families, step-parent families and homes with very different social and economic backgrounds. They also differ in the level and types of early care and educational experiences that they have had prior to kindergarten (Zill et al. 1995).

These trends present new opportunities and pose challenges to our nation's schools. Schools are expected to meet the educational needs of each child regardless of their background and experience. Services, such as meals and before- and after-school child care, that were provided by other institutions in the past are now being provided by schools. Teachers are faced with classrooms of children with increasingly diverse needs. In addition, growing pressure to raise academic standards and to assess all students' progress toward meeting those standards places even more burden on schools and teachers (Kagan 1990, Meisels 1992).

Much of the literature on the status of children in our nation's schools is focused on elementary (e.g., fourth-graders in the National Assessment of Educational Progress) and secondary school children (e.g., eighth and twelfth-graders in the National Assessment of Educational Progress and eighth-, tenth- and twelfth-graders in the National Education Longitudinal Study of 1988). Little information is available on the achievement of children in kindergarten programs in the United States and on the nation's children as they enter kindergarten and move through the primary grades. Information about the entry status of the nation's first-time kindergartners can inform educational policy and practice, and especially those policies and practices that are targeted to meeting the needs of a diverse population of children entering kindergarten for the first time.

In the fall of 1998, about four million children were attending kindergarten in the United States, approximately 95 percent of them for the first time. Of the children attending kindergarten, 85 percent were in public school and 15 percent in private school. Over the past few decades, the nature of kindergarten programs has shifted from typically half-day programs to full-day programs. Presently, 55

percent of children are in full-day programs, and 45-percent in part day programs.² This report will present a snapshot of these first-time kindergartners. It describes some of the skills, knowledge and experiences that children bring with them as they enter kindergarten. It describes some of the things first-time kindergartners can and cannot do, what problems they may or may not have and what resources may or may not be available to them. The report examines variations in children's skills, knowledge and experiences across a set of sociodemographic characteristics of children and their families.

Children's Skills, Knowledge and Experiences

Whether or not children succeed in school is in part related to events and experiences that occur prior to their entering kindergarten for the first time. Children's preparedness for school and their later school success are related to multiple aspects of the children's development, such as their physical well-being, social development, cognitive skills and knowledge and their approaches to learning (Kagan et al. 1995). Along with these characteristics, some would emphasize the role that schools play in determining whether particular children are prepared for school and their success in the classroom (Cronic and Lamberty 1994; Meisels 1999). Additionally, children's preparedness for school involves a complex and continuous collaboration between the child and the family. The family can provide the resources and support that children require to increase their chances to succeed in school (Maccoby 1992). For some children, the absence of resources and support place them at increased risk for school failure.

Cognitive Skills and Knowledge. Children's cognitive skills and knowledge are frequently thought of as core ingredients in the recipe for success in school. Researchers have conceived cognitive development as an extended set of multidimensional skills and proficiencies which include language/literacy (e.g., reading), reasoning (e.g., mathematical knowledge and skills) and general knowledge (Kagan et al. 1995). Children's language and literacy refers to both their oral communication (language) and understanding of the written word (literacy). In this study, children's reasoning refers to their mathematical skills. The concept of general knowledge refers to children's conceptions and understandings of the world around them.

These three cognitive domains—reading, mathematics and general knowledge—play an important role in children's chances for scholastic success. The cognitive skills children demonstrate at kindergarten entry can potentially shape their early school experience (Sameroff and Haith 1996).

² U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99, Fall 1998.

Therefore, documenting the skills children possess before they receive formal schooling provides a baseline for assessing their progress in kindergarten and beyond (Meisels 1996). This report will describe children's cognitive skills in the reading, mathematics and general knowledge domains as they enter kindergarten for the first time.

Social Skills. Children's social skills relate both to the quality and success of their school experiences (Meisels et al. 1996). Young children construct understanding by interacting with others and their environment (Bandura 1986). In interacting successfully in a variety of circumstances with a variety of people, children demonstrate interpersonal skills. They need to feel secure enough to join, question and listen to their peers and adults. This report will explore indicators of children's social development by looking at children's interpersonal skills and behavioral patterns as rated by their parents and teachers. Specifically, this report will present information on first-time kindergartners' interpersonal skills and behaviors, both prosocial and problem.

Physical Health and Well-Being. We also consider the relationships among children's physical well-being, motor development and educational outcomes. The stage for learning is often set with enough rest, good foods to eat and good physical health (Kagan et al. 1995). The concept of physical health and well-being is broad; it not only includes a disease-free state but also a physical prowess appropriate to the child's age in terms of gross and fine motor skills. Consequently, information on children's physicality helps untangle the diverse skill set children possess at entry to kindergarten. This report will present information on first-time kindergartners' height and weight, body mass index, fine and gross motor skills, general health and developmental difficulties they are experiencing that may affect their classroom experience.

Approaches to Learning. How children approach learning is central to their chances for success in school. Children's learning styles reflect how they address learning (Kagan et al. 1995). Children need to be able to persist at tasks and be eager to learn. In addition, demonstrating creativity in their thinking and in their work can also increase their chances for success in school. These characteristics tend to manifest themselves at a relatively early age. As early as kindergarten entry, children demonstrate diversity in their approaches and behaviors toward learning. Therefore, this report will explore basic information on children's approaches to learning.

The Child and the Family. The nature and frequency of family interactions relate not only to children's development but also to children's preparedness for school. The frequency with which parents interact with their children may indicate the investment parents make in their children's education. Home activities—such as reading to the child or interacting through play—are related to children's school preparedness and chances for success in school.

As the labor force participation rate of mothers with young children has increased, the percentage of children receiving care from someone other than their parents has increased as well. In the 1990s, a large majority of children have been cared for on a regular basis by someone other than their parents prior to entering first grade (West et al. 1995). Today, many kindergarten and primary school children receive before- and after-school care regularly from persons other than their parents (Brimhall et al. 1999).

The importance to early school success of the home literacy environment, parents' regular interaction with their children and children's participation in early care and education programs has led the National Education Goals Panel to include these as proxy measures of school readiness in their annual report. Consequently, this report on children's status at entry to kindergarten includes information on each of these measures.

Data Source

This report presents the first findings from a new national study of kindergartners, their schools, classrooms, teachers and families. The Early Childhood Longitudinal Study, Kindergarten Class of 1998-99 (ECLS-K), sponsored by the U.S. Department of Education, National Center for Education Statistics (NCES), began following a nationally representative sample of some 22,000 kindergartners in the fall of 1998. Westat, Inc., conducted the study for NCES.

In the fall of the 1998-99 school year, public and private schools offering kindergarten programs and a sample of the children attending kindergarten in these schools were selected to participate in the ECLS-K.³ Baseline data about these children, their families and kindergarten programs were collected at this time. The findings reported here are based on data from telephone interviews with these children's parents/guardians and self-administered questionnaires completed by the children's kindergarten teachers. Findings also come from data gathered during an individualized assessment with each child (see the Methodology Section for a description of the variables and measures used in this report).

The current longitudinal design of the ECLS-K includes five additional waves of data collection. Data will be collected from the same sample of children in the spring of kindergarten, the fall⁴ and spring of first grade and the spring of third and fifth grades.

Sample. A nationally representative sample of approximately 22,000 children enrolled in about 1,000 kindergarten programs during the 1998–99 school year were initially sampled. The children attended both public and private kindergartens that offered full-day and part-day programs. The sample included children from different racial/ethnic and socioeconomic backgrounds and included oversamples of Asian children, private kindergartens and private school kindergartners. This study supports separate estimates of public and private school kindergartners; black, Hispanic, white and Asian children; and children from different socioeconomic backgrounds. This report presents information on children entering kindergarten for the first time. Sample sizes and population counts for first-time kindergartners are presented in table 1.

³ The ECLS-K sample of schools included traditional schools offering kindergarten and some combination of grades 1-12 and early childhood programs that offered kindergarten in addition to programs for preschoolers.

⁴ The fall first grade data collection is limited to a parent/guardian interview and to a direct assessment of children's skills and knowledge in three domains: mathematics, reading and general knowledge. In addition, the goal of this round of data collection was to complete the parent interviews and direct child assessments for a 25 percent sub-sample of the full ECLS-K sample.

Table 1.—Sample sizes and population counts of first-time kindergartners, by child and family characteristics: Fall 1998

Characteristics	Sample	Population	Population Percentage
Total	17,223	3,678,473	100
Child's sex			
Male	8,659	1,867,904	51
Female	8,564	1,810,570	49
Child's age at entry			
Born Jan. – Aug. 1992	657	129,127	4
Born Sep. – Dec. 1992	4,019	869,575	24
Born Jan. – Apr. 1993	5,449	1,166,292	32
Born May – Aug. 1993	5,441	1,177,595	32
Born Sep. – Dec. 1993	1,600	326,637	9
Mother's education			
Less than high school	2,233	518,685	14
High school diploma or equivalent	5,041	1,115,650	30
Some college, including vocational/technical	5,432	1,152,511	31
Bachelor's degree or higher	4,070	798,065	22
Family type			
Single mother	3,547	790,442	21
Single father	303	66,430	2
Two parent	13,071	2,753,403	75
Welfare receipt			
Utilized AFDC	1,901	427,642	12
Never utilized AFDC	15,209	3,226,334	88
Primary language spoken in home			
Non-English	1,678	324,618	9
English	15,499	3,343,764	91
Child's race/ethnicity			
White, non-Hispanic	9,819	2,117,928	58
Black, non-Hispanic	2,473	570,111	15
Asian	939	108,030	3
Hispanic	3,019	704,214	19
Hawaiian Native/Pacific Islander	197	20,881	1
American Indian/Alaska Native	292	64,194	2
More than one race, non-Hispanic	460	88,101	2
Child's race/ethnicity by maternal education			
<i>Maternal education:</i>			
<i>High school diploma/equivalent or more</i>			
White, non-Hispanic	9,020	1,925,039	52
Black, non-Hispanic	1,987	458,563	12
Asian	749	87,038	2
Hispanic	1,957	446,094	12
<i>Maternal education:</i>			
<i>Less than high school diploma or equivalent</i>			
White, non-Hispanic	581	142,854	4
Black, non-Hispanic	420	97,482	3
Asian	136	15,252	(*)
Hispanic	985	240,126	7

* less than .5 percent.

NOTE: Percentages may not add to 100 due to rounding and/ or missing data.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99, Fall 1998.

Report Approach

The ECLS-K is designed, in part, to describe children's status at school entry. The kindergarten population includes both first-time kindergartners and repeat kindergartners. In order to explore children's status as they enter school for the first time, first-time kindergartners need to be separated from repeat kindergartners. Therefore, this report concentrates only on first-time kindergartners,⁵ and the findings generalize only to that population.

The report has two purposes: (1) it provides the first national picture of entering kindergartners in the United States and (2) it introduces the rich data set associated with the ECLS-K. This first publication uses the fall kindergarten data and provides descriptive statistics on many variables that relate to children and their families. Future reports will describe kindergarten teachers and kindergarten classrooms, address more complex models and hypotheses and will utilize the longitudinal nature of the study.

The majority of this publication focuses on the child, and information is presented according to several factors that may influence child development. Characteristics both intrinsic and extrinsic to the child potentially contribute to the child's chances for success or risk for failure. Children's sex, race/ethnicity and age at school entry (intrinsic factors) are often considered potential resource and/or risk factors. As others have shown, children's physical well-being, social skills, cognitive skills and learning approaches all vary to some extent by their sex, race/ethnicity and age at school entry (Hafner et al. 1990; Zill et al. 1995). Other factors that are extrinsic to the child also influence their health and physical-well being, social skills, cognitive skills and knowledge and how they approach the task of learning. These factors include their mother's education, family type (two-parent, one-parent), home language and their families' receipt of public assistance (Federal Interagency Forum on Child and Family Statistics 1999; Zill et al. 1995). Consequently, when reporting information on children and their families, this report will present the data by these salient characteristics.

In this report, children's physical well-being, social development, cognitive skills and knowledge and approaches to learning are treated separately. However, we recognize that although these domains represent different and unique aspects of children's development, they are related to and may influence one another. Thus, we also include information on the relationships between the different aspects of development in a separate section of the report.

⁵ Parents were asked if this was their child's first or second year of kindergarten. Based on parent identification, this report refers to the 95 percent of kindergartners who are entering for the first time.

Findings

The findings in this report are presented in five sections. The first four sections organize the findings around four dimensions of children's development: children's cognitive skills and knowledge, physical well-being, social skills and approaches to learning. The fifth section presents information on children's home environment and child care experiences. The cognitive skills and knowledge section describes children's reading and mathematics skills and general knowledge. The physical well-being section presents information on children's height and weight, motor skills, general health and developmental difficulties. The section on children's social skills presents information on children's prosocial and problem behaviors. The approaches to learning section presents information on children's task persistence, eagerness to learn, creativity and ability to pay attention. Finally, the family section of the report presents information on the home environment, home educational activities and children's nonparental care experience.

In each of the sections, findings related to such child characteristics as sex and age at kindergarten entry are presented first. At this young age, much of what is being measured is thought to be developmental in nature. Therefore, some of the differences that relate to children's age at entry should be interpreted with caution. They may simply represent some of the natural developmental variation that is inherent in this age group. The next set of child characteristics pertain to factors closely associated with the risk for school failure or academic difficulties such as low maternal educational attainment level, family type (number of parents in household), receipt of welfare and primary language spoken in the home (Zill et al. 1995). When these risk factors occur in concert, the cumulative effect may place children at an even greater risk for school failure or academic difficulty.

Furthermore, because race/ethnicity and socioeconomic status are so closely linked, we also present estimates by children's race/ethnicity separately for children whose mothers have less than a high school education and those whose mothers have a high school diploma (or its equivalent) or more.⁶ When describing findings, we use the term "at risk for school failure or school difficulties" to refer to children whose mothers have less than a high school education, come from a single mother family, have a history of public assistance or who live in a family whose primary language is not English. Due to sample size restrictions, the analysis in this publication only includes significance tests for white, black, Hispanic and

⁶ When presenting estimates, white refers to white non-Hispanic and black refers to black non-Hispanic.

Asian children. Furthermore, though we felt it important to present the estimates by children's race/ethnicity separately for children whose mothers have less than a high school education and those whose mothers have a high school diploma or more, due to low sample sizes we did not perform statistical comparisons. The findings pertain only to first-time kindergartners, and the cognitive skills and knowledge section presents information only for those first-time kindergartners who were assessed in English. In the discussion of findings from the family interview, parents are referred to as the respondent, which is true in the majority of cases (97 percent of respondents were parents). The survey methodology section includes details about the study design and instruments. Unless otherwise noted, all differences cited in the text are statistically significant at the .05 level. The standard errors are reported in the Appendix.

Cognitive Skills, Knowledge and Experiences

Elementary school (K-5) curricula focus on three broad areas of academic competence—reading, mathematics and general knowledge. These areas of school curricula are considered to be central to children’s successful development and functioning as adult citizens in society. Much of the school day is spent learning core cognitive skills in reading and mathematics and increasing children’s knowledge of the natural, physical and social worlds.

Children begin school already possessing knowledge and skills in the areas of reading (Vacca et al. 1995), mathematics (Baroody 1993; Ginsburg 1989) and general knowledge. Their experiences with their environment—street signs, number of steps up to their door, witnessing the change of seasons—all contribute to children’s cognitive development. The foundation children have to build upon with school curricula will influence children’s experiences in school and their cognitive growth. Because children have different background experiences, one would expect variation in the skills and knowledge children possess at school entry.

The ECLS-K assessment battery has been developed to assess common skills and knowledge across children. These common skills reflect school curricula across the nation; therefore, the battery samples typical and important elements of the curriculum with particular emphasis on content and process areas that are critical to growth and can be expected to reflect growth on the same scale over time.

Assessment Battery. For the most part, in kindergarten, reading skills refer to children’s emergent literacy, phonemic knowledge and language development. Emergent literacy reflects the child’s understanding that print in books has meaning; language development includes children’s oral language and their receptive vocabulary (Snow et al. 1998). The two—language and literacy—cannot be separated; together, they enable children to express and interpret thoughts, beliefs and desires. A close relationship exists between learning language and learning to read, both of which are complex processes. Children’s phonemic knowledge, understanding sounds and how they form words and learning to read are reciprocal. While phonemic knowledge plays an essential role in learning to read, growth in reading skills contributes to more advanced phonemic knowledge (Perfetti et al. 1987; Snow et al. 1998). The ECLS-K measure of reading in kindergarten assesses children’s basic literacy skills (e.g., recognizing the printed word, identifying sounds, word reading, vocabulary and reading comprehension).

Mathematics has been described as “a way of thinking about the world” that is more than mere computation of numbers (Baroody 1993, p. 151). It involves conceptual understanding of numbers, shapes, mathematical operations and processes for problem solving. The skills and knowledge that support such problem solving contribute to children’s critical thinking thus benefiting not only mathematics learning but also overall cognitive development. The ECLS-K mathematics assessment measures children’s knowledge and skills necessary to solve problems and reason with numbers. The mathematical skills measured by the ECLS-K battery include, but are not limited to, the understanding of the properties of numbers, mathematical operations (e.g., addition) and problemsolving. They also include understanding the patterns and relationships of numbers, formulating conjectures and identifying solutions.

General knowledge represents children’s breadth and depth of understanding of the social and physical environment (i.e., the social, physical and natural world) and their ability to draw inferences and comprehend implications. Dimensions of knowledge measured by the ECLS-K battery include factual information from the physical, earth, biological and social sciences. The skills children need to establish relationships between and among objects, events or people and to make inferences and to comprehend the implications of verbal and pictorial concepts, are also measured. It addresses such topical areas as history, geography and science.

The ECLS-K assessed children directly to measure their skills in reading, mathematics and their knowledge and understanding of the social and physical environments. Each child was individually assessed, using computer-assisted technology. Trained assessors presented the items using an easel and entered responses into a computer.

Given the longitudinal objectives of the study and the need to measure children’s performance in each of the three areas within a limited amount of time, a two-stage adaptive assessment, tailored to the child’s present level of performance, was used. Each assessment area (reading, mathematics, general knowledge) included a routing test (the first stage) which determined each child’s approximate skill level. Upon completion of the routing test, the child was administered a second-stage form consisting of items tailored to his or her ability level. Both reading and mathematics have three second-stage forms. General knowledge has two second-stage forms.

The children take different routing tests for reading, mathematics and general knowledge. A child’s test level in one domain is independent of his/her performance in either of the other two domains.

Thus, it is possible for a child to take, for example, a low-level reading test but a high-level mathematics test.

About 9 percent of first-time kindergartners are language minority children—children whose primary language in the home is not English. The core ECLS-K direct assessment battery was designed to be administered in English. To determine whether language minority children could be validly and reliably assessed using the core battery, the Oral Language Development Scale (OLDS), a measure of basic English proficiency, was first administered.

The OLDS is a subset of the PreLAS 2000 (Duncan and DeAvila 1998) measuring receptive and expressive language in English. The scales appraise children's ability to follow oral directions, express oral vocabulary and produce complete sentences by retelling a simple story using picture cues, skills required by the ECLS-K battery. Assessors administered the English-language OLDS to all language minority children. Children performing above the cut-off point were administered the core ECLS-K assessment, whereas children who scored below the cut-point were not administered the complete core ECLS-K assessments (see the Methodology and Data Reliability section for more information). Future reports will look at the population of children screened out of the English assessment more closely. In this report, 19 percent of the Asian population and 29 percent of the Hispanic population were excluded from the English cognitive battery. Consequently, the racial/ethnic differences on the cognitive skills and knowledge should be interpreted in context.

Assessment Battery Scores. To describe the variability of first-time kindergartners' performance in reading, mathematics and general knowledge, scores from each assessment domain were converted into both normative and criterion-referenced proficiency scores. To compare the performance of first-time kindergartners, their reading, mathematics and general knowledge scores were converted to *t-scores* with a mean score equal to 50 and a standard deviation of 10. To further explore the differences in children's scores, we divided the *t-scores* into quartiles. Children in the lowest quartile (0–25 percent) scored with the lowest 25 percent of children. Children in the highest quartile (76–100 percent) scored with the highest 25 percent of children.

In addition to normative interpretations of scores, the ECLS-K battery scores are converted into criterion-referenced proficiency scores. Criterion-referenced scores can be used to evaluate performance on specific sets of skills within each domain. The clustering of items was empirically based, with each cluster representing skills necessary to successfully complete the typical item located at points along the

scale. Children who pass a particular level have generally mastered the preceding levels. The ECLS-K reading assessment domain includes the following five criterion-referenced proficiency levels:

- First level measures recognition of upper and lower case letters of the alphabet;
- Second and third levels assess phonological sensitivity at the subword level (e.g., knowledge of letter and sound relationships at the beginning and at the end of words);
- Fourth level measures the ability to read common words; and
- Fifth level measures comprehension of written text.

In addition to understanding that words in print have meaning and recognizing that letters have distinct forms and can be related to word sounds, beginning to read involves understanding how words are represented in print—conventions of print or writing. As children recognize words in print, they also become familiar with the rules and conventions of reading (e.g., words are printed in discrete units, bound by spaces and sequenced from left to right) and the terms used to talk about reading (e.g., top of the page, first sentence). Children learn these concepts of print conventions as they begin learning the relationships between printed letters and sounds in spoken words and in analyzing words. The measure of children's familiarity with the conventions of print in the ECLS-K was comprised of a cluster of three items: directionality at both the word and sentence levels and where a reading passage ends.

The mathematics assessment consisted of measures of children's skills and knowledge of the properties and functions of numbers and geometric shapes, operations and applications. There are five mathematics proficiency levels at the kindergarten level, each level representing a higher level of skill and knowledge.

- Level one refers to a cluster of items that measures reading numerals, recognizing shapes and counting to 10.
- Level two includes items that measure reading numerals, counting beyond 10, sequencing patterns and using nonstandard units of length to compare objects.
- Level three items measure number sequence, reading two-digit numerals, identification of the ordinal position of an object and solving a word problem.
- Level four includes calculating sums up to 10 and relationships of numbers in sequence.
- Level five measures problemsolving using multiplication and division and number patterns.

Assessors read the items to the child. Items were presented with graphics and manipulatives. Children could use counting blocks and paper and pencil to solve the problems. This assessment battery is intended for use with both kindergarten and first-grade children. Therefore, when looking at the proficiency scores of beginning kindergartners, it is not out of the ordinary for the majority of children to be scoring in the lower proficiency levels (e.g., letter recognition, beginning sounds, number and shape recognition and relative size).

Key Findings: Cognitive Skills and Knowledge

Norm-referenced scores

- In reading, girls slightly outperform boys. A larger number of girls than boys score in the highest quartile in reading (table 1). Girls and boys perform similarly in mathematics and general knowledge (tables 2 and 3). A similar proportion of boys and girls score in the highest quartile in mathematics and general knowledge.
- In reading, mathematics and general knowledge, older kindergartners (born in 1992) outperform the younger kindergartners (born September through December 1993). The older kindergartners are more likely to score in the highest quartile of the distribution of scores than the younger kindergartners. However, some of the youngest children, those just turning 5, also score in the highest quartile (16 percent in reading, 12 percent in mathematics and 12 percent in general knowledge).
- Children's performance in reading, mathematics and general knowledge increases with the level of their mothers' education. Kindergartners whose mothers have more education are more likely to score in the highest quartile in reading, mathematics and general knowledge. However, some children whose mothers have less than a high school education also score in the highest quartile (6 percent in reading, 7 percent in mathematics and 5 percent in general knowledge).
- Children's reading, mathematics and general knowledge performances differ by their family type: kindergartners from two-parent families are more likely to score in the highest quartile in reading, mathematics and general knowledge than children from single-mother families. However, some children with single mothers also score in the highest quartile (14 percent in reading, 14 percent in mathematics and 12 percent in general knowledge).
- In reading, mathematics and general knowledge, children's performances differ by the primary language spoken in the home: more kindergartners in homes where the primary language is English score in the highest quartile in reading, mathematics and general knowledge than those in homes where the primary language is not English.
- Children who are white are more likely to score in the highest quartile than black or Hispanic children in reading, mathematics and general knowledge. However, that is not to say that minorities are not achieving above the average. In reading, some black (15 percent) and Hispanic (15 percent) children score in the highest quartile.

Key Findings: Cognitive Skills and Knowledge

Criterion-referenced scores: Reading

- Print familiarity skills such as knowing that print reads left to right, knowing where to go when a line of print ends and knowing where the story ends are important; 18 percent of first-time kindergartners cannot do any of these three skills; 21 percent can do one of these three skills; 24 percent can do two of these three skills; and 37 percent can do all three of these skills (table 4).
- As children enter kindergarten for the first time, 66 percent pass reading proficiency level one (recognizing their letters); 29 percent pass level two (beginning sounds); 17 percent pass level three (ending sounds); 2 percent pass level four (sight words); and 1 percent pass level five (words in context) (table 5).
- More girls than boys pass reading proficiency levels one (recognizing their letters), two (beginning sounds) and three (ending sounds).
- Older first-time kindergartners (born in 1992) are more likely to pass levels one through four than younger first-time kindergartners (born September through December 1993). Older first-time kindergartners are also more likely to have all three print familiarity skills than younger first-time kindergartners.
- Children with few risk factors are more likely to pass various reading proficiencies than children at risk. For example, children whose mothers have higher levels of education passed the first three reading proficiency levels at higher rates than kindergartners whose mothers have less education. Plus, children from families who do not receive welfare services are more likely to pass reading proficiency levels one (letter recognition), two (beginning sounds) and three (ending sounds) than kindergartners from families who did receive public assistance. The same pattern is true for print familiarity. Children whose mothers have higher levels of education are more likely than children whose mothers have less education and children whose families did not receive public assistance are more likely than children whose families received public assistance, to have all three print familiarity skills.
- Children's reading proficiency and print familiarity also differ by family type. Children from families with two parents pass reading proficiency levels one through four more often than kindergartners with single mothers and are more likely to have all three print familiarity skills.
- Children who are white are more likely to pass levels one (letter recognition), two (beginning sounds) and three (ending sounds) than children who are black or Hispanic. Children who are Asian are also more likely to pass levels one through three than white, black or Hispanic children.

Key Findings: Cognitive Skills and Knowledge

Criterion-referenced scores: Mathematics

- When they enter kindergarten, 94 percent of first-time kindergartners pass mathematics proficiency level one (reading numerals, recognizing shapes and counting to 10); 58 percent pass level two (reading numerals, counting beyond 10, sequencing patterns and using nonstandard units of length to compare objects); 20 percent pass level three (number sequence, reading two digit numerals, identification of the ordinal position of an object and solving a word problem); 4 percent pass level four (includes calculating sums up to 10 and relationships of numbers in sequence); and under 1 percent pass level five (problemsolving using multiplication and division and number patterns) (table 6).
- The older first-time kindergartners (born 1992) are more likely than the younger first-time kindergartners (born September through December 1993) to pass levels one through four (reading numerals, recognizing shapes and counting to 10; reading numerals, counting beyond 10, sequencing patterns and using nonstandard units of length to compare objects; number sequence, reading two digit numerals, identification of the ordinal position of an object and solving a word problem; calculating sums up to 10 and relationships of numbers in sequence).
- Kindergartners whose mothers have higher levels of education are more likely to pass levels one through four than kindergartners with mothers who have a lower levels of education.
- Kindergartners from families with two parents are more likely to pass levels one through four than kindergartners with single mothers.
- First-time kindergartners whose families have not received or are not receiving welfare services are more likely than kindergartners from families with receipt of welfare to pass levels one through four.
- Similar to reading, there are racial/ethnic differences in the mathematics proficiencies of beginning kindergartners. White and Asian children are more likely to pass levels one through four than black or Hispanic children.

Table 2.—Mean reading t-scores of first-time kindergartners, and percentage distribution of quartile scores, by child and family characteristics: Fall 1998

Characteristic	Mean t-score	0-25 percent	26-50 percent	51-75 percent	76-100 percent
Total	50	25	25	25	25
Child's sex					
Male	49	29	25	24	22
Female	51	21	25	26	28
Child's age at entry					
Born Jan. – Aug. 1992	53	15	25	26	34
Born Sep. – Dec. 1992	52	19	22	27	32
Born Jan. – Apr. 1993	51	24	24	25	27
Born May – Aug. 1993	48	30	27	23	20
Born Sep. – Dec. 1993	47	33	28	23	16
Mother's education					
Less than high school	43	52	26	16	6
High school diploma or equivalent	48	32	28	24	16
Some college, including vocational/technical	51	21	27	26	26
Bachelor's degree or higher	56	8	18	28	46
Family type					
Single mother	47	36	29	21	14
Single father	48	31	31	22	16
Two parent	51	22	24	26	28
Welfare receipt					
Utilized AFDC	44	49	27	16	8
Never utilized AFDC	50	22	25	26	27
Primary language spoken in home					
Non-English	46	44	22	18	16
English	50	25	25	25	25
Child's race/ethnicity					
White, non-Hispanic	52	18	24	28	30
Black, non-Hispanic	47	34	30	21	15
Asian	55	13	24	24	39
Hispanic	46	42	24	19	15
Hawaiian Native/Pacific Islander	48	33	28	17	22
American Indian/Alaska Native	42	57	23	11	9
More than one race, non-Hispanic	49	31	23	23	23
Child's race/ethnicity by maternal education					
<i>Maternal education:</i>					
<i>High school diploma/equivalent or more</i>					
White, non-Hispanic	53	16	24	29	31
Black, non-Hispanic	48	30	30	22	18
Asian	56	11	21	25	43
Hispanic	48	35	24	22	19
<i>Maternal education:</i>					
<i>Less than high school diploma or equivalent</i>					
White, non-Hispanic	45	43	28	21	8
Black, non-Hispanic	43	52	28	16	4
Asian	48	28	41	19	12
Hispanic	41	64	22	10	4

NOTE: Estimates based on first-time kindergartners who were assessed in English (approximately 19 percent of Asian children and approximately 30 percent of Hispanic children were not assessed). Percentages may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99, Fall 1998.

Table 3.—Mean mathematics t-scores of first-time kindergartners, and percentage distribution of quartile scores, by child and family characteristics: Fall 1998

Characteristic	Mean t-score	0-25 percent	26-50 percent	51-75 percent	76-100 percent
Total	50	25	25	25	25
Child's sex					
Male	50	26	24	24	26
Female	50	24	26	26	24
Child's age at entry					
Born Jan. – Aug. 1992	55	13	18	23	46
Born Sep. – Dec. 1992	53	17	22	26	35
Born Jan. – Apr. 1993	51	22	26	26	26
Born May – Aug. 1993	48	32	27	24	17
Born Sep. – Dec. 1993	46	41	27	20	12
Mother's education					
Less than high school	43	53	25	15	7
High school diploma or equivalent	48	32	28	23	17
Some college, including vocational/technical	51	21	27	28	24
Bachelor's degree or higher	56	18	18	19	45
Family type					
Single mother	46	37	28	21	14
Single father	48	31	29	19	21
Two parent	51	21	24	26	29
Welfare receipt					
Utilized AFDC	44	50	27	16	7
Never utilized AFDC	51	22	25	26	27
Primary language spoken in home					
Non-English	47	38	26	19	17
English	50	25	25	25	25
Child's race/ethnicity					
White, non-Hispanic	52	18	23	27	32
Black, non-Hispanic	46	39	30	21	10
Asian	54	13	25	24	38
Hispanic	47	40	26	20	14
Hawaiian Native/Pacific Islander	47	34	27	27	12
American Indian/Alaska Native	43	50	26	15	9
More than one race, non-Hispanic	49	31	24	25	20
Child's race/ethnicity by maternal education					
<i>Maternal education:</i>					
<i>High school diploma/equivalent or more</i>					
White, non-Hispanic	53	16	23	28	33
Black, non-Hispanic	47	36	30	22	12
Asian	55	12	24	23	41
Hispanic	48	32	27	24	17
<i>Maternal education:</i>					
<i>Less than high school diploma or equivalent</i>					
White, non-Hispanic	45	45	25	19	11
Black, non-Hispanic	42	56	27	13	4
Asian	50	18	36	28	18
Hispanic	42	60	24	11	5

NOTE: Estimates based on first-time kindergartners who were assessed in English (approximately 19 percent of Asian children and approximately 30 percent of Hispanic children were not assessed). Percentages may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99, Fall 1998.

Table 4.—Mean general knowledge t-scores of first-time kindergartners, and percentage distribution of quartile scores, by child and family characteristics: Fall 1998

Characteristic	Mean t-score	0-25 percent	26-50 percent	51-75 percent	76-100 percent
Total	50	25	25	25	25
Child's sex					
Male	50	25	24	25	26
Female	50	25	26	25	24
Child's age at entry					
Born Jan. – Aug. 1992	56	11	16	26	47
Born Sep. – Dec. 1992	53	16	22	26	36
Born Jan. – Apr. 1993	51	23	25	27	25
Born May – Aug. 1993	48	32	27	24	17
Born Sep. – Dec. 1993	46	42	27	19	12
Mother's education					
Less than high school	43	52	29	14	5
High school diploma or equivalent	48	31	28	25	16
Some college, including vocational/technical	51	21	26	29	24
Bachelor's degree or higher	56	10	16	26	48
Family type					
Single mother	46	40	27	21	12
Single father	48	25	35	26	14
Two parent	52	20	24	26	30
Welfare receipt					
Utilized AFDC	43	51	28	15	6
Never utilized AFDC	51	22	25	26	27
Primary language spoken in home					
Non-English	43	53	28	13	6
English	51	24	25	25	26
Child's race/ethnicity					
White, non-Hispanic	53	14	23	29	34
Black, non-Hispanic	44	51	28	15	6
Asian	48	34	27	20	19
Hispanic	46	41	28	19	12
Hawaiian Native/Pacific Islander	45	47	29	16	8
American Indian/Alaska Native	44	49	25	18	7
More than one race, non-Hispanic	50	23	26	30	21
Child's race/ethnicity by maternal education					
<i>Maternal education:</i>					
<i>High school diploma/equivalent or more</i>					
White, non-Hispanic	54	12	23	29	36
Black, non-Hispanic	44	48	28	17	7
Asian	49	30	26	22	22
Hispanic	48	35	28	22	15
<i>Maternal education:</i>					
<i>Less than high school diploma or equivalent</i>					
White, non-Hispanic	47	34	34	23	9
Black, non-Hispanic	40	66	25	8	1
Asian	41	60	29	6	5
Hispanic	42	63	27	8	2

NOTE: Estimates based on first-time kindergartners who were assessed in English (approximately 19 percent of Asian children and approximately 30 percent of Hispanic children were not assessed). Percentages may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99, Fall 1998.

Table 5.—Percentage distribution of first-time kindergartners by print familiarity scores, by child and family characteristics: Fall 1998

Characteristic	0 skills	1 skill	2 skills	3 skills
Total	18	21	24	37
Child's sex				
Male	20	20	23	37
Female	17	21	25	38
Child's age at entry				
Born Jan. – Aug. 1992	11	17	22	50
Born Sep. – Dec. 1992	13	18	24	45
Born Jan. – Apr. 1993	17	20	24	38
Born May – Aug. 1993	22	22	24	32
Born Sep. – Dec. 1993	27	25	22	26
Mother's education				
Less than high school	32	28	24	17
High school diploma or equivalent	23	23	24	30
Some college, including vocational/technical	17	20	24	39
Bachelor's degree or higher	8	14	23	56
Family type				
Single mother	26	24	24	25
Single father	22	25	24	29
Two parent	16	19	24	41
Welfare receipt				
Utilized AFDC	32	27	22	19
Never utilized AFDC	17	19	24	40
Primary language spoken in home				
Non-English	26	22	24	28
English	18	20	24	38
Child's race/ethnicity				
White, non-Hispanic	14	18	24	45
Black, non-Hispanic	29	26	24	21
Asian	15	19	22	43
Hispanic	24	23	26	27
Hawaiian Native/Pacific Islander	30	27	19	23
American Indian/Alaska Native	38	27	18	17
More than one race, non-Hispanic	18	23	24	35
Child's race/ethnicity by maternal education				
<i>Maternal education:</i>				
<i>High school diploma/equivalent or more</i>				
White, non-Hispanic	12	17	24	47
Black, non-Hispanic	27	25	25	23
Asian	14	17	22	46
Hispanic	22	22	25	31
<i>Maternal education:</i>				
<i>Less than high school diploma or equivalent</i>				
White, non-Hispanic	26	26	25	22
Black, non-Hispanic	40	30	20	11
Asian	22	36	23	19
Hispanic	32	26	27	15

NOTE: Estimates based on first-time kindergartners who were assessed in English (approximately 19 percent of Asian children and approximately 30 percent of Hispanic children were not assessed). Percentages may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99, Fall 1998.

Table 6.—Percentage of first-time kindergartners passing each reading proficiency level, by child and family characteristics: Fall 1998

Characteristic	Letter recognition	Beginning sounds	Ending sounds	Sight words	Words in context
Total	66	29	17	2	1
Child's sex					
Male	62	26	15	3	1
Female	70	32	19	2	1
Child's age at entry					
Born Jan. – Aug. 1992	76	38	24	5	2
Born Sep. – Dec. 1992	73	36	22	4	2
Born Jan. – Apr. 1993	67	31	17	2	1
Born May – Aug. 1993	60	23	13	1	1
Born Sep. – Dec. 1993	56	20	11	1	1
Mother's education					
Less than high school	38	9	4	(*)	(*)
High school diploma or equivalent	57	20	11	1	(*)
Some college, including vocational/technical	69	30	17	2	1
Bachelor's degree or higher	86	50	32	6	2
Family type					
Single mother	53	18	10	1	(*)
Single father	58	21	11	2	1
Two parent	70	33	19	3	1
Welfare receipt					
Utilized AFDC	41	11	5	1	(*)
Never utilized AFDC	69	31	18	4	1
Primary language spoken in home					
Non-English	49	20	12	3	2
English	67	30	17	2	1
Child's race/ethnicity					
White, non-Hispanic	73	34	20	3	1
Black, non-Hispanic	55	19	10	1	(*)
Asian	79	43	29	9	5
Hispanic	49	19	10	1	1
Hawaiian Native/Pacific Islander	55	24	14	2	1
American Indian/Alaska Native	34	11	6	(*)	(*)
More than one race, non-Hispanic	61	27	16	4	2
Child's race/ethnicity by maternal education					
<i>Maternal education:</i>					
<i>High school diploma/equivalent or more</i>					
White, non-Hispanic	75	36	21	3	1
Black, non-Hispanic	59	22	12	1	1
Asian	82	47	32	10	5
Hispanic	55	23	13	1	1
<i>Maternal education:</i>					
<i>Less than high school diploma or equivalent</i>					
White, non-Hispanic	47	12	6	(*)	(*)
Black, non-Hispanic	37	7	3	(*)	(*)
Asian	60	20	9	1	1
Hispanic	29	6	3	(*)	(*)

* less than .5 percent.

NOTE: Estimates based on first-time kindergartners who were assessed in English (approximately 19 percent of Asian children and approximately 30 percent of Hispanic children were not assessed). Percentages may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99, Fall 1998.

Table 7.—Percentage of first-time kindergartners passing each mathematics proficiency level, by child and family characteristics: Fall 1998

Characteristic	Number & shape	Relative size	Ordinal sequence	Add/ subtract	Multiply/ divide
Total	94	58	20	4	(*)
Child's sex					
Male	93	57	21	5	1
Female	95	59	20	4	(*)
Child's age at entry					
Born Jan. – Aug. 1992	97	74	37	10	2
Born Sep. – Dec. 1992	96	67	29	7	1
Born Jan. – Apr. 1993	95	60	21	4	(*)
Born May – Aug. 1993	92	51	14	2	(*)
Born Sep. – Dec. 1993	89	42	10	2	(*)
Mother's education					
Less than high school	84	32	6	1	(*)
High school diploma or equivalent	92	50	13	2	(*)
Some college, including vocational/technical	96	61	20	4	(*)
Bachelor's degree or higher	99	79	37	9	1
Family type					
Single mother	90	44	11	2	(*)
Single father	91	51	16	3	(*)
Two parent	95	63	23	5	(*)
Welfare receipt					
Utilized AFDC	85	33	6	1	(*)
Never utilized AFDC	95	61	22	5	1
Primary language spoken in home					
Non-English	89	45	13	3	(*)
English	94	59	21	4	(*)
Child's race/ethnicity					
White, non-Hispanic	96	66	26	5	(*)
Black, non-Hispanic	90	42	9	1	(*)
Asian	98	70	31	9	1
Hispanic	90	44	12	2	(*)
Hawaiian Native/Pacific Islander	91	48	11	2	(*)
American Indian/Alaska Native	80	34	8	1	(*)
More than one race, non-Hispanic	94	54	17	4	(*)
Child's race/ethnicity by maternal education					
<i>Maternal education:</i>					
<i>High school diploma/equivalent or more</i>					
White, non-Hispanic	97	68	27	6	(*)
Black, non-Hispanic	91	45	10	1	(*)
Asian	97	73	34	10	2
Hispanic	93	49	14	2	(*)
<i>Maternal education:</i>					
<i>Less than high school diploma or equivalent</i>					
White, non-Hispanic	87	40	9	1	(*)
Black, non-Hispanic	83	27	4	(*)	(*)
Asian	94	58	16	4	1
Hispanic	82	27	5	1	(*)

* less than .5 percent.

NOTE: Estimates based on first-time kindergartners who were assessed in English (approximately 19 percent of Asian children and approximately 30 percent of Hispanic children were not assessed). Percentages may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99, Fall 1998.

Social Skills

Social skills are an important part of children's development. A primary goal of early childhood education is the socialization of children (Meisels et al. 1996; Vinovskis 1992). The ability to make and keep friends and maintain relationships with peers and adults (such as teachers) form the social foundation of school. Children's social skills may be related to their later academic achievement (Swartz and Walker 1984). And their experiences with peers will likely influence their attitudes toward school and learning (Kagan et al. 1995).

Children's social skills may be conceptualized along two lines—prosocial and problem behaviors (Meece 1997). Prosocial behavior includes positive behaviors that facilitate successful social interaction. Children act in ways to help others without necessarily experiencing gain for themselves. As children expand their social worlds and cognitive understanding of self and others, they are more able to empathize and share with others. Prosocial skills in young children can be as simple as the ability to accept peer ideas in play or to form friendships. Conversely, problem behaviors are those that tend to impede social interaction. Children who exhibit problematic behavior (e.g., fighting, arguing) may not be liked by peers or may be seen as disruptive by adults. Both the positive and negative behaviors that children exhibit frame their learning environment by affecting the social dynamics within this environment.

Several discrete behaviors serve as indicators of children's social skills, either prosocial or problematic in nature. Children may exhibit different behaviors at home and school. Thus, it is important to frame children's social skills in the context of the home and in the context of the school. Therefore, parents and teachers of each sampled child answered questions on the frequency with which the child acts in certain ways (e.g., joins others in play, makes friends, argues with others, fights with others). The frequency of these behaviors is categorized as *never/sometimes* and *often/very often*.

Prosocial Behavior. Children with prosocial skills may experience an easier time adjusting to the school setting. The ability to make friends and a sensitivity to others may contribute to a positive atmosphere in which learning can occur. In this report, children's prosocial behavior is examined by three single item indicators. Parents rated how frequently their child easily joins others in play, makes and keeps friends and comforts or helps others (table 7). Similarly, teachers noted how often a child accepts peers' ideas for group activities, forms and maintains friendships and comforts or helps other children (table 8).

Key Findings: Prosocial Behavior

- From parent ratings, at least 80 percent of children join others, make friends or comfort others often or very often.
- From teacher ratings, about three-quarters of first-time kindergartners are adept at forming friendships and accepting peer ideas, engaging in these behaviors often or very often. Additionally, half of kindergartners comfort other children in school.
- Both parents and teachers rate girls as more likely than boys to comfort others often or very often. Teachers also rate kindergarten girls as more likely to accept peer ideas and form friendships. Parents of kindergartners do not see large differences in how often boys and girls join others, but parents do report that girls make friends slightly more often than boys.
- From the perspective of the kindergarten teacher, the older children (born September to December 1992) are more likely than the younger children (born September through December 1993) to accept the ideas of others and to comfort others. Parents' perceptions reflect these age differences for joining others.
- Also, from the perspective of kindergarten teachers, children with some characteristics of risk for school difficulty (those whose mothers have lower education, are single mothers or whose families have received or are receiving public assistance) are less likely than children whose mothers have higher levels of education, who come from two-parent families and whose families have never utilized public assistance to accept peer ideas and form friendships. Parent reports concerning joining others and making friends reflect most of these differences.
- Based on the reports of their parents and teachers, children whose home language is one other than English are less likely to engage in the three prosocial behaviors examined here than children whose primary home language is English.

Table 8.—Percentage distribution of first-time kindergartners by the frequency with which parents say they engage in prosocial behavior, by child and family characteristics: Fall 1998

Characteristic	Join others		Make friends		Comfort others	
	Never/ sometimes	Often/ very often	Never/ sometimes	Often/ very often	Never/ sometimes	Often/ very often
Total	14	86	11	89	18	82
Child's sex						
Male	14	86	13	87	22	78
Female	15	85	10	90	14	86
Child's age at entry						
Born Jan. – Aug. 1992	14	86	11	89	18	82
Born Sep. – Dec. 1992	13	87	11	89	18	82
Born Jan. – Apr. 1993	14	86	11	89	18	82
Born May – Aug. 1993	14	86	12	88	18	82
Born Sep. – Dec. 1993	18	82	14	86	20	80
Mother's education						
Less than high school	21	79	20	80	29	71
High school diploma or equivalent	15	85	12	88	18	82
Some college, including vocational/technical	13	87	9	91	15	85
Bachelor's degree or higher	12	88	9	91	15	85
Family type						
Single mother	16	84	13	87	19	81
Single father	12	88	11	89	19	81
Two parent	14	86	11	89	18	82
Welfare receipt						
Utilized AFDC	17	83	15	85	21	79
Never utilized AFDC	14	86	11	89	17	83
Primary language spoken in home						
Non-English	23	77	21	79	30	70
English	13	87	10	90	17	83
Child's race/ethnicity						
White, non-Hispanic	10	90	9	91	15	85
Black, non-Hispanic	16	84	13	87	19	81
Asian	22	78	18	82	28	72
Hispanic	20	80	17	83	24	76
Hawaiian Native/Pacific Islander	40	60	28	72	24	76
American Indian/Alaska Native	15	85	13	87	16	84
More than one race, non-Hispanic	14	86	10	90	14	86
Child's race/ethnicity by maternal education						
<i>Maternal education:</i>						
<i>High school diploma/equivalent or more</i>						
White, non-Hispanic	10	90	8	92	15	85
Black, non-Hispanic	15	85	12	88	18	82
Asian	21	79	17	83	25	75
Hispanic	18	82	14	86	18	82
<i>Maternal education:</i>						
<i>Less than high school diploma or equivalent</i>						
White, non-Hispanic	13	87	15	85	20	80
Black, non-Hispanic	21	79	19	81	25	75
Asian	27	73	25	75	41	59
Hispanic	25	75	22	78	36	64

NOTE: Estimates based on first-time kindergartners. Percentages may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99, Fall 1998.

Table 9.—Percentage distribution of first-time kindergartners by the frequency with which teachers say they engage in prosocial behavior, by child and family characteristics: Fall 1998

Characteristic	Accept peer ideas		Form friendships		Comfort others	
	Never/ sometimes	Often/ very often	Never/ sometimes	Often/ very often	Never/ sometimes	Often/ very often
Total	26	74	23	77	49	51
Child's sex						
Male	29	71	27	73	57	43
Female	23	77	20	80	40	60
Child's age at entry						
Born Jan. – Aug. 1992	27	73	25	75	46	54
Born Sep. – Dec. 1992	25	75	20	80	46	54
Born Jan. – Apr. 1993	25	75	22	78	48	52
Born May – Aug. 1993	27	73	26	74	51	49
Born Sep. – Dec. 1993	31	69	26	74	54	46
Mother's education						
Less than high school	31	69	30	70	58	42
High school diploma or equivalent	27	73	25	75	50	50
Some college, including vocational/technical	25	75	22	78	47	53
Bachelor's degree or higher	24	76	19	81	43	57
Family type						
Single mother	31	69	29	71	54	46
Single father	33	67	33	67	59	41
Two parent	24	76	21	79	47	53
Welfare receipt						
Utilized AFDC	33	67	33	69	57	43
Never utilized AFDC	25	75	22	78	47	53
Primary language spoken in home						
Non-English	29	71	28	72	56	44
English	26	74	23	77	48	52
Child's race/ethnicity						
White, non-Hispanic	24	76	20	80	45	55
Black, non-Hispanic	32	68	29	71	56	44
Asian	25	75	27	73	50	50
Hispanic	27	73	26	74	55	45
Hawaiian Native/Pacific Islander	26	74	31	69	58	42
American Indian/Alaska Native	30	70	32	68	55	45
More than one race, non-Hispanic	29	71	27	73	47	53
Child's race/ethnicity by maternal education						
<i>Maternal education:</i>						
<i>High school diploma/equivalent or more</i>						
White, non-Hispanic	23	77	19	81	44	56
Black, non-Hispanic	32	68	27	73	54	46
Asian	25	75	26	74	50	50
Hispanic	25	75	24	76	53	47
<i>Maternal education:</i>						
<i>Less than high school diploma or equivalent</i>						
White, non-Hispanic	29	71	31	69	53	47
Black, non-Hispanic	33	67	35	65	66	34
Asian	24	76	25	75	51	49
Hispanic	31	69	27	73	58	42

NOTE: Estimates based on first-time kindergartners. Percentages may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99, Fall 1998.

Problem Behavior. Children who exhibit aggressive or antisocial behaviors may have a more difficult time adjusting to school. Children who fight, argue or yell at others are more likely to experience peer rejection, and such rejection has been associated with academic difficulties and increased likelihood for school dropout (Kupersmidt et al. 1990; Parker and Asher 1987). In this report, children's problem behaviors are described by three single item indicators. Parents and teachers (tables 9 and 10, respectively) each rated how often the child argues with others, fights with others, or gets angry easily.

Key Findings: Problem Behavior

- The incidence of problem behavior is relatively infrequent in first-time kindergartners. Teachers report that 10 to 11 percent of first-time kindergartners argue or fight with others or get angry easily often to very often. Children also exhibit few antisocial problems as rated by their parents. However, parents report a somewhat higher incidence of these behaviors. According to their parents, 15 percent of children often or very often fight with others and 33 percent often or very often argue with others.
- The frequency of children's problem behaviors varies by their family type. Single mothers are more likely than respondents from two-parent families to report their children as arguing, fighting or getting angry often or very often. Teachers are less likely to rate children from households with two parents than children from single-mother families as exhibiting problem behavior.
- Reports of children's problem behaviors vary by race/ethnicity. The pattern of these differences and their magnitude depends on who is rating the children's behavior. When teachers rate the children in their classrooms, black children are more likely than white and Asian children to be seen as exhibiting higher levels of problem behaviors (arguing with others, fighting with others, getting angry easily). When parents rate their children, we see fewer differences between black and white children. Instead, we see more differences between Asian children and white, black and Hispanic children. Asian children are less likely than children in these other groups to be seen as arguing or fighting often to very often by their parents.

Table 10.—Percentage distribution of first-time kindergartners by the frequency with which parents say they exhibit antisocial behavior, by child and family characteristics: Fall 1998

Characteristic	Argue with others		Fight with others		Easily get angry	
	Never/ sometimes	Often/ very often	Never/ sometimes	Often/ very often	Never/ sometimes	Often/ very often
Total	67	33	85	15	83	17
Child's sex						
Male	67	33	84	16	81	19
Female	68	32	86	14	85	15
Child's age at entry						
Born Jan. – Aug. 1992	68	32	87	13	84	16
Born Sep. – Dec. 1992	68	32	86	14	84	16
Born Jan. – Apr. 1993	68	32	86	14	84	16
Born May – Aug. 1993	67	33	84	16	82	18
Born Sep. – Dec. 1993	69	31	85	15	81	19
Mother's education						
Less than high school	64	36	79	21	71	29
High school diploma or equivalent	65	35	83	17	82	18
Some college, including vocational/technical	69	31	87	13	86	14
Bachelor's degree or higher	72	28	90	10	88	12
Family type						
Single mother	65	35	82	18	78	22
Single father	68	32	90	10	84	16
Two parent	69	31	86	14	85	15
Welfare receipt						
Utilized AFDC	64	36	79	21	74	26
Never utilized AFDC	68	32	86	14	84	16
Primary language spoken in home						
Non-English	73	27	85	15	79	21
English	67	33	85	15	84	16
Child's race/ethnicity						
White, non-Hispanic	67	33	86	14	85	15
Black, non-Hispanic	67	33	84	16	81	19
Asian	78	22	90	10	84	16
Hispanic	70	30	84	16	79	21
Hawaiian Native/Pacific Islander	71	29	80	20	84	16
American Indian/Alaska Native	66	34	82	18	81	19
More than one race, non-Hispanic	65	35	86	14	80	20
Child's race/ethnicity by maternal education						
<i>Maternal education:</i>						
<i>High school diploma/equivalent or more</i>						
White, non-Hispanic	68	32	87	13	87	13
Black, non-Hispanic	69	31	86	14	84	16
Asian	77	23	89	11	84	16
Hispanic	70	30	84	16	82	18
<i>Maternal education:</i>						
<i>Less than high school diploma or equivalent</i>						
White, non-Hispanic	53	47	73	27	71	29
Black, non-Hispanic	58	42	75	25	67	33
Asian	85	15	96	4	79	21
Hispanic	72	28	83	17	73	27

NOTE: Estimates based on first-time kindergartners. Percentages may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99, Fall 1998.

Table 11.—Percentage distribution of first-time kindergartners by the frequency with which teachers say they exhibit antisocial behavior, by child and family characteristics: Fall 1998

Characteristic	Argue with others		Fight with others		Easily get angry	
	Never/ sometimes	Often/ very often	Never/ sometimes	Often/ very often	Never/ sometimes	Often/ very often
Total	89	11	90	10	89	11
Child's sex						
Male	87	13	89	11	86	14
Female	92	8	92	8	91	9
Child's age at entry						
Born Jan. – Aug. 1992	89	11	91	9	89	11
Born Sep. – Dec. 1992	89	11	91	9	90	10
Born Jan. – Apr. 1993	89	11	91	9	89	11
Born May – Aug. 1993	88	12	89	11	88	12
Born Sep. – Dec. 1993	89	11	88	12	86	14
Mother's education						
Less than high school	87	13	86	14	87	13
High school diploma or equivalent	88	12	90	10	88	12
Some college, including vocational/technical	90	10	91	9	89	11
Bachelor's degree or higher	91	9	93	7	90	10
Family type						
Single mother	85	15	87	13	86	14
Single father	82	18	82	18	85	15
Two parent	90	10	91	9	90	10
Welfare receipt						
Utilized AFDC	84	16	85	15	85	15
Never utilized AFDC	90	10	91	9	89	11
Primary language spoken in home						
Non-English	91	9	89	11	88	12
English	89	11	90	10	89	11
Child's race/ethnicity						
White, non-Hispanic	90	10	92	8	90	10
Black, non-Hispanic	83	17	86	14	85	15
Asian	94	6	93	7	91	9
Hispanic	90	10	89	11	88	12
Hawaiian Native/Pacific Islander	86	14	89	11	88	12
American Indian/Alaska Native	86	14	85	15	87	13
More than one race, non-Hispanic	90	10	90	10	88	12
Child's race/ethnicity by maternal education						
<i>Maternal education:</i>						
<i>High school diploma/equivalent or more</i>						
White, non-Hispanic	91	9	92	8	90	10
Black, non-Hispanic	84	16	87	13	85	15
Asian	94	6	92	8	90	10
Hispanic	90	10	90	10	89	11
<i>Maternal education:</i>						
<i>Less than high school diploma or equivalent</i>						
White, non-Hispanic	87	13	88	12	87	13
Black, non-Hispanic	80	20	83	17	85	15
Asian	97	3	97	3	95	5
Hispanic	89	11	86	14	86	14

NOTE: Estimates based on first-time kindergartners. Percentages may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99, Fall 1998.

Physical Well-Being

When children enter school, their developmental status is based not only upon their previous cognitive development, literacy experiences and social development but also on their physical development. Indeed, children's physical and motor development play a key role in their preparedness for school. Children's physical well-being may frame their learning opportunities—limiting or expanding them. The child with poor fine motor skills will have difficulty holding and using a pencil, which may contribute to difficulties in printing letters and words. Fine motor skills (i.e., visual motor) can predict reading, mathematics and general school achievement, and such perceptual skills may be more predictive than even cognitive skills for later success in reading comprehension (Tramontana et al. 1988).

Children's social interactions and emotional well-being may also be influenced by their physical developmental status. Children who have problems with their health or have lower levels of physical activity may feel lonely and less well liked by their peers (Page et al. 1992). In terms of height, adults and young children alike tend to rate taller boys as more able or more liked than shorter boys, and preschool boys tend to evaluate taller girls as more liked (Eisenberg et al. 1984). In regard to weight, an overweight child may be teased and feel lonely, potentially limiting his or her confidence in joining cooperative learning activities or speaking in class.

Furthermore, children with developmental difficulties (e.g., increased activity levels, attention difficulties, articulation difficulties) may develop feelings of separateness from their peers and adults other than their parents, potentially adversely affecting their school experiences (Kagan et al. 1995; Meisels et al. 1993). The maturational process of growing relates to numerous other physical well-being processes, such as activity level and coordination.

The following section describes a set of key characteristics that represent the domain of physical well-being. Each of these characteristics reflects an aspect of physical health and well-being that potentially influences children's adaptation to and success in school. The child-specific areas of physical well-being in this report include children's height and weight (body mass index), fine motor skills (e.g., copying figures, manipulating blocks), gross motor skills (e.g., hopping on one foot, walking backward in a line), general health and developmental limitations. Trained assessors measured each child's height, weight and motor skills. Parents reported on their child's general health and potential developmental difficulties.

Height and Weight. Children's height and weight are robust indicators of general health and well-being (Shonkoff 1992). Both serve as markers of children's ability to thrive and reflect the effects of nutrition, the consequences of persistent and chronic illness or environmental conditions. At entry into kindergarten, children's growth is relatively rapid. At this young age, there is a good amount of variation in children's height and weight. On average, first-time kindergarten children are 45 inches tall and weigh 46 pounds, with boys averaging 45 inches, 47 pounds and girls averaging 44 inches, 46 pounds (not shown in tables).

Body Mass Index. Obesity is a significant health problem, with medical and psychological consequences for children (Hammer et al. 1991). Rosner and his colleagues (1998) report that "childhood obesity is the most prevalent and serious nutritional problem in the United States" (p. 211). Because of the concern with effects of childhood obesity, the measurement of the relationship of height to weight has recently been added as an indicator of health (Rosner et al. 1998). Body mass index (BMI), the ratio between height and weight (weight in kilograms/height in meters²), is used as an index of overweight in children and adolescents. Body mass index guidelines are sex and age specific (Rosner et al. 1998), in that age is a part of the computation and the index is calculated separately for males and females (table 11). A boy, aged 5 who is of average height—45 inches—would need to weigh 53 pounds to be considered at risk for overweight. This is about 13 percent more than the average weight of 47 pounds. A girl, aged 5 who is of average height—44 inches—would need to weigh 51 pounds to be considered at risk for overweight. This is about 11 percent more than the average weight of 46 pounds.

Key Findings: Body Mass Index

- For both boys and girls, percent at risk for overweight varies by level of mother's education. Specifically, boys and girls whose mothers have less than a bachelor's degree are at greater risk for being overweight than boys and girls whose mothers have a bachelor's degree or higher.
- Boys and girls who come from homes where the primary language is not English are at greater risk for being overweight than boys and girls who come from homes where the primary language is English.
- Risk for being overweight also varies by children's race/ethnicity. Hispanic boys are at greater risk than their white and black counterparts for being overweight. White girls are less likely to be at risk for overweight than their black and Hispanic counterparts.

Table 12.—Percentage of first-time male and female kindergartners at risk for overweight, by child and family characteristics: Fall 1998

Characteristic	Males	Females
Total	12	11
Mother's education		
Less than high school	15	12
High school diploma or equivalent	13	13
Some college, including vocational/technical	12	11
Bachelor's degree or higher	9	8
Family type		
Single mother	13	13
Single father	10	9
Two parent	12	11
Welfare receipt		
Utilized AFDC	12	10
Never utilized AFDC	11	10
Primary language spoken in home		
Non-English	19	17
English	11	11
Child's race/ethnicity		
White, non-Hispanic	11	9
Black, non-Hispanic	10	13
Asian	15	9
Hispanic	17	15
Hawaiian Native/Pacific Islander	15	8
American Indian/Alaska Native	18	15
More than one race, non-Hispanic	10	13
Child's race/ethnicity by maternal education		
<i>Maternal education:</i>		
<i>High school diploma/equivalent or more</i>		
White, non-Hispanic	10	9
Black, non-Hispanic	11	13
Asian	15	10
Hispanic	17	15
<i>Maternal education:</i>		
<i>Less than high school diploma or equivalent</i>		
White, non-Hispanic	16	9
Black, non-Hispanic	7	11
Asian	15	6
Hispanic	16	16

NOTE: Estimates based on first-time kindergartners. Age is factored in to the BMI calculation, and therefore is not used as a characteristic. Overweight is defined as BMI at or above the sex- and age-specific guidelines calculated at 12-month age intervals (Rosner et al. 1998).

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99, Fall 1998.

Motor Skills. Physical and motor development are important indicators of development in the cognitive and socioemotional areas (Bukatko and Daehler 1995; Meisels et al. 1993). Children's control and coordination of balance and body movements relates to their performance in academic areas in the elementary grades. Specifically, children's visual motor skills (i.e., coordination of eyes and hand movements) are among the best predictors of reading achievement in the first through third grades (Tramontana et al. 1988). Other studies (e.g., Wallbrown et al. 1975) demonstrate that although cognitive measures are more effective predictors of reading vocabulary, perceptual measures are better predictors of reading comprehension.

Children's motor development and neuromotor maturation affect their socioemotional development as well. Problems in motor coordination correlate with peer ratings and loneliness (Doan and Scherman 1987; Hartup 1983; Hops and Finch 1985; Page et al. 1992). For boys in particular, physical prowess is a consideration in the formation of social networks as boys progress through the elementary years. In combination with height and weight, motor assessment gives an indication of the well-being of the child.

The ECLS-K direct measures of fine motor skills involve children constructing forms with wooden blocks, copying basic figures (e.g., circle, square, cross) and drawing a person. The gross motor assessment involves balancing on each foot, hopping on each foot, skipping and walking backward on a line. For comparison purposes, note that the fine motor (maximum nine points) and the gross motor (maximum eight points) scales are not scored the same as each other. On both scales, higher scores indicate higher levels of coordination (tables 12–13). To fully appreciate differences by child and family characteristics in fine and gross motor ability, the scores were empirically divided into approximate thirds. Therefore, comparisons about the characteristics of children scoring in the lower, middle and higher portion of the distribution can be made. The middle group of children is able to perform the fine and gross motor tasks expected for children their age. The lower group of children are scoring about one or more standard deviations below the average. These children are possibly at risk for later developmental difficulties.

Key Findings: Motor Skills

- More girls than boys score in the higher portion of the distribution for both fine and gross motor skills (tables 13 and 14).
- Children's fine and gross motor skills vary with their age. Older kindergartners (born in 1992) are more likely to score in the higher portion of the distribution than the younger kindergartners (born September through December 1993).
- Children whose mothers have higher levels of education are more likely to score in the higher portion of the distribution for both the fine and gross motor skills than children whose mothers have a lower education level.
- In terms of fine motor skills, more children from two-parent families score in the higher portion of the distribution children from single-parent families.
- Children's gross motor skills vary by their race/ethnicity. Black children are more likely to score in the higher portion of the distribution for gross motor skills than white, Asian or Hispanic children.

Table 13.—First-time kindergartners' mean fine motor skills score and percentage distribution of scores, by child and family characteristics: Fall 1998

Characteristic	Mean fine motor	Lower	Middle	Higher
Total	6	29	36	35
Child's sex				
Male	6	31	37	33
Female	6	26	36	38
Child's age at entry				
Born Jan. – Aug. 1992	6	20	36	44
Born Sep. – Dec. 1992	6	20	36	44
Born Jan. – Apr. 1993	6	25	37	38
Born May – Aug. 1993	5	34	37	29
Born Sep. – Dec. 1993	5	45	33	22
Mother's education				
Less than high school	5	42	35	22
High school diploma or equivalent	5	33	36	31
Some college, including vocational/technical	6	25	37	39
Bachelor's degree or higher	6	18	36	46
Family type				
Single mother	5	37	35	28
Single father	6	31	41	28
Two parent	6	26	37	37
Welfare receipt				
Utilized AFDC	5	44	33	23
Never utilized AFDC	6	26	37	37
Primary language spoken in home				
Non-English	6	31	35	34
English	6	28	36	36
Child's race/ethnicity				
White, non-Hispanic	6	24	37	39
Black, non-Hispanic	5	41	33	26
Asian	7	15	36	49
Hispanic	6	31	36	33
Hawaiian Native/Pacific Islander	6	27	32	41
American Indian/Alaska Native	6	31	39	30
More than one race, non-Hispanic	6	28	41	31
Child's race/ethnicity by maternal education				
<i>Maternal education:</i>				
<i>High school diploma/equivalent or more</i>				
White, non-Hispanic	6	23	37	40
Black, non-Hispanic	5	39	33	28
Asian	7	14	36	50
Hispanic	6	27	35	38
<i>Maternal education:</i>				
<i>Less than high school diploma or equivalent</i>				
White, non-Hispanic	5	44	34	22
Black, non-Hispanic	4	51	34	16
Asian	6	18	33	49
Hispanic	5	39	37	24

NOTE: Estimates based on first-time kindergartners. Percentages may not sum to 100 due to rounding. Scale 0–9.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99, Fall 1998.

Table 14.—First-time kindergartners' mean gross motor skills score and percentage distribution of scores, by child and family characteristics: Fall 1998

Characteristic	Mean gross motor	Lower	Middle	Higher
Total	6	26	35	39
Child's sex				
Male	6	31	36	33
Female	7	22	34	44
Child's age at entry				
Born Jan. – Aug. 1992	7	21	32	47
Born Sep. – Dec. 1992	7	21	33	46
Born Jan. – Apr. 1993	6	24	35	41
Born May – Aug. 1993	6	31	36	33
Born Sep. – Dec. 1993	6	37	35	28
Mother's education				
Less than high school	6	30	35	35
High school diploma or equivalent	6	28	35	37
Some college, including vocational/technical	6	25	35	40
Bachelor's degree or higher	5	24	34	42
Family type				
Single mother	6	26	33	41
Single father	6	33	33	34
Two parent	6	27	35	38
Welfare receipt				
Utilized AFDC	6	29	32	38
Never utilized AFDC	6	26	35	39
Primary language spoken in home				
Non-English	6	30	34	36
English	6	26	35	39
Child's race/ethnicity				
White, non-Hispanic	6	28	35	37
Black, non-Hispanic	7	21	33	46
Asian	6	26	36	38
Hispanic	6	28	35	37
Hawaiian Native/Pacific Islander	6	26	40	34
American Indian/Alaska Native	6	31	29	40
More than one race, non-Hispanic	6	24	38	38
Child's race/ethnicity by maternal education				
<i>Maternal education:</i>				
<i>High school diploma/equivalent or more</i>				
White, non-Hispanic	6	27	35	38
Black, non-Hispanic	7	21	33	46
Asian	6	26	35	39
Hispanic	6	28	35	37
<i>Maternal education:</i>				
<i>Less than high school diploma or equivalent</i>				
White, non-Hispanic	6	36	34	30
Black, non-Hispanic	7	22	35	43
Asian	6	33	34	33
Hispanic	6	29	36	35

NOTE: Estimates based on first-time kindergartners. Percentages may not sum to 100 due to rounding. Scale 0–8.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99, Fall 1998.

General Health. Health and physical well-being are both precursors and corollaries to other areas of development. Elementary school teachers report that children's health is critical to their school performance (Heaviside and Farris 1993). At a time when children learn best by doing, strong and healthy children are better able to explore their physical world and are better prepared to put their best foot forward to begin formal schooling. Parents were asked to rate their children's general health from excellent to fair/poor (table 15).

Key Findings: General Health

- A majority of parents of first-time kindergartners report their child's general health to be excellent (51 percent) or very good (32 percent). Only a minority of children are reported as having fair or poor general health (3 percent) (table 15).
- Kindergarten children whose mothers have higher levels of education rate their children's general health better than children whose mothers have lower levels of education.
- Children from two-parent families are more likely to be in excellent health than children from single-mother families.
- Children whose families have never utilized public assistance are more likely to be in excellent general health than children whose families have utilized public assistance.
- Children's general health status varies by their race/ethnicity. White children are more likely than black, Hispanic or Asian children to be in excellent general health.

Table 15.—Percentage distribution of first-time kindergartners by parents' assessment of their general health, by child and family characteristics: Fall 1998

Characteristic	Excellent	Very good	Good	Fair/ poor
Total	51	32	14	3
Child's sex				
Male	49	33	15	3
Female	53	31	14	2
Child's age at entry				
Born Jan. – Aug. 1992	51	34	12	3
Born Sep. – Dec. 1992	53	30	14	3
Born Jan. – Apr. 1993	51	32	14	3
Born May – Aug. 1993	51	32	14	3
Born Sep. – Dec. 1993	47	33	16	4
Mother's education				
Less than high school	35	35	23	7
High school diploma or equivalent	47	34	16	3
Some college, including vocational/technical	54	32	12	2
Bachelor's degree or higher	62	28	9	1
Family type				
Single mother	42	36	17	5
Single father	49	29	19	3
Two parent	54	31	13	2
Welfare receipt				
Utilized AFDC	36	35	22	7
Never utilized AFDC	53	32	13	2
Primary language spoken in home				
Non-English	38	33	25	4
English	52	32	13	3
Child's race/ethnicity				
White, non-Hispanic	57	30	11	2
Black, non-Hispanic	43	34	18	5
Asian	37	38	21	4
Hispanic	41	33	21	5
Hawaiian Native/Pacific Islander	35	48	11	6
American Indian/Alaska Native	41	39	16	4
More than one race, non-Hispanic	53	29	15	3
Child's race/ethnicity by maternal education				
<i>Maternal education:</i>				
<i>High school diploma/equivalent or more</i>				
White, non-Hispanic	58	30	10	2
Black, non-Hispanic	45	34	17	4
Asian	41	35	21	3
Hispanic	47	32	18	3
<i>Maternal education:</i>				
<i>Less than high school diploma or equivalent</i>				
White, non-Hispanic	41	35	20	4
Black, non-Hispanic	35	34	22	9
Asian	25	46	24	5
Hispanic	32	35	26	7

NOTE: Estimates based on first-time kindergartners. Percentages may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99, Fall 1998.

Developmental Difficulties. Children's health and well-being is broadly defined as the absence of or freedom from disease or chronic symptoms that limit successful engagement in age-appropriate physical, mental and social activities. A healthy youngster is not simply one who is growing well and is free from disease, but one who demonstrates appropriate physical, mental and social competencies for his or her age and the capacity to engage successfully in age-appropriate activities (Shonkoff 1992).

Information about pre-existing and persistent difficulties contributes to a fuller understanding of first-time kindergartners. The developmental difficulties described in this section are important indicators of greater vulnerability for poor school outcomes. However, the presence of a limitation does not in itself indicate a diagnosis or impairment.

The parent-reported developmental difficulties presented in this section include: vision, hearing, activity level, attention, articulation and coordination. Parents were asked to rate their child as compared to other children of the same age.

Teachers and parents of kindergarten children rated a child's ability to sit still and pay attention as essential or very important to his/her being ready to start school (West et al. 1993). Parents were asked about their children's overall activity level and ability to pay attention. Risk for developmental difficulties pertaining to activity level was indicated if the parent responded their child was *a lot more* active than children the same age. Risk for developmental difficulties pertaining to ability to pay attention was indicated if the parent responded their child paid attention *less well* or *much less well* than other children the same age (table 16).

Children's coordination also relates to their chances for school success. If children possess a marked lack of basic coordination (such as movement of arms and legs), this lack of coordination may impact how they relate to others. Similarly, a difficulty in articulation may detrimentally affect how children relate to others. Parents were asked to rate their child's coordination and ability to pronounce words and communicate effectively. Risk for developmental difficulty was indicated if the parent felt their child's coordination and word pronunciation was *slightly less* or *much less* than other children the same age (table 16).

Key Findings: Developmental Difficulties

- Only a small percentage of first-time kindergartners are experiencing vision (6 percent) and hearing problems (3 percent).⁷
- Almost 20 percent of first-time kindergartners are reported as being a lot more active than their age-mates. This indicator of risk for developmental difficulty in terms of hyperactivity varies by child's sex, mother's education, welfare receipt and race/ethnicity. More boys than girls are reported as a lot more active. Children with some characteristics of risk for school difficulty (low maternal education, single mothers or receipt of welfare) are more frequently reported as being a lot more active than children not at risk. Black children are more frequently reported as a lot more active than white, Asian and Hispanic children.
- Thirteen percent of parents report their children encounter difficulties in paying attention. Difficulty in paying attention varies by children's sex, mother's education, welfare receipt and race/ethnicity. Boys seem to pay attention less well or much less well to a greater extent than girls. Children whose mothers have lower levels of education report attention difficulties more frequently than children whose mothers have higher levels of education. Children who come from single mother-families and families who have utilized welfare services are at greater risk for this outcome than children from two-parent families and from families who have never utilized welfare services. Asian children are less likely to experience attention difficulties than white or black children.
- Articulation of words and ability to communicate varies by children's sex. Boys are more likely than girls to have difficulties in this area. Children whose mothers have higher levels of education are less likely than children whose mothers have lower levels of education to have difficulties with articulation.

⁷ Due to the limited percentage of children with vision and hearing difficulties, these estimates are not presented in a table, and are not reported by child and family characteristics.

Table 16.—Percentage of first-time kindergartners whose parents reported developmental difficulty in terms of activity level, attention, coordination and pronunciation of words: Fall 1998

Characteristic	Activity level	Attention	Coordination	Articulation
Total	18	13	4	11
Child's sex				
Male	20	18	5	14
Female	16	9	3	7
Child's age at entry				
Born Jan. – Aug. 1992	20	18	8	18
Born Sep. – Dec. 1992	19	13	4	10
Born Jan. – Apr. 1993	18	12	3	10
Born May – Aug. 1993	18	15	4	11
Born Sep. – Dec. 1993	17	14	4	11
Mother's education				
Less than high school	24	17	4	14
High school diploma or equivalent	19	14	4	12
Some college, including vocational/technical	18	14	4	10
Bachelor's degree or higher	14	10	5	8
Family type				
Single mother	25	16	4	11
Single father	22	15	4	10
Two parent	16	12	4	10
Welfare receipt				
Utilized AFDC	26	19	4	15
Never utilized AFDC	17	13	4	10
Primary language spoken in home				
Non-English	17	9	2	10
English	19	14	4	11
Child's race/ethnicity				
White, non-Hispanic	16	13	5	11
Black, non-Hispanic	30	17	3	11
Asian	16	9	3	12
Hispanic	17	11	3	10
Hawaiian Native/Pacific Islander	15	12	5	12
American Indian/Alaska Native	25	15	5	10
More than one race, non-Hispanic	20	17	2	12
Child's race/ethnicity by maternal education				
<i>Maternal education:</i>				
<i>High school diploma/equivalent or more</i>				
White, non-Hispanic	15	13	5	10
Black, non-Hispanic	28	15	3	9
Asian	17	9	3	11
Hispanic	17	12	3	10
<i>Maternal education:</i>				
<i>Less than high school diploma or equivalent</i>				
White, non-Hispanic	28	23	5	17
Black, non-Hispanic	36	25	5	19
Asian	12	7	3	16
Hispanic	16	10	3	9

NOTE: Estimates based on first-time kindergartners. Developmental difficulties are defined as: activity level a lot more active than children the same age and attention, articulation and coordination are less well or much less well than children the same age.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99, Fall 1998.

Approaches to Learning

To understand more fully the variations among kindergartners, it is important to look at their task specific performance skills and experiences, which in part reflects the myriad of ways that they become involved in learning (Critic and Lamberty 1994; Meisels 1999; Prince 1992). The ways in which children approach learning frames the very essence of how they think and act in learning situations (Kagan et al. 1995). Consequently, it is important to examine behavioral inclinations or dispositions such as independence, task persistence, eagerness to learn and creativity (Kopp 1982).

The term approaches to learning represents a broad array of behaviors that influence learning. Certain characteristics related to children's approach to learning may influence how prepared they are for learning in a formal school setting. Children who are able to work undisturbed and persist at tasks and who are attentive are more likely to have a successful experience in the school setting. Kindergartners' ability to sustain their attention, for example, has been shown to predict later achievement in reading and mathematics (Tramontana et al. 1988) and to contribute to an easier adjustment to school. Children who are rated by teachers as able to complete tasks, follow directions and the like tend to also be rated higher in their academic achievement in general and in reading and mathematics in particular (Clark et al. 1985). Consequently, we examine children's learning styles in terms of their task persistence, eagerness to learn new things, creativity and ability to focus attention.

Parents and teachers provided information on children's learning approaches. Parents were asked to rate how frequently their child persists at tasks, seems eager to learn new things and demonstrates creativity. Teachers were asked similar questions, rating how frequently the child persists at tasks, seems eager to learn new things and pays attention.⁸ Parent and teacher responses were categorized as either *never/sometimes* or *often/very often*.

⁸ The construct of paying attention is also addressed in the developmental difficulties section of the previous chapter. In the Physical Well-Being chapter, we presented parent ratings of concern for their children's ability to pay attention. Here, we present teacher ratings of how often the child pays attention in the classroom. Therefore, depending on the context of the question, the construct of paying attention can be conceptualized as both a potential risk for developmental difficulty and as an integral part of a child's approach to learning.

Key Findings: Approaches to Learning

- Parents and teachers have similar views of children's task persistence. Parents report that about 73 percent of children persist at tasks (table 17), and teachers report that about 71 percent of children persist at tasks often or very often (table 18).
- Both parents and teachers attribute task persistence more often to girls than boys, to the oldest (born in 1992) than the youngest (born September through December 1993) and to children not at risk than children at risk for school difficulty (low maternal education, single mother and receipt of public assistance), except on the basis of home language.
- Both parents and teachers were less likely to rate black children as often or very often persistent at tasks than white and Asian children.
- Teachers are less likely than parents to identify the children as often or very often eager to learn. Parents report that 92 percent of children behave in this way; teachers report that 75 percent children seem eager to learn.
- Teachers perceive differences by child and family characteristics in children's eagerness to learn. For example, girls are more likely than boys to be seen as eager to learn, and older children (born in 1992) are more likely rated as eager to learn than younger children (born September through December 1993). Children with some characteristics of risk (low maternal education, single-mother household and receipt of public assistance) are less likely to be seen as eager to learn than children not at risk. White and Asian children are more likely to be seen as eager to learn by their teachers than black or Hispanic children.
- Parent ratings of children's eagerness to learn differ by mother's education and receipt of public assistance. Children whose mothers have lower levels of education and those who have received public assistance are less likely to be seen by their parents as eager to learn in comparison with children whose mothers have higher levels of education or whose family had not received public assistance.
- About 85 percent of children are seen by their parents as demonstrating creativity in work or play often to very often. Children whose mothers have not completed high school are less often seen as creative by their parents than children whose mothers have a high school diploma or greater. White children are more often seen as creative by their parents than black, Asian or Hispanic children.
- A majority of children's teachers (66 percent) state that first-time kindergartners are able to pay attention most of the time (often to very often). Girls are more likely than boys and older kindergartners are more likely than younger kindergartners to be seen as having this ability. According to teachers, children with some characteristics of risk are less likely than other children to be able to pay attention. Their teachers view black children as less likely than white, Asian or Hispanic children to be able to pay attention.

Table 17.—Percentage distribution of first-time kindergartners by the frequency with which parents say they persist at a task, are eager to learn new things and are creative in work or play, by child and family characteristics: Fall 1998

Characteristic	Persist		Eager to learn		Creative	
	Never/ sometimes	Often/ very often	Never/ sometimes	Often/ very often	Never/ sometimes	Often/ very often
Total	27	73	8	92	15	85
Child's sex						
Male	31	69	9	91	17	83
Female	23	77	7	93	13	87
Child's age at entry						
Born Jan. – Aug. 1992	24	76	8	92	14	86
Born Sep. – Dec. 1992	26	74	7	93	14	86
Born Jan. – Apr. 1993	27	73	8	92	15	85
Born May – Aug. 1993	28	72	8	92	16	84
Born Sep. – Dec. 1993	31	69	10	90	20	80
Mother's education						
Less than high school	35	65	15	85	27	73
High school diploma or equivalent	30	70	9	91	17	83
Some college, including vocational/technical	26	74	6	94	12	88
Bachelor's degree or higher	19	81	5	95	11	89
Family type						
Single mother	32	68	10	90	18	82
Single father	30	70	9	91	15	85
Two parent	25	75	7	93	14	86
Welfare receipt						
Utilized AFDC	35	65	11	89	20	80
Never utilized AFDC	26	74	8	92	15	85
Primary language spoken in home						
Non-English	29	71	13	87	23	77
English	27	73	8	92	15	85
Child's race/ethnicity						
White, non-Hispanic	25	75	7	93	11	89
Black, non-Hispanic	32	68	10	90	20	80
Asian	24	76	12	88	24	76
Hispanic	29	71	10	90	21	79
Hawaiian Native/Pacific Islander	38	62	19	81	29	71
American Indian/Alaska Native	30	70	10	90	23	77
More than one race, non-Hispanic	31	69	8	92	13	87
Child's race/ethnicity by maternal education						
<i>Maternal education:</i>						
<i>High school diploma/equivalent or more</i>						
White, non-Hispanic	24	76	6	94	11	89
Black, non-Hispanic	30	70	8	92	19	81
Asian	21	79	8	92	20	80
Hispanic	28	72	7	93	17	83
<i>Maternal education:</i>						
<i>Less than high school diploma or equivalent</i>						
White, non-Hispanic	34	66	10	90	21	79
Black, non-Hispanic	41	59	17	83	27	73
Asian	32	68	27	73	37	63
Hispanic	33	67	15	85	30	70

NOTE: Estimates based on first-time kindergartners. Percentages may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99, Fall 1998.

Table 18.—Percentage distribution of first-time kindergartners by the frequency with which teachers say they persist at a task, are eager to learn new things and pay attention well, by child and family characteristics: Fall 1998

Characteristic	Persist		Eager to learn		Attention	
	Never/ sometimes	Often/ very often	Never/ sometimes	Often/ very often	Never/ sometimes	Often/ very often
Total	29	71	25	75	34	66
Child's sex						
Male	35	65	29	71	42	58
Female	22	78	22	78	26	74
Child's age at entry						
Born Jan. – Aug. 1992	21	79	21	79	30	70
Born Sep. – Dec. 1992	22	78	20	80	27	73
Born Jan. – Apr. 1993	27	73	23	77	32	68
Born May – Aug. 1993	34	66	30	70	39	61
Born Sep. – Dec. 1993	37	63	34	66	43	57
Mother's education						
Less than high school	39	61	38	62	45	55
High school diploma or equivalent	30	70	28	72	36	64
Some college, including vocational/technical	27	73	22	78	32	68
Bachelor's degree or higher	21	79	17	83	25	75
Family type						
Single mother	37	63	33	67	44	56
Single father	39	61	33	67	45	55
Two parent	26	74	23	77	31	69
Welfare receipt						
Utilized AFDC	41	59	38	62	47	53
Never utilized AFDC	27	73	24	76	32	68
Primary language spoken in home						
Non-English	31	69	32	68	37	63
English	28	72	25	75	34	66
Child's race/ethnicity						
White, non-Hispanic	25	75	22	78	30	70
Black, non-Hispanic	38	62	34	66	45	55
Asian	19	81	20	80	29	71
Hispanic	33	67	30	70	38	62
Hawaiian Native/Pacific Islander	36	64	32	68	41	59
American Indian/Alaska Native	36	64	28	72	48	52
More than one race, non-Hispanic	27	73	28	72	33	67
Child's race/ethnicity by maternal education						
<i>Maternal education:</i>						
<i>High school diploma/equivalent or more</i>						
White, non-Hispanic	23	77	20	80	28	72
Black, non-Hispanic	36	64	31	69	42	58
Asian	18	82	18	82	28	72
Hispanic	31	69	27	73	36	64
<i>Maternal education:</i>						
<i>Less than high school diploma or equivalent</i>						
White, non-Hispanic	39	61	35	65	44	56
Black, non-Hispanic	50	50	47	53	58	42
Asian	18	82	23	77	32	68
Hispanic	35	65	36	64	41	59

NOTE: Estimates based on first-time kindergartners. Percentages may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99, Fall 1998.

The Child and the Family

Families are the primary context of children's development (Bronfenbrenner 1979) and strongly influence their developmental outcomes. The variability of children's knowledge, skills and behaviors at entry to kindergarten can be attributed to the variety of the educational opportunities in the home. Parents play a central role in young children's socialization and learning (Maccoby 1992). To a large extent, young children learn by interacting with others. Young children thrive when they can actively participate in and construct their knowledge (Ginsburg and Opper 1988). They learn through both direct experience and vicarious experience (Bandura 1986). It is extremely important for young children to directly experience activities such as reading, constructing projects, playing with puzzles and playing sports. Children gain invaluable experience and knowledge through actively *doing*. Also, children learn through observation. When parents or family members read stories, tell stories and sing songs, children construct knowledge and learn skills by modeling the behavior. Additionally, parents serve as mentors who can effectively bridge children's skills to the next level; this too is an invaluable part of the learning process (Wertsch 1985).

Furthermore, child care experiences may be associated with the variance in skills children demonstrate as they enter kindergarten. In the mid-1990s, approximately 60 percent of preschool children under the age of 6 experienced some type of nonparental care and education (West et al. 1995); approximately 40 percent of kindergartners received nonparental care before or after school (Brimhall et al. 1999). High quality programs with experienced, well-trained staff provide an enriched setting that may serve as a foundation for the transition to school. Quality early care and education programs provide opportunities to explore social and cognitive tasks that better prepare children for success in school. For example, children who have participated in group care may have an easier time interacting with a large group of unfamiliar peers and adults. They may also be better acclimated to the school setting and to learning experiences and tasks. Once in kindergarten, the care and education children experience before and after school may serve to further support or enrich what is taught in the classroom (Brimhall et al. 1999).

Literacy Environment and Family Interactions. The extent to which parents and families in the United States interact with young children in the home is of particular interest. Specifically, policymakers, researchers, educators and parents take an interest in suggested practices (Bredekamp and Copple 1997) such as the frequency with which parents read, tell stories, sing and play with their children. Moreover, information about the literacy environment in the home may shed light on children's cognitive skills as they enter kindergarten.

A strong indicator of the literacy environment in the home may be the number of child-oriented resources (e.g., books, tapes and CDs). A literacy rich environment contributes to children's language and literacy development, which in turn plays a role in their chances for school success (Snow et al. 1991). Similarly, the opportunities for children to interact with their family in educational activities may enhance their chances for school success. Experiences such as reading with children, singing songs with children and playing with children serve a dual purpose. These activities not only enrich their language and literacy experiences but also potentially transmit information and knowledge about people, places and things. Research suggests that these types of activities are on the rise (Wright et al. 1994). Moreover, we need to consider not only the literacy environment and home educational activities but also how the literacy environment and home educational activities differ by child and family characteristics (National Center for Education Statistics 1998).

Key Findings:
Literacy Environment and Family Interactions

- The majority of parents report having more than 25 children’s books in the home (table 19). More than half of parents report having more than five children’s records, audiotapes or CDs in the home.
- The number of children’s books in the home varies by maternal education and family receipt of welfare. Mothers with lower education and families reporting receipt of welfare were more likely to report having fewer books in the home (0–25 books) than mothers with higher education and families with no reported welfare receipt. This pattern is also found for the number of children’s records, audiotapes or CDs in the home.
- Nearly half of parents report reading to their child (table 20) and singing songs to their child (table 21) every day (45 percent). Thirty-eight percent of parents report playing games with their kindergartners three to six times a week (table 22). Nearly half (44 to 47 percent) of families engage in telling stories, doing arts and crafts and playing sports or exercise once or twice a week or less.
- Activities such as reading and singing songs vary by maternal education, family type, welfare receipt and race/ethnicity. Children whose mothers have lower levels of education, single mothers, families reporting receipt of welfare services and black parents are less likely to be read to every day than those with mothers with higher levels of education, two-parent families, families without welfare support and white, Hispanic and Asian parents (respectively). A different pattern emerges with an activity like singing songs. Children with single mothers, families with receipt of welfare services and black parents are more likely to be sung to every day than those with two parents, families with no receipt of welfare services and white, Hispanic and Asian parents (respectively).

Table 19.—Percentage distribution of first-time kindergartners by numbers of books and children’s records, audiotapes or CDs in the home, by child and family characteristics: Fall 1998

Characteristic	Number of children’s books in child’s home				Number of children’s records, audio tapes, or CDs in child’s home				
	Less than 26	26-50	51-100	101 +	None	1-5	6-10	11-20	21 +
Total	26	28	29	17	13	24	22	21	20
Child’s sex									
Male	27	28	28	16	14	25	22	20	19
Female	25	28	29	17	12	24	21	23	21
Child’s age at entry									
Born Jan. – Aug. 1992	18	25	33	24	11	18	24	21	26
Born Sep. – Dec. 1992	25	28	29	18	13	24	21	22	21
Born Jan. – Apr. 1993	26	28	29	17	12	24	22	21	20
Born May – Aug. 1993	27	29	28	17	13	24	22	21	19
Born Sep. – Dec. 1993	30	28	27	15	14	26	21	21	18
Mother’s education									
Less than high school	62	24	10	4	35	33	15	9	8
High school diploma or equivalent	31	32	26	11	15	29	22	19	16
Some college, including vocational/technical	17	31	33	19	8	24	25	23	22
Bachelor’s degree or higher	7	22	40	31	3	12	22	31	32
Family type									
Single mother	40	30	21	10	19	29	20	17	15
Single father	37	30	22	10	18	27	18	20	18
Two parent	21	28	32	19	11	23	22	23	22
Welfare receipt									
Utilized AFDC	52	27	14	7	26	32	17	14	11
Never utilized AFDC	23	28	31	18	11	23	22	22	21
Primary language spoken in home									
Non-English	65	25	7	3	25	38	16	12	9
English	20	29	32	19	11	22	22	23	22
Child’s race/ethnicity									
White, non-Hispanic	9	28	38	25	7	19	23	26	25
Black, non-Hispanic	50	31	15	4	22	29	21	15	13
Asian	46	26	20	8	14	22	20	22	21
Hispanic	52	27	16	6	22	36	18	13	11
Hawaiian Native/Pacific Islander	34	41	16	9	15	29	20	17	20
American Indian/Alaska Native	51	22	16	11	29	30	13	14	14
More than one race, non-Hispanic	20	36	28	16	11	26	21	21	21
Child’s race/ethnicity by maternal education									
<i>Maternal education:</i>									
<i>High school diploma/equivalent or more</i>									
White, non-Hispanic	7	27	39	26	5	18	24	27	26
Black, non-Hispanic	46	32	17	5	17	30	22	16	14
Asian	39	29	22	10	9	21	21	25	25
Hispanic	38	32	21	9	13	34	22	17	14
<i>Maternal education:</i>									
<i>Less than high school diploma or equivalent</i>									
White, non-Hispanic	30	38	22	10	25	27	20	14	13
Black, non-Hispanic	69	23	6	2	39	27	16	10	8
Asian	72	16	12	(*)	41	29	14	10	7
Hispanic	77	17	5	1	38	40	12	6	4

* less than .5 percent.

NOTE: Estimates based on first-time kindergartners who were assessed in English. Percentages may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998-99, Fall 1998.

Table 20.—Percentage distribution of first-time kindergartners by the number of times each week family members read books and tell stories to them, by child and family characteristics: Fall 1998

Characteristic	Reading				Tell stories			
	Not at all	1–2	3–6	Every day	Not at all	1–2	3–6	Every day
Total	1	19	35	45	8	36	30	25
Child's sex								
Male	1	21	35	43	9	36	30	25
Female	1	17	35	47	7	37	31	26
Child's age at entry								
Born Jan. – Aug. 1992	1	16	40	44	8	32	34	25
Born Sep. – Dec. 1992	1	19	37	42	8	38	31	24
Born Jan. – Apr. 1993	1	19	35	45	8	37	30	26
Born May – Aug. 1993	1	19	35	45	8	37	31	25
Born Sep. – Dec. 1993	1	18	31	49	8	33	30	29
Mother's education								
Less than high school	4	34	27	36	10	42	25	23
High school diploma or equivalent	1	24	36	39	9	39	29	23
Some college, including vocational/technical	(*)	15	40	45	7	35	32	26
Bachelor's degree or higher	(*)	7	34	59	5	31	35	29
Family type								
Single mother	2	27	32	39	9	38	28	25
Single father	(*)	22	35	40	12	34	28	26
Two parent	1	16	36	47	7	36	31	26
Welfare receipt								
Utilized AFDC	3	32	28	38	8	39	26	26
Never utilized AFDC	1	17	36	46	8	36	31	25
Primary language spoken in home								
Non-English	4	28	30	38	10	37	27	26
English	1	17	36	46	7	36	31	25
Child's race/ethnicity								
White, non-Hispanic	1	13	37	49	7	35	33	25
Black, non-Hispanic	2	31	33	35	10	40	26	24
Asian	1	23	29	47	7	37	28	28
Hispanic	3	27	31	39	9	39	27	25
Hawaiian Native/Pacific Islander	(*)	19	35	45	3	29	36	33
American Indian/Alaska Native	3	33	25	40	6	41	22	30
More than one race, non-Hispanic	(*)	15	42	43	8	29	36	28
Child's race/ethnicity by maternal education								
<i>Maternal education:</i>								
<i>High school diploma/equivalent or more</i>								
White, non-Hispanic	(*)	12	38	50	7	34	34	25
Black, non-Hispanic	1	29	35	35	9	39	28	24
Asian	1	21	29	49	5	36	28	30
Hispanic	2	22	34	42	8	37	28	27
<i>Less than high school diploma or equivalent</i>								
White, non-Hispanic	3	25	30	43	8	38	25	28
Black, non-Hispanic	4	41	23	32	13	45	21	21
Asian	4	35	26	34	16	39	28	17
Hispanic	5	36	26	33	11	43	24	22

* less than .5 percent.

NOTE: Estimates based on first-time kindergartners. Percentages may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99, Fall 1998.

Table 21.—Percentage distribution of first-time kindergartners by the number of times each week family members sing songs and do arts and crafts with them, by child and family characteristics: Fall 1998

Characteristic	Sing songs				Arts and crafts			
	Not at all	1–2	3–6	Every day	Not at all	1–2	3–6	Every day
Total	5	23	27	45	7	40	32	20
Child's sex								
Male	7	27	27	40	8	42	32	18
Female	4	19	27	50	7	38	33	23
Child's age at entry								
Born Jan. – Aug. 1992	5	26	27	42	6	44	32	18
Born Sep. – Dec. 1992	6	24	26	44	8	41	31	19
Born Jan. – Apr. 1993	6	23	27	45	7	40	32	21
Born May – Aug. 1993	5	22	27	46	8	39	33	21
Born Sep. – Dec. 1993	5	21	27	47	7	37	33	23
Mother's education								
Less than high school	12	27	19	43	14	41	22	23
High school diploma or equivalent	6	24	25	46	9	41	30	20
Some college, including vocational/technical	4	21	29	47	5	39	35	20
Bachelor's degree or higher	3	21	32	44	3	38	39	20
Family type								
Single mother	6	21	22	51	10	40	29	21
Single father	12	28	25	36	9	43	22	26
Two parent	5	23	28	44	6	40	34	20
Welfare receipt								
Utilized AFDC	7	22	21	49	11	40	26	24
Never utilized AFDC	5	23	28	44	7	40	33	20
Primary language spoken in home								
Non-English	11	28	23	38	15	38	25	23
English	4	22	27	46	6	40	34	20
Child's race/ethnicity								
White, non-Hispanic	4	23	29	44	5	40	36	19
Black, non-Hispanic	4	20	21	54	11	39	26	23
Asian	14	30	22	35	8	35	28	29
Hispanic	9	25	24	41	13	41	26	20
Hawaiian Native/Pacific Islander	4	20	37	39	8	39	36	17
American Indian/Alaska Native	10	25	18	47	9	48	27	24
More than one race, non-Hispanic	4	21	26	49	5	39	34	22
Child's race/ethnicity by maternal education								
<i>Maternal education:</i>								
<i>High school diploma/equivalent or more</i>								
White, non-Hispanic	4	22	30	44	4	40	37	19
Black, non-Hispanic	3	20	22	55	10	41	27	22
Asian	9	29	24	37	7	34	31	29
Hispanic	6	22	27	45	11	39	30	21
<i>Less than high school diploma or equivalent</i>								
White, non-Hispanic	7	25	17	51	9	42	27	23
Black, non-Hispanic	7	22	19	52	13	35	21	31
Asian	37	28	13	22	13	41	16	30
Hispanic	15	30	19	35	18	43	20	19

NOTE: Estimates based on first-time kindergartners. Percentages may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99, Fall 1998.

Table 22.—Percentage distribution of first-time kindergartners by the number of times each week family members play sports or exercise and play games with them, by child and family characteristics: Fall 1998

Characteristic	Play sports or exercise				Games			
	Not at all	1–2	3–6	Every day	Not at all	1–2	3–6	Every day
Total	10	36	33	22	4	35	38	22
Child's sex								
Male	8	34	34	24	5	34	38	24
Female	11	38	31	19	4	36	39	21
Child's age at entry								
Born Jan. – Aug. 1992	7	35	33	25	3	35	41	21
Born Sep. – Dec. 1992	9	36	33	22	4	36	38	22
Born Jan. – Apr. 1993	10	35	33	21	5	35	39	21
Born May – Aug. 1993	10	36	32	22	4	34	38	23
Born Sep. – Dec. 1993	10	37	30	23	5	32	37	25
Mother's education								
Less than high school	17	33	23	27	10	39	27	24
High school diploma or equivalent	11	36	30	23	5	37	35	23
Some college, including vocational/technical	8	36	35	21	3	34	42	22
Bachelor's degree or higher	7	37	39	18	2	30	47	21
Family type								
Single mother	13	35	27	24	6	37	33	23
Single father	7	32	31	29	5	30	34	32
Two parent	9	36	34	21	4	34	40	22
Welfare receipt								
Utilized AFDC	12	33	26	29	7	36	30	28
Never utilized AFDC	9	36	34	21	4	35	40	22
Primary language spoken in home								
Non-English	16	40	25	20	9	40	28	23
English	9	35	34	22	3	34	39	24
Child's race/ethnicity								
White, non-Hispanic	7	35	37	20	3	34	43	21
Black, non-Hispanic	12	34	26	29	5	36	31	28
Asian	12	45	26	18	6	38	33	23
Hispanic	16	37	26	21	9	38	31	22
Hawaiian Native/Pacific Islander	6	27	31	36	1	40	34	25
American Indian/Alaska Native	10	33	27	31	4	34	34	28
More than one race, non-Hispanic	8	38	32	22	5	33	36	27
Child's race/ethnicity by maternal education								
<i>Maternal education:</i>								
<i>High school diploma/equivalent or more</i>								
White, non-Hispanic	7	36	38	19	2	33	44	20
Black, non-Hispanic	11	35	27	27	5	35	33	27
Asian	10	45	26	19	5	38	35	22
Hispanic	13	39	28	20	6	36	35	23
<i>Less than high school diploma or equivalent</i>								
White, non-Hispanic	11	31	27	31	6	37	32	25
Black, non-Hispanic	15	30	21	34	7	39	25	29
Asian	20	50	18	13	12	36	28	24
Hispanic	20	36	23	21	13	42	24	21

NOTE: Estimates based on first-time kindergartners. Percentages may not sum to 100 due to rounding. Totals may not be within range of subgroup values due to missing cases.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99, Fall 1998.

Care Experience. A child's social world is influenced by many different groups, the closest being the family. Upon entering kindergarten, a child's world expands to include the school and larger community. For many children, however, another vital influence is the nonparental care and education they receive. These settings can provide educational opportunities similar to those provided in the home and the school. Their influence on children can be as essential as that of the parents, teachers and schools.

With the number of children receiving care from persons other than their parents, their participation in nonparental care and education is of concern. High quality care and education programs have positive influences on children's social-emotional and cognitive development, and can provide children with the opportunity to develop more advanced social and language skills, a more positive disposition, and increase the complexity of their play and cooperativeness (Love et al. 1996). Attendance in a preschool program may account for variance in children's cognitive skills at kindergarten entry (Gullo and Burton 1992). In particular, the type of care children receive (e.g., center-based, relative care) relates to differences in their social-emotional and cognitive development, as well as their school performance (Miller and Marx 1990; Pierce et al. 1999; Vandell and Corasaniti 1988). Children's participation in care and education then is important to document because it can influence who they are at kindergarten entry and who they will become as the school year continues.

Key Findings: Child Care

- About four out of five first-time kindergartners (81 percent) receive care on a regular basis from someone other than their parents the year prior to starting kindergarten (table 23). This care is most often provided in a center-based setting (69 percent), followed by care by a relative in a private home (24 percent) and care by a nonrelative in a private home (15 percent).
- Prior to kindergarten of the children in nonparental care, children whose mothers have higher levels of education are more likely to be in center-based care than children whose mothers have less education.
- Prior to kindergarten, children from homes where English is not the primary language are less likely to have attended a center-based program the year before starting kindergarten.
- Once children enter kindergarten for the first time, about 50 percent of these children receive care before and/or after school from someone other than their parents (table 24).
- As children enter kindergarten, before- and/or after-school care is most often provided in a private home by a relative of the child. Center-based care is the second most frequent type of before- and after-school care setting followed by nonrelative care.
- At kindergarten entry, children whose mothers have less than a high school education are more likely to receive before- and/or after-school care from a relative than from a nonrelative or center-based provider. In contrast, kindergartners whose mothers have a college education are more likely to receive care in a center-based setting than in either of the two home-based settings.
- At kindergarten entry, black children are more likely than white, Asian or Hispanic children to receive before- and/or after-school care.

Table 23.—Percentage distribution of first-time kindergartners by participation in nonparental care arrangements the year prior to starting kindergarten, by type of arrangement and child and family characteristics: Fall 1998

Characteristic	Total	Nonparental care arrangement			No nonparental care
		Relative care	Nonrelative care	Center-based care	
Total	81	24	15	69	19
Child's sex					
Male	81	24	15	69	19
Female	82	24	16	69	18
Child's age at entry					
Born Jan. – Aug. 1992	81	22	15	70	19
Born Sep. – Dec. 1992	81	22	15	70	19
Born Jan. – Apr. 1993	82	24	15	70	18
Born May – Aug. 1993	82	24	16	69	18
Born Sep. – Dec. 1993	78	27	14	64	22
Mother's education					
Less than high school	65	23	7	52	35
High school diploma or equivalent	79	28	13	64	21
Some college, including vocational/technical	85	25	17	73	15
Bachelor's degree or higher	90	15	21	82	10
Family type					
Single mother	86	37	14	71	14
Single father	88	36	19	69	12
Two parent	80	19	16	68	20
Welfare receipt					
Utilized AFDC	78	30	11	69	22
Never utilized AFDC	82	18	19	74	18
Primary language spoken in home					
Non-English	69	26	9	54	31
English	83	24	16	71	17
Child's race/ethnicity					
White, non-Hispanic	83	19	18	72	17
Black, non-Hispanic	88	36	8	78	12
Asian	79	27	8	65	21
Hispanic	72	26	13	56	28
Hawaiian Native/Pacific Islander	50	21	5	35	50
American Indian/Alaska Native	84	36	10	70	16
More than one race, non-Hispanic	86	26	18	70	14
Child's race/ethnicity by maternal education					
<i>Maternal education:</i>					
<i>High school diploma/equivalent or more</i>					
White, non-Hispanic	85	19	19	73	15
Black, non-Hispanic	89	36	10	80	11
Asian	82	29	9	67	18
Hispanic	79	29	15	62	21
<i>Less than high school diploma or equivalent</i>					
White, non-Hispanic	63	19	6	50	37
Black, non-Hispanic	80	37	4	69	20
Asian	71	19	3	59	29
Hispanic	59	19	8	45	41

NOTE: Estimates based on first-time kindergartners. Percentages may not sum to 100 due to rounding. Categories of non-parental care arrangement are not mutually exclusive.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99, Fall 1998.

Table 24.—Percentage distribution of first-time kindergartners by participation during kindergarten in before and after care, by type of arrangement and child and family characteristics: Fall 1998

Characteristic	Total	Nonparental care arrangement			No nonparental care
		Relative care	Nonrelative care	Center-based care	
Total	50	23	13	19	50
Child's sex					
Male	50	23	12	20	50
Female	50	24	13	19	50
Child's age at entry					
Born Jan. – Aug. 1992	46	22	13	19	54
Born Sep. – Dec. 1992	48	22	13	19	52
Born Jan. – Apr. 1993	50	24	13	20	50
Born May – Aug. 1993	51	24	13	20	50
Born Sep. – Dec. 1993	52	26	12	20	48
Mother's education					
Less than high school	35	24	8	7	65
High school diploma or equivalent	50	28	11	16	50
Some college, including vocational/technical	54	25	14	23	46
Bachelor's degree or higher	52	13	16	28	48
Family type					
Single mother	69	41	14	25	31
Single father	74	43	19	22	26
Two parent	44	18	13	18	56
Welfare receipt					
Utilized AFDC	48	30	11	14	52
Never utilized AFDC	50	17	15	24	50
Primary language spoken in home					
Non-English	53	33	9	16	47
English	50	23	13	21	50
Child's race/ethnicity					
White, non-Hispanic	49	18	15	21	51
Black, non-Hispanic	61	38	8	23	40
Asian	47	28	6	17	53
Hispanic	46	26	12	13	54
Hawaiian Native/Pacific Islander	39	26	7	12	61
American Indian/Alaska Native	48	35	7	7	52
More than one race, non-Hispanic	53	26	14	22	47
Child's race/ethnicity by maternal education					
<i>Maternal education:</i>					
<i>High school diploma/equivalent or more</i>					
White, non-Hispanic	49	17	15	22	51
Black, non-Hispanic	63	37	9	25	37
Asian	51	29	7	20	49
Hispanic	53	29	13	17	47
<i>Less than high school diploma or equivalent</i>					
White, non-Hispanic	33	21	8	6	67
Black, non-Hispanic	48	38	4	13	52
Asian	28	23	2	3	72
Hispanic	32	21	10	5	68

NOTE: Estimates based on first-time kindergartners. Percentages may not sum to 100 due to rounding. Categories of non-parental care arrangement are not mutually exclusive.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99, Fall 1998.

Relationships Within and Across Areas of Development

The purpose of this report is to present a description of children as they enter kindergarten—to explore the similarities and differences in the knowledge, skills and experiences they possess. The preceding chapters addressed each area of development (cognitive, social, physical, approaches to learning and family) separately to show the unique nature of each area of development. However, as we bring this description of children to a close, we note that the areas of children’s development are both unique and at the same time inextricably linked.

Consequently, below, we engage in a brief presentation of the basic relationships that exist between children’s cognitive skills and knowledge, social skills, physical well-being, approaches to learning and family experiences as they enter kindergarten for the first time. This is just a brief look at these rich and complex relationships. Future reports will analyze the nature of these relationships more closely. Though some of these constructs do not bear direct relationships to each other, in more complex analysis of the data they may play a role in explaining or mediating existing relationships within and across areas of development.

Key Findings: Relationships Within and Across Areas of Development

- The children who do well in reading are also likely to do well in mathematics and general knowledge. As children enter kindergarten, their reading and mathematics skills and knowledge are moderately⁹ related ($r = .79$), as are their reading skills and general knowledge ($r = .60$) and their mathematics skills and general knowledge ($r = .65$).
- Both parents and teachers in the ECLS-K provided information on children’s social skills. Parent perceptions of children’s social skills are not directly related to their cognitive skills and knowledge. However, there is a small correlation between teacher perceptions of how easily children make and keep friends and children’s reading ($r = .20$), mathematics ($r = .22$) and general knowledge ($r = .21$) t-scores. Teacher perceptions of children’s other social skills (i.e., accepts peer ideas, comforts others, argues, fights and gets angry easily) are only slightly related to children’s cognitive t-scores (correlations below $.17$). Neither parent nor teacher perceptions of children’s social skills as assessed by their ratings of children’s prosocial and problem behaviors are directly related to children’s fine or gross motor scores, their literacy environment, their home educational activity experiences or their child care history.

⁹ (Hinkle et al. 1994) This statistical text states that correlations $.5$ – $.7$ are moderate, $.3$ – $.5$ are low and 0 – $.3$ are little.

**Key Findings—continued:
Relationships Within and Across Areas of Development**

- Children's fine motor skills relate to their cognitive skills and knowledge (reading, $r = .41$; mathematics, $r = .48$; general knowledge, $r = .39$). Children's gross motor skills relate to mathematics ($r = .22$), but are not directly related to their reading and general knowledge. Neither fine nor gross motor skills are directly related to their home literacy environment, their home educational activity experiences or their child care history.
- Children's approaches to learning were described by both their parents and their teachers. Parents' perceptions of children's approaches to learning (i.e., task persistence, eagerness to learn and creativity) do not directly relate to children's cognitive t-scores. Teacher perceptions of children's approaches to learning (i.e. task persistence, eagerness to learn and attention) are related to children's reading, mathematics and general knowledge t-scores. Eagerness to learn relates to reading ($r = .31$), mathematics ($r = .32$) and general knowledge ($r = .28$). Task persistence relates to reading ($r = .32$), mathematics ($r = .34$) and general knowledge ($r = .27$). And attention relates to reading ($r = .32$), mathematics ($r = .34$) and general knowledge ($r = .29$). Children's approaches to learning are not directly related to their home literacy environment, their home educational activity experiences or their child care history.
- There are small relationships of children's home literacy environment and home educational experiences to their reading, mathematics and general knowledge t-scores. The number of children's books in the home relates to children's general knowledge ($r = .21$) but not directly to their reading or mathematics knowledge and skills. And how frequently a family member reads to the child relates to children's reading ($r = .20$) and general knowledge ($r = .21$), but not directly to their mathematics knowledge and skills. Children's literacy environment and home educational experiences do not directly relate to their child care history.

Future Directions

This report presents a snapshot of the children in United States kindergarten classrooms. We can see both similarities and differences in children. For example, the majority of first-time kindergartners, regardless of their individual characteristics, are familiar with print and can recognize letters, numbers and shapes. Most children engage in prosocial types of behavior and are unlikely to exhibit problem behaviors. And most children are in very good to excellent health. At the same time, there are differences in the knowledge and skills children bring with them to school. For example, children's age relates to differences in their cognitive skills and knowledge, their social skills (both prosocial and problem behavior), their physical well-being (especially their motor skills) and the way in which they approach learning. Though, at this young age, some of these differences may be attributed to natural developmental variation; however, we need to consider the possible experiential differences of older kindergartners versus the younger ones. In this report, we also demonstrate that risk factors such as having a mother with less than a high school diploma, being from a single-mother family, welfare receipt and a non-English primary language relate to the differences in children's knowledge, skills and health at school entry.

The findings in this report suggest some areas for further investigation. To name a few—first, in this report, we looked at children's knowledge and skills by a specific set of child and family characteristics (e.g., child's sex, age at entry, race/ethnicity, maternal education). Future reports can take a different perspective, and analyze children's knowledge and skills in terms of additional family characteristics and school characteristics. For example, the data can be analyzed in terms of pre-school attendance, kindergarten program type (i.e., full day/part day) and school type (e.g., public/nonpublic). Furthermore, the data can be analyzed in terms of the possible cumulative effects of risk factors (e.g., low maternal education, minority status, receipt of welfare services) and the interaction of these risk factors (e.g., maternal education with race/ethnicity) with other child and program characteristics. These types of analysis may have important policy implications.

Second, we presented a picture of the differences in parent and teacher perceptions of children's prosocial skills, problem behaviors and approaches to learning. Primarily, we presented the data by looking at parent perceptions in relation to child and family characteristics and teacher perceptions in relation to child and family characteristics. However, future analysis can compare the similarities and the differences in parent and teacher perceptions of the same child. For example, in terms of approaches to learning—specifically children's eagerness to learn, the racial/ethnic differences seem much greater in the teacher ratings than in the parent ratings in the aggregate.

And third, some interesting patterns emerge across domains. For example, black children are more likely to score in the higher group of children in gross motor skills than any racial/ethnic group. At the same time, black children are also being rated by their teachers as demonstrating higher frequencies of problematic behaviors (e.g., arguing, fighting) than other racial/ethnic groups and are also being rated by their parents as being much more active than other children their age. Together, these findings present an interesting picture that warrants consideration.

As we have seen in this report, children entering kindergarten for the first time have a wide range of skills, knowledge and experiences. While they are similar in many ways, differences exist in relation to children's background and experiences. As we mentioned, kindergarten is a critical period in children's early school careers—this experience sets children on a path that influences their subsequent learning and school achievement. This report and future data from the ECLS-K will help to inform researchers, practitioners, educators, parents and policymakers on issues concerning young children's education and aid in a deeper understanding of the connection between children's early school experiences and later school success.

Methodology and Data Reliability

Survey Methodology

The Early Childhood Longitudinal Study Kindergarten Class of 1998–99 (ECLS-K) is being conducted by Westat for the U.S. Department of Education, National Center for Education Statistics (NCES). It is designed to provide detailed information on children’s early school experiences. The study
99 school year. The children participating in the ECLS-K will be followed longitudinally through the fifth grade.

Sample Design. A nationally representative sample of 22,625 children enrolled in 1,277 kindergarten programs during the 1998–99-school year were sampled to participate in the ECLS-K. The children attended both public and private kindergartens that offered full-day and part-day programs. The sample included children from different racial/ethnic and socioeconomic backgrounds and included oversamples of Asian children, private kindergartens and private school kindergartners. This study supports separate estimates of public and private school kindergartners; black, Hispanic, white and Asian children; and children from different socioeconomic backgrounds.

Sampling for the ECLS-K involved a dual-frame, multistage sampling design. The first stage of sampling involved the selection of 100 primary sampling units (PSU) from a national sample of PSUs. The PSUs were counties and county groups. Public and private schools were then selected within the PSUs, and students were sampled from the selected schools. Public schools were selected from the Common Core of Data, a public school frame, and private schools were selected from a private school frame developed from the Private School Survey.¹⁰ Approximately 23 kindergartners were selected on average within each of the sampled schools.

Fall kindergarten data were obtained from September to December 1998. Data were collected from the child, the child's parents/guardians and teachers in the following ways.

Child Assessments. Children were asked to participate in various activities designed to measure important cognitive (e.g., general knowledge, literacy and quantitative skills) and noncognitive (e.g., motor skills) skills. All measures were obtained through an untimed one-on-one assessment of the child.

¹⁰ During the spring of 1998, Westat identified new schools that were not found on either frame. A sample of these schools was included in the ECLS-K school sample.

Each child was assessed using a computer-assisted personal interview (CAPI), administered one-on-one from the assessor to child. The assessment consists of three cognitive domains (reading, mathematics and general knowledge); a psychomotor assessment, including fine and gross motor skills; and height and weight measurements. The cognitive assessment included a two-stage battery, where the first stage in each domain contained a routing test that determined a child's approximate skills. According to the child's performance on the routing test, the child was administered the appropriate skill level assessment for that domain (the second stage). The reading and mathematics assessments had three skill levels, while the general knowledge domain had two skill levels.

To be sensitive to the needs and capabilities of the children in the sample, an English language proficiency screener, called the Oral Language Development Scale (OLDS), was administered if the school records indicated that the child's home language was not English. The child had to demonstrate a certain level of English proficiency to be administered the cognitive assessment in English. If a child was not sufficiently proficient in English, but spoke Spanish at home, the child was administered a Spanish version of the OLDS. If the child was proficient in Spanish then they were administered the mathematics and psychomotor assessments in Spanish, as well as the height and weight measures. Children from other non-English home language backgrounds who were not sufficiently proficient in English were excluded from the direct assessment, with the exception of height and weight measures. In terms of first-time kindergartners, about 93 percent were assessed in English. Of the 7 percent of children excluded from the assessment, 18 percent were Asian and 80 percent were Hispanic. The children excluded from the English assessment represents 19 percent of the Asian children and 29 percent of the Hispanic children.

Parent Interview. Parents/guardians were asked to provide key information about their children on subjects such as family demographics (e.g., age, relation to child, race/ethnicity), family structure (household members and composition), parent involvement, home educational activities, child care experience, child health, parental education and employment status and child's social skills and behaviors. Most of the data were collected through a computer-assisted telephone interviewing (CATI), though some of the interviews were collected through a computer-assisted personal interviewing (CAPI) when respondents did not have a telephone or were reluctant to be interviewed by telephone.

Teacher Questionnaires. All kindergarten teachers with sampled children were asked to fill out three self-administered questionnaires. The first two pertained to their own educational backgrounds, teaching practices, experiences and the classroom settings where they taught. For each of the sampled

children they taught, the teachers also completed a child-specific questionnaire that collected information on the child's social skills and approaches to learning. This report only uses data from the child-specific questionnaire.

Response Rates

Overall, 74 percent of the 1,277 schools agreed to participate in the study.¹¹ More schools participated during the spring of the base year (n=940) than during the fall (n=880). Due to the lower than expected cooperation rate for public schools in the fall of the base year, 73 additional public schools were included in the sample as substitutes for schools not participating in the fall. These schools were included in order to meet the target sample sizes for students. Substitute schools are not included in the school response rate calculations.

The ECLS-K school response rates are comparable to or exceed those of past NCES longitudinal surveys. In the National Education Longitudinal Study of 1988 (NELS:88), 69.7 percent of the originally sampled schools agreed to participate in the base year.

Of the sampled children, 19,173 participated in the fall kindergarten child assessment for an 89.8 cooperation rate or a response rate of 66.4 percent (74% X 89.8%). There were no large differences in cooperation rates for subgroups of children: 89.5 percent of sampled boys participated, and 90.4 percent of sampled girls participated. Asians had the lowest cooperation rates at 88.6 percent while American Indians or Alaskan Natives had the highest response rate of 93.4 percent. There were 18,101 parent interviews completed during the fall of the school year for a cooperation rate of 85.3 percent or a 63 percent response rate (74% X 85.3%). About 91 percent of the children had child-specific data reported by their teacher in the fall of kindergarten (74% X 91.2 = 67.5%). These numbers are also comparable to the completion rates obtained in NELS:88. There, about 90 percent of the students participated in the eighth grade student tests, and 87.5 percent of the parents completed parent questionnaires. Teachers in NELS:88 completed individual student ratings for about 89.6 percent of the students. Thus overall, the ECLS-K child, parent, teacher and school cooperation rates are comparable to other school-based longitudinal studies conducted at NCES.

¹¹ All response rates specified are the weighted rates.

A nonresponse bias analysis is being conducted to determine if substantial bias is introduced due to school nonresponse. Five different approaches are being used to examine the possibility of bias in the ECLS-K sample. First, weighted and unweighted response rates for schools, children, parents, teachers and school administrators are being examined to find large response rate differences by characteristics of schools (e.g., urbanicity, region, school size, percent minority and grade range) and children (e.g., sex, age, race-ethnicity). Second, estimates based on the ECLS-K respondents are being compared to estimates based on the full sample. The distributions of schools by school type, urbanicity, region and the distributions of enrollment by kindergarten type (public versus private), race-ethnicity, urbanicity, region and eligibility for free and reduced-price lunch are being compared for the responding schools and all the schools on the sampling frame. Third, estimates from the ECLS-K are being compared with estimates from other data sources (e.g., Current Population Survey, National Household Education Survey, Survey of Income and Program Participation). Fourth, estimates using the ECLS-K unadjusted weights are being compared with estimates using the ECLS-K weights adjusted for nonresponse. Large differences in the estimates produced with these two different weights would indicate the potential for bias. Fifth, and last, simulations of nonresponse are being conducted.

All of the above analyses are underway and some have been completed. The results of these analyses will be summarized in the ECLS-K User's Manual and reported in detail in the ECLS-K Methodology Report. Preliminary findings from these analyses suggest that there is not a bias due to school nonresponse. In particular, there is no evidence of a bias in the types of estimates found in this report.

Data Reliability

Estimates produced using data from the ECLS-K are subject to two types of error, sampling and nonsampling errors. Nonsampling errors are errors made in the collection and processing of data. Sampling errors occur because the data are collected from a sample rather than a census of the population.

Nonsampling Errors. Nonsampling error is the term used to describe variations in the estimates that may be caused by population coverage limitations, as well as data collection, processing and reporting procedures. The sources of nonsampling errors are typically problems like unit and item nonresponse, the differences in respondents' interpretations of the meaning of the questions, response differences related to the particular time the survey was conducted and mistakes in data preparation.

In general, it is difficult to identify and estimate either the amount of nonsampling error or the bias caused by this error. In the ECLS-K efforts were made to prevent such errors from occurring and to compensate for them where possible. For instance, during the survey design phase, focus groups and cognitive laboratory interviews were conducted for the purpose of assessing respondent knowledge topics, comprehension of questions and terms and the sensitivity of items. The design phase also entailed testing for the CAPI instrument and a field test that evaluated the implementation of the survey.

By designing the child assessment to be both individually administered and untimed both coverage error and bias were reduced. Individual administration decreases problems associated with group administration such as children slowing down and not staying with the group or simply getting distracted. The advantage of having untimed exams was that the study was able to include most children with learning disabilities, hearing aids, etc. The only children who were excluded from the study were those who were blind, deaf, those whose Individual Education Program (IEP) clearly stated that they were not to be tested and non-English speaking children who were determined to lack adequate English or Spanish to meaningfully participate in the ECLS-K battery. Exclusion from the direct child assessment did not exclude children from all other parts (e.g., teacher questionnaire, parent interview).

Another potential source of nonsampling error is respondent bias which occurs when respondents systematically misreport (intentionally or unintentionally) information in a study. One potential source of respondent bias in this survey is social desirability bias. If there are no systematic differences among specific groups under study in their tendency to give socially desirable responses, then comparisons of the different groups will accurately reflect *differences* among the groups. An associated error occurs when respondents give unduly positive assessments about those close to them. For example, parents may give rosier assessments about their children's school experiences than might be obtained from school records or from the teachers.

Response bias may also potentially be introduced in the responses of the teachers about each individual student. Each teacher filled out a survey for each of the sampled children they taught in which they answered questions on the child's socioemotional development. Since the survey was conducted in the fall it is possible that the teachers did not have adequate time to observe the children, and thus some of the responses may be influenced by the expectations of the teacher based on which groups (e.g., sex, racial, linguistic, disability) the children belonged to. In order to minimize bias, all items were subjected to multiple cognitive interviews, field tests and actual teachers were involved in the design of the cognitive assessment battery and questionnaires. NCES also followed the criteria recommended in a

working paper on the accuracy of teacher judgments of students' academic performances (Perry and Meisels 1996).

Readers should be aware that respondent bias may be present in this survey as in any survey. It is not possible to state precisely how such bias may affect the results. NCES has tried to minimize some of these biases by conducting one on one, untimed assessments and by asking some of the same questions about the sampled child of both teachers and parents.

Sampling Errors and Weighting. The sample of kindergarten children from the class of 1998–99 was just one of many possible samples that could have been selected. Therefore, estimates produced from the ECLS-K sample may differ from estimates that would have been produced from other samples. This type of variability is called sampling error because it arises from using a sample of children attending kindergarten in 1998–99, rather than all children attending kindergarten that year.

The standard error is a measure of the variability due to sampling when estimating a statistic. Standard errors for estimates presented in this report were computed using a jackknife replication method. Standard errors can be used as a measure for the precision expected from a particular sample. The probability that a complete census count would differ from the sample estimate by less than 1 standard error is 68 percent. The chance that the difference would be less than 1.65 standard errors is about 90 percent, and that the difference would be less than 1.96 standard errors, about 95 percent.

Standard errors for all of the estimates are included in appendix A in this report. These standard errors can be used to produce confidence intervals. For example, it is estimated that 51 percent of the parents reported that their children had excellent general health, and this statistic has a standard error of 0.70 percent. Therefore, the estimated 95 percent confidence interval for this statistic is approximately 50 to 52 percent ($1.96 \times .70 = 1.4$; confidence interval = 51 ± 1.4).

In order to produce national estimates from the ECLS-K data collected during the fall of the 1998-99 school year, the sample data were weighted. Weighting the data adjusts for unequal selection probabilities at the school and child levels and adjusts for school, child, teacher and parent nonresponse. The first stage of the weighting process assigns weights to the sampled primary sampling units (PSUs) equal to the inverse of the PSU probability of selection.¹² The second stage of the weighting process

¹² The approach used to develop weights for the ECLS-K will be described in the ECLS-K User's Manual and the ECLS-K Methodology Report.

assigns weights to the schools sampled within PSUs. The base weight for each sampled school is the PSU weight multiplied by the inverse of the probability of selecting the school. The base weights for eligible schools are adjusted for nonresponse. These adjustments are made separately for public and private schools.

The base weight for each child in the sample is the school nonresponse adjusted weight for the school the child attends multiplied by a post-stratified within school student weight (total number of students in the school divided by the number of students sampled in the school). The parent weight, which is the weight used to produce the estimates found in this report, is the base child weight adjusted for nonresponse to the parent interview. Again, these adjustments are made separately for public and private schools.

In addition to properly weighting the responses, special procedures for estimating the statistical significance of the estimates were employed because the data were collected using a complex sample design. Complex sample designs, like that used in the ECLS-K, result in data that violate the assumptions that are normally required to assess the statistical significance of the results. Frequently, the standard errors of the estimates are larger than would be expected if the sample was a simple random sample and the observations were independent and identically distributed random variables. WesVarPC was used in this analysis to calculate standard errors.

Replication methods of variance estimation were used to reflect the actual sample design used in the ECLS-K. A form of the jackknife replication method (JK2) using 90 replicates was used to compute approximately unbiased estimates of the standard errors of the estimates in the report. The jackknife methods were used to estimate the precision of the estimates of the reported national percentages and means. To test the difference between estimates, Student's *t* statistic was employed, using unbiased estimates of standard errors derived by the replication methods mentioned above. Also, trend tests were used to test statements regarding the relationship between two characteristics (e.g., mother's education and children's performance on the ECLS-K assessment battery).

As the number of comparisons at the same significance levels increases, it becomes more likely that at least one of the estimated differences will be significant merely by chance, that is, it will be erroneously identified as different from zero. Even when there is no statistical difference between the means or percentages being compared, there is a 5 percent chance of getting a significant *F* or *t* value from sampling error alone. As the number of comparisons increases, the chance of making this type of

error also increases. A Bonferroni adjustment procedure was used to correct significance tests for multiple comparisons. This method adjusts the significance level for the total number of comparisons made with a particular classification variable. For example, the total number of comparisons for the type of family is three (i.e., single father vs. single mother, single father vs. two parents, single mother vs. two parents). Thus the significance criterion for each family type comparison is adjusted to $p = 0.0167$ (i.e., $0.05/3$).

Definitions of Variables

Direct Cognitive Assessment. The ECLS Kindergarten cognitive assessment battery consisted of questions in three subject areas: Reading, Mathematics and General Knowledge.

The **Reading** assessment included questions in basic skills (print familiarity, letter recognition, beginning and ending sounds, rhyming sounds, word recognition), vocabulary (picture vocabulary) and comprehension (listening comprehension, close sentences, words in context). Comprehension items were targeted to measure skills in initial understanding, developing interpretation, personal reflection and demonstrating critical stance. The reliability of the estimate of overall reading ability (IRT-based theta) was .90.

About half of the **Mathematics** assessment consisted of questions in number sense and number properties and operations. The remainder of the assessment included questions in measurement; geometry and spatial sense; data analysis, statistics and probability; and patterns, algebra and functions. The assessment items were designed to measure skills in conceptual knowledge, procedural knowledge and problem solving, with the heaviest emphasis on problem solving. The reliability of the estimate of overall mathematics ability (IRT-based theta) was .90.

The **General Knowledge** assessment was a composite of science and social studies material. The science questions assessed conceptual understanding; observing/collecting data/classification; communication; and drawing/testing inferences, in the context of questions based on life science and the physical sciences. Social studies material included questions relating to history/government, culture, geography and economics. The assessment questions drew on children's experiences with their environment and many questions related to more than one of the categories listed. The reliability of the estimate of overall general knowledge and skills (IRT-based theta) was .88.

Standardized Scores (T-Scores): The standardized scores reported in the ECLS-K database are transformations of IRT theta (ability) estimates, rescaled to a mean of 50 and standard deviation of 10 using cross-sectional sample weights for fall kindergarten. For example, a t-score of 55 represents a reading achievement level that is half a standard deviation higher than the mean for the fall kindergarten population represented by the tested sample of ECLS-K participants.

T-scores do not measure mastery of a particular skill or set of skills. They provide only normative information; that is, an estimate of an individual's or a subgroup's achievement level relative to the population as a whole. T-Scores cannot be used to determine whether the population means are high or low, or whether average population gains over time are large or small. They can only provide an indicator of the extent to which an individual or a subgroup ranks higher or lower than the national average and how much this relative ranking changes over time.

Proficiency Level Scores: Proficiency scores provide a means of distinguishing status or gain in specific skills within a content area from the overall achievement measured by the IRT Scale Scores and T-Scores. Clusters of four assessment questions having similar content and difficulty were included at several points along the score scale of the Reading and Mathematics assessments. (No proficiency scores were computed for the General Knowledge assessment, since the questions did not follow a hierarchical pattern.) A student was assumed to have mastered a particular level of proficiency if at least three of the four items in the cluster were answered correctly, and to have failed at this level if two or more items were wrong. Clusters of items provide a more reliable assessment of proficiency than do single items because of the possibility of guessing: it is very unlikely that a student who has not mastered a particular skill would be able to guess enough answers correctly to pass a four item cluster. The proficiency levels were assumed to follow a Guttman model; that is, a student passing a particular skill level was expected to have mastered all lower levels; not passing a particular skill level indicates non-mastery at higher levels. Only a very small percentage of children in fall kindergarten had response patterns that did not follow the Guttman model, that is, a non-passing score at a lower level followed by a passing score at a higher level.

Other Direct Assessments. In addition to cognitive assessments, children's height, weight and psychomotor skills were also directly assessed. The psychomotor assessment consisted of both fine and gross motor skills. For the fine motor skills (scale 0–9) children were asked to manipulate blocks and copy a formation (maximum 2 points), copy basic figures (maximum 5 points) and draw a person

(maximum 2 points). For the gross motor assessments (scale 0–8), children were asked to balance on one foot (maximum 2 points), hop on one foot (maximum 2 points), skip (maximum 2 points) and walk backward on a straight line (maximum 2 points).

Children’s Social Skills, Problem Behaviors, Approaches to Learning and Health Status.

Parents and teachers were administered items which assessed children’s social skills (e.g., frequency with which children make friends and comfort others), problem behaviors (e.g., frequency with which children fight with others and get angry easily) and how children approach learning (e.g., frequency with which children persist at tasks and seem eager to learn). Parents were asked to provide information about children’s general health, activity level, ability to pay attention, coordination and articulation. In a large-scale survey setting it is difficult, time-intensive and costly to directly assess young children’s social skills, problem behaviors, approaches to learning and health status. Therefore, parents and teachers reported on these constructs. When interpreting this information, we need to take into account that the nature of the data is parent and teacher report and not a direct assessment (for a review see Zill et al. 1995).

Derived Variables. A number of variables used in this report were derived by combining information from one or more questions in the ECLS-K. The derivation of key variables is described in this section.

Children’s age at entry to kindergarten: This variable was constructed using two variables: month and year of birth. These variables were combined to form five categories: children born prior to September 1992, born between September – December 1992, January – April 1993, May – August 1993

: This variable was constructed using the question on the highest grade the mother had completed, and whether the mother had obtained a high school equivalency degree if she did not complete high school. This information was collapsed into four categories: less than high school, high school or equivalent, some college including vocational/technical training and bachelor’s degree or higher.

Family type: This variable is a composite that is constructed from the household roster. The following information was used in the construction: whether there was a mother present in the household and her relationship to the child (birth, adoptive, step, foster, partner), whether there was a father present

in the household and his relationship to the child (birth, adoptive, step, foster, partner). This information was used to construct a variable with the following categories: single-mother household, single-father household and two-parent household.

Welfare receipt: Welfare receipt refers to the utilization of Aid for Families with Dependent Children (AFDC) since the child was born or in the past 6 months.

Primary language spoken in home: For this report a dichotomous variable was used to indicate whether English was the primary language spoken at home. This composite was constructed by using responses to three questions in the parent interview: whether another language other than English was regularly spoken at home; if yes, whether English was also spoken at home; and if English and one or more other languages were spoken at home, which of those languages would be considered the primary language spoken at home.

Children's race/ethnicity: The race/ethnicity composite was constructed from two parent-reported variables: ethnicity and race. New Office of Management and Budget guidelines were followed under which a respondent could select more than one race. Thus each respondent had to identify whether the child was Hispanic, and then select one or more race. The following are the seven composite race/ethnicity categories: white non-Hispanic, black non-Hispanic, Hispanic, Asian, Hawaiian Native or Pacific Islander, American Indian or Alaska Native and more than one race specified non-Hispanic. Due to sample size restrictions, this publication only does significance tests for whites, blacks, Hispanics and Asians.

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Appendix

Standard Errors for Estimates

Table 2a.—Standard errors for mean reading t-scores of first-time kindergartners, and percentage distribution of quartile scores, by child and family characteristics: Fall 1998

Characteristic	Mean t-score	0-25 percent	26-50 percent	51-75 percent	76-100 percent
Total	0.2	0.8	0.6	0.5	0.8
Child's sex					
Male	0.2	0.9	0.7	0.6	0.8
Female	0.2	0.9	0.8	0.6	1.0
Child's age at entry					
Born Jan. – Aug. 1992	0.5	1.6	2.2	2.0	2.0
Born Sep. – Dec. 1992	0.3	1.0	0.8	0.7	1.2
Born Jan. – Apr. 1993	0.2	0.9	0.8	0.8	1.0
Born May – Aug. 1993	0.3	1.0	0.9	0.8	0.9
Born Sep. – Dec. 1993	0.3	1.7	1.5	1.3	1.1
Mother's education					
Less than high school	0.3	1.4	1.1	1.2	0.7
High school diploma or equivalent	0.2	1.1	0.9	0.9	0.9
Some college, including vocational/technical	0.5	0.9	0.8	0.6	1.0
Bachelor's degree or higher	0.2	0.6	0.8	0.3	1.2
Family type					
Single mother	0.3	1.5	1.2	0.8	1.0
Single father	0.7	3.5	3.0	2.3	2.4
Two parent	0.2	0.6	0.6	0.5	0.9
Welfare receipt					
Utilized AFDC	0.2	2.2	1.7	1.0	0.8
Never utilized AFDC	0.2	0.7	0.6	0.5	0.9
Primary language spoken in home	0.5				
Non-English	0.2	1.9	0.6	1.0	1.5
English		0.8	1.4	0.5	0.9
Child's race/ethnicity					
White, non-Hispanic	0.2	0.7	0.7	0.6	1.0
Black, non-Hispanic	0.4	1.6	1.5	1.0	1.4
Asian	0.6	1.5	2.0	1.9	2.4
Hispanic	0.4	1.8	1.0	1.0	1.2
Hawaiian Native/Pacific Islander	1.2	4.3	3.1	2.6	5.0
American Indian/Alaska Native	1.6	6.5	2.0	3.2	3.2
More than one race, non-Hispanic	0.6	2.6	2.2	2.4	2.2
Child's race/ethnicity by maternal education					
<i>Maternal education:</i>					
<i>High school diploma/equivalent or more</i>					
White, non-Hispanic	0.2	0.7	0.8	0.6	1.1
Black, non-Hispanic	0.4	1.5	1.5	1.0	1.5
Asian	0.6	1.4	2.1	2.0	2.4
Hispanic	0.5	2.1	1.2	1.1	1.5
<i>Maternal education:</i>					
<i>Less than high school diploma or equivalent</i>					
White, non-Hispanic	0.4	2.0	1.7	2.0	1.3
Black, non-Hispanic	0.5	3.1	2.7	2.6	1.2
Asian	0.8	6.0	11.3	7.2	3.5
Hispanic	0.5	2.3	1.7	1.5	1.0

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99, Fall 1998.

Table 3a.—Standard errors for mean mathematics t-scores of first-time kindergartners, and percentage distribution of quartile scores, by child and family characteristics: Fall 1998

Characteristic	Mean t-score	0-25 percent	26-50 percent	51-75 percent	76-100 percent
Total	0.2	0.7	0.5	0.5	0.7
Child's sex					
Male	0.2	0.9	0.6	0.5	0.9
Female	0.2	0.8	0.6	0.7	0.8
Child's age at entry					
Born Jan. – Aug. 1992	0.4	1.5	1.7	1.9	2.4
Born Sep. – Dec. 1992	0.3	0.9	0.9	0.7	1.3
Born Jan. – Apr. 1993	0.2	0.9	0.7	0.8	0.8
Born May – Aug. 1993	0.3	1.0	0.8	0.8	0.7
Born Sep. – Dec. 1993	0.3	1.8	1.4	1.3	1.0
Mother's education					
Less than high school	0.3	1.8	1.3	1.0	0.7
High school diploma or equivalent	0.2	1.1	0.8	0.9	0.7
Some college, including vocational/technical	0.5	0.7	0.7	0.7	0.9
Bachelor's degree or higher	0.2	0.6	0.8	0.8	1.2
Family type					
Single mother	0.3	1.3	0.9	0.8	0.9
Single father	0.7	3.0	3.1	2.7	2.7
Two parent	0.2	0.6	0.5	0.5	0.8
Welfare receipt					
Utilized AFDC	0.2	1.7	1.3	1.0	0.8
Never utilized AFDC	0.2	0.7	0.5	0.5	0.8
Primary language spoken in home					
Non-English	0.5	2.2	1.7	1.5	1.5
English	0.2	0.8	0.5	0.5	0.8
Child's race/ethnicity					
White, non-Hispanic	0.2	0.6	0.6	0.6	0.9
Black, non-Hispanic	0.4	1.5	1.0	1.2	1.1
Asian	0.5	1.7	1.6	1.8	0.9
Hispanic	0.3	1.8	1.3	1.2	2.3
Hawaiian Native/Pacific Islander	1.2	4.2	3.4	2.8	4.6
American Indian/Alaska Native	1.5	6.4	2.5	4.3	2.7
More than one race, non-Hispanic	0.7	2.7	2.4	2.7	2.6
Child's race/ethnicity by maternal education					
<i>Maternal education:</i>					
<i>High school diploma/equivalent or more</i>					
White, non-Hispanic	0.2	0.5	0.7	0.6	0.9
Black, non-Hispanic	0.4	1.7	1.1	1.4	1.1
Asian	0.6	1.7	1.9	1.9	2.5
Hispanic	0.3	1.8	1.3	1.4	1.1
<i>Maternal education:</i>					
<i>Less than high school diploma or equivalent</i>					
White, non-Hispanic	0.4	2.3	2.2	1.6	1.2
Black, non-Hispanic	0.5	3.1	2.3	1.8	1.3
Asian	0.8	5.7	9.7	6.7	6.2
Hispanic	0.5	2.9	2.2	1.5	1.2

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99, Fall 1998.

Table 4a.—Standard errors for mean general knowledge t-scores of first-time kindergartners, and percentage distribution of quartile scores, by child and family characteristics: Fall 1998

Characteristic	Mean t-score	0-25 percent	26-50 percent	51-75 percent	76-100 percent
Total	0.3	1.0	0.4	0.5	0.7
Child's sex					
Male	0.3	1.0	0.6	0.7	0.9
Female	0.3	1.1	0.5	0.6	0.8
Child's age at entry					
Born Jan. – Aug. 1992	0.4	1.4	1.6	1.7	2.1
Born Sep. – Dec. 1992	0.3	1.0	0.8	1.0	1.2
Born Jan. – Apr. 1993	0.3	1.2	0.7	0.7	1.0
Born May – Aug. 1993	0.3	1.4	0.7	0.8	0.8
Born Sep. – Dec. 1993	0.4	1.8	1.4	1.3	1.1
Mother's education					
Less than high school	0.3	1.9	1.2	1.2	0.6
High school diploma or equivalent	0.3	1.4	0.8	0.7	0.7
Some college, including vocational/technical	0.6	1.1	0.7	0.8	0.9
Bachelor's degree or higher	0.2	0.6	0.8	0.7	1.1
Family type					
Single mother	0.4	1.9	0.9	1.1	0.7
Single father	0.7	3.1	3.7	3.3	2.2
Two parent	0.2	0.7	0.5	0.5	0.8
Welfare receipt					
Utilized AFDC	0.3	2.1	1.3	1.0	0.8
Never utilized AFDC	0.2	0.9	0.5	0.5	0.8
Primary language spoken in home					
Non-English	0.4	2.2	1.8	1.3	0.9
English	0.3	1.0	0.5	0.6	0.8
Child's race/ethnicity					
White, non-Hispanic	0.2	0.6	0.6	0.5	0.9
Black, non-Hispanic	0.5	2.3	1.2	1.1	0.6
Asian	0.6	2.6	2.0	2.1	1.8
Hispanic	0.3	1.6	1.1	1.1	0.9
Hawaiian Native/Pacific Islander	1.2	5.9	4.4	3.0	3.2
American Indian/Alaska Native	1.5	7.8	2.1	4.2	2.4
More than one race, non-Hispanic	0.5	2.6	2.3	2.8	2.2
Child's race/ethnicity by maternal education					
<i>Maternal education:</i>					
<i>High school diploma/equivalent or more</i>					
White, non-Hispanic	0.2	0.6	0.6	0.6	1.0
Black, non-Hispanic	0.5	2.5	1.3	1.3	0.7
Asian	0.6	2.7	1.9	2.0	1.9
Hispanic	0.4	1.9	1.2	1.3	1.2
<i>Maternal education:</i>					
<i>Less than high school diploma or equivalent</i>					
White, non-Hispanic	0.3	1.9	1.5	2.0	1.3
Black, non-Hispanic	0.6	2.7	2.3	1.4	0.4
Asian	1.0	5.9	7.0	3.4	2.6
Hispanic	0.4	2.5	2.2	1.5	0.7

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99, Fall 1998.

Table 5a.—Standard errors for percentage distribution of first-time kindergartners by print familiarity scores, by child and family characteristics: Fall 1998

Characteristic	Percent knowing			
	0 skills	1 skill	2 skills	3 skills
Total	0.9	0.4	0.5	0.9
Child's sex				
Male	0.9	0.6	0.6	0.9
Female	0.9	0.5	0.7	1.0
Child's age at entry				
Born Jan. – Aug. 1992	1.5	1.6	1.8	2.2
Born Sep. – Dec. 1992	0.8	0.7	0.8	1.2
Born Jan. – Apr. 1993	1.0	0.7	0.8	1.1
Born May – Aug. 1993	1.1	0.6	0.8	1.0
Born Sep. – Dec. 1993	1.5	1.3	1.1	1.5
Mother's education				
Less than high school	2.0	1.0	1.4	1.3
High school diploma or equivalent	1.2	0.8	0.8	1.1
Some college, including vocational/technical	0.9	0.6	0.7	1.0
Bachelor's degree or higher	0.5	0.6	0.7	1.1
Family type				
Single mother	1.6	0.9	1.1	1.2
Single father	3.3	3.3	2.6	2.8
Two parent	0.7	0.5	0.5	0.8
Welfare receipt				
Utilized AFDC	1.6	1.1	1.0	1.1
Never utilized AFDC	0.7	0.4	0.5	0.8
Primary language spoken in home				
Non-English	1.8	1.6	1.6	1.8
English	0.9	0.5	0.6	0.9
Child's race/ethnicity				
White, non-Hispanic	0.7	0.5	0.6	0.9
Black, non-Hispanic	2.3	1.2	1.5	1.7
Asian	2.0	1.9	1.8	2.3
Hispanic	1.2	0.8	1.0	1.3
Hawaiian Native/Pacific Islander	3.3	3.2	3.3	3.5
American Indian/Alaska Native	6.9	2.2	2.2	4.4
More than one race, non-Hispanic	2.0	2.6	2.3	2.9
Child's race/ethnicity by maternal education				
<i>Maternal education:</i>				
<i>High school diploma/equivalent or more</i>				
White, non-Hispanic	0.6	0.5	0.6	0.9
Black, non-Hispanic	2.1	1.2	1.4	1.8
Asian	2.1	2.0	2.0	2.5
Hispanic	1.2	1.0	1.1	1.4
<i>Maternal education:</i>				
<i>Less than high school diploma or equivalent</i>				
White, non-Hispanic	2.4	1.5	2.8	2.0
Black, non-Hispanic	4.0	2.5	3.1	1.9
Asian	3.8	6.0	5.9	5.9
Hispanic	2.6	2.2	2.0	2.0

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99, Fall 1998.

Table 6a.—Standard errors for percentage of first-time kindergartners passing each reading proficiency level, by child and family characteristics: Fall 1998

Characteristic	Letter recognition	Beginning sounds	Ending sounds	Sight words	Words in context
Total	0.8	0.9	0.7	0.2	0.1
Child's sex					
Male	0.8	0.9	0.7	0.2	0.1
Female	0.9	1.1	0.8	0.2	0.1
Child's age at entry					
Born Jan. – Aug. 1992	2.4	2.5	2.0	0.8	0.6
Born Sep. – Dec. 1992	1.1	1.3	1.1	0.3	0.2
Born Jan. – Apr. 1993	1.0	1.0	0.9	0.3	0.1
Born May – Aug. 1993	1.0	1.1	0.7	0.2	0.1
Born Sep. – Dec. 1993	1.7	1.4	1.0	0.4	0.2
Mother's education					
Less than high school	1.5	0.9	0.6	0.1	0.1
High school diploma or equivalent	1.1	1.1	0.8	0.2	0.1
Some college, including vocational/technical	1.0	1.1	0.9	0.3	0.1
Bachelor's degree or higher	0.8	1.2	1.1	0.4	0.2
Family type					
Single mother	1.3	1.2	0.8	0.2	0.1
Single father	3.5	3.0	2.0	0.8	0.8
Two parent	0.7	1.0	0.8	0.2	0.1
Welfare receipt					
Utilized AFDC	1.2	0.9	0.2	0.1	0.1
Never utilized AFDC	0.8	1.1	0.6	0.3	0.1
Primary language spoken in home					
Non-English	1.9	0.9	1.4	0.2	0.1
English	0.8	1.0	0.7	0.8	0.4
Child's race/ethnicity					
White, non-Hispanic	0.9	1.1	0.8	0.2	0.1
Black, non-Hispanic	1.6	1.7	1.2	0.3	0.1
Asian	1.7	1.5	2.2	1.4	0.9
Hispanic	1.7	2.4	1.2	0.3	0.2
Hawaiian Native/Pacific Islander	4.1	4.8	3.6	1.8	0.7
American Indian/Alaska Native	5.3	3.5	1.6	0.3	(*)
More than one race, non-Hispanic	2.5	2.4	2.0	1.0	0.6
Child's race/ethnicity by maternal education					
<i>Maternal education:</i>					
<i>High school diploma/equivalent or more</i>					
White, non-Hispanic	0.9	1.1	0.8	0.2	0.1
Black, non-Hispanic	1.5	1.9	1.5	0.4	0.2
Asian	2.3	2.3	2.0	1.3	0.8
Hispanic	1.8	1.6	1.3	0.3	0.2
<i>Maternal education:</i>					
<i>Less than high school diploma or equivalent</i>					
White, non-Hispanic	2.2	1.3	1.3	0.3	0.1
Black, non-Hispanic	2.7	1.5	1.1	(*)	(*)
Asian	4.5	3.8	2.9	0.5	0.5
Hispanic	2.3	1.8	1.2	0.8	0.8

* less than 0.05.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99, Fall 1998.

Table 7a.—Standard errors for percentage of first-time kindergartners passing each mathematics proficiency level, by child and family characteristics: Fall 1998

Characteristic	Number & shape	Relative size	Ordinal sequence	Add/ subtract	Multiply/ divide
Total	0.3	0.7	0.7	0.2	0.1
Child's sex					
Male	0.5	0.9	0.8	0.3	0.1
Female	0.3	0.9	0.7	0.2	0.1
Child's age at entry					
Born Jan. – Aug. 1992	0.9	1.8	2.0	1.3	0.5
Born Sep. – Dec. 1992	0.3	1.0	1.2	0.5	0.2
Born Jan. – Apr. 1993	0.5	0.9	0.8	0.3	0.1
Born May – Aug. 1993	0.6	1.0	0.7	0.3	0.1
Born Sep. – Dec. 1993	1.2	1.7	1.0	0.3	0.1
Mother's education					
Less than high school	1.0	1.2	0.6	0.3	(*)
High school diploma or equivalent	0.5	0.9	0.7	0.2	(*)
Some college, including vocational/technical	0.4	0.9	0.9	0.3	0.1
Bachelor's degree or higher	0.2	0.9	1.0	0.5	0.2
Family type					
Single mother	0.7	1.3	0.8	0.3	(*)
Single father	2.3	3.4	2.6	1.1	(*)
Two parent	0.3	0.7	0.7	0.3	0.1
Welfare receipt					
Utilized AFDC	0.7	1.0	0.5	0.2	(*)
Never utilized AFDC	0.2	0.7	0.8	0.3	0.1
Primary language spoken in home					
Non-English	1.2	2.1	1.5	0.9	0.2
English	0.3	0.8	0.7	0.2	0.1
Child's race/ethnicity					
White, non-Hispanic	0.2	0.8	0.8	0.3	0.1
Black, non-Hispanic	0.8	1.5	1.0	0.2	(*)
Asian	0.7	1.5	0.9	0.3	0.1
Hispanic	0.7	2.4	2.1	1.2	0.5
Hawaiian Native/Pacific Islander	2.0	4.0	4.2	1.9	1.5
American Indian/Alaska Native	4.2	6.2	2.3	0.3	(*)
More than one race, non-Hispanic	1.5	3.4	2.6	1.3	0.3
Child's race/ethnicity by maternal education					
<i>Maternal education:</i>					
<i>High school diploma/equivalent or more</i>					
White, non-Hispanic	0.3	0.7	0.8	0.3	0.1
Black, non-Hispanic	0.8	1.6	1.2	0.3	(*)
Asian	1.9	2.9	2.0	1.1	0.5
Hispanic	0.6	1.6	1.1	0.4	0.1
<i>Maternal education:</i>					
<i>Less than high school diploma or equivalent</i>					
White, non-Hispanic	1.3	1.8	1.3	0.4	(*)
Black, non-Hispanic	1.5	2.4	1.2	0.7	(*)
Asian	5.4	5.1	2.1	1.4	(*)
Hispanic	1.7	2.0	0.9	0.3	0.8

* less than 0.05.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99, Fall 1998.

Table 8a.—Standard errors for percentage distribution of first-time kindergartners by the frequency with which parents say they engage in prosocial behavior, by child and family characteristics: Fall 1998

Characteristic	Join others		Make friends		Comfort others	
	Never/ sometimes	Often/ very often	Never/ sometimes	Often/ very often	Never/ sometimes	Often/ very often
Total	0.4	0.4	0.3	0.3	0.4	0.4
Child's sex						
Male	0.5	0.5	0.5	0.5	0.6	0.6
Female	0.5	0.5	0.4	0.4	0.5	0.5
Child's age at entry						
Born Jan. – Aug. 1992	1.4	1.4	1.2	1.2	1.8	1.8
Born Sep. – Dec. 1992	0.6	0.6	0.5	0.5	0.7	0.7
Born Jan. – Apr. 1993	0.6	0.6	0.5	0.5	0.6	0.6
Born May – Aug. 1993	0.6	0.6	0.6	0.6	0.6	0.6
Born Sep. – Dec. 1993	1.3	1.3	1.0	1.0	1.2	1.2
Mother's education						
Less than high school	0.9	0.9	0.9	0.9	1.1	1.1
High school diploma or equivalent	0.7	0.7	0.5	0.5	0.7	0.7
Some college, including vocational/technical	0.5	0.5	0.4	0.4	0.5	0.5
Bachelor's degree or higher	0.5	0.5	0.5	0.5	0.7	0.7
Family type						
Single mother	0.8	0.8	0.7	0.7	0.8	0.8
Single father	1.8	1.8	1.9	1.9	3.1	3.1
Two parent	0.4	0.4	0.4	0.4	0.4	0.4
Welfare receipt						
Utilized AFDC	1.0	1.0	0.9	0.9	1.0	1.0
Never utilized AFDC	0.4	0.4	0.3	0.3	0.4	0.4
Primary language spoken in home						
Non-English	1.4	1.4	1.3	1.3	1.5	1.5
English	0.4	0.4	0.3	0.3	0.4	0.4
Child's race/ethnicity						
White, non-Hispanic	0.4	0.4	0.3	0.3	0.5	0.5
Black, non-Hispanic	0.9	0.9	1.0	1.0	1.2	1.2
Asian	1.6	1.6	1.5	1.5	1.9	1.9
Hispanic	0.8	0.8	0.8	0.8	1.0	1.0
Hawaiian Native/Pacific Islander	9.0	9.0	6.8	6.8	4.2	4.2
American Indian/Alaska Native	1.4	1.4	1.4	1.4	1.8	1.8
More than one race, non-Hispanic	1.6	1.6	1.8	1.8	1.9	1.9
Child's race/ethnicity by maternal education						
<i>Maternal education:</i>						
<i>High school diploma/equivalent or more</i>						
White, non-Hispanic	0.4	0.4	0.3	0.3	0.4	0.4
Black, non-Hispanic	0.9	0.9	1.1	1.1	1.2	1.2
Asian	1.7	1.7	1.4	1.4	1.7	1.7
Hispanic	0.9	0.9	0.9	0.9	0.9	0.9
<i>Maternal education:</i>						
<i>Less than high school diploma or equivalent</i>						
White, non-Hispanic	1.6	1.6	1.6	1.6	2.1	2.1
Black, non-Hispanic	2.1	2.1	2.7	2.7	2.6	2.6
Asian	3.5	3.5	6.3	6.3	5.6	5.6
Hispanic	1.5	1.5	1.4	1.4	1.9	1.9

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99, Fall 1998.

Table 9a.—Standard errors for percentage distribution of first-time kindergartners by the frequency with which teachers say they engage in prosocial behavior, by child and family characteristics: Fall 1998

Characteristic	Accept peer ideas		Form friendships		Comfort others	
	Never/ sometimes	Often/ very often	Never/ sometimes	Often/ very often	Never/ sometimes	Often/ very often
Total	0.5	0.5	0.5	0.5	0.7	0.7
Child's sex						
Male	0.7	0.7	0.6	0.6	0.8	0.8
Female	0.6	0.6	0.5	0.5	0.8	0.8
Child's age at entry						
Born Jan. – Aug. 1992	1.7	1.7	1.8	1.8	2.2	2.2
Born Sep. – Dec. 1992	0.8	0.8	0.8	0.8	1.1	1.1
Born Jan. – Apr. 1993	0.9	0.9	0.7	0.7	0.9	0.9
Born May – Aug. 1993	0.8	0.8	0.8	0.8	0.9	0.9
Born Sep. – Dec. 1993	1.4	1.4	1.2	1.2	1.6	1.6
Mother's education						
Less than high school	1.1	1.1	1.3	1.3	1.2	1.2
High school diploma or equivalent	0.8	0.8	0.6	0.6	1.1	1.1
Some college, including vocational/technical	0.7	0.7	0.7	0.7	0.9	0.9
Bachelor's degree or higher	0.9	0.9	0.8	0.8	1.1	1.1
Family type						
Single mother	0.9	0.9	1.0	1.0	1.1	1.1
Single father	3.3	3.3	3.7	3.7	3.5	3.5
Two parent	0.6	0.6	0.5	0.5	0.7	0.7
Welfare receipt						
Utilized AFDC	1.3	1.3	1.3	1.3	1.4	1.4
Never utilized AFDC	0.5	0.5	0.5	0.5	0.7	0.7
Primary language spoken in home						
Non-English	1.4	1.4	1.4	1.4	1.6	1.6
English	0.6	0.6	0.5	0.5	0.7	0.7
Child's race/ethnicity						
White, non-Hispanic	0.6	0.6	0.6	0.6	0.9	0.9
Black, non-Hispanic	1.3	1.3	1.3	1.3	1.3	1.3
Asian	1.8	1.8	2.2	2.2	2.6	2.6
Hispanic	1.0	1.0	1.0	1.0	1.0	1.0
Hawaiian Native/Pacific Islander	3.0	3.0	3.7	3.7	3.9	3.9
American Indian/Alaska Native	2.7	2.7	2.1	2.1	2.4	2.4
More than one race, non-Hispanic	2.3	2.3	2.4	2.4	2.5	2.5
Child's race/ethnicity by maternal education						
<i>Maternal education:</i>						
<i>High school diploma/equivalent or more</i>						
White, non-Hispanic	0.7	0.7	0.6	0.6	0.9	0.9
Black, non-Hispanic	1.4	1.4	1.3	1.3	1.3	1.3
Asian	1.9	1.9	2.4	2.4	2.7	2.7
Hispanic	1.1	1.1	1.2	1.2	1.2	1.2
<i>Maternal education:</i>						
<i>Less than high school diploma or equivalent</i>						
White, non-Hispanic	1.9	1.9	2.6	2.6	2.5	2.5
Black, non-Hispanic	2.5	2.5	2.1	2.1	2.6	2.6
Asian	4.1	4.1	5.0	5.0	6.0	6.0
Hispanic	1.7	1.7	1.4	1.4	1.7	1.7

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99, Fall 1998.

Table 10a.—Standard errors for percentage distribution of first-time kindergartners by the frequency with which parents say they exhibit anti-social behavior, by child and family characteristics: Fall 1998

Characteristic	Argue with others		Fight with others		Easily get angry	
	Never/ sometimes	Often/ very often	Never/ sometimes	Often/ very often	Never/ sometimes	Often/ very often
Total	0.5	0.5	0.4	0.4	0.4	0.4
Child's sex						
Male	0.6	0.6	0.5	0.5	0.5	0.5
Female	0.6	0.6	0.4	0.4	0.5	0.5
Child's age at entry						
Born Jan. – Aug. 1992	1.8	1.8	1.3	1.3	1.7	1.7
Born Sep. – Dec. 1992	1.0	1.0	0.8	0.8	0.8	0.8
Born Jan. – Apr. 1993	0.8	0.8	0.6	0.6	0.6	0.6
Born May – Aug. 1993	0.8	0.8	0.6	0.6	0.6	0.6
Born Sep. – Dec. 1993	1.3	1.3	0.8	0.8	1.2	1.2
Mother's education						
Less than high school	1.3	1.3	1.1	1.1	1.1	1.1
High school diploma or equivalent	0.8	0.8	0.7	0.7	0.6	0.6
Some college, including vocational/technical	0.8	0.8	0.5	0.5	0.5	0.5
Bachelor's degree or higher	0.9	0.9	0.6	0.6	0.6	0.6
Family type						
Single mother	0.9	0.9	0.7	0.7	0.9	0.9
Single father	2.8	2.8	2.0	2.0	2.0	2.0
Two parent	0.6	0.6	0.4	0.4	0.3	0.3
Welfare receipt						
Utilized AFDC	1.0	1.0	1.0	1.0	1.3	1.3
Never utilized AFDC	0.5	0.5	0.3	0.3	0.4	0.4
Primary language spoken in home						
Non-English	1.4	1.4	1.0	1.0	1.0	1.0
English	0.5	0.5	0.4	0.4	0.4	0.4
Child's race/ethnicity						
White, non-Hispanic	0.7	0.7	0.4	0.4	0.4	0.4
Black, non-Hispanic	1.1	1.1	0.9	0.9	1.3	1.3
Asian	1.5	1.5	1.2	1.2	1.2	1.2
Hispanic	1.0	1.0	0.7	0.7	1.0	1.0
Hawaiian Native/Pacific Islander	3.0	3.0	3.0	3.0	2.4	2.4
American Indian/Alaska Native	2.3	2.3	1.4	1.4	0.7	0.7
More than one race, non-Hispanic	2.4	2.4	1.9	1.9	2.0	2.0
Child's race/ethnicity by maternal education						
<i>Maternal education:</i>						
<i>High school diploma/equivalent or more</i>						
White, non-Hispanic	0.8	0.8	0.5	0.5	0.4	0.4
Black, non-Hispanic	1.1	1.1	1.0	1.0	1.2	1.2
Asian	1.4	1.4	1.4	1.4	1.3	1.3
Hispanic	1.1	1.1	0.8	0.8	1.1	1.1
<i>Maternal education:</i>						
<i>Less than high school diploma or equivalent</i>						
White, non-Hispanic	2.2	2.2	2.0	2.0	1.4	1.4
Black, non-Hispanic	2.2	2.2	1.9	1.9	2.5	2.5
Asian	5.0	5.0	1.5	1.5	4.7	4.7
Hispanic	1.7	1.7	1.5	1.5	1.5	1.5

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99, Fall 1998.

Table 11a.—Standard errors for percentage distribution of first-time kindergartners by the frequency with which teachers say they exhibit anti-social behavior, by child and family characteristics: Fall 1998

Characteristic	Argue with others		Fight with others		Easily get angry	
	Never/ sometimes	Often/ very often	Never/ sometimes	Often/ very often	Never/ sometimes	Often/ very often
Total	0.4	0.4	0.4	0.4	0.4	0.4
Child's sex						
Male	0.5	0.5	0.5	0.5	0.5	0.5
Female	0.4	0.4	0.5	0.5	0.4	0.4
Child's age at entry						
Born Jan. – Aug. 1992	1.6	1.6	1.1	1.1	1.6	1.6
Born Sep. – Dec. 1992	0.6	0.6	0.5	0.5	0.5	0.5
Born Jan. – Apr. 1993	0.6	0.6	0.5	0.5	0.6	0.6
Born May – Aug. 1993	0.5	0.5	0.6	0.6	0.6	0.6
Born Sep. – Dec. 1993	0.9	0.9	0.9	0.9	1.0	1.0
Mother's education						
Less than high school	0.9	0.9	1.0	1.0	0.9	0.9
High school diploma or equivalent	0.7	0.7	0.6	0.6	0.6	0.6
Some college, including vocational/technical	0.4	0.4	0.4	0.4	0.5	0.5
Bachelor's degree or higher	0.5	0.5	0.5	0.5	0.6	0.6
Family type						
Single mother	0.7	0.7	0.7	0.7	0.6	0.6
Single father	2.2	2.2	2.3	2.3	2.1	2.1
Two parent	0.4	0.4	0.4	0.4	0.4	0.4
Welfare receipt						
Utilized AFDC	0.9	0.9	1.0	1.0	0.8	0.8
Never utilized AFDC	0.4	0.4	0.4	0.4	0.4	0.4
Primary language spoken in home						
Non-English	0.8	0.8	1.0	1.0	1.0	1.0
English	0.4	0.4	0.4	0.4	0.4	0.4
Child's race/ethnicity						
White, non-Hispanic	0.4	0.4	0.4	0.4	0.5	0.5
Black, non-Hispanic	1.0	1.0	0.8	0.8	0.7	0.7
Asian	0.9	0.9	1.1	1.1	1.0	1.0
Hispanic	0.7	0.7	0.9	0.9	0.8	0.8
Hawaiian Native/Pacific Islander	1.8	1.8	1.2	1.2	2.7	2.7
American Indian/Alaska Native	1.7	1.7	1.9	1.9	1.3	1.3
More than one race, non-Hispanic	1.4	1.4	1.5	1.5	1.7	1.7
Child's race/ethnicity by maternal education						
<i>Maternal education:</i>						
<i>High school diploma/equivalent or more</i>						
White, non-Hispanic	0.4	0.4	0.4	0.4	0.5	0.5
Black, non-Hispanic	1.1	1.1	0.9	0.9	0.7	0.7
Asian	1.0	1.0	1.3	1.3	1.1	1.1
Hispanic	0.7	0.7	0.9	0.9	0.9	0.9
<i>Maternal education:</i>						
<i>Less than high school diploma or equivalent</i>						
White, non-Hispanic	1.8	1.8	1.6	1.6	1.9	1.9
Black, non-Hispanic	1.6	1.6	1.9	1.9	2.0	2.0
Asian	1.8	1.8	1.6	1.6	2.1	2.1
Hispanic	1.2	1.2	1.5	1.5	1.2	1.2

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99, Fall 1998.

Table 12a.—Standard errors for percentage of first-time male and female kindergartners at risk for overweight, by child and family characteristics: Fall 1998

Characteristic	Males	Females
Total	0.4	0.4
Mother's education		
Less than high school	1.3	1.0
High school diploma or equivalent	0.7	0.7
Some college, including vocational/technical	0.6	0.7
Bachelor's degree or higher	0.7	0.8
Family type		
Single mother	0.9	0.8
Single father	2.6	3.1
Two parent	0.4	0.4
Welfare receipt		
Utilized AFDC	1.7	1.1
Never utilized AFDC	0.5	0.4
Primary language spoken in home		
Non-English	1.6	1.4
English	0.4	0.4
Child's race/ethnicity		
White, non-Hispanic	0.5	0.5
Black, non-Hispanic	0.9	1.2
Asian	2.0	2.0
Hispanic	1.1	0.9
Hawaiian Native/Pacific Islander	3.6	2.9
American Indian/Alaska Native	2.3	3.7
More than one race, non-Hispanic	1.9	2.7
Child's race/ethnicity by maternal education		
<i>Maternal education:</i>		
<i>High school diploma/equivalent or more</i>		
White, non-Hispanic	0.5	0.5
Black, non-Hispanic	1.0	1.4
Asian	2.3	2.3
Hispanic	1.4	1.2
<i>Maternal education:</i>		
<i>Less than high school diploma or equivalent</i>		
White, non-Hispanic	2.7	2.1
Black, non-Hispanic	2.4	1.7
Asian	4.7	2.9
Hispanic	1.9	1.6

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99, Fall 1998.

Table 13a.—Standard errors for first-time kindergartners' mean fine motor skills score and percentage distribution of scores, by child and family characteristics: Fall 1998

Characteristic	Mean fine motor	Lower	Middle	Higher
Total	(*)	0.6	0.4	0.6
Child's sex				
Male	(*)	0.8	0.6	0.8
Female	(*)	0.6	0.6	0.7
Child's age at entry				
Born Jan. – Aug. 1992	0.1	1.8	2.1	2.0
Born Sep. – Dec. 1992	(*)	0.8	0.8	1.1
Born Jan. – Apr. 1993	(*)	0.8	0.7	0.9
Born May – Aug. 1993	(*)	0.9	0.8	0.8
Born Sep. – Dec. 1993	(*)	1.6	1.3	1.4
Mother's education				
Less than high school	(*)	1.4	1.0	1.0
High school diploma or equivalent	(*)	1.0	0.8	1.0
Some college, including vocational/technical	(*)	0.6	0.8	0.9
Bachelor's degree or higher	(*)	0.8	0.9	1.0
Family type				
Single mother	(*)	1.2	0.8	1.0
Single father	0.1	2.9	2.9	3.1
Two parent	(*)	0.6	0.5	0.7
Welfare receipt				
Utilized AFDC	0.1	1.3	1.4	1.2
Never utilized AFDC	(*)	0.6	0.4	0.6
Primary language spoken in home				
Non-English	(*)	1.6	1.2	1.4
English	0.1	0.7	0.5	0.7
Child's race/ethnicity				
White, non-Hispanic	(*)	0.8	0.6	0.8
Black, non-Hispanic	(*)	1.1	1.0	1.1
Asian	(*)	2.2	2.0	2.3
Hispanic	(*)	1.3	1.0	1.1
Hawaiian Native/Pacific Islander	0.1	3.2	3.2	3.6
American Indian/Alaska Native	0.1	2.5	1.9	2.7
More than one race, non-Hispanic	0.1	2.9	3.2	2.6
Child's race/ethnicity by maternal education				
<i>Maternal education:</i>				
<i>High school diploma/equivalent or more</i>				
White, non-Hispanic	(*)	0.7	0.7	0.9
Black, non-Hispanic	(*)	1.2	1.2	1.1
Asian	(*)	1.8	2.2	2.4
Hispanic	(*)	1.4	1.3	1.5
<i>Maternal education:</i>				
<i>Less than high school diploma or equivalent</i>				
White, non-Hispanic	(*)	2.5	2.1	2.1
Black, non-Hispanic	(*)	2.4	2.6	2.4
Asian	0.1	10.4	8.3	7.6
Hispanic	(*)	2.1	1.7	1.3

* Standard error less than .05.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99, Fall 1998.

Table 14a.—Standard errors for first-time kindergartners' mean gross motor skills score and percentage distribution of scores, by child and family characteristics: Fall 1998

Characteristic	Mean gross motor	Lower	Middle	Higher
Total	0.1	0.6	0.4	0.6
Child's sex				
Male	0.1	0.7	0.6	0.7
Female	0.1	0.6	0.6	0.8
Child's age at entry				
Born Jan. – Aug. 1992	0.1	2.0	2.4	2.2
Born Sep. – Dec. 1992	0.1	0.9	0.7	1.0
Born Jan. – Apr. 1993	0.1	0.7	0.8	0.7
Born May – Aug. 1993	0.1	0.8	0.8	1.0
Born Sep. – Dec. 1993	0.1	1.5	1.3	1.4
Mother's education				
Less than high school	0.1	1.4	1.0	1.2
High school diploma or equivalent	0.1	0.8	0.8	1.0
Some college, including vocational/technical	0.1	0.8	0.7	0.9
Bachelor's degree or higher	0.1	0.9	0.8	0.9
Family type				
Single mother	0.1	1.1	0.9	1.0
Single father	0.1	3.2	2.8	3.4
Two parent	0.1	0.6	0.5	0.7
Welfare receipt				
Utilized AFDC	0.1	1.3	1.2	1.6
Never utilized AFDC	0.1	0.6	0.5	0.6
Primary language spoken in home				
Non-English	0.1	2.0	1.4	1.7
English	0.1	0.6	0.4	0.6
	0.1			
Child's race/ethnicity				
White, non-Hispanic	0.1	0.7	0.5	0.7
Black, non-Hispanic	0.1	1.0	1.2	1.3
Asian	0.1	2.2	2.2	2.0
Hispanic	0.1	1.4	1.1	1.5
Hawaiian Native/Pacific Islander	0.1	5.3	4.2	3.3
American Indian/Alaska Native	0.1	2.5	1.7	2.0
More than one race, non-Hispanic	0.1	2.7	2.8	2.8
Child's race/ethnicity by maternal education				
<i>Maternal education:</i>				
<i>High school diploma/equivalent or more</i>				
White, non-Hispanic	0.1	0.7	0.6	0.7
Black, non-Hispanic	0.1	1.2	1.3	1.6
Asian	0.1	2.1	2.1	2.1
Hispanic	0.1	1.5	1.4	1.6
<i>Maternal education:</i>				
<i>Less than high school diploma or equivalent</i>				
White, non-Hispanic	0.1	3.1	1.8	2.3
Black, non-Hispanic	0.1	2.5	2.3	2.6
Asian	0.1	6.0	9.5	7.1
Hispanic	0.1	1.9	1.4	2.0

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99, Fall 1998.

Table 15a.—Standard errors for percentage distribution of first-time kindergartners by parents' assessment of their general health, by child and family characteristics: Fall 1998

Characteristic	Excellent	Very good	Good	Fair/ poor
Total	0.7	0.5	0.4	0.2
Child's sex				
Male	0.9	0.7	0.5	0.2
Female	0.7	0.6	0.5	0.2
Child's age at entry				
Born Jan. – Aug. 1992	2.0	1.7	1.4	0.8
Born Sep. – Dec. 1992	1.0	0.7	0.7	0.3
Born Jan. – Apr. 1993	0.8	0.7	0.6	0.2
Born May – Aug. 1993	1.1	1.0	0.6	0.3
Born Sep. – Dec. 1993	1.6	1.5	1.2	0.6
Mother's education				
Less than high school	1.2	1.1	1.0	0.7
High school diploma or equivalent	1.0	0.8	0.7	0.3
Some college, including vocational/technical	0.7	0.7	0.5	0.2
Bachelor's degree or higher	1.0	0.9	0.5	0.2
Family type				
Single mother	1.0	0.9	0.6	0.4
Single father	3.2	2.9	2.7	1.0
Two parent	0.7	0.5	0.4	0.2
Welfare receipt				
Utilized AFDC	1.3	1.2	1.0	0.6
Never utilized AFDC	0.7	0.5	0.4	0.1
Primary language spoken in home				
Non-English	1.4	1.2	1.2	0.5
English	0.7	0.5	0.4	0.2
Child's race/ethnicity				
White, non-Hispanic	0.8	0.6	0.4	0.2
Black, non-Hispanic	1.4	1.1	0.9	0.4
Asian	2.1	2.1	1.6	0.8
Hispanic	1.3	1.1	0.9	0.5
Hawaiian Native/Pacific Islander	4.1	5.5	1.8	2.7
American Indian/Alaska Native	2.7	1.8	2.1	0.7
More than one race, non-Hispanic	2.4	2.4	1.5	0.8
Child's race/ethnicity by maternal education				
<i>Maternal education:</i>				
<i>High school diploma/equivalent or more</i>				
White, non-Hispanic	0.7	0.7	0.4	0.1
Black, non-Hispanic	1.5	1.1	0.9	0.4
Asian	2.4	2.3	1.7	0.8
Hispanic	1.5	1.1	1.0	0.4
<i>Maternal education:</i>				
<i>Less than high school diploma or equivalent</i>				
White, non-Hispanic	2.3	1.8	1.4	1.0
Black, non-Hispanic	1.9	2.3	2.4	1.8
Asian	3.7	4.2	3.5	1.4
Hispanic	1.7	1.9	1.7	0.9

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99, Fall 1998.

Table 16a.—Standard errors for percentage of first-time kindergartners whose parents reported developmental difficulty in terms of activity level, attention, coordination and pronunciation of words: Fall 1998

Characteristic	Activity level	Attention	Coordination	Articulation
Total	0.5	0.3	0.2	0.3
Child's sex				
Male	0.3	0.5	0.3	0.4
Female	0.3	0.4	0.3	0.3
Child's age at entry				
Born Jan. – Aug. 1992	1.7	1.6	1.2	1.6
Born Sep. – Dec. 1992	0.8	0.6	0.3	0.6
Born Jan. – Apr. 1993	0.6	0.5	0.2	0.4
Born May – Aug. 1993	0.7	0.5	0.3	0.5
Born Sep. – Dec. 1993	1.3	1.0	0.6	0.8
Mother's education				
Less than high school	1.3	0.9	0.4	0.9
High school diploma or equivalent	0.7	0.7	0.3	0.5
Some college, including vocational/technical	0.6	0.5	0.3	0.5
Bachelor's degree or higher	0.6	0.6	0.4	0.5
Family type				
Single mother	1.2	0.7	0.3	0.5
Single father	2.8	2.2	1.3	2.1
Two parent	0.4	0.4	0.2	0.3
Welfare receipt				
Utilized AFDC	1.6	1.0	0.5	0.8
Never utilized AFDC	0.4	0.3	0.2	0.3
Primary language spoken in home				
Non-English	1.5	0.7	0.4	0.9
English	0.6	0.3	0.2	0.3
Child's race/ethnicity				
White, non-Hispanic	0.5	0.4	0.3	0.4
Black, non-Hispanic	2.0	0.9	0.3	0.8
Asian	1.5	0.6	0.6	1.2
Hispanic	0.9	1.0	0.3	0.6
Hawaiian Native/Pacific Islander	3.1	3.3	1.4	2.3
American Indian/Alaska Native	2.3	2.0	1.1	1.2
More than one race, non-Hispanic	2.4	1.9	0.7	1.8
Child's race/ethnicity by maternal education				
<i>Maternal education:</i>				
<i>High school diploma/equivalent or more</i>				
White, non-Hispanic	0.4	0.5	0.3	0.4
Black, non-Hispanic	1.6	1.0	0.4	0.7
Asian	1.8	1.0	0.7	1.2
Hispanic	0.9	0.9	0.4	0.7
<i>Maternal education:</i>				
<i>Less than high school diploma or equivalent</i>				
White, non-Hispanic	2.0	1.6	0.8	1.4
Black, non-Hispanic	3.3	1.9	1.0	2.0
Asian	3.9	1.8	1.2	3.9
Hispanic	1.7	1.1	0.6	1.1

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99, Fall 1998.

Table 17a.—Standard errors for percentage distribution of first-time kindergartners by the frequency with which parents say they persist at a task, are eager to learn new things and are creative in work or play, by child and family characteristics: Fall 1998

Characteristic	Persist		Eager to learn		Creative	
	Never/ sometimes	Often/ very often	Never/ sometimes	Often/ very often	Never/ sometimes	Often/ very often
Total	0.4	0.4	0.3	0.3	0.5	0.5
Child's sex						
Male	0.6	0.6	0.4	0.4	0.6	0.6
Female	0.5	0.5	0.3	0.3	0.5	0.5
Child's age at entry						
Born Jan. – Aug. 1992	1.9	1.9	1.0	1.0	1.8	1.8
Born Sep. – Dec. 1992	0.8	0.8	0.5	0.5	0.7	0.7
Born Jan. – Apr. 1993	0.6	0.6	0.4	0.4	0.7	0.7
Born May – Aug. 1993	0.6	0.6	0.5	0.5	0.6	0.6
Born Sep. – Dec. 1993	1.2	1.2	0.9	0.9	1.2	1.2
Mother's education						
Less than high school	1.1	1.1	1.0	1.0	1.2	1.2
High school diploma or equivalent	0.7	0.7	0.6	0.6	0.7	0.7
Some college, including vocational/technical	0.8	0.8	0.4	0.4	0.5	0.5
Bachelor's degree or higher	0.7	0.7	0.4	0.4	0.7	0.7
Family type						
Single mother	0.8	0.8	0.7	0.7	1.0	1.0
Single father	2.8	2.8	1.6	1.6	2.5	2.5
Two parent	0.4	0.4	0.3	0.3	0.4	0.4
Welfare receipt						
Utilized AFDC	1.2	1.2	0.8	0.8	1.2	1.2
Never utilized AFDC	0.4	0.4	0.3	0.3	0.4	0.4
Primary language spoken in home						
Non-English	1.3	1.3	1.2	1.2	2.5	2.5
English	0.4	0.4	0.3	0.3	0.9	0.9
Child's race/ethnicity						
White, non-Hispanic	0.5	0.5	0.3	0.3	0.5	0.5
Black, non-Hispanic	1.0	1.0	0.9	0.9	1.2	1.2
Asian	1.5	1.5	1.4	1.4	1.9	1.9
Hispanic	0.9	0.9	0.7	0.7	0.9	0.9
Hawaiian Native/Pacific Islander	5.0	5.0	4.6	4.6	6.6	6.6
American Indian/Alaska Native	1.6	1.6	1.4	1.4	1.7	1.7
More than one race, non-Hispanic	2.9	2.9	1.3	1.3	1.8	1.8
Child's race/ethnicity by maternal education						
<i>Maternal education:</i>						
<i>High school diploma/equivalent or more</i>						
White, non-Hispanic	0.5	0.5	0.3	0.3	0.5	0.5
Black, non-Hispanic	0.9	0.9	0.7	0.7	1.0	1.0
Asian	1.7	1.7	1.0	1.0	1.8	1.8
Hispanic	1.1	1.1	0.6	0.6	1.0	1.0
<i>Maternal education:</i>						
<i>Less than high school diploma or equivalent</i>						
White, non-Hispanic	1.8	1.8	1.2	1.2	1.6	1.6
Black, non-Hispanic	3.0	3.0	2.4	2.4	2.9	2.9
Asian	4.8	4.8	4.6	4.6	5.9	5.9
Hispanic	1.6	1.6	1.4	1.4	1.7	1.7

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99, Fall 1998.

Table 18a.—Standard errors for percentage distribution of first-time kindergartners by the frequency with which teachers say they persist at a task, are eager to learn new things and pay attention well, by child and family characteristics: Fall 1998

Characteristic	Persist		Eager to learn		Attention	
	Never/sometimes	Often/very often	Never/sometimes	Often/very often	Never/sometimes	Often/very often
Total	0.6	0.6	0.5	0.5	0.6	0.6
Child's sex						
Male	0.8	0.8	0.7	0.7	0.8	0.8
Female	0.7	0.7	0.6	0.6	0.6	0.6
Child's age at entry						
Born Jan. – Aug. 1992	1.6	1.6	1.6	1.6	1.9	1.9
Born Sep. – Dec. 1992	0.8	0.8	0.7	0.7	0.8	0.8
Born Jan. – Apr. 1993	0.9	0.9	0.8	0.8	0.8	0.8
Born May – Aug. 1993	0.8	0.8	0.8	0.8	0.9	0.9
Born Sep. – Dec. 1993	1.6	1.6	1.5	1.5	1.5	1.5
Mother's education						
Less than high school	1.4	1.4	1.1	1.1	1.1	1.1
High school diploma or equivalent	1.0	1.0	1.0	1.0	1.0	1.0
Some college, including vocational/technical	0.7	0.7	0.6	0.6	0.8	0.8
Bachelor's degree or higher	0.9	0.9	0.7	0.7	0.9	0.9
Family type						
Single mother	1.1	1.1	1.0	1.0	1.1	1.1
Single father	2.8	2.8	2.8	2.8	3.1	3.1
Two parent	0.6	0.6	0.5	0.5	0.6	0.6
Welfare receipt						
Utilized AFDC	1.3	1.3	1.3	1.3	1.4	1.4
Never utilized AFDC	0.6	0.6	0.6	0.6	0.6	0.6
Primary language spoken in home						
Non-English	1.5	1.5	1.3	1.3	1.3	1.3
English	0.6	0.6	0.6	0.6	0.6	0.6
Child's race/ethnicity						
White, non-Hispanic	0.7	0.7	0.7	0.7	0.7	0.7
Black, non-Hispanic	1.4	1.4	1.3	1.3	1.4	1.4
Asian	1.9	1.9	1.9	1.9	2.3	2.3
Hispanic	1.2	1.2	1.0	1.0	0.9	0.9
Hawaiian Native/Pacific Islander	3.4	3.4	3.3	3.3	2.8	2.8
American Indian/Alaska Native	2.2	2.2	2.1	2.1	2.9	2.9
More than one race, non-Hispanic	2.6	2.6	2.4	2.4	2.3	2.3
Child's race/ethnicity by maternal education						
<i>Maternal education:</i>						
<i>High school diploma/equivalent or more</i>						
White, non-Hispanic	0.7	0.7	0.7	0.7	0.7	0.7
Black, non-Hispanic	1.5	1.5	1.3	1.3	1.5	1.5
Asian	1.8	1.8	1.9	1.9	2.4	2.4
Hispanic	1.3	1.3	1.2	1.2	1.1	1.1
<i>Maternal education:</i>						
<i>Less than high school diploma or equivalent</i>						
White, non-Hispanic	2.8	2.8	2.2	2.2	2.0	2.0
Black, non-Hispanic	2.8	2.8	2.5	2.5	2.1	2.1
Asian	3.7	3.7	3.9	3.9	5.9	5.9
Hispanic	2.0	2.0	1.5	1.5	1.5	1.5

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99, Fall 1998.

Table 19a.—Standard errors for percentage distribution of first-time kindergartners by numbers of books and children’s records, audiotapes or CDs in the home, by child and family characteristics: Fall 1998

Characteristic	Number of children’s books in child’s home				Number of children’s records, audio tapes, or CDs				
	Less than 26	26-50	51-100	101 +	None	1-5	6-10	11-20	21 +
Total	1.0	0.5	0.6	0.6	0.5	0.5	0.4	0.4	0.5
Child’s sex									
Male	1.1	0.6	0.6	0.7	0.6	0.6	0.5	0.5	0.6
Female	1.0	0.6	0.8	0.7	0.5	0.6	0.5	0.5	0.6
Child’s age at entry									
Born Jan. – Aug. 1992	1.8	1.2	1.1	1.2	1.2	0.8	1.6	1.7	1.0
Born Sep. – Dec. 1992	1.3	0.9	0.9	1.0	0.8	0.9	0.9	0.8	1.0
Born Jan. – Apr. 1993	1.1	0.7	1.0	0.8	0.7	0.6	0.6	0.6	0.7
Born May – Aug. 1993	1.2	0.7	0.8	0.8	0.7	0.7	0.7	0.7	0.6
Born Sep. – Dec. 1993	1.7	1.2	1.5	1.0	1.0	1.2	1.2	1.2	1.1
Mother’s education									
Less than high school	1.7	1.2	0.8	0.5	1.2	1.2	0.9	0.8	0.6
High school diploma or equivalent	1.4	0.9	0.9	0.5	0.7	0.8	0.6	0.6	0.6
Some college, including vocational/technical	0.9	0.7	0.8	0.8	0.5	0.7	0.6	0.6	0.7
Bachelor’s degree or higher	0.6	1.0	0.9	1.0	0.3	0.7	0.7	0.7	0.8
Family type									
Single mother	1.8	1.1	1.0	0.7	1.1	0.7	0.7	0.8	0.9
Single father	3.1	2.8	2.9	2.0	2.4	2.8	2.4	2.5	2.3
Two parent	0.8	0.5	0.6	0.6	0.4	0.6	0.4	0.4	0.5
Welfare receipt									
Utilized AFDC	1.6	1.0	0.9	0.6	1.1	0.8	0.9	0.7	0.7
Never utilized AFDC	0.5	0.7	0.6	0.8	0.2	0.5	0.5	0.4	0.6
Primary language spoken in home									
Non-English	1.6	1.4	0.8	0.5	1.7	1.6	1.1	1.1	0.8
English	1.0	0.5	0.6	0.7	0.5	0.5	0.4	0.4	0.5
Child’s race/ethnicity									
White, non-Hispanic	0.4	0.6	0.6	0.8	0.3	0.5	0.5	0.5	0.6
Black, non-Hispanic	1.8	1.2	1.0	0.4	1.4	1.0	0.9	0.7	1.0
Asian	2.7	1.6	1.9	1.2	1.8	1.8	1.7	1.6	1.8
Hispanic	1.5	0.9	0.8	0.5	1.1	1.1	0.7	0.7	0.7
Hawaiian Native/Pacific Islander	3.1	3.8	2.3	3.1	2.7	3.9	3.0	3.9	2.6
American Indian/Alaska Native	7.8	2.4	3.0	3.3	4.6	3.0	1.3	2.7	3.9
More than one race, non-Hispanic	2.4	3.0	2.4	1.7	1.4	2.2	2.2	2.0	2.2
Child’s race/ethnicity by maternal education									
<i>Maternal education:</i>									
<i>High school diploma/equivalent or more</i>									
White, non-Hispanic	0.4	0.6	0.6	0.8	0.2	0.5	0.5	0.5	0.6
Black, non-Hispanic	1.8	1.3	1.1	0.5	1.2	1.2	1.1	0.8	1.0
Asian	2.7	1.7	2.1	1.5	1.2	1.9	1.6	1.8	2.2
Hispanic	1.6	1.3	1.0	0.8	0.9	1.4	1.0	0.8	1.0
<i>Less than high school diploma or equivalent</i>									
White, non-Hispanic	2.2	1.9	1.7	1.3	2.2	2.1	1.9	1.6	1.4
Black, non-Hispanic	2.5	2.3	1.2	0.6	2.5	2.4	2.0	1.4	1.4
Asian	7.3	4.1	5.5	0.1	7.0	4.8	5.5	2.1	2.1
Hispanic	1.9	1.5	0.9	0.3	1.9	1.8	1.1	0.8	0.6

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99, Fall 1998.

Table 20a.—Standard errors for percentage distribution of first-time kindergartners by the number of times each week family members read books and tell stories to them, by child and family characteristics: Fall 1998

Characteristic	Reading				Tell stories			
	Not at all	1–2	3–6	Every day	Not at all	1–2	3–6	Every day
Total	0.1	0.6	0.5	0.6	0.3	0.5	0.5	0.4
Child's sex								
Male	0.2	0.8	0.6	0.8	0.4	0.6	0.7	0.5
Female	0.1	0.6	0.6	0.7	0.3	0.8	0.6	0.6
Child's age at entry								
Born Jan. – Aug. 1992	0.5	0.2	0.1	0.2	1.0	0.6	0.5	0.4
Born Sep. – Dec. 1992	0.2	1.0	1.0	1.0	0.6	1.1	0.9	0.9
Born Jan. – Apr. 1993	0.1	0.8	0.7	0.9	0.5	0.8	0.8	0.7
Born May – Aug. 1993	0.2	0.9	0.8	0.8	0.4	0.8	0.7	0.7
Born Sep. – Dec. 1993	0.3	0.3	1.1	1.7	0.7	1.5	1.3	1.2
Mother's education								
Less than high school	0.5	1.1	1.1	1.1	0.6	1.3	1.2	0.9
High school diploma or equivalent	0.2	0.9	0.8	0.7	0.5	0.9	0.8	0.8
Some college, including vocational/technical	0.1	0.7	0.8	0.8	0.4	0.8	0.7	0.8
Bachelor's degree or higher	0.1	0.6	0.9	1.0	0.5	0.8	0.9	0.8
Family type								
Single mother	0.3	1.0	0.8	1.1	0.5	1.0	0.9	1.0
Single father	1.1	2.4	2.6	2.7	2.6	3.1	2.9	2.7
Two parent	0.1	0.6	0.6	0.6	0.3	0.6	0.5	0.5
Welfare receipt								
Utilized AFDC	0.5	1.6	1.2	1.4	0.8	1.4	1.2	1.0
Never utilized AFDC	0.1	0.6	0.5	0.7	0.3	0.6	0.5	0.5
Primary language spoken in home								
Non-English	0.5	1.3	1.4	1.5	0.9	1.5	1.2	1.4
English	0.1	0.7	0.5	0.7	0.3	0.6	0.5	0.5
Child's race/ethnicity								
White, non-Hispanic	0.1	0.5	0.5	0.7	0.4	0.7	0.6	0.5
Black, non-Hispanic	0.4	1.2	1.3	1.2	0.7	1.4	1.1	1.2
Asian	0.3	1.9	1.8	2.4	1.0	2.1	1.9	1.8
Hispanic	0.3	1.0	0.9	0.9	0.6	1.1	1.0	0.8
Hawaiian Native/Pacific Islander	0.1	2.5	3.0	2.9	0.9	3.8	3.6	2.5
American Indian/Alaska Native	0.6	3.0	2.7	2.1	1.0	2.3	1.5	2.3
More than one race, non-Hispanic	0.1	1.8	2.9	2.7	1.4	2.8	2.9	2.3
Child's race/ethnicity by maternal education								
<i>Maternal education:</i>								
<i>High school diploma/equivalent or more</i>								
White, non-Hispanic	0.1	0.4	0.6	0.8	0.3	0.7	0.6	0.6
Black, non-Hispanic	0.3	1.4	1.3	1.3	0.7	1.6	1.2	1.3
Asian	0.2	2.1	1.9	2.7	0.9	2.5	2.0	2.0
Hispanic	0.3	1.1	1.1	1.0	0.7	1.4	1.2	1.0
<i>Maternal education:</i>								
<i>Less than high school diploma or equivalent</i>								
White, non-Hispanic	0.6	2.4	2.2	2.0	1.1	2.7	2.6	1.5
Black, non-Hispanic	1.5	2.3	2.1	2.2	1.7	2.5	2.2	1.8
Asian	1.5	6.0	4.6	5.4	4.2	4.2	6.6	4.6
Hispanic	0.7	1.8	1.4	1.8	0.9	1.7	1.6	1.4

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99, Fall 1998.

Table 21a.—Standard errors for percentage distribution of first-time kindergartners by the number of times each week family members sing songs and do arts and crafts with them, by child and family characteristics: Fall 1998

Characteristic	Sing songs				Arts and crafts			
	Not at all	1–2	3–6	Every day	Not at all	1–2	3–6	Every day
Total	0.3	0.4	0.5	0.6	0.3	0.4	0.5	0.4
Child's sex								
Male	0.4	0.5	0.6	0.6	0.4	0.6	0.6	0.5
Female	0.3	0.5	0.6	0.8	0.4	0.5	0.5	0.5
Child's age at entry								
Born Jan. – Aug. 1992	1.1	2.1	2.0	1.8	0.9	2.2	1.7	1.3
Born Sep. – Dec. 1992	0.4	0.7	0.8	0.9	0.5	0.8	0.8	0.7
Born Jan. – Apr. 1993	0.4	0.5	0.7	0.9	0.4	0.8	0.7	0.6
Born May – Aug. 1993	0.4	0.7	0.8	0.9	0.4	0.7	0.8	0.6
Born Sep. – Dec. 1993	0.6	1.1	1.3	1.5	0.8	1.4	1.5	1.0
Mother's education								
Less than high school	0.9	1.2	1.0	1.4	0.9	1.2	1.0	1.0
High school diploma or equivalent	0.4	0.7	0.7	1.0	0.5	0.8	0.8	0.6
Some college, including vocational/technical	0.3	0.7	0.7	0.8	0.4	0.8	0.8	0.5
Bachelor's degree or higher	0.3	0.7	0.9	1.0	0.4	0.9	0.8	0.8
Family type								
Single mother	0.4	0.7	0.8	1.0	0.6	0.9	0.8	0.8
Single father	1.9	3.0	2.5	2.8	1.7	3.5	2.5	2.3
Two parent	0.3	0.5	0.5	0.7	0.3	0.5	0.5	0.4
Welfare receipt								
Utilized AFDC	1.0	0.9	1.0	1.5	0.9	1.2	1.0	1.1
Never utilized AFDC	0.3	0.4	0.5	0.6	0.3	0.4	0.5	0.4
Primary language spoken in home								
Non-English	1.0	1.5	1.2	1.9	1.0	1.4	1.2	1.1
English	0.3	0.4	0.5	0.6	0.3	0.4	0.5	0.4
Child's race/ethnicity								
White, non-Hispanic	0.3	0.5	0.6	0.7	0.3	0.6	0.6	0.5
Black, non-Hispanic	0.5	1.0	1.1	1.2	0.7	1.2	1.4	0.8
Asian	1.7	1.8	1.6	2.0	1.1	1.2	2.0	1.6
Hispanic	0.7	1.0	0.9	1.1	0.7	0.9	0.8	0.8
Hawaiian Native/Pacific Islander	1.6	2.2	4.0	3.4	1.9	3.9	2.7	2.9
American Indian/Alaska Native	1.9	2.0	1.5	3.6	1.0	1.6	2.2	1.4
More than one race, non-Hispanic	1.1	2.1	2.1	2.7	1.2	2.4	2.3	2.3
Child's race/ethnicity by maternal education								
<i>Maternal education:</i>								
<i>High school diploma/equivalent or more</i>								
White, non-Hispanic	0.2	0.5	0.6	0.7	0.2	0.6	0.6	0.5
Black, non-Hispanic	0.5	1.0	1.2	1.1	0.9	1.3	1.6	0.9
Asian	1.2	2.0	1.9	2.0	1.2	2.1	2.2	1.8
Hispanic	0.6	1.2	1.0	1.4	0.8	1.2	1.1	0.9
<i>Maternal education:</i>								
<i>Less than high school diploma or equivalent</i>								
White, non-Hispanic	1.2	2.1	1.7	2.4	1.2	2.0	2.0	1.8
Black, non-Hispanic	1.6	2.8	2.1	3.5	1.7	2.5	2.0	2.2
Asian	7.2	4.2	3.6	4.9	3.1	5.0	2.8	5.6
Hispanic	1.4	1.6	1.4	1.7	1.5	2.0	1.2	1.4

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99, Fall 1998.

Table 22a.—Standard errors for percentage distribution of first-time kindergartners by the number of times each week family members play sports or exercise and play games with them, by child and family characteristics: Fall 1998

Characteristic	Play sports or exercise				Games			
	Not at all	1–2	3–6	Every day	Not at all	1–2	3–6	Every day
Total	0.3	0.4	0.5	0.5	0.2	0.4	0.5	0.5
Child's sex								
Male	0.4	0.6	0.6	0.5	0.3	0.6	0.7	0.6
Female	0.4	0.6	0.7	0.6	0.3	0.6	0.6	0.6
Child's age at entry								
Born Jan. – Aug. 1992	1.0	1.9	1.9	2.0	0.8	2.0	2.0	1.9
Born Sep. – Dec. 1992	0.6	1.0	1.0	1.3	0.7	1.1	1.0	1.0
Born Jan. – Apr. 1993	0.4	0.7	0.8	0.6	0.4	0.7	0.7	0.6
Born May – Aug. 1993	0.5	0.7	0.8	0.7	0.3	0.6	0.8	0.8
Born Sep. – Dec. 1993	0.9	1.5	1.4	1.2	0.7	1.4	1.5	1.2
Mother's education								
Less than high school	0.8	1.0	1.0	1.3	0.7	1.1	1.0	1.0
High school diploma or equivalent	0.5	0.7	0.7	0.7	0.4	0.9	0.9	0.8
Some college, including vocational/technical	0.4	0.8	1.0	0.6	0.2	0.8	0.8	0.7
Bachelor's degree or higher	0.5	0.8	0.8	0.6	0.2	0.7	0.8	0.7
Family type								
Single mother	0.7	0.9	0.9	0.9	0.5	0.9	1.0	0.9
Single father	1.6	2.9	2.8	3.3	1.4	2.8	2.6	3.0
Two parent	0.4	0.5	0.5	0.4	0.2	0.5	0.6	0.5
Welfare receipt								
Utilized AFDC	0.9	1.1	1.3	1.3	0.7	1.1	0.9	1.2
Never utilized AFDC	0.3	0.5	0.5	0.5	0.2	0.5	0.6	0.5
Primary language spoken in home								
Non-English	1.1	1.4	1.2	1.1	0.9	0.5	0.2	0.5
English	0.3	0.5	0.5	0.5	0.2	0.4	0.5	0.5
Child's race/ethnicity								
White, non-Hispanic	0.3	0.6	0.5	0.5	0.2	0.5	0.5	0.5
Black, non-Hispanic	0.8	0.9	1.5	1.5	1.5	1.2	1.3	1.2
Asian	1.3	2.0	2.0	1.5	0.9	2.1	2.3	1.8
Hispanic	0.8	0.9	0.9	1.0	0.6	1.2	1.0	1.0
Hawaiian Native/Pacific Islander	1.7	4.4	3.0	6.2	0.7	5.3	2.9	5.4
American Indian/Alaska Native	4.5	1.8	2.2	3.5	1.8	1.7	1.7	2.4
More than one race, non-Hispanic	1.0	3.1	2.7	2.2	1.2	2.4	2.4	2.2
Child's race/ethnicity by maternal education								
<i>Maternal education:</i>								
<i>High school diploma/equivalent or more</i>								
White, non-Hispanic	0.3	0.7	0.6	0.5	0.2	0.5	0.5	0.5
Black, non-Hispanic	0.9	1.1	1.6	1.6	0.5	1.4	1.6	1.3
Asian	1.2	2.2	1.9	1.9	0.9	2.2	2.2	1.8
Hispanic	0.8	1.2	1.1	1.2	0.7	1.3	1.4	1.0
<i>Maternal education:</i>								
<i>Less than high school diploma or equivalent</i>								
White, non-Hispanic	1.2	1.7	1.5	2.1	1.2	2.2	2.6	2.1
Black, non-Hispanic	1.6	2.6	2.3	2.6	1.3	2.4	2.4	2.0
Asian	3.5	5.4	5.2	3.1	3.0	5.4	6.1	6.2
Hispanic	1.5	1.5	1.6	1.6	1.1	1.8	1.4	1.6

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99, Fall 1998.

Table 23a.—Standard errors for percentage distribution of first-time kindergartners by participation in nonparental care arrangements the year prior to starting kindergarten, by type of arrangement and child and family characteristics: Fall 1998

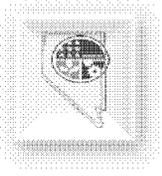
Characteristic	Total	Nonparental care arrangement			No non-parental care
		Relative care	Nonrelative care	Center-based care	
Total	0.5	0.6	0.5	0.8	0.5
Child's sex					
Male	0.6	0.7	0.7	0.8	0.6
Female	0.6	0.8	0.5	0.9	0.6
Child's age at entry					
Born Jan. – Aug. 1992	1.7	1.2	1.1	1.3	1.7
Born Sep. – Dec. 1992	0.9	1.0	0.9	1.1	0.9
Born Jan. – Apr. 1993	0.7	0.9	0.7	1.0	0.7
Born May – Aug. 1993	0.6	0.8	0.6	0.9	0.6
Born Sep. – Dec. 1993	1.6	1.3	1.2	1.9	1.6
Mother's education					
Less than high school	1.2	1.3	0.5	1.2	1.2
High school diploma or equivalent	0.9	0.9	0.7	1.2	0.9
Some college, including vocational/technical	0.7	0.9	0.7	1.0	0.7
Bachelor's degree or higher	0.6	0.7	1.0	0.7	0.6
Family type					
Single mother	0.9	1.2	0.9	1.2	0.9
Single father	2.4	3.0	2.3	3.0	2.4
Two parent	0.6	0.5	0.6	0.9	0.6
Welfare receipt					
Utilized AFDC	1.3	1.1	0.6	1.1	1.3
Never utilized AFDC	0.5	0.6	0.8	0.9	0.5
Primary language spoken in home					
Non-English	1.7	1.3	0.8	1.9	1.7
English	0.5	1.7	0.6	0.8	0.5
Child's race/ethnicity					
White, non-Hispanic	0.6	0.6	0.7	0.9	0.6
Black, non-Hispanic	1.1	1.6	0.9	1.6	1.1
Asian	1.6	2.1	1.0	2.2	1.6
Hispanic	1.1	0.9	0.8	1.3	1.1
Hawaiian Native/Pacific Islander	6.6	3.8	1.7	5.9	6.6
American Indian/Alaska Native	1.1	2.4	1.9	1.9	1.1
More than one race, non-Hispanic	1.6	2.4	2.3	2.4	1.6
Child's race/ethnicity by maternal education					
<i>Maternal education:</i>					
<i>High school diploma/equivalent or more</i>					
White, non-Hispanic	0.5	0.6	0.7	0.8	0.5
Black, non-Hispanic	1.0	1.7	1.1	1.4	1.0
Asian	1.8	2.1	1.2	2.5	1.8
Hispanic	1.2	1.4	1.0	1.4	1.2
<i>Maternal education:</i>					
<i>Less than high school diploma or equivalent</i>					
White, non-Hispanic	2.4	2.0	1.1	1.9	2.4
Black, non-Hispanic	3.2	2.6	1.1	3.7	3.2
Asian	3.9	6.0	1.5	6.8	3.9
Hispanic	1.8	1.5	0.9	1.8	1.8

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99, Fall 1998.

Table 24a.—Standard errors for percentage distribution of first-time kindergartners by participation during kindergarten in before and after care, by type of arrangement and child and family characteristics: Fall 1998

Characteristic	Total	Nonparental care arrangement			No nonparental care
		Relative care	Nonrelative care	Center-based care	
Total	0.6	0.6	0.5	0.7	0.6
Child's sex					
Male	0.8	0.6	0.6	0.9	0.8
Female	0.8	0.7	0.5	0.7	0.8
Child's age at entry					
Born Jan. – Aug. 1992	2.0	1.5	1.3	1.5	2.0
Born Sep. – Dec. 1992	1.0	1.0	0.7	1.0	1.0
Born Jan. – Apr. 1993	0.9	0.8	0.6	0.8	0.9
Born May – Aug. 1993	0.9	0.8	0.5	0.9	0.9
Born Sep. – Dec. 1993	1.6	1.4	1.2	1.5	1.6
Mother's education					
Less than high school	1.4	1.3	0.9	0.8	1.4
High school diploma or equivalent	0.9	0.8	0.6	0.8	0.9
Some college, including vocational/technical	0.9	0.9	0.7	0.9	0.9
Bachelor's degree or higher	1.2	0.7	0.9	1.2	1.2
Family type					
Single mother	1.2	1.3	0.9	1.3	1.2
Single father	2.7	3.2	2.4	2.8	2.7
Two parent	0.7	0.5	0.5	0.7	0.7
Welfare receipt					
Utilized AFDC	1.4	1.0	0.7	1.0	1.4
Never utilized AFDC	0.7	0.8	0.7	0.9	0.7
Primary language spoken in home					
Non-English	1.5	1.3	0.9	1.0	1.5
English	0.7	0.7	0.5	0.8	0.7
Child's race/ethnicity					
White, non-Hispanic	0.8	0.5	0.6	0.8	0.8
Black, non-Hispanic	1.5	1.6	0.9	2.0	1.5
Asian	2.0	1.9	1.0	1.8	2.0
Hispanic	1.0	0.9	0.8	1.0	1.0
Hawaiian Native/Pacific Islander	3.1	4.4	1.9	3.2	3.1
American Indian/Alaska Native	2.0	3.1	2.1	2.9	2.0
More than one race, non-Hispanic	2.9	2.6	1.9	2.0	2.9
Child's race/ethnicity by maternal education					
<i>Maternal education:</i>					
<i>High school diploma/equivalent or more</i>					
White, non-Hispanic	0.9	0.6	0.7	0.9	0.9
Black, non-Hispanic	1.6	1.6	1.0	2.2	1.6
Asian	2.1	2.0	1.1	2.1	2.1
Hispanic	1.4	1.2	1.0	1.3	1.4
<i>Maternal education:</i>					
<i>Less than high school diploma or equivalent</i>					
White, non-Hispanic	2.3	1.7	1.2	1.2	2.3
Black, non-Hispanic	2.7	2.7	1.1	2.3	2.7
Asian	6.1	6.4	1.1	1.5	6.1
Hispanic	1.7	1.6	0.9	0.8	1.7

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99, Fall 1998.



Nevada Participating School District Memorandum of Understanding

This Memorandum of Understanding (“MOU”) is entered into by and between the Nevada Department of Education (“State”) and _____ (“Participating School District”). The purpose of this agreement is to establish a framework of collaboration, as well as articulate specific roles and responsibilities in support of the State in its implementation of an approved Race to the Top grant project.

I. SCOPE OF WORK

Exhibit I, the Preliminary Scope of Work, indicates which portions of the State’s proposed reform plans (“State Plan”) the Participating School District is agreeing to implement. (Note that, in order to participate, the School District must agree to implement all or significant portions of the State Plan.)

II. PROJECT ADMINISTRATION

A. PARTICIPATING SCHOOL DISTRICT RESPONSIBILITIES

In assisting the State in implementing the tasks and activities described in the State’s Race to the Top application, the Participating School District subgrantee will:

- 1) Implement the School District plan as identified in Exhibits I and II of this agreement;
- 2) Actively participate in all relevant convenings, communities of practice, or other practice-sharing events that are organized or sponsored by the State or by the U.S. Department of Education (“ED”);
- 3) Post to any website specified by the State or ED, in a timely manner, all non-proprietary products and lessons learned developed using funds associated with the Race to the Top grant;
- 4) Participate, as requested, in any evaluations of this grant conducted by the State or ED;
- 5) Be responsive to State or ED requests for information including on the status of the project, project implementation, outcomes, and any problems anticipated or encountered;
- 6) Participate in meetings and telephone conferences with the State to discuss (a) progress of the project, (b) potential dissemination of resulting non-proprietary products and lessons learned, (c) plans for subsequent years of the Race to the Top grant period, and (d) other matters related to the Race to the Top grant and associated plans.

B. STATE RESPONSIBILITIES

In assisting Participating School Districts in implementing their tasks and activities described in the State’s Race to the Top application, the State grantee will:

- 1) Work collaboratively with, and support the Participating School District in carrying out the School District Plan as identified in Exhibits I and II of this agreement;
- 2) Timely distribute the School District’s portion of Race to the Top grant funds during the course of the project period and in accordance with the School District Plan identified in Exhibit II;
- 3) Provide feedback on the School District’s status updates, annual reports, any interim reports, and project plans and products; and
- 4) Identify sources of technical assistance for the project.

C. JOINT RESPONSIBILITIES

- 1) The State and the Participating School District will each appoint a key contact person for the Race to the Top grant.
- 2) These key contacts from the State and the Participating School District will maintain frequent communication to facilitate cooperation under this MOU.
- 3) State and Participating School District grant personnel will work together to determine appropriate timelines for project updates and status reports throughout the whole grant period.
- 4) State and Participating School District grant personnel will negotiate in good faith to continue to achieve the overall goals of the State’s Race to the Top grant, even when the State Plan requires modifications that affect the Participating School District, or when the School District Plan requires modifications.

D. STATE RECOURSE FOR School District NON-PERFORMANCE

If the State determines that the School District is not meeting its goals, timelines, budget, or annual targets or is not fulfilling other applicable requirements, the State grantee will take appropriate enforcement action, which could include a collaborative process between the State and the School District, or any of the enforcement measures that are detailed in 34 CFR section 80.43 including putting the School District on reimbursement payment status, temporarily withholding funds, or disallowing costs.

III. ASSURANCES

The Participating School District hereby certifies and represents that it:

- 1) Has all requisite power and authority to execute this MOU;
- 2) Is familiar with the State’s Race to the Top grant application and is supportive of and committed to working on all or significant portions of the State Plan;
- 3) Agrees to be a Participating School District and will implement those portions of the State Plan indicated in Exhibit I, if the State application is funded;
- 4) Will provide a Final Scope of Work to be attached to this MOU as Exhibit II only if the State’s application is funded; will do so in a timely fashion but no later than 90 days after a grant is awarded; and will describe in Exhibit II the School District’s specific goals, activities, timelines, budgets, key personnel, and annual targets for key performance measures (“School District Plan”) in a manner that is consistent with the Preliminary Scope of Work (Exhibit I) and with the State Plan; and
- 5) Will comply with all of the terms of the Grant, the State’s subgrant, and all applicable Federal and State laws and regulations, including laws and regulations applicable to the Program, and the applicable provisions of EDGAR (34 CFR Parts 75, 77, 79, 80, 82, 84, 85, 86, 97, 98 and 99).

IV. MODIFICATIONS

This Memorandum of Understanding may be amended only by written agreement signed by each of the parties involved, and in consultation with ED.

V. DURATION/TERMINATION

This Memorandum of Understanding shall be effective, beginning with the date of the last signature hereon and, if a grant is received, ending upon the expiration of the grant project period, or upon mutual agreement of the parties, whichever occurs first.

VI. SIGNATURES

School District Superintendent:

Signature/Date

Print Name/Title

President of School District Board of Trustees:

Signature/Date

Print Name/Title

Local Teachers' Association Leader:

Signature/Date

Print Name/Title

Superintendent of Public Instruction:

By its signature below, the State hereby accepts the School District as a Participating School District.

Signature/Date

Print Name/Title

EXHIBIT I – PRELIMINARY SCOPE OF WORK

School District hereby agrees to participate in implementing the State Plan in each of the areas identified below.

Elements of State Reform Plans	School District Participation (Y/N)	Comments from School District (optional)
B. Standards and Assessments		
(B)(3) Supporting the transition to enhanced standards and high-quality assessments		
C. Data Systems to Support Instruction		
(C)(3) Using data to improve instruction:		
(i) Use of local instructional improvement systems		
(ii) Professional development on use of data		
(iii) Availability and accessibility of data to researchers		
D. Great Teachers and Leaders		
(D)(2) Improving teacher and principal effectiveness based on performance:		
(i) Measure student growth		
(ii) Design and implement evaluation systems		
(iii) Conduct annual evaluations		
(iv)(a) Use evaluations to inform professional development		
(iv)(b) Use evaluations to inform compensation, promotion, and retention		
(iv)(c) Use evaluations to inform tenure and/or full certification		
(iv)(d) Use evaluations to inform removal		
(D)(3) Ensuring equitable distribution of effective teachers and principals:		
(i) High-poverty and/or high-minority schools		
(ii) Hard-to-staff subjects and specialty areas		
(D)(5) Providing effective support to teachers and principals:		
(i) Quality professional development		
(ii) Measure effectiveness of professional development		
E. Turning Around the Lowest-Achieving Schools		
(E)(2) Turning around the lowest-achieving schools		

For the Participating School District

For the State

School District Superintendent/Date

Superintendent of Public Instruction/Date

Print Name/Title

Print Name/Title

EXHIBIT II – FINAL SCOPE OF WORK

**(To be completed no later than
90 days after State receives funding
for Race To The Top)**

PRELIMINARY SCOPE OF WORK

LEA hereby agrees to participate in implementing Nevada's Promise in each of the areas identified below.

Elements of State Reform Plans	LEA Participation (Y/N)	Comments from LEA (optional)
B. Standards and Assessments		
<i>(B)(3) Supporting the transition to enhanced standards and high-quality assessments</i>		
C. Data Systems to Support Instruction		
<i>(C)(3) Using data to improve instruction:</i>		
(i) Use of local instructional improvement systems		
(ii) Professional development on use of data		
(iii) Availability and accessibility of data to researchers		
D. Great Teachers and Leaders		
<i>(D)(2) Improving teacher and principal effectiveness based on performance:</i>		
(i) Measure student growth		
(ii) Design and implement evaluation systems		
(iii) Conduct annual evaluations		
(iv)(a) Use evaluations to inform professional development		
(iv)(b) Use evaluations to inform compensation, promotion, and retention		
(iv)(c) Use evaluations to inform tenure and/or full certification		
(iv)(d) Use evaluations to inform removal		
<i>(D)(3) Ensuring equitable distribution of effective teachers and principals:</i>		
(i) High-poverty and/or high-minority schools		
(ii) Hard-to-staff subjects and specialty areas		
<i>(D)(5) Providing effective support to teachers and principals:</i>		
(i) Quality professional development		
(ii) Measure effectiveness of professional development		
E. Turning Around the Lowest-Achieving Schools		
<i>(E)(2) Turning around the lowest-achieving schools</i>		

For the Participating LEA

For the State

Authorized LEA Signature/Date

Authorized State Signature/Date

Print Name/Title

Print Name/Title

Appendix A(2)(ii)-1 – Letters of Support – Education

Stakeholder	Category
Charter School Association of Nevada*	Education
Clark County Association of School Administrators and Professional-Technical Employees*	Education
Clark County School District Empowerment School Program*	Education
College of Southern Nevada	Education
Desert Research Institute	Education
Gathering Genius (G ² , Inc.)*	Education
Great Basin College	Education
Nevada Association of School Administrators*	Education
Nevada Association of School Boards*	Education
Nevada Board of Regents	Education
Nevada NASA Space Grant Consortium	Education
Nevada Parent Teacher Association*	Education
Nevada State College	Education
Nevada State Education Association*	Education
Nevada System of Higher Education*	Education
Sierra Nevada College	Education
Regional Professional Development Program*	Education
Teach For America*	Education
Truckee Meadows Community College	Education
University of Nevada Las Vegas Alumni Association	Education
University of Nevada, Las Vegas	Education
University of Nevada, Reno	Education
Western Nevada College	Education

* Selected letters attached. All other letters available upon request.

CLARK COUNTY ASSOCIATION
OF SCHOOL ADMINISTRATORS AND
PROFESSIONAL-TECHNICAL EMPLOYEES

4055 SOUTH SPENCER ST., SUITE 230
LAS VEGAS, NV 89119
(702) 796-9602
FAX (702) 796-9624

May 12, 2010

The Honorable Arne Duncan, Secretary
United States Department of Education
400 Maryland Avenue S.W.
Washington, D.C. 20202

Dear Secretary Duncan:

As a life long resident and career educator in Las Vegas, Nevada, I am passionate about the quality of education in my home state. Like many states, Nevada needs to improve student achievement, decrease the drop-out rates, and become more competent in providing quality education for its students. I applaud President Obama's initiative to provide grants to incentivize states to fundamentally change the "status quo" to improve student achievement. Thus, I fully support Nevada's application in the federal *Race to the Top* competition for education innovation.

Nevada can no longer do what we've always done to improve education. Concerned citizens, educators, and legislators are working collaboratively to present fresh and innovative ideas to prepare our students to become academically competent nationally as well as globally. The solutions in our state's *Race to the Top* application will unite all Nevadans toward this goal of higher student achievement. Our children are our future and failure is not an option.

As you are aware, the implementation of innovating educational strategies depends on dynamic leadership coupled with adequate funding; therefore, your serious consideration of Nevada's application in the *Race to the Top* competition is respectfully requested.

Sincerely,



Stephen Augspurger, Executive Director
Clark County Association of School Administrators
and Professional-technical Employees

DUNCAN R. LEE

May 10, 2010

The Honorable Arne Duncan
Secretary of Education
United States Department of Education
400 Maryland Avenue, SW
Washington, D.C. 20202-3100

RE: Nevada Dept of Education Race to the Top Grant

Dear Mr. Secretary:

I write this letter to convey my support of the Nevada Department of Education application for the Race to the Top Grant. The Clark County School District Empowerment School program is an innovative school reform model that will ensure our state to be competitive in improving student achievement.

Our adoption of the C.T. Sewell Empowerment School has improved learning and student performance through community involvement and partnerships. At Sewell Elementary, all stakeholders have a voice in the decision-making process. For the last several years, I have served as a partner with the school by forming public and private partnerships needed to reposition community resources into the school. I have assisted the school in maintaining accountability by tracking indicators such as attendance rates, budget proposals and expenditures, and improved academic performance. With our initial partnership as a catalyst, Sewell Elementary has secured many other relationships with organizations such as Spread the Word Nevada, 21st Century Community Learning Center Grant, After-School All-Stars Programs, and Schoolyard Habitat associated with Nevada Fish and Wildlife. These organizations have contributed over \$250,000 in support services and site-based initiatives.

As an Empowerment School Partner by providing over \$150,000 in funding, I have embraced the collaborative relationship with students, staff, families, and their community. With this decentralization and accountability model, the staff has control of the school's budget and allocates these funds to address students' deficiencies. I am proud of the school's results per the Clark County District Survey: Sewell Elementary reduced the percent of non-proficient students in grade 3 by 14.68% and grade 5 by 34.2% compared to the baseline average of the last three years; a reduction of 22.84% of non-proficient students on the fifth grade Nevada Writing Proficiency Exam compared to the baseline average of the last three years; math results on the Nevada CRT indicated a significant reduction of non-proficient students for grades three and five (grade 3: 11.26%; grade 5: 32.51%) compared to the baseline average of the last three years; a 95.79% attendance rate, which exceeded the CCSD average in 2008-09; and a 100%

participation in Student-Parent-Teacher Conferences. In addition, 97% of parents and 96% of students agreed that students are learning not only the basics of reading, writing, and math but also a variety of other subjects. This empowerment school has met all areas of AYP goals. With the school success, school principal, Carrie Larson-Buck, was recognized on a national level with the 2008 Nevada Milken Educator Award.

I support the work of the dedicated faculty members at C. F. Sewell Empowerment School, and the Clark County empowerment school model. It is my sincere hope that Nevada is awarded the Race to the Top grant to continue the expansion of the empowerment school model throughout Nevada.

Respectfully,

(b)(6)

Duncan R. Lee



May 13, 2010

The Honorable Arne Duncan, Secretary
U.S. Department of Education
400 Maryland Avenue, S.W.
Washington, D.C. 20202

Dear Secretary Duncan:

Gathering Genius, Inc. (G² Inc.) is a 501 (c)(3) nonprofit whose mission is to improve STEM education in Nevada. Our board and advisory committee are comprised of leaders from education, business and government statewide, and we enthusiastically support our state's efforts in the Race to the Top grant application.

G² Inc. raised \$1.1 million to bring the Intel International Science and Engineering Fair to Reno in May of 2009. G² Inc. hosted and managed the fair in partnership with Intel, the Society for Science and the Public, and the City of Reno. The fair was said to have been one of the best managed international science fairs in many years. Due to successful fundraising and strong fiscal controls, the nonprofit ended the fair with an \$80,000 balance, half of which we have used this year to continue training and supporting teachers who mentor students to become more competitive in science fairs. We have a large database of supporters and donors.

On April 26, 2010, G² Inc. held a meeting for leaders statewide who are interested in collaborating to improve STEM education. This meeting resulted in the creation of seven committees and a plan to hold a statewide STEM summit in the fall. The board of G² Inc. is committed to providing financial and organizational support for a STEM Summit and the creation of a Nevada STEM Coalition. Our goal is to gather leaders from government, business, and education in order to 1) research and make recommendations for substantive improvements in Nevada's P-16 STEM curriculum and teacher preparation; 2) establish collaborations to share effective programs; 3) use our state's education resources more efficiently; and 4) contribute to increasing our communities' commitment to improving STEM education and career training.

Nevada has established the vision, collaboration, and momentum to effect significant education innovation and reform and we urge your support in this critical venture.

(b)(6)

Dr. Stephen G. Wells, President



May 17, 2010

The Honorable Arne Duncan
 Secretary
 U.S. Department of Education
 400 Maryland Avenue S.W.
 Washington, D.C. 20202

Dear Secretary Duncan:

I am writing to express my support for Nevada's application in the federal Race to the Top competition for education innovation.

Our educational system has become an urgent priority to all Nevadans, and we are wholly committed to building a legacy of promise, potential and prosperity for our state's most valuable asset—our children. Our state's long-term success will be determined largely by our educational system's capacity to prepare students for success in today's world.

The Race to the Top competition presents Nevada with an opportunity to accomplish meaningful education reform on a grand scale. Race to the Top funds will provide the impetus needed to take public education to a level that ensures our state will be globally competitive.

Education will singularly drive our future, and I applaud the innovative solutions of our state's Race to the Top application in confronting the challenges that face our children. This application urges all Nevadans to unite in an effort to accelerate and drive growth in our student achievement.

Please accept this letter as evidence of my strong support for Nevada's application in the Race to the Top competition.

(b)(6)

Sincerely,



Ralph Cadwallader, Executive Director

NEVADA ASSOCIATION OF SCHOOL ADMINISTRATORS

P.O. Box 371071

Las Vegas, NV 89137

Phone 702-233-6623

Fax 702-233-5794



Nevada Association of School Boards

Post Office Box 14855
Reno, NV 89507-4855
Telephone 775/657-8412 or 775/443-5988
Fax 775/453-1017 or 775/324-5579
Visit our website www.nvasb.org

Supporting Success for All Students through Local School Board Leadership

April 20, 2010

The Honorable Arne Duncan
Secretary of Education
United States Department of Education
400 Maryland Avenue, SW
Washington, D.C. 20202

Dear Sir:

We are writing to communicate the Nevada Association of School Boards' support for Nevada's Race to the Top application. We endorse educational reform activities that focus upon:

1. Adopting "common core" standards and assessments that prepare students to succeed in college and in the workplace;
2. Accelerating our data systems to measure student growth and to more effectively inform teachers about how they can improve classroom instruction;
3. Developing and retaining effective teachers, principals, and other educational personnel; and
4. Turning around schools that serve our lowest performing students.

We believe that it is imperative that Nevada present its best efforts in order to take advantage of the opportunities that Race to the Top funding can bring to our State.

The Association continues to re-affirm its vision of "supporting success for all students through local school board leadership" and recognizes the contribution that Race to the Top funding could make in moving forward opportunities for children in Nevada's schools.

Sincerely,

(b)(6)

Jim Lemaire, President
Carson City School District

(b)(6)

Christine Miller, President Elect
Storey County School District



May 10, 2010

The Honorable Arne Duncan
Secretary
U.S. Department of Education
400 Maryland Avenue S.W.
Washington, D.C. 20202

Dear Secretary Duncan:

I am writing to express the strong support of the Nevada Parent Teacher Association (Nevada PTA) for Nevada's application for the federal Race to the Top funds. We agree completely with the educational reform investments targeting:

1. Adoption of Common Core standards and assessments that prepare students to succeed in college and the workplace,
2. Acceleration of our data systems to measure student growth and information teachers how they can improve instruction, especially in real time and not so long after the fact,
3. Developing and retaining effective teachers and principals, and
4. Turning around our lowest achieving schools.

It is vitally important that we present the best possible grant application in order to take best advantage of the opportunities Race to the Top funds can give to Nevada, especially at the critical juncture. In addition to Nevada's already strong partnership with local school districts, this application urges Nevadans to unite in an effort to accelerate and drive growth in our student achievement.

Nevada PTA is committed to supporting Nevada's efforts to provide this opportunity for all of our children to reach their potential. Nevada PTA's vision statement says it all:

Making every child's potential a reality.

We know Nevada can win this race. Looking forward to working with you –

(b)(6)

Alison J. Turner
President

May 18, 2010

The Honorable Arne Duncan
Secretary
U.S. Department of Education
400 Maryland Avenue S.W.
Washington, DC 20202

Dear Secretary Duncan:

I am writing to express my support of Nevada's application for the federal Race to the Top funds. I agree with the educational reform investments targeting:

- adopting Common Core standards and assessments that prepare students to succeed in college and the workplace;
- accelerating our data systems to measure student growth and inform teachers about how they can improve instruction;
- developing and retaining effective teachers and principals; and
- turning around our lowest achieving schools.

It is imperative that we present our best effort in order to take advantage of the opportunities Race to the Top funds can give our state. This can only be done productively within the framework of current state statute and collective bargaining agreements. Nothing in the Memoranda of Understanding signed by NSEA's local affiliates shall be construed to alter or otherwise affect the rights, remedies, and procedures afforded school or school district employees under federal, state, or local laws (including applicable regulations or court orders) or under the terms of collective bargaining agreements, memoranda of understanding, or other agreements between school districts and their employees. Through the collaborative and cooperative efforts of all education partners, Nevadans can unite in an effort to accelerate and drive growth in our student achievement.

I am committed to supporting the state's efforts to provide the opportunity for all of our children to reach their potential—we know Nevada can win this race.

Sincerely,

(b)(6)

Lynn Warne
NSEA President

LW/lhv

Cc: Dr. Keith Rheault, Superintendent
Nevada Department of Education

Nevada System of Higher Education

System Administration
5550 West Flamingo Road, Suite C-1
Las Vegas, NV 89103-0137
Phone: 702-871-0200
Fax: 702-889-8492



System Administration
2601 Enterprise Road
Reno, NV 89512-1666
Phone: 775-784-4901
Fax: 775-784-1127

May 19, 2010

The Honorable Arne Duncan
Secretary
U.S. Department of Education
400 Maryland Avenue S.W.
Washington, D.C. 20202

Dear Secretary Duncan:

We are writing to express our support for Nevada's application in the federal Race to the Top competition for education innovation.

As you can see from Nevada's application, a broad cross-section of Nevadans have assigned the highest and most urgent priority to improving our educational system. Together, we are committed to building a system of which we can be proud and which will fulfill the promise that every generation makes to its children, that is, to leave things better than we received them.

The current economic downturn in Nevada has focused us as never before on the critical role of education to our future economic welfare. If we are to flourish and grow as a state, we must improve our educational outcomes and reform our schools. Our application exemplifies our commitment to do both.

There is no question that the challenge is great. However, we believe that we are up to the challenge. Our application is a call to all Nevadans to unite in this effort, and our success to this point in marshalling that support gives me great hope that is how we will fare in this effort.

Please accept this letter as evidence of our complete support for Nevada's application in the Race to the Top competition.

Sincerely,


James Dean Leavitt, Chairman
Board of Regents


Daniel J. Klaich,
Chancellor



The Honorable Arne Duncan
Secretary
U.S. Department of Education
400 Maryland Avenue S.W.
Washington, D.C. 20202

Re: Letter of Support

The Honorable Arne Duncan:

This letter is in support of Nevada's *Race to the Top* grant application. As Director of the Southern Nevada Regional Professional Development Program for the past twelve years, I am excited that this proposal affords us an opportunity to provide Nevada students with unprecedented opportunities to succeed.

Nevada has unique circumstances, and its students are in dire need of the collaboration of community and education leaders to rally together and bring a single voice to the vision and mission of education in Nevada. Every student will benefit from the goals and outcomes outlined in the *Race to the Top* grant; moreover, Nevada will benefit from the increased efforts in improving education for all students.

It has been my pleasure to witness the growth of this endeavor that will put education of the students in Nevada at the forefront. Collaborative efforts will show what can happen when all stakeholders get together and have a single focus. I look forward to sustaining the shared vision for the students of Nevada.

Regards,

(b)(6)

Bill Hanlon
Director SNRPDP



**PROFESSIONAL
DEVELOPMENT
PROGRAM**

Douglas
Lyon
Storey
Washoe

Eric J. Feeney, Director

May 19, 2010

The Honorable Arne Duncan
Secretary
U.S. Department of Education
400 Maryland Avenue S.W.
Washington, D.C. 20202

Re: Letter of Support

The Honorable Arne Duncan:

This letter is in support of Nevada's *Race to the Top* grant application. As Director of the Northwest Nevada Regional Professional Development Program (NWRPDP), I am excited that this proposal affords us an opportunity to provide Nevada students with unprecedented opportunities to succeed. Our efforts will create a statewide system to reflect a new era of accountability and a shift from a focus on compliance to a focus on collaboration, learning, and innovation. This system will exist to enable students, parents, teachers, principals, district leaders, higher education, and others, as appropriate, to access and commit to using data to improve student achievement.

NWRPDP provides professional development support to approximately 4,500 teachers and administrators serving over 88,000 students in five school districts. Nevada has unique circumstances, and its students are in dire need of the collaboration of community and education leaders to rally together and bring a single voice to the vision and mission of education in Nevada. Every student will benefit from the goals and outcomes outlined in the *Race to the Top* grant; moreover, Nevada will benefit from the increased efforts in improving education for all students.

As the Director of NWRPDP, it has been my pleasure to be actively involved in designing this plan and to witness the growth of this endeavor that will put education of the students in Nevada at the forefront. Strong leadership and collaborative efforts will show what can happen when all stakeholders come together and have a focused mission. I look forward to sustaining the shared vision for the students of Nevada.

Regards,

(b)(6)

Eric J. Feeney
Director, NWRPDP

Northwest Regional Professional Development Program
380 Edison Way, Reno, NV 89502 Phone: 775-861-4410 Fax: 775-861-4485

incan:

neastern Nevada Regional Professional Development
e to voice support for the State of Nevada's Race
will give Nevada students educational opportunity.
Through teacher collaborations and professional
on, Nevada students will benefit from increased
ement. We know that it is the teacher in the classroom
Nevada Race to the Top application directly a

y specific provider of professional development
0 square miles in our service area. We will work
Education to carry out the professional development
lication. Given the current economic conditions
at comes with those conditions, it is essential to
enefits that are in the application.

o be a part of the development of the RTTT ap
e state will greatly benefit from the award of th

One day, all children in this nation will have the opportunity to attain an excellent education.

TEACHFORAMERICA

Letter of Commitment

This letter of commitment dated May 15, 2010, is intended to set forth a commitment between Teach For America and the Nevada Department of Education regarding the hiring of Teach For America corps members in Nevada during the academic years 2010-2011, 2011-2012, 2012-2013, 2013-2014, 2014-2015 and 2015-2016.

Teach For America is a national leader in recruiting, selecting, training and providing ongoing professional development to individuals committed to closing the achievement gap by serving as effective classroom teachers specifically equipped to enhance student achievement in under-resourced school systems. In Nevada, Teach For America has Professional Services Agreements with the Clark County School District and Acelero Learning Clark County to hire corps members.

Accordingly, and contingent upon the availability of sufficient funding, recruitment, and organizational capacity to enable Teach For America to expand its operations to Nevada and provide the described services, Teach For America intends to place in Nevada:

50 incoming corps members for the academic year 2010-11
100 incoming corps members for the academic year 2011-12
100 incoming corps members for the academic year 2012-13
150 incoming corps members for the academic year 2013-14
150 incoming corps members for the academic year 2014-15
150 incoming corps members for the academic year 2015-16

Should there be an opportunity for Teach For America to place teachers in high poverty districts across the state, outside of the Clark County School District and Acelero Learning Clark County, we commit to partnering with the Nevada Department of Education to help facilitate the interview and hiring process.

(b)(6)

Allison Serafin
Executive Director
Teach For America, Las Vegas Valley



AN AMERICORPS PROGRAM

nma Nevada Manufacturers Association

**963 Topsy Lane, #306-182
Carson City, NV 89705
775-882-6662 fax 775-267-4747**

May 19, 2010

To: Arne Duncan
US Secretary of Education
Washington, DC

Dear Secretary Duncan:

A little over two months ago, I was appointed to the Governor Blue Ribbon Task Force to review the Nevada application for the Race to the Top Education funding. The potential for Nevada is about \$175 Million which can be spent to improve our K-12 system over four years.

You know our K-12 performance is poor. By most measures we are LAST among the states and Washington, DC is gaining on us each year. Our state has not placed a high value on education for at least a couple decades and probably longer. This economic recession has resulted in stories that in the places which are hiring, employers are requiring a high school diploma to even consider an applicant. Those employers are setting the standard higher because they can and they need employees with good basic skills who can grow as the job changes. A high school diploma is not great evidence of the needed knowledge and skills, but it reduces the size of the applicant pool down to something manageable and increases the likelihood of having the skills. We have some unemployed people in Nevada who are "trapped" here because of our very high dropout rate for years. For many hiring employers a GED means little and is not acceptable.

This year there are about 436,000 reasons to fix Nevada school performance. They are called STUDENTS. Perhaps more important, about half of our kids will not graduate from High School on our current path. The roughly 200,000 children we will sentence to a life of limitations because our education quality and execution is NOT ACCEPTABLE and should not be tolerated any longer by anyone in Nevada. Even worse, most of the 200,000 consume taxpayer funding for 11 or 12 years before failing to cross the finish line. We are spending over 90% of the money on each of those in that 50% who don't get to the finish line. This is a clear way to define our failure. Your money is NOT being efficiently spent. The Taxpayer ROI on moving that number is significant.

If we are successful getting the federal money to change the K-12 system and not just spend more on a clearly broken system, then we might start getting really value from our schools. Some of us in the private sector are committed to watch over what our education sector does because what we currently have is not acceptable.

We believe the final application will contain commitments in the following areas:

Students will learn to read before advancing to 4th grade

(K-3 is about learning to read, the rest of life is reading to learn)

Many High School courses will have statewide end of course tests

Teachers will have effectiveness measures base partially on student achievement

Principals will have effectiveness measures based on school academic performance

Ineffective teachers will NOT assigned to low performing schools

Employers, parents and taxpayers will be able to compare school performance

A high school diploma should have consistent and valuable meaning

The ROI on improving our graduation rates is big and comparatively inexpensive.

There are many other benefits which should come to employers and our society from improving our performance. Employers and business groups of all types should support the Nevada application for the Race to the Top application.

We know Nevada is in the ditch, so turning the Nevada K-12 system performance will take a few years to truly see results. After decades of observation, we see the will and drive to make systemic changes which take Nevada off the bottom of the performance list. We all tended to say our local school is OK, but the system has problems. Every school can and must improve. The local school for your kids or your employee's kids can and must improve. In over 20 years of watching K-12 quality issues, we have never seen as much energy focused on real systemic K-12 change and focus on Student Academic Achievement. Many if not most employers are frustrated. If schools are going to change they will need business help, pressure, and questions until the performance numbers move off the bottom to an acceptable level. Remember, we are LAST in academic performance; dramatic improvement in our academic performance will help end this recession in Nevada. Thank you for considering the Nevada application.

Regards,

Ray Bacon

Ray Bacon
Exec Director

May 12, 2010

The Honorable Arne Duncan
Secretary
U.S. Department of Education
400 Maryland Avenue S.W.
Washington, D.C. 20202

Dear Secretary Duncan:

The Las Vegas Chamber of Commerce extends its support for Nevada's application in the federal Race to the Top competition for education innovation.

Our educational system has become an urgent priority to all Nevadans, and we are wholly committed to building a legacy of promise, potential and prosperity for our state's most valuable asset—our children. Our state's long-term success will be determined largely by our educational system's capacity to prepare students for success in today's world.

The Race to the Top competition presents Nevada with an opportunity to accomplish meaningful education reform on a grand scale. Race to the Top funds will provide the impetus needed to take public education to a level that ensures our state will be globally competitive.

Education will singularly drive our future, and I applaud the innovative solutions of our state's Race to the Top application in confronting the challenges that face our children. This application urges all Nevadans to unite in an effort to accelerate and drive growth in our student achievement.

Please accept this letter as evidence of the Chamber's support for Nevada's application in the Race to the Top competition.

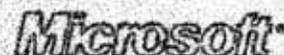
Sincerely,

(b)(6)

Matthew T. Crosson
President and CEO

6671 Las Vegas Blvd. South
Suite 300
Las Vegas, NV 89119
T 702.641.5822
F 702.735.0406

www.lvchamber.com



May 18, 2010

The Honorable Arne Duncan
Secretary
U.S. Department of Education
400 Maryland Avenue S.W.
Washington, D.C. 20202

Dear Secretary Duncan:

I am writing to express my support for Nevada's application in the federal Race to the Top competition for education innovation.

Our educational system has become an urgent priority to all Nevadans, and we are wholly committed to building a legacy of promise, potential and prosperity for our state's most valuable asset—our children. Our state's long-term success will be determined largely by our educational system's capacity to prepare students for success in today's world.

The Race to the Top competition presents Nevada with an opportunity to accomplish meaningful education reform on a grand scale. Race to the Top funds will provide the impetus needed to take public education to a level that ensures our state will be globally competitive.

Education will singularly drive our future, and I applaud the innovative solutions of our state's Race to the Top application in confronting the challenges that face our children. This application urges all Nevadans to unite in an effort to accelerate and drive growth in our student achievement.

Please accept this letter as evidence of my strong support for Nevada's application in the Race to the Top competition.

Sincerely,

(b)(6)

Mary Ellen Smith
President, Microsoft Licensing, GP



NEVADA
DEVELOPMENT
AUTHORITY

May 5, 2010

The Honorable Arne Duncan
Secretary of Education
U.S. Department of Education
400 Maryland Avenue S.W.
Washington, D.C. 20202

Dear Secretary Duncan:

I am writing to express my support for Nevada's application in the federal Race to the Top competition for education innovation.

Our educational system has become an urgent priority to all Nevadans, and we are wholly committed to building a legacy of promise, potential and prosperity for our state's most valuable asset—our children. Our state's long-term success will be determined largely by our educational system's capacity to prepare students for success in today's world.

The Race to the Top competition presents Nevada with an opportunity to accomplish meaningful education reform on a grand scale. Race to the Top funds will provide the impetus needed to take public education to a level that ensures our state will be globally competitive.

Education will singularly drive our future, and I applaud the innovative solutions of our state's Race to the Top application in confronting the challenges that face our children. This application urges all Nevadans to unite in an effort to accelerate and drive growth in our student achievement.

Please accept this letter as evidence of my support for Nevada's application in the Race to the Top competition.

Warmest regards,

(b)(6)

Somer Hollingsworth
President & CEO

ASH:kp



704 West Nye Lane, Suite 201
Carson City NV 89703
(775) 883-4413 / Fax (775) 883-0494
nnda@nnda.org / www.nnda.org

May 10, 2010

The Honorable Arne Duncan, Secretary
U.S. Department of Education
400 Maryland Avenue S.W.
Washington, D.C. 20202

Dear Secretary Duncan:

This letter is in support of Nevada's application in the federal *Race to the Top* competition for education innovation funding.

Nevada's educational system has become an urgent priority to all Nevadans and particularly those of us in the Sierra Region. Northern Nevada Development Authority (NNDAA) has initiated a Workforce and Education Action Advisory Committee which is wholly committed to building a legacy of promise, potential and prosperity for our state's most valuable asset—its children. Nevada's long-term success will be determined largely by its educational system's capacity to prepare students for success in not only today's world, but more importantly in tomorrow's world.

The *Race to the Top* competition presents Nevada an opportunity to accomplish meaningful education reform on a grand scale. *Race to the Top* funds will provide the much needed impetus to take public education to the next level to ensure Nevada's students will be globally competitive.

We applaud the innovative solutions of our state's *Race to the Top* application in confronting the challenges facing the next generation of children. We urge all Nevadans to unite in an effort to accelerate and drive growth in student achievement.

We send this letter to serve as evidence of NNDAA's and the Sierra Region's strong support for Nevada's application in the *Race to the Top* competition. Please contact us should further information or support be required.

Sincerely,

(b)(6)

Robert C. Hooper
NNDAA Executive Director

Lee Bonner
NNDAA Workforce & Education Action
Advisory Committee Chair

cc: Governor Jim Gibbons



MICHAEL W. YACKIRA PRESIDENT & CHIEF EXECUTIVE OFFICER myackira@nvenergy.com T 702.402.5610 F 702.402.5004

May 11, 2010

The Honorable Arne Duncan
Secretary
U.S. Department of Education
400 Maryland Avenue S.W.
Washington, D.C. 20202

Dear Secretary Duncan:

I am writing to express NV Energy's support for Nevada's application in the federal Race to the Top competition for education innovation.

Our educational system has become an urgent priority to all Nevadans, and we are wholly committed to building a legacy of promise, potential and prosperity for our state's most valuable asset—our children. Our state's long-term success will be determined largely by our educational system's capacity to prepare students for success in today's world.

The Race to the Top competition presents Nevada with an opportunity to accomplish meaningful education reform on a grand scale. Race to the Top funds will provide the impetus needed to take public education to a level that ensures our state will be globally competitive.

Education will singularly drive our future, and I applaud the innovative solutions of our state's Race to the Top application in confronting the challenges that face our children. This application urges all Nevadans to unite in an effort to accelerate and drive growth in our student achievement.

Please accept this letter as evidence of NV Energy's strong support for Nevada's application in the Race to the Top competition.

Sincerely,

(b)(6)

May 11, 2010

The Honorable Arne Duncan
Secretary
U.S. Department of Education
400 Maryland Avenue S.W.
Washington, D.C. 20202

Dear Secretary Duncan:

The Reno Sparks Chamber of Commerce, northern Nevada's largest business organization, is writing to express our support for Nevada's application in the federal Race to the Top competition for education innovation.

Our educational system has become an urgent priority to all Nevadans, and we are wholly committed to building a legacy of promise, potential and prosperity for our state's most valuable asset—our children. Our state's long-term success and economic vitality will be determined largely by our educational system's capacity to prepare students for success in today's world.

The Race to the Top competition presents Nevada with an opportunity to accomplish meaningful education reform on a grand scale. Race to the Top funds will provide the impetus needed to take public education to a level that ensures our state will be globally competitive.

Education will singularly drive our future, and I applaud the innovative solutions of our state's Race to the Top application in confronting the challenges that face our children. This application urges all Nevadans to unite in an effort to accelerate and drive growth in our student achievement.

Please accept this letter as evidence of my strong support for Nevada's application in the Race to the Top competition.

Sincerely,

(b)(6)

Douglas R. Kurkul
CEO





.May 21, 2010

The Honorable Arne Duncan
Secretary
U.S. Department of Education
400 Maryland Avenue S.W.
Washington, D.C. 20202

STEPHEN A. WYNN
chairman and chief executive officer

Dear Secretary Duncan:

I am writing to express my support for Nevada's application in the federal Race to the Top competition for education innovation.

Our educational system has become an urgent priority to all Nevadans, and we are wholly committed to building a legacy of promise, potential and prosperity for our state's most valuable asset—our children. Our state's long-term success will be determined largely by our educational system's capacity to prepare students for success in today's world.

The Race to the Top competition presents Nevada with an opportunity to accomplish meaningful education reform on a grand scale. Race to the Top funds will provide the impetus needed to take public education to a level that ensures our state will be globally competitive.

Education will map the course of our future, and I applaud the innovative solutions of our state's Race to the Top application in confronting the challenges that face our children. This application urges all Nevadans to unite in an effort to accelerate and drive growth in our student achievement.

Please accept this letter as evidence of my strong support for Nevada's application in the Race to the Top competition.

Sincerely,

(b)(6)

Stephen A. Wynn

April 19, 2010

Honorable Arne Duncan
USDOE
400 Maryland Ave SW
Washington, DC 20202

Dear Mr. Duncan,

I am writing to express my support of Nevada's application for the federal Race to the Top funds. I agree with the educational reform investments targeting:

- 1) Adopting Common Core standards and assessments that prepare student to succeed in college and the workplace;
- 2) Accelerating our data systems to measure student growth and inform teachers about how they can improve instruction;
- 3) Developing and retaining effective teachers and principals; and
- 4) Turning around our lowest achieving schools.

It is imperative that we present our best effort in order to take advantage of the opportunities Race to the Top funds can give to our State. In addition to our State's already strong partnership with local school districts, this application urges Nevadans to unite in an effort to accelerate and drive growth in our student achievement.

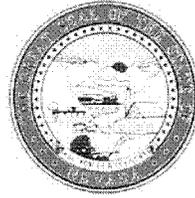
The Andre Agassi Foundation for Education is committed to supporting the State's efforts to provide the opportunity for all of our children to reach their potential; we know Nevada can win this race.

Sincerely,

(b)(6)

Steve Miller
CEO

SM:en



Office of the Governor

May 6, 2010

The Honorable Arne Duncan, Secretary of Education
U.S. Department of Education
400 Maryland Avenue S.W.
Washington, D.C. 20202

Dear Secretary Duncan:

It is with great pride that I endorse Nevada's Phase II application for the Race to the Top grant program.

Nevada's application in this program was not hastily conceived. Rather, as a state we thoughtfully sat back through Phase I and watched while we contemplated the future of education in Nevada.

Our booming economy over the past 25 years led to plentiful jobs earning decent wages with little to no education necessary. As a result, our high school dropout and graduation rates have been abysmal.

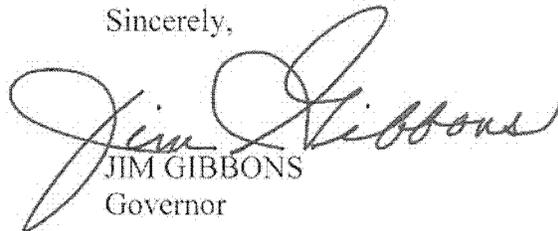
Nevada has been one of the hardest hit states during this recession. We have the highest home foreclosure rate in the nation and the second highest unemployment rate. We no longer have plentiful jobs, and we find ourselves at a crossroads. The Nevada of the future will need to revamp our P-20 education system. We need to work to make all high school students ready for success in life, regardless of whether that direction will take them through secondary level career and technical education, post-secondary level training, community college, college prep or workforce ready. We are partnering education and government and industry and economic development together to see how we can develop an in-state workforce base of trained, educated and skilled workers for the industries we have and for those we want to host.

The Honorable Arne Duncan, Secretary of Education
May 6, 2010
Page 2 of 2

After much thought, I issued an Executive Order forming the Governor's Blue Ribbon Education Reform Task Force to guide and oversee Nevada's Race to the Top application and to facilitate public and private discussion and consensus for overall reform of public education for Nevada's children. Experts and stakeholders in K-12 and higher education, government, technology, and business are working together as a team to plan our future education system not only to educate our children, but to provide the background and skills necessary for the current and future job markets in Nevada.

From day one, this Task Force has literally crackled with energy and drive. The plan the Task Force has put together is truly reform, and I believe it is a blueprint for Nevada's future. The ripples of reform created by the Task Force are being felt all around the state, and receipt of a Race to the Top Phase II award would certainly provide the forward momentum we need to fully implement vital education reform in Nevada. I strongly encourage your consideration of Nevada as an award recipient in Phase II of Race to the Top. Education is the intellectual infrastructure of Nevada's future.

Sincerely,



JIM GIBBONS
Governor

SW/dl

BARBARA E. BUCKLEY

District No. 8

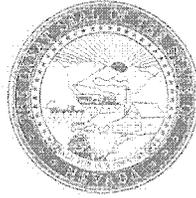
SPEAKER OF THE ASSEMBLY

COMMITTEES:

Member

Commerce and Labor

Ways and Means



State of Nevada
Assembly
Seventy-Fifth Session

DISTRICT OFFICE:

15442 Holbrook Drive
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Fax No.: (775) 684-8522
www.leg.state.nv.us

May 6, 2010

Arne Duncan
U.S. Secretary of Education
U.S. Department of Education
400 Maryland Avenue, SW
Washington, D.C. 20202

Dear Secretary Duncan:

I write to you in support of Nevada's application for federal *Race to the Top* funds. Nevada's plan for Race to the Top monies will speed the adoption of the Common Core standards and aligned assessments to help our students ultimately succeed in college and the workplace. Receipt of funds will also accelerate the use of data systems to measure student growth and create a more streamlined way to inform teachers about improving instruction. In addition, it will improve the training and retention of effective teachers and principals and provide supports necessary for turning around the State's lowest performing schools.

I agree that Race to the Top represents Nevada's best chance to engage in the fundamental reforms that are needed to develop the State's education workforce and fuel future education innovations—to invest in State and local systems that will accelerate and drive growth in student achievement.

I strongly support the efforts of the State of Nevada in its quest for federal Race to the Top funds. Throughout this process, Nevadans have united as a team to provide an opportunity for all of our children to reach their potential. We know Nevada can win this race.

Sincerely,

A handwritten signature in cursive script that reads "Barbara Buckley".

Barbara E. Buckley
Speaker of the Assembly

BEB/av:W100769

BONNIE PARNELL
ASSEMBLYWOMAN
District No. 40



COMMITTEES:
Chairman
Education
Member
Corrections, Parole, and
Probation
Health and Human Services
Judiciary

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804 Saratoga Way
Carson City, Nevada 89703-3656
Office: (775) 883-4234

Nevada Assembly

SEVENTY-FIFTH SESSION

LEGISLATIVE BUILDING:
401 South Carson Street
Carson City, Nevada 89701-4747
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Fax No.: (775) 684-8533
www.leg.state.nv.us

May 7, 2010

The Honorable Arne Duncan
Secretary
U.S. Department of Education
400 Maryland Avenue S.W.
Washington, D.C. 20202

Dear Secretary Duncan:

I am writing to express my support for Nevada's application in the federal Race to the Top competition for education innovation.

Our educational system has become an urgent priority to all Nevadans, and we are wholly committed to building a legacy of promise, potential, and prosperity for our State's most valuable asset—our children. Our State's long-term success will be determined largely by our educational system's capacity to prepare students for success in today's world.

The Race to the Top competition presents Nevada with an opportunity to accomplish meaningful education reform on a grand scale. Race to the Top funds will provide the impetus needed to take public education to a level that ensures our State will be globally competitive.

Please accept this letter as evidence of my continued interest in improving Nevada's system of education.

Sincerely,

A handwritten signature in cursive script that reads "Bonnie Parnell".

Bonnie Parnell
Nevada State Assemblywoman

BP/av:W100780

n:

s my support of Nevada's application for the f
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ship with local school districts, this application
celerate and drive growth in our student achiev
f which I am a member, demonstrates the stron
opportunities and the Race to the Top application

porting the State's efforts to provide the oppo
potential; we know Nevada can win this race.

JOHN OCEGUERA
ASSEMBLYMAN
District No. 16

MAJORITY FLOOR LEADER

COMMITTEES:

Member

Commerce and Labor
Ways and Means



State of Nevada
Assembly
Seventy-Fifth Session

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Las Vegas, Nevada 89123-1491
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Fax No.: (702) 452-4800

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Office: (775) 684-8595
Fax No.: (775) 684-8533
www.leg.state.nv.us
E-mail: jocaguera@asm.state.nv.us

April 26, 2010

The Honorable Arne Duncan
Secretary
U.S. Department of Education
400 Maryland Avenue S.W.
Washington, D.C. 20202

Dear Secretary Duncan:

I am writing to express my support of Nevada's application for the federal Race to the Top funds. I agree with the educational reform investments targeting, 1) Adopting Common Core standards and assessments that prepare students to succeed in college and the workplace, 2) Accelerating our data systems to measure student growth and inform teachers about how they can improve instruction, 3) Developing and retaining effective teachers and principals, 4) Turning around our lowest achieving schools.

It is imperative that we represent our best effort in order to take advantage of the opportunities Race to the Top funds can give to our State. In addition to our State's already strong partnership with local school districts, this application urges Nevadans to unite in an effort to accelerate and drive growth in our student achievement. The work of the Blue Ribbon Task Force demonstrates the strong community support for reform opportunities and the Race to the Top application.

I am committed to supporting the State's efforts to provide the opportunity for all of our children to reach their potential; we know Nevada can win this race.

Sincerely,

A handwritten signature in cursive script that reads "John Ocegüera".

Assemblyman John Ocegüera

JOYCE WOODHOUSE

SENATOR

Clark No. 5



DISTRICT OFFICE:

246 Garfield Drive
Henderson, Nevada 89074-1027

Office: (702) 896-1453
Fax No.: (702) 407-9253

COMMITTEES:

Chair

Legislative Operations and Elections

Vice Chair

Health and Education

Member

Finance

State of Nevada Senate

LEGISLATIVE BUILDING:

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Carson City, Nevada 89701-4747

Office: (775) 684-1481 or
(775) 684-1401

Fax No.: (775) 684-6522

www.leg.state.nv.us

May 7, 2010

The Honorable Arne Duncan
Secretary of United States Department
of Education
400 Maryland Avenue, SW
Washington, D.C. 20202

Dear Secretary Duncan:

As Chair of the Legislative Committee on Education, I am writing to express my support, and that of the Committee, for Nevada's application for Race to the Top (RTTT) funds. During the entire 2009-2010 Interim period, the Committee has focused its attention on the eligibility requirements and the various selection criteria as set forth in the RTTT application guidelines. At its April 7, 2010, meeting, the Committee voted unanimously to provide you with this letter of support.

As you know, the Committee has expressed strong support for Nevada's ongoing efforts to strengthen and improve the application, and we have worked closely with the Superintendent of Public Instruction to define any needed statutory framework for this reform effort. As the Nevada Legislature's only statutory education committee meeting during the interim period, our bipartisan composition and the fact that members are from both houses of the Legislature should lend additional weight to this expression of support.

This Committee has worked diligently with Nevada's Superintendent and the State Department of Education (DOE) for well over a decade in our joint efforts to improve student achievement and turn around low-performing schools. The Committee's commitment in this regard has been unswerving, and many of the elements set forth by the RTTT program were anticipated and implemented through legislation requested by this Committee, even prior to implementation of the No Child Left Behind Act of 2001. As a Committee, we have expressed our agreement with the program's education reform components, including adopting the Common Core standards and assessments; fine-tuning our excellent student data systems to

The Honorable Arne Duncan

Page 2

May 7, 2010

measure student growth and provide our teachers with feedback on how to improve instruction; developing and retaining effective teachers and leaders; and turning around our lowest achieving schools. The continuing collaboration we have with the State DOE, along with the strong partnerships the Superintendent has built through the years with each of Nevada's school districts and other key education groups, serve to further our goal to improve Nevada's public schools and increase student achievement.

Throughout our review, we have heard from every major constituency concerned with public education. This process has provided us with a unique opportunity to present a unified voice from all of the concerned parties with regard to the importance and focus of this reform effort. In closing, the members of the Committee and I are committed to supporting the application and making the changes needed to ensure this program is an unqualified success.

Sincerely,



Joyce L. Woodhouse, Chair
Legislative Committee on Education

JLW/rd:W100727-1

cc: Assemblyman John Ocegüera, Chair, Legislative Commission

STEVEN A. HORSFORD

SENATOR

Clark No. 4

MAJORITY FLOOR LEADER

COMMITTEES:

Co-Chair

Finance

Member

Government Affairs

Health and Education



State of Nevada
Senate

DISTRICT OFFICE:

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North Las Vegas, Nevada 89032-8223

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LEGISLATIVE BUILDING:

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(775) 684-1401

Fax No.: (775) 684-6522

www.leg.state.nv.us

May 17, 2010

The Honorable Arne Duncan, Secretary
U.S. Department of Education
400 Maryland Avenue S.W.
Washington, D.C. 20202

Dear Secretary Duncan:

I am writing to express my support of Nevada's application for the federal Race to the Top funds. I agree with the educational reform investments targeting, 1) Adopting Common Core standards and assessments that prepare students to succeed in college and the workplace, 2) Accelerating our data systems to measure student growth and inform teachers about how they can improve instruction, 3) Developing and retaining effective teachers and principals, 4) Turning around our lowest achieving schools.

It is imperative that we present our best effort in order to take advantage of the opportunities Race to the Top funds can give our State. In addition to our State's already strong partnership with local school districts, this application urges Nevadans to unite in an effort to accelerate and drive growth in our student achievement.

I am committed to supporting the State's efforts to provide the opportunity for all of our children to reach their potential; we know Nevada can win this race.

Sincerely,

A handwritten signature in cursive script that reads "Steven Horsford".

Steven Horsford
Nevada Senate Majority Leader

VALERIE WIENER

SENATOR

Clark No. 3

MAJORITY WHIP

COMMITTEES:

Chair

Health and Education

Vice Chair

Judiciary

Member

Legislative Operations and Elections



State of Nevada Senate

DISTRICT OFFICE:

3540 W. Sahara Avenue, No. 952

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Fax No.: (702) 221-9239

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www.leg.state.nv.us

May 6, 2010

The Honorable Arne Duncan, Secretary
U.S. Department of Education
400 Maryland Avenue, S.W.
Washington, D.C. 20202

Dear Secretary Duncan,

As a native Nevadan, there are few things that are more important to me than the education of our children. Unfortunately, Nevada is facing many challenges in this area. For decades, we have been one of the fastest-growing states and invested substantial resources in education to keep up with the growth. Today, more than ever, we are dedicated to doing everything possible to ensure our children's future, which, of course, starts with a meaningful education. This is why I am writing to you to seek your support for Nevada's application for funding under the federal "Race to the Top" education innovation grant.

As chair of the Senate Committee on Health and Education, I am proud of how leaders, educators, and families in our state have rallied around this effort. Like never before, we are working together to build a legacy of promise, potential, and prosperity for our state's magnificent children. We all know that it will take a top-notch educational system to help us maximize our children's successes in school, and beyond.

Nevada's application for this funding demonstrates our willingness and capacity to engage innovative solutions to our educational challenges. We are prepared to collaborate in effective and meaningful ways to improve our student achievement and learning outcomes. We know that we cannot do this alone. We need your support.

Therefore, please accept this letter as a demonstration of my profound support for Nevada's application for the "Race to the Top" grant.

Sincerely,

A handwritten signature in cursive script that reads "Valerie Wiener".

State Senator Valerie Wiener

Majority Whip

Chair, Senate Committee on Health and Education

WILLIAM J. RAGGIO

SENATOR

Washoe No. 3

MINORITY FLOOR LEADER

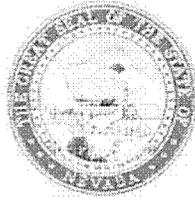
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Member

Finance

Government Affairs

Legislative Operations and Elections



State of Nevada
Senate

DISTRICT OFFICE:

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Reno, Nevada 89501-0281

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May 17, 2010

The Honorable Arne Duncan
Secretary
U.S. Department of Education
400 Maryland Avenue S.W.
Washington, D.C. 20202

Dear Secretary Duncan:

I am writing to express my support for Nevada's application in the federal Race to the Top competition for education innovation.

Our educational system has become an urgent priority to all Nevadans, and we are wholly committed to building a legacy of promise, potential and prosperity for our state's most valuable asset—our children. Our state's long-term success will be determined largely by our educational system's capacity to prepare students for success in today's world.

The Race to the Top competition presents Nevada with an opportunity to accomplish meaningful education reform on a grand scale. Race to the Top funds will provide the impetus needed to take public education to a level that ensures our state will be globally competitive.

Education will singularly drive our future, and I applaud the innovative solutions of our state's Race to the Top application in confronting the challenges that face our children. This application urges all Nevadans to unite in an effort to accelerate and drive growth in our student achievement.

Please accept this letter as evidence of my strong support for Nevada's application in the Race to the Top competition.

Sincerely,

A handwritten signature in black ink, appearing to read "William J. Raggio".

William J. Raggio
Senate Minority Leader

DINA TITUS

3RD DISTRICT, NEVADA

319 CANNON HOUSE OFFICE BUILDING
WASHINGTON, DC 20515
(202) 225-3252

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COMMITTEE ON TRANSPORTATION
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COMMITTEE ON
EDUCATION AND LABOR

COMMITTEE ON
HOMELAND SECURITY

Congress of the United States
House of Representatives
Washington, DC 20515-2803

April 23, 2010

Arne Duncan
U.S. Secretary of Education
U.S. Department of Education
400 Maryland Avenue, SW
Washington, D.C. 20202

Dear Secretary Duncan,

I write to you in support of Nevada's application for federal *Race to the Top* funds. As an educator, I recognize the value of Nevada's educational reform plan which focuses on the pillars of Alignment, Data, Achievement, Professional Development, and Target on Secondary Education (ADAPT). These pillars of reform closely align with the goals of Race to the Top, making Nevada an excellent candidate to receive funding.

Specifically, Nevada's plan for Race to the Top monies will speed the adoption of Common Core standards and aligned assessments which in turn will help prepare students to succeed in college and the workplace. Receipt of the funds will also accelerate the use of data systems to measure student growth and create a more streamlined way to inform teachers about improving instruction. It will further improve the training and retention of effective teachers and principals and provide the supports necessary for turning around the state's lowest performing schools. Taken together, these reforms will be especially valuable in helping Nevada's schools improve and in driving growth in the state's student achievement levels.

I strongly support the efforts of the state of Nevada in its quest for federal Race to the Top funds. I encourage you to give their application full and fair consideration, consistent with applicable rules and regulations.

Sincerely



Dina Titus
Member of Congress

SHELLEY BERKLEY
1st District, Nevada

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shelley.berkley@mail.house.gov

2340 Paseo Del Prado
Suite D106
Las Vegas, Nevada 89102
(702) 220-9823
Fax: (702) 220-9841
www.house.gov/berkley

Congress of the United States
House of Representatives
Washington, DC 20515-2801

May 5, 2010

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CO-CHAIR, GAMING CAUCUS
CO-CHAIR, CONGRESSIONAL OSTEOPOROSIS CAUCUS
CO-CHAIR, CONGRESSIONAL STOP DUI CAUCUS

The Honorable Arne Duncan
Secretary
U.S. Department of Education
400 Maryland Avenue
Washington DC 20202

Dear Secretary Duncan:

As the Representative for Nevada's First Congressional District, I am writing in support of the State of Nevada's application for funding through the U.S. Department of Education's Race to the Top program.

Educational reform investments are crucial to our community. Especially, reform that is focused on creating common core standards and assessments that prepare students to succeed in college and the workplace, accelerating the data systems to measure student growth and inform teachers about how they can improve instruction, developing and retaining effective teachers and principals, and turning around the lowest achieving schools.

Race to the Top funds can present Nevada with the opportunity to create the reform necessary to ameliorate our student achievement. This opportunity, coupled with the State's already strong partnership with local school districts, urges Nevadans to unite in the effort to take our education system to the next level and provide all children with the opportunity to reach their full potential.

I support the efforts of the State of Nevada in pursuit of funding consistent with relevant rules, regulations, and procedures. Please do not hesitate to contact Nikki Koval in my Las Vegas office at (702) 220-9823 if you have any questions. Thank you.

Sincerely,



SHELLEY BERKLEY
Member of Congress

United States Senate

WASHINGTON, DC 20510-7012

May 24, 2010

The Honorable Arne Duncan
Secretary of Education
U.S. Department of Education
400 Maryland Avenue, SW
Washington, DC 20202

Dear Secretary Duncan:

I am writing to express my strong support for Nevada's application for the Department of Education's Race to the Top competition. Nevada is ready to seize the opportunity available through Race to the Top to help implement the reforms necessary to ensure that all children in the state have access to the quality education they deserve.

During this economic crisis, Nevada has been hit particularly hard. Our state's narrow economic base has suffered significantly and severely reduced state tax collections have contributed to the massive budget crisis. Our foreclosure and unemployment rates are among the highest in the nation. For many Nevadans, the current crisis has also highlighted the state's failure to prioritize education.

In response, a broad coalition of educators, elected officials, community and business leaders have worked to develop a proposal for systemic reform. The proposal, as outlined in Nevada's Race to the Top application, aims to address the challenges facing the state, scale up existing pockets of excellence, and help build a more sustainable and diverse economy. By adopting high-quality standards and assessments, building on Nevada's comprehensive data systems, ensuring strong teachers and leaders in every school, and turning around our lowest-performing schools, Nevada will be in a position to raise student achievement, increase the graduation rate, and prepare our students for success in college or a career.

With this unprecedented commitment to reform, I believe you will find that no state better represents the opportunity for advancing and sustaining education reform than Nevada. Our seventeen school districts constitute a microcosm of urban and rural education and our diverse, multilingual, and rapidly-changing student population reflects the future of America. Nevada has rural school districts the size of entire states, including one with fewer than a hundred students. All face the challenges of rural districts across America. Our largest district –the nation's fifth largest – educates nearly three-quarters of the state's students. It was also, until recently, among the fastest-growing school districts in the country, having to balance teacher shortages and school construction with the challenges of other large, urban districts. Such variety and diversity make Nevada an ideal place to bring education reform to scale.

I am strongly supportive of Nevada's proposal and have committed to assist this broad coalition of education, business and elected leaders in implementing these reforms. I appreciate your consideration of Nevada's Race to the Top application and urge you to support their request for funding.

Sincerely,

A handwritten signature in black ink, appearing to read "Harry Reid". The signature is written in a cursive, flowing style with a large initial "H".

HARRY REID
United States Senator
Nevada

JOHN ENSIGN
NEVADA

COMMITTEES:
BUDGET

COMMERCE, SCIENCE, AND
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FINANCE

RULES AND ADMINISTRATION

United States Senate

WASHINGTON, DC 20510-2805

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website: ensign.senate.gov

May 6, 2010

The Honorable Arne Duncan
Secretary
U.S. Department of Education
400 Maryland Avenue S.W.
Washington, D.C. 20202

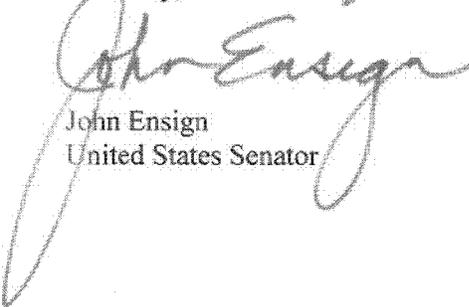
Dear Secretary Duncan:

I am writing to support the State of Nevada's application in the federal *Race to the Top* competition for education innovation. If awarded, these funds will allow our state to accomplish meaningful academic reform on a grand scale.

Nevada's application represents a comprehensive scholastic reform plan that strives to ensure high quality education for all children, throughout the state. The people of Nevada have come to understand that the state's long-term success will be determined largely by our capacity to prepare students to succeed in today's world. Therefore, we must create a new strategy for the future – if Nevada is to recover and eventually prosper.

This project has become a top priority within my state and has united Nevadans in their commitment and dedication to finding long-term solutions to challenges that are currently plaguing our schools. Therefore, I am pleased to offer my support for this grant application and trust that you will give it your every consideration.

Sincerely,



John Ensign
United States Senator

BRIAN SANDOVAL

May 17, 2010

The Honorable Arne Duncan, Secretary
U.S. Department of Education
400 Maryland Avenue S.W.
Washington, D.C. 20202

Dear Secretary Duncan:

I am writing to express my support for Nevada's application in the federal Race to the Top competition for education innovation. As a candidate for Governor in the state of Nevada, I strongly support the reform oriented direction of this application. Many of the initiatives put forth in the Race to the Top application align directly with my proposed Education Plan which is based on elements of accountability, choice, and local decision making.

It is my firm belief that the single greatest thing we can do for our young people is to prepare them for success by providing them with a high quality education. Currently, the education system in Nevada does not measure up and is, unfortunately, not providing all our children with the world class education they deserve. It's time to get serious about reform and challenge the status quo. I believe Nevada can begin this journey through the Race to the Top grant and the support it will provide our state.

The Race to the Top competition presents Nevada with an opportunity to accomplish meaningful education reform on a grand scale. Race to the Top funds will provide the momentum needed to take public education to a level that ensures our state will be globally competitive.

Education can singularly drive our future, and I applaud the innovative solutions our state has achieved in the Race to the Top application while confronting the challenges which face our children. This application urges all Nevadans to unite in an effort to accelerate and drive growth in our student achievement.

Please accept this letter as evidence of my strong support for Nevada's application in the Race to the Top competition.

Sincerely,

(b)(6)

/ Brian Sandoval



RORY REID

A NEW ECONOMIC VISION FOR NEVADA

May 11, 2010

The Honorable Arne Duncan
Secretary, U.S. Department of Education
400 Maryland Avenue S.W.
Washington, D.C. 20202

Dear Secretary Duncan:

I am writing to express my support for Nevada's application in the federal Race to the Top competition for education innovation. I send this correspondence as the Chairman of the Clark County, Nevada Commission and as a candidate for Nevada Governor.

More than 200 Nevada stakeholders with diverse perspectives have put in time and effort to create a successful Race to the Top application. I am heartened to see collaboration between leaders on many fronts who recognize that Nevadans will no longer tolerate an education system that ranks among the bottom in the nation and weighs down our economic development.

This application sets a goal to increase the graduation rate in Nevada, reduce the achievement gap for African American and Hispanic students, increase the number of graduates enrolling in post-secondary institutions, and increase the percentage of students proficient in reading and math.

I believe that Nevadans must act now to achieve these goals. I am centering my candidacy for governor on education reform because improving our schools is the best way to improve our economy.

My Economic Development through Great Education – or EDGE plan – would transform our schools, giving teachers and principals the freedom to teach, while holding them more accountable for results.

Principals should have the freedom to lead and make decisions on how best to use their financial and staff resources, teachers should have the flexibility to teach state standards using their own best methods, and parents should have the opportunity to become engaged and invested in the success of their children's school.

Reid for Nevada
P.O. Box 110
Las Vegas, NV 89125
roryreid.com • 702-258-2010



My plan also ensures standardized tests aren't the only measure of success. We need multiple indicators of success, like student improvement over the course of the year, the variety of arts programs available, the graduation rate, and the percentage of graduates who enroll in college, along with test scores. I also call for increased private investment in schools and would implement open enrollment in our county-based school districts.

As governor, my plan will align with the vision set out in the Race to the Top application, which requires more collaboration between parents, teachers, principals, administrators, legislators and more. It also calls for rigorous instruction based on core state standards and utilizes the best practices in data systems to track student performance. And it links student achievement with teacher evaluation for effectiveness.

This application presents an opportunity for Nevada to accomplish meaningful education reform on a grand scale so that we can put our state's economy back on track.

Please accept this letter as evidence of my strong support for Nevada's application in the Race to the Top competition as part of our state's drive to transform our schools.

Sincerely,

(b)(6)

Rory Reid

Appendix A(XX) – ESEA Assessments: Achievement Gap

Grades 3-5 Reading - Achievement Gap (Percent Proficient)

	2003	2004	2005	2006	2007	2008	2009
Male/Female	-7.75	-7.00	-6.15	-8.00	-9.10	-10.47	-10.17
Cauc/Afr Amer	28.05	29.85	29.55	28.47	26.87	25.74	26.80
Cauc/Hispanic	30.60	32.85	31.75	27.97	26.90	25.62	24.87
Cauc/Asian Isl	3.00	5.70	2.70	2.57	1.80	0.47	2.03
Cauc/Amer Ind	21.40	18.15	22.15	19.13	18.03	19.36	19.57
Non-FRL/FRL	26.35	27.45	28.90	27.07	24.17	25.01	23.32
Non-IEP/IEP	36.70	32.10	31.00	33.53	36.40	34.24	39.76
Non-LEP/LEP	38.87	39.45	36.55	38.80	39.40	30.41	35.62

Grades 3-5 Math - Achievement Gap (Percent Proficient)

	2003	2004	2005	2006	2007	2008	2009
Male/Female	0.45	-0.70	0.40	-1.10	-0.83	-0.63	0.27
Cauc/Afr Amer	28.65	29.95	30.35	29.47	28.10	25.97	26.30
Cauc/Hispanic	24.55	24.45	25.25	23.87	20.70	18.44	18.17
Cauc/Asian Isl	-5.35	-1.85	-3.60	-2.53	-3.10	-3.62	-4.07
Cauc/Amer Ind	19.65	17.65	20.45	20.37	19.13	16.73	20.63
Non-FRL/FRL	23.30	22.50	24.90	24.67	19.17	19.63	18.78
Non-IEP/IEP	37.05	31.75	32.30	32.10	33.13	33.11	34.51
Non-LEP/LEP	22.45	29.65	29.45	33.10	28.27	22.33	24.16

Grades 6-8 Reading - Achievement Gap (Percent Proficient)

	2003	2004	2005	2006	2007	2008	2009
Male/Female	-10.03	-10.00	-9.10	-12.17	-11.87	-11.60	-11.20
Cauc/Afr Amer	34.02	34.00	33.00	31.07	29.13	28.15	25.73
Cauc/Hispanic	33.93	33.90	33.40	29.77	27.07	26.18	23.37
Cauc/Asian Isl	5.79	5.80	4.10	1.40	0.53	-0.49	-0.83
Cauc/Amer Ind	16.34	16.30	18.70	15.30	13.53	15.99	15.37
Non-FRL/FRL	26.96	26.90	27.40	25.77	21.23	23.43	20.43
Non-IEP/IEP	43.41	43.40	41.80	42.53	46.60	47.54	58.40
Non-LEP/LEP	47.06	47.00	45.20	43.67	50.40	50.20	51.62

Grades 6-8 Math - Achievement Gap (Percent Proficient)

	2003	2004	2005	2006	2007	2008	2009
Male/Female	-1.71	-1.70	-1.60	-3.70	-3.50	-1.97	-2.33
Cauc/Afr Amer	34.30	34.30	33.30	31.93	32.03	30.57	29.50
Cauc/Hispanic	30.20	30.20	27.80	27.20	26.67	24.48	22.43
Cauc/Asian Isl	0.60	0.60	-2.10	-4.20	-4.13	-4.15	-4.43
Cauc/Amer Ind	18.09	18.10	21.40	17.83	17.40	17.74	16.63
Non-FRL/FRL	25.05	25.00	24.70	24.60	21.10	22.33	19.46
Non-IEP/IEP	44.23	44.30	42.00	42.43	44.80	45.11	43.90
Non-LEP/LEP	39.54	39.60	36.60	38.10	43.03	42.52	42.27

High School Reading - Achievement Gap (Percent Proficient)

	2003	2004	2005	2006	2007	2008	2009
Male/Female	-7.47	-6.18	-5.37	-4.81	-2.63	-2.27	-3.63
Cauc/Afr Amer	22.82	20.25	19.69	15.96	12.48	9.74	7.21
Cauc/Hispanic	25.91	23.53	20.15	13.51	10.71	7.94	5.64
Cauc/Asian Isl	5.40	5.97	1.87	1.25	1.30	1.58	-0.29
Cauc/Amer Ind	20.15	14.32	12.35	12.74	4.81	5.84	7.71
Non-FRL/FRL	14.80	13.58	12.04	13.82	10.51	8.75	7.35
Non-IEP/IEP	49.90	45.35	50.12	49.07	44.57	32.33	42.12
Non-LEP/LEP	49.75	43.05	28.27	43.88	43.25	34.71	30.66

High School Math - Achievement Gap (Percent Proficient)

	2003	2004	2005	2006	2007	2008	2009
Male/Female	3.67	3.60	1.40	4.15	6.26	2.48	2.86
Cauc/Afr Amer	34.77	33.83	35.59	32.36	33.86	30.76	28.67
Cauc/Hispanic	33.27	30.39	30.47	23.98	24.73	21.76	19.21
Cauc/Asian Isl	4.18	1.82	2.55	0.49	-0.37	1.20	-1.97
Cauc/Amer Ind	25.85	23.21	26.71	17.66	14.18	16.66	19.45
Non-FRL/FRL	16.80	14.63	23.52	21.06	20.55	19.77	17.51
Non-IEP/IEP	44.31	46.57	52.62	52.59	53.65	54.83	52.29
Non-LEP/LEP	41.23	37.09	32.40	41.98	44.12	44.58	40.61

Appendix A(XX) – ESEA Assessment Results – Students Meeting State Standards

Grades 3-5 Reading - Groups Meeting State Standards

	2003	2004	2005	2006	2007	2008	2009
State - All	47.25	44.10	43.45	47.83	56.20	54.04	58.00
Male	43.55	40.70	40.50	43.97	51.77	49.77	54.33
Female	51.30	47.70	46.65	51.97	60.87	60.23	64.50
Caucasian	60.55	58.75	58.25	61.57	69.70	67.04	71.07
Afr. Amer.	32.50	28.90	28.70	33.10	42.83	41.30	44.27
Hispanic	29.95	25.90	26.50	33.60	42.80	41.42	46.20
Asian/Islander	57.55	53.05	55.55	59.00	67.90	66.56	69.03
Amer. Indian	39.15	40.60	36.10	42.43	51.67	47.67	51.50
Free/Reduced Lunch	31.65	28.20	27.75	33.43	42.47	41.06	45.73
Full Price	58.00	55.65	56.65	60.50	66.63	66.07	69.06
IEP	14.05	15.70	15.90	18.10	23.50	24.24	22.91
Not IEP	50.75	47.80	46.90	51.63	59.90	58.48	62.67
LEP	12.20	12.15	13.75	16.10	24.30	31.25	30.23
Not LEP	51.08	51.60	50.30	54.90	63.70	61.66	65.85
Title I	0.00	0.00	0.00	0.00	35.00	33.08	61.77
Non-Title I	0.00	0.00	0.00	0.00	56.03	54.19	57.80
Migrant	20.00	12.10	13.15	19.93	44.93	7.50	26.23
Not Migrant	47.35	44.20	43.45	47.83	56.00	54.14	58.05

Grades 3-5 Math - Groups Meeting State Standards

	2003	2004	2005	2006	2007	2008	2009
State	49.90	47.30	50.70	53.53	59.53	62.45	62.33
Male	50.15	47.00	51.00	53.07	59.10	62.23	62.47
Female	49.70	47.70	50.60	54.17	59.93	62.87	62.20
Caucasian	60.80	58.70	62.90	65.57	70.43	72.35	72.23
Afr. Amer.	32.15	28.75	32.55	36.10	42.33	46.38	45.93
Hispanic	36.25	34.25	37.65	41.70	49.73	53.92	54.07
Asian/Islander	66.15	60.55	66.50	68.10	73.53	75.98	76.30
Amer. Indian	41.15	41.05	42.45	45.20	51.30	55.62	51.60
Free/Reduced Lunch	36.10	34.25	37.20	40.43	48.60	52.28	52.43
Full Price	59.40	56.75	62.10	65.10	67.77	71.91	71.21
IEP	16.45	19.25	22.05	25.07	29.73	33.10	31.62
Not IEP	53.50	51.00	54.35	57.17	62.87	66.21	66.13
LEP	31.30	23.30	26.70	26.37	36.47	44.30	43.40
Not LEP	53.75	52.95	56.15	59.47	64.73	66.63	67.56
Title I	0.00	0.00	0.00	0.00	34.60	40.31	61.19
Non-Title I	0.00	0.00	0.00	0.00	59.33	62.64	62.38
Migrant	36.25	31.50	37.15	42.80	46.73	23.77	34.03
Not Migrant	49.90	47.40	50.70	53.53	59.27	62.58	62.35

Grades 6-8 Reading - Groups Meeting State Standards

	2003	2004	2005	2006	2007	2008	2009
State	50.94	50.80	50.80	51.30	59.40	59.17	64.23
Male	46.00	46.00	46.60	45.50	53.63	53.77	58.80
Female	56.04	56.00	55.70	57.67	65.50	65.37	70.00
Caucasian	65.02	65.00	65.40	65.40	72.60	72.19	75.90
Afr. Amer.	31.00	31.00	32.40	34.33	43.47	44.05	50.17
Hispanic	31.08	31.10	32.00	35.63	45.53	46.02	52.53
Asian/Islander	59.23	59.20	61.30	64.00	72.07	72.68	76.73
Amer. Indian	48.68	48.70	46.70	50.10	59.07	56.21	60.53
Free/Reduced Lunch	32.96	33.00	33.30	36.03	45.87	45.83	52.43
Full Price	59.91	59.90	60.70	61.80	67.10	69.26	72.86
IEP	11.97	12.00	13.40	13.27	16.87	16.50	19.23
Not IEP	55.37	55.40	55.20	55.80	63.47	64.04	77.63
LEP	9.08	9.10	11.20	12.83	14.07	15.11	18.60
Not LEP	56.13	56.10	56.40	56.50	64.47	65.31	70.22
Title I	‡	‡	‡	‡	13.47	36.02	70.16
Non-Title I	‡	‡	‡	‡	58.73	59.45	63.96
Migrant	26.19	26.20	35.30	30.00	36.33	‡	‡
Not Migrant	50.81	50.80	50.80	51.30	58.73	59.44	64.30

Grades 6-8 Math - Groups Meeting State Standards

	2003	2004	2005	2006	2007	2008	2009
State	49.24	49.00	48.90	51.83	56.93	57.64	61.63
Male	48.32	48.30	48.30	50.10	55.23	56.17	60.50
Female	50.03	50.00	49.90	53.80	58.73	58.13	62.83
Caucasian	61.97	62.00	61.40	64.77	70.00	70.08	73.00
Afr. Amer.	27.67	27.70	28.10	32.83	37.97	39.51	43.50
Hispanic	31.77	31.80	33.60	37.57	43.33	45.60	50.57
Asian/Islander	61.37	61.40	63.50	68.97	74.13	74.24	77.43
Amer. Indian	43.88	43.90	40.00	46.93	52.60	52.35	56.37
Free/Reduced Lunch	32.49	32.50	33.10	37.23	43.47	44.92	50.33
Full Price	57.55	57.50	57.80	61.83	64.57	67.25	69.79
IEP	9.52	9.50	11.30	13.90	16.10	17.15	20.70
Not IEP	53.75	53.80	53.30	56.33	60.90	62.26	64.60
LEP	14.02	14.00	16.80	18.23	18.20	20.14	24.23
Not LEP	53.57	53.60	53.40	56.33	61.23	62.66	66.51
Title I	‡	‡	‡	0.00	12.17	41.15	64.53
Non-Title I	‡	‡	‡	0.00	56.30	57.89	61.49
Migrant	30.23	30.20	35.30	33.13	36.33	‡	‡
Not Migrant	49.07	49.10	48.90	51.83	56.30	57.89	61.68

Grades 10 Reading - Groups Meeting State Standards

	2003	2004	2005	2006	2007	2008	2009
State	75.10	76.90	74.80	78.30	73.20	79.50	79.60
Male	72.75	74.10	71.30	75.00	69.60	75.81	76.70
Female	80.22	79.90	78.40	81.70	77.10	83.32	82.50
White	85.22	85.90	84.90	87.70	82.90	88.14	88.30
Black	62.40	61.90	60.20	66.20	60.10	69.29	67.90
Hispanic	59.31	61.70	58.90	64.80	61.60	68.53	70.50
Asian	79.82	81.40	79.70	83.80	79.10	86.37	85.30
Indian	65.07	72.20	68.60	76.30	69.90	76.46	76.20
Free/Reduced Lunch	62.31	60.40	57.40	65.20	63.00	68.24	69.90
Full Price	77.12	‡	78.20	82.00	76.10	83.33	83.60
IEP	31.07	29.90	26.60	31.70	31.20	33.82	34.00
Not IEP	80.96	‡	80.00	83.00	77.70	83.90	84.20
LEP	30.12	33.90	30.60	33.30	31.50	34.15	30.30
Not LEP	79.86	‡	78.90	82.20	76.70	83.16	83.50
Title I	‡	‡	‡	‡	0.00	‡	78.90
Non-Title I	‡	‡	‡	‡	73.20	79.50	79.60
Migrant	‡	52.60	35.30	0.00	50.00	‡	50.00
Not Migrant	‡	‡	74.80	78.30	73.20	79.50	79.60

Grades 10 Math - Groups Meeting State Standards

	2003	2004	2005	2006	2007	2008	2009
State	54.59	52.10	50.90	46.50	47.80	48.09	48.30
Male	57.29	53.90	52.80	48.40	49.20	48.91	49.80
Female	53.61	50.30	49.10	44.70	46.60	47.25	46.70
White	66.97	63.90	63.10	58.30	61.00	61.15	62.00
Black	32.20	30.80	27.60	25.20	27.00	27.81	28.40
Hispanic	33.71	32.40	32.70	30.40	32.40	32.71	33.60
Asian	62.79	62.20	61.80	60.10	60.30	63.80	63.50
Indian	41.13	38.10	38.10	38.50	37.00	34.70	40.20
Free/Reduced Lunch	39.46	33.80	30.90	29.90	33.40	33.63	35.80
Full Price	56.26	‡	54.90	51.30	51.90	53.06	53.50
IEP	15.19	9.40	10.20	8.50	9.70	10.64	10.50
Not IEP	59.49	‡	55.20	50.30	52.00	51.70	52.20
LEP	17.08	18.60	15.30	14.90	15.70	14.41	12.10
Not LEP	58.31	‡	54.20	49.20	50.60	50.86	51.10
Title I	‡	‡	‡	‡	0.00	‡	46.30
Non-Title I	‡	‡	‡	‡	47.80	48.09	48.30
Migrant	‡	26.30	23.50	0.00	40.00	‡	12.50
Not Migrant	‡	‡	50.90	46.50	47.80	48.09	0.00

NRS 385.3595 Adoption of model to measure achievement of pupils on criterion-referenced examinations; use of model to track progress of individual schools from year to year.

1. The Department shall adopt a model to measure the achievement of pupils enrolled in grades 3 to 8, inclusive, based upon the results of the examinations administered pursuant to NRS 389.550. The model must be designed so that the progress of pupils enrolled in a public school may be tracked from year to year to determine whether the school has made progress in the achievement of pupils.

2. The board of trustees of each school district and the governing body of each charter school shall apply the model in the format required by the Department. The information collected must be used to determine whether individual schools have made progress in the achievement of pupils.

(Added to NRS by 2009, 337)

Depth-of-Knowledge Levels for Four Content Areas

Norman L. Webb

March 28, 2002

Language Arts Levels of Depth of Knowledge

Interpreting and assigning depth-of-knowledge levels to both objectives within standards and assessment items is an essential requirement of alignment analysis. Four levels of depth of knowledge are used for this analysis.

Reading (based on Wixson, 1999)

Level 1

Level 1 requires students to receive or recite facts or to use simple skills or abilities. Oral reading that does not include analysis of the text as well as basic comprehension of a text is included. Items require only a shallow understanding of text presented and often consist of verbatim recall from text or simple understanding of a single word or phrase. Some examples that represent but do not constitute all of Level 1 performance are:

- Support ideas by reference to details in the text.
 - Use a dictionary to find the meaning of words.
 - Identify figurative language in a reading passage.

Level 2

Level 2 includes the engagement of some mental processing beyond recalling or reproducing a response; it requires both comprehension and subsequent processing of text or portions of text. Intersentence analysis of inference is required. Some important concepts are covered but not in a complex way. Standards and items at this level may include words such as summarize, interpret, infer, classify, organize, collect, display, compare, and determine whether fact or opinion. Literal main ideas are stressed. A Level 2 assessment item may require students to apply some of the skills and concepts that are covered in Level 1. Some examples that represent but do not constitute all of Level 2 performance are:

- Use context cues to identify the meaning of unfamiliar words.
- Predict a logical outcome based on information in a reading selection.
- Identify and summarize the major events in a narrative.

Level 3

Deep knowledge becomes more of a focus at Level 3. Students are encouraged to go beyond the text; however, they are still required to show understanding of the ideas in the text. Students may be encouraged to explain, generalize, or connect ideas. Standards and items at Level 3 involve reasoning and planning. Students must be able to support their thinking. Items may involve abstract theme identification, inference across an entire passage, or students' application of prior knowledge. Items may also involve more superficial connections between texts. Some examples that represent but do not constitute all of Level 3 performance are:

- Determine the author's purpose and describe how it affects the interpretation of a reading selection.
- Summarize information from multiple sources to address a specific topic.
- Analyze and describe the characteristics of various types of literature.

Level 4

Higher order thinking is central and knowledge is deep at Level 4. The standard or assessment item at this level will probably be an extended activity, with extended time provided. The extended time period is not a distinguishing factor if the required work is only repetitive and does not require applying significant conceptual understanding and higher-order thinking. Students take information from at least one passage and are asked to apply this information to a new task. They may also be asked to develop hypotheses and perform complex analyses of the connections among texts. Some examples that represent but do not constitute all of Level 4 performance are:

- Analyze and synthesize information from multiple sources.
- Examine and explain alternative perspectives across a variety of sources.
- Describe and illustrate how common themes are found across texts from different cultures.

Writing

Level 1

Level 1 requires the student to write or recite simple facts. This writing or recitation does not include complex synthesis or analysis but basic ideas. The students are engaged in listing ideas or words as in a brainstorming activity prior to written composition, are engaged in a simple spelling or vocabulary assessment or are asked to write simple sentences. Students are expected to write and speak using Standard English conventions. This includes using appropriate grammar, punctuation, capitalization and spelling. Some examples that represent but do not constitute all of Level 1 performance are:

- Use punctuation marks correctly.
- Identify Standard English grammatical structures and refer to resources for correction.

Level 2

Level 2 requires some mental processing. At this level students are engaged in first draft writing or brief extemporaneous speaking for a limited number of purposes and audiences. Students are beginning to connect ideas using a simple organizational structure. For example, students may be engaged in note-taking, outlining or simple summaries. Text may be limited to one paragraph. Students demonstrate a basic understanding and appropriate use of such reference materials as a dictionary, thesaurus, or web site. Some examples that represent but do not constitute all of Level 2 performance are:

- Construct compound sentences.
- Use simple organizational strategies to structure written work.

- Write summaries that contain the main idea of the reading selection and pertinent details.

Level 3

Level 3 requires some higher level mental processing. Students are engaged in developing compositions that include multiple paragraphs. These compositions may include complex sentence structure and may demonstrate some synthesis and analysis. Students show awareness of their audience and purpose through focus, organization and the use of appropriate compositional elements. The use of appropriate compositional elements includes such things as addressing chronological order in a narrative or including supporting facts and details in an informational report. At this stage students are engaged in editing and revising to improve the quality of the composition. Some examples that represent but do not constitute all of Level 3 performance are:

- Support ideas with details and examples.
- Use voice appropriate to the purpose and audience.
- Edit writing to produce a logical progression of ideas.

Level 4

Higher-level thinking is central to Level 4. The standard at this level is a multi-paragraph composition that demonstrates synthesis and analysis of complex ideas or themes. There is evidence of a deep awareness of purpose and audience. For example, informational papers include hypotheses and supporting evidence. Students are expected to create compositions that demonstrate a distinct voice and that stimulate the reader or listener to consider new perspectives on the addressed ideas and themes. An example that represents but does not constitute all of Level 4 performance is:

- Write an analysis of two selections, identifying the common theme and generating a purpose that is appropriate for both.

Source of Challenge Criterion

The Source of Challenge criterion is only used to identify items where the major cognitive demand is inadvertently placed and is other than the targeted language arts skill, concept, or application. Cultural bias or specialized knowledge could be reasons for an item to have a source of challenge problem. Such items characteristics may cause some students to not answer an assessment item or answer an assessment item incorrectly or at a lower level even though they have the understanding and skills being assessed.

Mathematics depth-of-knowledge levels

Level 1 (Recall) includes the recall of information such as a fact, definition, term, or a simple procedure, as well as performing a simple algorithm or applying a formula. That is, in mathematics a one-step, well-defined, and straight algorithmic procedure should be included at this lowest level. Other key words that signify a Level 1 include “identify,” “recall,” “recognize,” “use,” and “measure.” Verbs such as “describe” and “explain” could be classified at different levels depending on what is to be described and explained.

Level 2 (Skill/Concept) includes the engagement of some mental processing beyond a habitual response. A Level 2 assessment item requires students to make some decisions as to how to approach the problem or activity, whereas Level 1 requires students to demonstrate a rote response, perform a well-known algorithm, follow a set procedure (like a recipe), or perform a clearly defined series of steps. Keywords that generally distinguish a Level 2 item include “classify,” “organize,” “estimate,” “make observations,” “collect and display data,” and “compare data.” These actions imply more than one step. For example, to compare data requires first identifying characteristics of the objects or phenomenon and then grouping or ordering the objects. Some action verbs, such as “explain,” “describe,” or “interpret” could be classified at different levels depending on the object of the action. For example, if an item required students to explain how light affects mass by indicating there is a relationship between light and heat, this is considered a Level 2. Interpreting information from a simple graph, requiring reading information from the graph, also is a Level 2. Interpreting information from a complex graph that requires some decisions on what features of the graph need to be considered and how information from the graph can be aggregated is a Level 3. Caution is warranted in interpreting Level 2 as only skills because some reviewers will interpret skills very narrowly, as primarily numerical skills, and such interpretation excludes from this level other skills such as visualization skills and probability skills, which may be more complex simply because they are less common. Other Level 2 activities include explaining the purpose and use of experimental procedures; carrying out experimental procedures; making observations and collecting data; classifying, organizing, and comparing data; and organizing and displaying data in tables, graphs, and charts.

Level 3 (Strategic Thinking) requires reasoning, planning, using evidence, and a higher level of thinking than the previous two levels. In most instances, requiring students to explain their thinking is a Level 3. Activities that require students to make conjectures are also at this level. The cognitive demands at Level 3 are complex and abstract. The complexity does not result from the fact that there are multiple answers, a possibility for both Levels 1 and 2, but because the task requires more demanding reasoning. An activity, however, that has more than one possible answer and requires students to justify the response they give would most likely be a Level 3. Other Level 3 activities include drawing conclusions from observations; citing evidence and developing a logical argument for concepts; explaining phenomena in terms of concepts; and using concepts to solve problems.

Level 4 (Extended Thinking) requires complex reasoning, planning, developing, and thinking most likely over an extended period of time. The extended time period is not a distinguishing factor if the required work is only repetitive and does not require applying significant conceptual understanding and higher-order thinking. For example, if a student has to take the water temperature from a river each day for a month and then construct a graph, this would be classified as a Level 2. However, if the student is to conduct a river study that requires taking into consideration a number of variables, this would be a Level 4. At Level 4, the cognitive demands of the task should be high and the work should be very complex. Students should be required to make several connections—relate ideas

within the content area or *among* content areas—and have to select one approach among many alternatives on how the situation should be solved, in order to be at this highest level. Level 4 activities include designing and conducting experiments; making connections between a finding and related concepts and phenomena; combining and synthesizing ideas into new concepts; and critiquing experimental designs.

Science Levels of Depth-of-Knowledge

Interpreting and assigning depth-of-knowledge levels to objectives both within standards and assessment items is an essential requirement of alignment analysis. Four levels of depth of knowledge are used for this analysis. Because the highest (fourth) DOK level is rare or even absent in most standardized assessments, reviewers usually will be making distinctions among DOK levels 1, 2 and 3. Please note that, in science, “knowledge” can refer both to content knowledge and knowledge of science processes. This meaning of knowledge is consistent with the National Science Education Standards (NSES), which terms “Science as Inquiry” as its first Content Standard.

Level 1. Recall and Reproduction

Level 1 is the recall of information such as a fact, definition, term, or a simple procedure, as well as performing a **simple** science process or procedure. Level 1 only requires students to demonstrate a rote response, use a well-known formula, follow a set procedure (like a recipe), or perform a clearly defined series of steps. A “simple” procedure is well-defined and typically involves only **one-step**. Verbs such as “identify,” “recall,” “recognize,” “use,” “calculate,” and “measure” generally represent cognitive work at the recall and reproduction level. Simple word problems that can be directly translated into and solved by a formula are considered Level 1. Verbs such as “describe” and “explain” could be classified at different DOK levels, depending on the complexity of what is to be described and explained.

A student answering a Level 1 item either knows the answer or does not: that is, the answer does not need to be “figured out” or “solved.” In other words, if the knowledge necessary to answer an item automatically provides the answer to the item, then the item is at Level 1. If the knowledge necessary to answer the item does not automatically provide the answer, the item is at least at Level 2. Some examples that represent but do not constitute all of Level 1 performance are:

- Recall or recognize a fact, term, or property.
- Represent in words or diagrams a scientific concept or relationship.
- Provide or recognize a standard scientific representation for simple phenomenon.
- Perform a routine procedure such as measuring length.

Level 2. Skills and Concepts

Level 2 includes the engagement of some mental processing beyond recalling or reproducing a response. The content knowledge or process involved is **more complex** than in level 1. Items require students to make some decisions as to how to approach the question or problem. Keywords that generally distinguish a Level 2 item include “classify,” “organize,” “estimate,” “make observations,” “collect and display data,” and “compare data.” These actions imply **more than one step**. For example, to compare data requires first identifying characteristics of the objects or phenomenon and then grouping or ordering the objects. Level 2 activities include making observations and collecting data; classifying, organizing, and comparing data; and organizing and displaying data in tables, graphs, and charts.

Some action verbs, such as “explain,” “describe,” or “interpret,” could be classified at different DOK levels, depending on the complexity of the action. For example, interpreting information from a simple graph, requiring reading information from the graph, is a Level 2. An item that requires interpretation from a complex graph, such as making decisions regarding features of the graph that need to be considered and how information from the graph can be aggregated, is at Level 3. Some examples that represent, but do not constitute all of Level 2 performance, are:

- Specify and explain the relationship between facts, terms, properties, or variables.
- Describe and explain examples and non-examples of science concepts.
- Select a procedure according to specified criteria and perform it.
- Formulate a routine problem given data and conditions.
- Organize, represent and interpret data.

Level 3. Strategic Thinking

Level 3 requires reasoning, planning, using evidence, and a higher level of thinking than the previous two levels. The cognitive demands at Level 3 are **complex and abstract**. The complexity does not result only from the fact that there could be multiple answers, a possibility for both Levels 1 and 2, but because the multi-step task requires **more demanding reasoning**. In most instances, requiring students to explain their thinking is at Level 3; requiring a very simple explanation or a word or two should be at Level 2. An activity that has more than one possible answer and requires students to justify the response they give would most likely be a Level 3. Experimental designs in Level 3 typically involve more than one dependent variable. Other Level 3 activities include drawing conclusions from observations; citing evidence and developing a logical argument for concepts; explaining phenomena in terms of concepts; and using concepts to solve non-routine problems. Some examples that represent, but do not constitute all of Level 3 performance, are:

- Identify research questions and design investigations for a scientific problem.
- Solve non-routine problems.
- Develop a scientific model for a complex situation.

- Form conclusions from experimental data.

Level 4. Extended Thinking

Tasks at Level 4 have **high cognitive demands** and are **very complex**. Students are required to make several connections—relate ideas *within* the content area or *among* content areas—and have to select or devise one approach among many alternatives on how the situation can be solved. Many on-demand assessment instruments will not include any assessment activities that could be classified as Level 4. However, standards, goals, and objectives can be stated in such a way as to expect students to perform extended thinking. “Develop generalizations of the results obtained and the strategies used and apply them to new problem situations,” is an example of a Grade 8 objective that is a Level 4. Many, but not all, performance assessments and open-ended assessment activities requiring significant thought will be Level 4.

Level 4 requires complex reasoning, experimental design and planning, and **probably will require an extended period of time** either for the science investigation required by an objective, or for carrying out the multiple steps of an assessment item. However, the extended time period is not a distinguishing factor if the required work is only repetitive and does not require applying significant conceptual understanding and higher-order thinking. For example, if a student has to take the water temperature from a river each day for a month and then construct a graph, this would be classified as a Level 2 activity. However, if the student conducts a river study that requires taking into consideration a number of variables, this would be a Level 4. Some examples that represent but do not constitute all of a Level 4 performance are:

- Based on provided data from a complex experiment that is novel to the student, deduct the fundamental relationship between several controlled variables.
- Conduct an investigation, from specifying a problem to designing and carrying out an experiment, to analyzing its data and forming conclusions.

Social Studies Levels of Depth of Knowledge for Social Studies

Interpreting and assigning depth-of-knowledge levels to both objectives within standards and assessment items is an essential requirement of alignment analysis. Four levels of depth of knowledge are used for this analysis.

Level 1 Recall of Information

Level 1 asks students to recall facts, terms, concepts, trends, generalizations and theories or to recognize or identify specific information contained in graphics. This level generally requires students to identify, list, or define. The items at this level usually ask the student to recall who, what, when and where. Items that require students to “describe” and “explain” could be classified at Level 1 or 2 depending on what is to be described and explained. A Level 1 “describe or explain” would recall, recite or reproduce

information. Items that require students to recognize or identify specific information contained in maps, charts, tables, graphs or drawings are generally level 1.

Level 2 Basic Reasoning

Level 2 includes the engagement of some mental processing beyond recalling or reproducing a response. This level generally requires students to contrast or compare people, places, events and concepts; convert information from one form to another; give an example; classify or sort items into meaningful categories; describe, interpret or explain issues and problems, patterns, reasons, cause and effect, significance or impact, relationships, points of view or processes. A Level 2 “describe or explain” would require students to go beyond a description or explanation of recalled information to describe or explain a result or “how” or “why.”

Level 3 Complex Reasoning

Level 3 requires reasoning, using evidence, and a higher level of thinking than the previous two levels. Students would go beyond explaining or describing “how and why” to justifying the “how and why” through application and evidence. The cognitive demands at Level 3 are more complex and more abstract than Levels 1 or 2. Items at Level 3 include drawing conclusions; citing evidence; applying concepts to new situations; using concepts to solve problems; analyzing similarities and differences in issues and problems; proposing and evaluating solutions to problems; recognizing and explaining misconceptions or making connections across time and place to explain a concept or big idea.

Level 4 Extended Reasoning

Level 4 requires the complex reasoning of Level 3 with the addition of planning, investigating, or developing that will most likely require an extended period of time. The extended time period is not a distinguishing factor if the required work is only repetitive and does not require applying significant conceptual understanding and higher-order thinking. At this level the cognitive demands should be high and the work should be very complex. Students should be required to connect and relate ideas and concepts *within* the content area or *among* content areas in order to be at this highest level. The distinguishing factor for Level 4 would be evidence through a task or product that the cognitive demands have been met. A Level 4 performance will require students to analyze and synthesize information from multiple sources, examine and explain alternative perspectives across a variety of sources and/or describe and illustrate how common themes and concepts are found across time and place. In some Level 4 performance students will make predictions with evidence as support, develop a logical argument, or plan and develop solutions to problems.

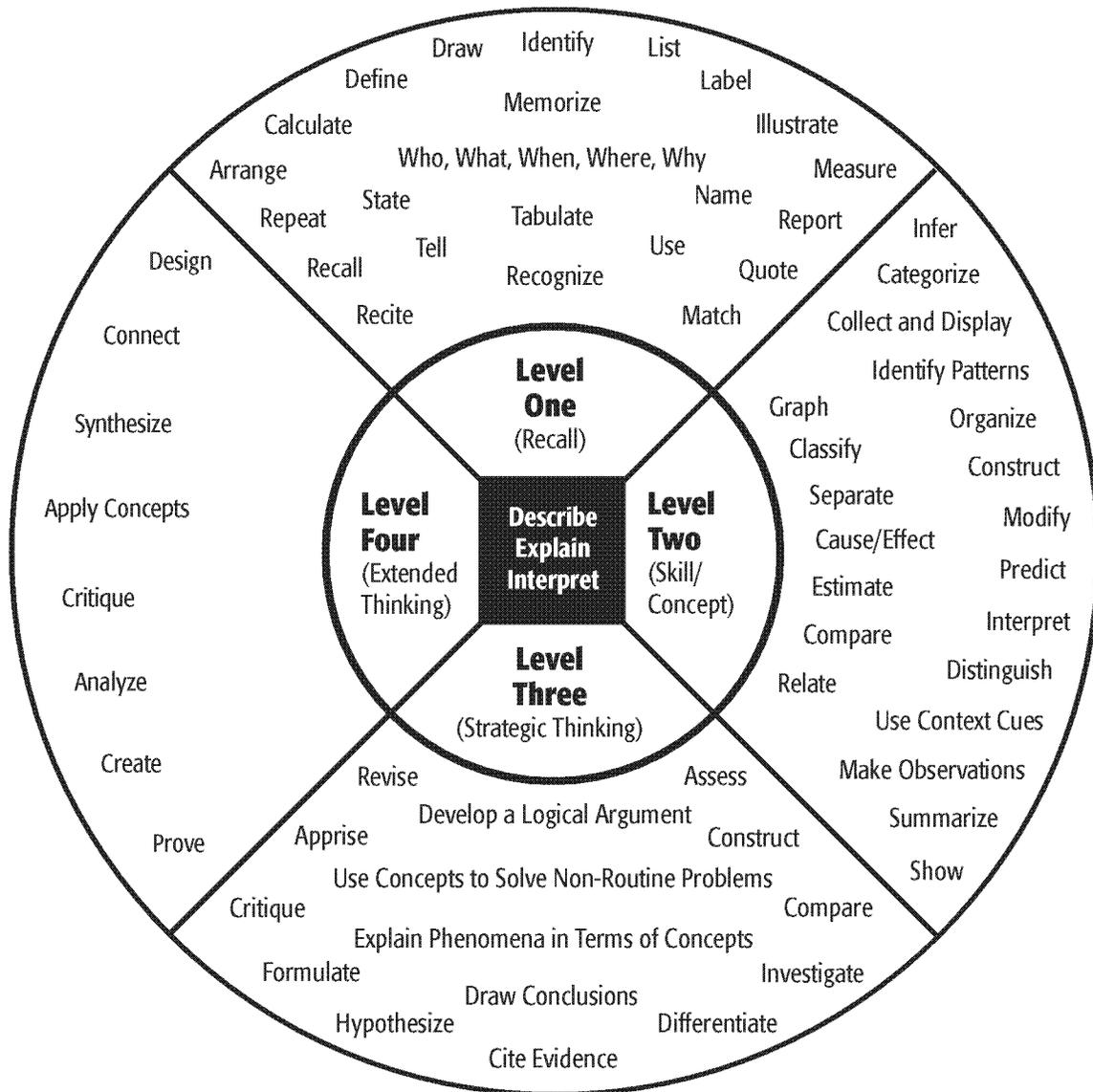
Many on-demand assessment instruments will not include assessment activities that could be classified as Level 4. However, standards, goals, and objectives can be stated so as to expect students to perform thinking at this level. On-demand assessments that do include tasks, products, or extended responses would be classified as Level 4

when the task or response requires evidence that the cognitive requirements have been met.

Source of Challenge Criterion

The Source of Challenge criterion is only used to identify items where the major cognitive demand is inadvertently placed and is other than the targeted social studies content, concept, skill and application. Excessive reading demands, cultural bias, or specialized knowledge could be reasons for an item to have a source of challenge problem. Such item characteristics may cause some students to not answer an assessment item or answer an assessment item incorrectly even though they have the social studies content knowledge, understanding and skills being assessed. Items with an appropriate source of challenge level will differentiate between those students who have the social studies knowledge and understanding the assessment item intends to measure from those students who do not have this knowledge.

Depth of Knowledge (DOK) Levels



Level One Activities	Level Two Activities	Level Three Activities	Level Four Activities
Recall elements and details of story structure, such as sequence of events, character, plot and setting.	Identify and summarize the major events in a narrative.	Support ideas with details and examples.	Conduct a project that requires specifying a problem, designing and conducting an experiment, analyzing its data, and reporting results/solutions.
Conduct basic mathematical calculations.	Use context cues to identify the meaning of unfamiliar words.	Use voice appropriate to the purpose and audience.	Apply mathematical model to illuminate a problem or situation.
Label locations on a map.	Solve routine multiple-step problems.	Identify research questions and design investigations for a scientific problem.	Analyze and synthesize information from multiple sources.
Represent in words or diagrams a scientific concept or relationship.	Describe the cause/effect of a particular event.	Develop a scientific model for a complex situation.	Describe and illustrate how common themes are found across texts from different cultures.
Perform routine procedures like measuring length or using punctuation marks correctly.	Identify patterns in events or behavior.	Determine the author's purpose and describe how it affects the interpretation of a reading selection.	Design a mathematical model to inform and solve a practical or abstract situation.
Describe the features of a place or people.	Formulate a routine problem given data and conditions.	Apply a concept in other contexts.	
	Organize, represent and interpret data.		

NRS 391.166 Grant Fund for Incentives for Licensed Educational Personnel; program of incentive pay; submission of application for grant; approval of financial incentives by Interim Finance Committee; limitation on individual incentive; evaluation of program.

1. There is hereby created the Grant Fund for Incentives for Licensed Educational Personnel to be administered by the Department. The Department may accept gifts and grants from any source for deposit in the Grant Fund.

2. The board of trustees of each school district shall establish a program of incentive pay for licensed teachers, school psychologists, school librarians, school counselors and administrators employed at the school level which must be designed to attract and retain those employees. The program must be negotiated pursuant to chapter 288 of NRS and must include, without limitation, the attraction and retention of:

(a) Licensed teachers, school psychologists, school librarians, school counselors and administrators employed at the school level who have been employed in that category of position for at least 5 years in this State or another state and who are employed in schools which are at-risk, as determined by the Department pursuant to subsection 8; and

(b) Teachers who hold an endorsement in the field of mathematics, science, special education, English as a second language or other area of need within the school district, as determined by the Superintendent of Public Instruction.

3. A program of incentive pay established by a school district must specify the type of financial incentives offered to the licensed educational personnel. Money available for the program must not be used to negotiate the salaries of individual employees who participate in the program.

4. If the board of trustees of a school district wishes to receive a grant of money from the Grant Fund, the board of trustees shall submit to the Department an application on a form prescribed by the Department. The application must include a description of the program of incentive pay established by the school district.

5. The Superintendent of Public Instruction shall compile a list of the financial incentives recommended by each school district that submitted an application. On or before December 1 of each year, the Superintendent shall submit the list to the Interim Finance Committee for its approval of the recommended incentives.

6. After approval of the list of incentives by the Interim Finance Committee pursuant to subsection 5 and within the limits of money available in the Grant Fund, the Department shall provide grants of money to each school district that submits an application pursuant to subsection 4 based upon the amount of money that is necessary to carry out each program. If an insufficient amount of money is available to pay for each program submitted to the Department, the amount of money available must be distributed pro rata based upon the number of licensed employees who are estimated to be eligible to participate in the program in each school district that submitted an application.

7. An individual employee may not receive as a financial incentive pursuant to a program an amount of money that is more than \$3,500 per year.

8. The Department shall, in consultation with representatives appointed by the Nevada Association of School Superintendents and the Nevada Association of School Boards, develop a formula for identifying at-risk schools for purposes of this section. The formula must be developed on or before July 1 of each year and include, without limitation, the following factors:

(a) The percentage of pupils who are eligible for free or reduced-price lunches pursuant to 42 U.S.C. §§ 1751 et seq.;

(b) The transiency rate of pupils;

(c) The percentage of pupils who are limited English proficient;

(d) The percentage of pupils who have individualized education programs;

(e) The percentage of pupils who score in the bottom two quarters on the mathematics portion or the reading portion, or both, of the high school proficiency examination; and

(f) The percentage of pupils who drop out of high school before graduation.

9. The board of trustees of each school district that receives a grant of money pursuant to this section shall evaluate the effectiveness of the program for which the grant was awarded. The evaluation must include, without limitation, an evaluation of whether the program is effective in recruiting and retaining the personnel as set forth in subsection 2. On or before December 1 of each year, the board of trustees shall submit a report of its evaluation to the:

(a) Governor;

(b) State Board;

(c) Interim Finance Committee;

(d) If the report is submitted in an even-numbered year, Director of the Legislative Counsel Bureau for transmittal to the next regular session of the Legislature; and

(e) Legislative Committee on Education.

(Added to NRS by 2007, 23rd Special Session, 16)

Senate Bill No. 389–Committee on Health and Education

CHAPTER.....

AN ACT relating to education; revising provisions governing public schools that are designated as demonstrating need for improvement; revising other provisions related to the accountability of public schools; and providing other matters properly relating thereto.

Legislative Counsel’s Digest:

Under existing law, a “Title I school” is a public school that receives money pursuant to the No Child Left Behind Act of 2001, 20 U.S.C. §§ 6301 et seq., and is obligated to comply with the provisions of that federal law. (NRS 385.3746) Existing law requires each public school to be designated annually as demonstrating exemplary achievement, high achievement, adequate achievement or need for improvement. (NRS 385.3263, 385.3266) Under existing law, if a school is designated as demonstrating need for improvement for 2 or more consecutive years, increasingly progressive actions must be taken to improve the achievement of pupils enrolled at the school. (NRS 385.3455-385.391)

Under existing law, if a school is designated as demonstrating need for improvement for 3 or more consecutive years, a support team must be established for the school. (NRS 385.3721, 385.3745) This bill eliminates the requirement for the Department of Education to establish a support team for a school, and **section 6** of this bill authorizes the Department, if deemed necessary, to establish a support team for such a school. (NRS 385.361)

Section 10 of this bill requires the board of trustees of a school district or the governing body of a charter school to conduct a comprehensive audit for a school that is designated as demonstrating need for improvement for 3 consecutive years, including an audit of the curriculum implemented at the school. (NRS 385.3721)

Section 16 of this bill eliminates the requirement that the Department develop and carry out a new curriculum for certain schools that have demonstrated need for improvement for 3 consecutive years. (NRS 385.3744)

Section 18 of this bill requires the development of a turnaround plan for each school that is not a Title I school that has demonstrated need for improvement for 4 consecutive years. (NRS 385.3745)

Section 19 of this bill maintains the requirement that a restructuring plan must be developed if a Title 1 school has demonstrated need for improvement for 4 consecutive years and prescribes the requirements for such plans. (NRS 385.3746)

Sections 2 and 3 of this bill require the implementation of the turnaround plan for each school that is not a Title I school if the school demonstrates need for improvement 5 or more consecutive years and requires the Department to monitor the implementation of that plan.

Section 3.5 of this bill requires the implementation of a restructuring plan for each Title I school if the school demonstrates need for improvement for 5 or more consecutive years.



THE PEOPLE OF THE STATE OF NEVADA, REPRESENTED IN
SENATE AND ASSEMBLY, DO ENACT AS FOLLOWS:

Section 1. Chapter 385 of NRS is hereby amended by adding thereto the provisions set forth as sections 2, 3 and 3.5 of this act.

Sec. 2. 1. *If a public school that is not a Title I school is designated as demonstrating need for improvement pursuant to NRS 385.3623 for 5 or more consecutive years for failure to make adequate yearly progress:*

(a) The board of trustees of the school district shall:

(1) Except as otherwise provided in subsection 3 of section 3 of this act, repeal the plan to improve the academic achievement of pupils developed pursuant to NRS 385.357 and, not later than September 30, implement the turnaround plan to improve the academic achievement of pupils enrolled in the school developed pursuant to NRS 385.3745;

(2) Provide notice of the designation to the parents and guardians of pupils enrolled in the school on the form prescribed by the Department pursuant to NRS 385.382; and

(3) Ensure that the school receives technical assistance in the manner set forth in 20 U.S.C. § 6316(b)(4) and the regulations adopted pursuant thereto.

(b) The State Board shall prescribe by regulation the actions which the Department may take to monitor the implementation of any corrective action at the school.

2. *If a charter school that is not a Title I school is designated as demonstrating need for improvement pursuant to NRS 385.3623 for 5 or more consecutive years for failure to make adequate yearly progress:*

(a) The governing body of the charter school shall:

(1) Except as otherwise provided in subsection 3 of section 3 of this act, repeal the plan to improve the academic achievement of pupils developed pursuant to NRS 385.357 and, not later than September 30, implement the turnaround plan to improve the academic achievement of pupils enrolled in the school developed pursuant to NRS 385.3745.

(2) Provide notice of the designation to the parents and guardians of pupils enrolled in the charter school on a form prescribed by the Department pursuant to NRS 385.382.

(b) For a charter school sponsored by the board of trustees of a school district, the board of trustees shall, in conjunction with the governing body of the charter school, ensure that the charter school receives technical assistance in the manner set forth in 20 U.S.C. § 6316(b)(4) and the regulations adopted pursuant thereto.



(c) *For a charter school sponsored by the State Board or by a college or university within the Nevada System of Higher Education, the Department shall, in conjunction with the governing body of the charter school, ensure that the charter school receives technical assistance in the manner set forth in 20 U.S.C. § 6316(b)(4) and the regulations adopted pursuant thereto.*

(d) *The State Board shall prescribe by regulation the actions which the Department may take to monitor the implementation of any corrective action at the charter school.*

Sec. 3. 1. *Except as otherwise provided in subsection 3, if a public school that is not a Title I school is designated as demonstrating need for improvement pursuant to NRS 385.3623 for 5 or more consecutive years for failure to make adequate yearly progress:*

(a) *The Department may, for a charter school sponsored by the State Board or by a college or university within the Nevada System of Higher Education, take corrective action as set forth in NRS 385.3744 or proceed with consequences or sanctions, or both, as prescribed by the State Board pursuant to NRS 385.361.*

(b) *The board of trustees of a school district may, for a school of the school district or a charter school sponsored by the board of trustees, take corrective action as set forth in NRS 385.3744 or proceed with consequences or sanctions, or both, as prescribed by the State Board pursuant to NRS 385.361.*

2. *The Department shall monitor the implementation of the turnaround plan for the school developed pursuant to NRS 385.3745.*

3. *The Department or the board of trustees of a school district, as applicable, shall grant a delay from the imposition of corrective action, consequences or sanctions pursuant to this section for a school, including, without limitation, the development and implementation of a turnaround plan, for a period not to exceed 1 year if the school qualifies for a delay in the manner set forth in 20 U.S.C. § 6316(b)(7)(D). If the school fails to make adequate yearly progress during the period of the delay, the Department or the board of trustees, as applicable, may proceed with corrective action or with consequences or sanctions, or both, for the school, as appropriate, as if the delay never occurred.*

4. *Before the board of trustees or the Department proceeds with consequences or sanctions, the board of trustees or the Department, as applicable, shall provide to the administrators,*



teachers and other educational personnel employed at that school, and parents and guardians of pupils enrolled in the school:

(a) Notice that the board of trustees or the Department, as applicable, will proceed with consequences or sanctions for the school;

(b) An opportunity to comment before the consequences or sanctions are carried out; and

(c) An opportunity to participate in the development of the consequences or sanctions.

Sec. 3.5. 1. If a Title I school is designated as demonstrating need for improvement pursuant to NRS 385.3623 for 5 or more consecutive years:

(a) Except as otherwise provided in paragraph (b), the board of trustees of the school district shall:

(1) Except as otherwise provided in subsection 2, repeal the plan to improve the academic achievement of pupils developed pursuant to NRS 385.357 and, not later than September 30, implement the plan for restructuring the school developed pursuant to NRS 385.3746 if required by 20 U.S.C § 6316(b)(8) and the regulations adopted pursuant thereto;

(2) Provide notice of the designation to the parents and guardians of pupils enrolled in the school on the form prescribed by the Department pursuant to NRS 385.382;

(3) Ensure that the school receives technical assistance in the manner set forth in 20 U.S.C. § 6316(b)(4) and the regulations adopted pursuant thereto;

(4) Provide school choice to the parents and guardians of pupils enrolled in the school in accordance with 20 U.S.C. § 6316(b)(1) and the regulations adopted pursuant thereto; and

(5) Provide supplemental educational services in accordance with 20 U.S.C. § 6316(e) and the regulations adopted pursuant thereto from a provider approved pursuant to NRS 385.384, unless a waiver is granted pursuant to that provision of federal law.

(b) If the school is a charter school:

(1) Sponsored by the board of trustees of a school district, the board of trustees shall:

(1) Except as otherwise provided in subsection 3, repeal the plan to improve the academic achievement of pupils developed pursuant to NRS 385.357 and, not later than September 30, implement the plan for restructuring the charter school developed pursuant to NRS 385.3746 if required by 20 U.S.C § 6316(b)(8) and the regulations adopted pursuant thereto;



(II) Provide notice of the designation to the parents and guardians of pupils enrolled in the charter school on the form prescribed by the Department pursuant to NRS 385.382;

(III) Ensure that the charter school receives technical assistance in the manner set forth in 20 U.S.C. § 6316(b)(4) and the regulations adopted pursuant thereto; and

(IV) Provide school choice to the parents and guardians of pupils enrolled in the charter school in accordance with 20 U.S.C. § 6316(b)(1) and the regulations adopted pursuant thereto.

(2) Sponsored by the State Board or by a college or university within the Nevada System of Higher Education, the Department shall:

(I) Except as otherwise provided in subsection 3, repeal the plan to improve the academic achievement of pupils developed pursuant to NRS 385.357 and, not later than September 30, implement the plan for restructuring the charter school developed pursuant to NRS 385.3746 if required by 20 U.S.C § 6316(b)(8) and the regulations adopted pursuant thereto;

(II) Provide notice of the designation to the parents and guardians of pupils enrolled in the charter school on the form prescribed by the Department pursuant to NRS 385.382;

(III) Ensure that the charter school receives technical assistance in the manner set forth in 20 U.S.C. § 6316(b)(4) and the regulations adopted pursuant thereto; and

(IV) Work cooperatively with the board of trustees of the school district in which the charter school is located to provide school choice to the parents and guardians of pupils enrolled in the school in accordance with 20 U.S.C. § 6316(b)(1) and the regulations adopted pursuant thereto.

(3) Regardless of the sponsor, the governing body of the charter school shall provide supplemental educational services in accordance with 20 U.S.C. § 6316(e) and the regulations adopted pursuant thereto from a provider approved pursuant to NRS 385.384, unless a waiver is granted pursuant to that provision of federal law.

(c) The State Board shall prescribe by regulation the actions which the Department may take to monitor the implementation of any corrective action at the school or charter school.

2. The board of trustees of a school district shall grant a delay from the imposition of a plan for restructuring for a school, including, without limitation, the development and implementation of a plan for restructuring, for a period not to exceed 1 year if the school qualifies for a delay pursuant to 20 U.S.C. § 6316(b)(7)(D).



If the school fails to make adequate yearly progress during the period of delay, the board of trustees shall proceed with a plan for restructuring the school as if the delay never occurred.

3. The sponsor of a charter school shall grant a delay from the imposition of a plan for restructuring for a school, including, without limitation, the development and implementation of a plan for restructuring, for a period not to exceed 1 year if the school qualifies for a delay pursuant to 20 U.S.C. § 6316(b)(7)(D). If the charter school fails to make adequate yearly progress during the period of delay, the Department shall proceed with a plan for restructuring the charter school as if the delay never occurred.

4. Before the board of trustees of a school district or the Department proceeds with a plan for restructuring, the board of trustees or the Department, as applicable, shall provide to the administrators, teachers and other educational personnel employed at that school, and parents and guardians of pupils enrolled in the school:

(a) Notice that the board of trustees or the Department, as applicable, will develop a plan for restructuring the school;

(b) An opportunity to comment before the plan to restructure is developed; and

(c) An opportunity to participate in the development of the plan to restructure.

Sec. 4. NRS 385.3455 is hereby amended to read as follows:

385.3455 As used in NRS 385.3455 to 385.391, inclusive, *and sections 2, 3 and 3.5 of this act*, unless the context otherwise requires, the words and terms defined in NRS 385.346 to 385.34675, inclusive, have the meanings ascribed to them in those sections.

Sec. 5. NRS 385.3468 is hereby amended to read as follows:

385.3468 The provisions of NRS 385.3455 to 385.391, inclusive, *and sections 2, 3 and 3.5 of this act* do not supersede, negate or otherwise limit the effect or application of the provisions of chapters 288 and 391 of NRS or the rights, remedies and procedures afforded to employees of a school district under the terms of collective bargaining agreements, memoranda of understanding or other such agreements between employees and their employers.

Sec. 5.5. NRS 385.357 is hereby amended to read as follows:

385.357 1. ~~The~~ *Except as otherwise provided in sections 2 and 3.5 of this act*, the principal of each school, including, without limitation, each charter school, shall, in consultation with the



employees of the school, prepare a plan to improve the achievement of the pupils enrolled in the school.

2. The plan developed pursuant to subsection 1 must include:

(a) A review and analysis of the data pertaining to the school upon which the report required pursuant to subsection 2 of NRS 385.347 is based and a review and analysis of any data that is more recent than the data upon which the report is based.

(b) The identification of any problems or factors at the school that are revealed by the review and analysis.

(c) Strategies based upon scientifically based research, as defined in 20 U.S.C. § 7801(37), that will strengthen the core academic subjects, as defined in NRS 389.018.

(d) Policies and practices concerning the core academic subjects which have the greatest likelihood of ensuring that each group of pupils identified in paragraph (b) of subsection 1 of NRS 385.361 who are enrolled in the school will make adequate yearly progress and meet the minimum level of proficiency prescribed by the State Board.

(e) Annual measurable objectives, consistent with the annual measurable objectives established by the State Board pursuant to NRS 385.361, for the continuous and substantial progress by each group of pupils identified in paragraph (b) of subsection 1 of that section who are enrolled in the school to ensure that each group will make adequate yearly progress and meet the level of proficiency prescribed by the State Board.

(f) Strategies, consistent with the policy adopted pursuant to NRS 392.457 by the board of trustees of the school district in which the school is located, to promote effective involvement by parents and families of pupils enrolled in the school in the education of their children.

(g) As appropriate, programs of remedial education or tutoring to be offered before and after school, during the summer, or between sessions if the school operates on a year-round calendar for pupils enrolled in the school who need additional instructional time to pass or to reach a level considered proficient.

(h) Strategies to improve the academic achievement of pupils enrolled in the school, including, without limitation, strategies to:

(I) Instruct pupils who are not achieving to their fullest potential, including, without limitation:

(I) The curriculum appropriate to improve achievement;

(II) The manner by which the instruction will improve the achievement and proficiency of pupils on the examinations administered pursuant to NRS 389.015 and 389.550; and



(III) An identification of the instruction and curriculum that is specifically designed to improve the achievement and proficiency of pupils in each group identified in paragraph (b) of subsection 1 of NRS 385.361;

(2) Increase the rate of attendance of pupils and reduce the number of pupils who drop out of school;

(3) Integrate technology into the instructional and administrative programs of the school;

(4) Manage effectively the discipline of pupils; and

(5) Enhance the professional development offered for the teachers and administrators employed at the school to include the activities set forth in 20 U.S.C. § 7801(34) and to address the specific needs of pupils enrolled in the school, as deemed appropriate by the principal.

(i) An identification, by category, of the employees of the school who are responsible for ensuring that the plan is carried out effectively.

(j) In consultation with the school district or governing body, as applicable, an identification, by category, of the employees of the school district or governing body, if any, who are responsible for ensuring that the plan is carried out effectively or for overseeing and monitoring whether the plan is carried out effectively.

(k) In consultation with the Department, an identification, by category, of the employees of the Department, if any, who are responsible for overseeing and monitoring whether the plan is carried out effectively.

(l) For each provision of the plan, a timeline for carrying out that provision, including, without limitation, a timeline for monitoring whether the provision is carried out effectively.

(m) For each provision of the plan, measurable criteria for determining whether the provision has contributed toward improving the academic achievement of pupils, increasing the rate of attendance of pupils and reducing the number of pupils who drop out of school.

(n) The resources available to the school to carry out the plan. If this State has a financial analysis program that is designed to track educational expenditures and revenues to individual schools, each school shall use that statewide program in complying with this paragraph. If a statewide program is not available, each school shall use the financial analysis program used by the school district in which the school is located in complying with this paragraph.

(o) A summary of the effectiveness of appropriations made by the Legislature that are available to the school to improve the



academic achievement of pupils and programs approved by the Legislature to improve the academic achievement of pupils.

(p) A budget of the overall cost for carrying out the plan.

3. In addition to the requirements of subsection 2, if a school has been designated as demonstrating need for improvement pursuant to NRS 385.3623, the plan must comply with 20 U.S.C. § 6316(b)(3) and the regulations adopted pursuant thereto.

4. Except as otherwise provided in subsection 5, the principal of each school shall, in consultation with the employees of the school:

(a) Review the plan prepared pursuant to this section annually to evaluate the effectiveness of the plan; and

(b) Based upon the evaluation of the plan, make revisions, as necessary, to ensure that the plan is designed to improve the academic achievement of pupils enrolled in the school.

5. If a school has been designated as demonstrating need for improvement pursuant to NRS 385.3623 and a support team has been established for the school, the support team shall review the plan and make revisions to the most recent plan for improvement of the school pursuant to NRS 385.3741. If the school is a Title I school that has been designated as demonstrating need for improvement, the support team established for the school shall, in making revisions to the plan, work in consultation with parents and guardians of pupils enrolled in the school and, to the extent deemed appropriate by the entity responsible for creating the support team, outside experts.

6. On or before November 1 of each year, the principal of each school or the support team established for the school, as applicable, shall submit the plan or the revised plan, as applicable, to:

(a) If the school is a public school of the school district, the superintendent of schools of the school district.

(b) If the school is a charter school, the governing body of the charter school.

7. If a Title I school is designated as demonstrating need for improvement pursuant to NRS 385.3623, the superintendent of schools of the school district or the governing body, as applicable, shall carry out a process for peer review of the plan or the revised plan, as applicable, in accordance with 20 U.S.C. § 6316(b)(3)(E) and the regulations adopted pursuant thereto. Not later than 45 days after receipt of the plan, the superintendent of schools of the school district or the governing body, as applicable, shall approve the plan or the revised plan, as applicable, if it meets the requirements of 20 U.S.C. § 6316(b)(3) and the regulations adopted pursuant thereto.



and the requirements of this section. The superintendent of schools of the school district or the governing body, as applicable, may condition approval of the plan or the revised plan, as applicable, in the manner set forth in 20 U.S.C. § 6316(b)(3)(B) and the regulations adopted pursuant thereto. The State Board shall prescribe the requirements for the process of peer review, including, without limitation, the qualifications of persons who may serve as peer reviewers.

8. If a school is designated as demonstrating exemplary achievement, high achievement or adequate achievement, or if a school that is not a Title I school is designated as demonstrating need for improvement, not later than 45 days after receipt of the plan or the revised plan, as applicable, the superintendent of schools of the school district or the governing body, as applicable, shall approve the plan or the revised plan if it meets the requirements of this section.

9. On or before December 15 of each year, the principal of each school or the support team established for the school, as applicable, shall submit the final plan or the final revised plan, as applicable, to the:

- (a) Superintendent of Public Instruction;
- (b) Governor;
- (c) State Board;
- (d) Department;
- (e) Committee;
- (f) Bureau; and
- (g) Board of trustees of the school district in which the school is located.

10. A plan for the improvement of a school must be carried out expeditiously, but not later than January 1 after approval of the plan pursuant to subsection 7 or 8, as applicable.

Sec. 5.7. NRS 385.359 is hereby amended to read as follows:

385.359 1. The Bureau shall contract with a person or entity to:

(a) Review and analyze, in accordance with the standards prescribed by the Committee pursuant to subsection 2 of NRS 218.5354, the:

(1) Annual report of accountability prepared by:

(I) The State Board pursuant to NRS 385.3469; and

(II) The board of trustees of each school district pursuant

to NRS 385.347.

(2) Plan to improve the achievement of pupils prepared by:

(I) The State Board pursuant to NRS 385.34691;



(II) The board of trustees of each school district pursuant to NRS 385.348; and

(III) Each school pursuant to NRS 385.357 identified by the Bureau for review, if any ~~plan~~, *or if such a plan has not been prepared, the turnaround plan for the schools identified by the Bureau, if any, implemented pursuant to section 2 of this act or the plan for restructuring the school implemented pursuant to section 3.5 of this act, as applicable.*

(b) Submit a written report to and consult with the State Board and the Department regarding any methods by which the State Board may improve the accuracy of the report of accountability required pursuant to NRS 385.3469 and the plan to improve the achievement of pupils required pursuant to NRS 385.34691, and the purposes for which the report and plan to improve are used.

(c) Submit a written report to and consult with each school district regarding any methods by which the district may improve the accuracy of the report required pursuant to subsection 2 of NRS 385.347 and the plan to improve the achievement of pupils required pursuant to NRS 385.348, and the purposes for which the report and plan to improve are used.

(d) If requested by the Bureau, submit a written report to and consult with individual schools identified by the Bureau regarding any methods by which the school may improve the accuracy of the information required to be reported for the school pursuant to subsection 2 of NRS 385.347 and the ~~plan~~:

(1) *Plan* to improve the achievement of pupils required pursuant to NRS 385.357 ~~plan~~;

(2) *Turnaround plan for the school implemented pursuant to section 2 of this act; or*

(3) *Plan for restructuring the school implemented pursuant to section 3.5 of this act,*

whichever is applicable for the school.

(e) Submit written reports and any recommendations to the Committee and the Bureau concerning:

(1) The effectiveness of the provisions of NRS 385.3455 to 385.391, inclusive, in improving the accountability of the schools of this State;

(2) The status of each school district that is designated as demonstrating need for improvement pursuant to NRS 385.377 and each school that is designated as demonstrating need for improvement pursuant to NRS 385.3623; and

(3) Any other matter related to the accountability of the public schools of this State, as deemed necessary by the Bureau.



2. The consultant with whom the Bureau contracts to perform the duties required pursuant to subsection 1 must possess the experience and knowledge necessary to perform those duties, as determined by the Committee.

Sec. 6. NRS 385.361 is hereby amended to read as follows:

385.361 1. The State Board shall define the measurement for determining whether each public school, each school district and this State are making adequate yearly progress. The definition of adequate yearly progress must:

(a) Comply with 20 U.S.C. § 6311(b)(2) and the regulations adopted pursuant thereto;

(b) Be designed to ensure that all pupils will meet or exceed the minimum level of proficiency set by the State Board, including, without limitation:

(1) Pupils who are economically disadvantaged, as defined by the State Board;

(2) Pupils from major racial and ethnic groups, as defined by the State Board;

(3) Pupils with disabilities; and

(4) Pupils who are limited English proficient;

(c) Be based primarily upon the measurement of progress of pupils on the examinations administered pursuant to NRS 389.550 or the high school proficiency examination, as applicable;

(d) Include annual measurable objectives established pursuant to 20 U.S.C. § 6311(b)(2)(G) and the regulations adopted pursuant thereto;

(e) For high schools, include the rate of graduation; and

(f) For elementary schools, junior high schools and middle schools, include the rate of attendance.

2. The examination in science must not be included in the definition of adequate yearly progress.

3. The State Board shall prescribe, by regulation, the *differentiated corrective actions, the consequences or the sanctions, or ~~both,~~ any combination thereof, based upon the identified needs of the public school, including, without limitation, the educational needs of English language learners, pupils with disabilities or other groups of pupils identified in paragraph (b) of subsection 1,* that apply to a public school ~~{that is not a Title I school and}~~ that has been designated as demonstrating need for improvement for 4 consecutive years or more ~~{}~~, *including, without limitation, the establishment of a support team for a school if deemed necessary by the Department in accordance with the regulations of the State Board.* In no event may the



consequences or sanctions be more strict than the restructuring that applies to Title I schools.

Sec. 7. NRS 385.3661 is hereby amended to read as follows:

385.3661 1. Except as otherwise provided in subsection 2, if a public school is designated as demonstrating need for improvement pursuant to NRS 385.3623 and the provisions of NRS 385.3693, 385.3721 , ~~{or}~~ 385.3745 *or 385.3746 or section 2 or 3.5 of this act* do not apply, the board of trustees of the school district shall:

(a) Provide notice of the designation to the parents and guardians of pupils enrolled in the school on the form prescribed by the Department pursuant to NRS 385.382; and

(b) Ensure that the school receives technical assistance in the manner set forth in 20 U.S.C. § 6316(b)(4) and the regulations adopted pursuant thereto.

2. If a charter school is designated as demonstrating need for improvement pursuant to NRS 385.3623 and the provisions of NRS 385.3693, 385.3721 , ~~{or}~~ 385.3745 *or 385.3746 or section 2 or 3.5 of this act* do not apply:

(a) The governing body of the charter school shall provide notice of the designation to the parents and guardians of pupils enrolled in the charter school on the form prescribed by the Department pursuant to NRS 385.382.

(b) For a charter school sponsored by the board of trustees of a school district, the board of trustees shall, in conjunction with the governing body of the charter school, ensure that the charter school receives technical assistance in the manner set forth in 20 U.S.C. § 6316(b)(4) and the regulations adopted pursuant thereto.

(c) For a charter school sponsored by the State Board or by a college or university within the Nevada System of Higher Education, the Department shall, in conjunction with the governing body of the charter school, ensure that the charter school receives technical assistance in the manner set forth in 20 U.S.C. § 6316(b)(4) and the regulations adopted pursuant thereto.

3. In addition to the requirements of subsection 1 or 2, as applicable, if a Title I school is designated as demonstrating need for improvement pursuant to NRS 385.3623 and the provisions of NRS 385.3693, 385.3721 , ~~{or}~~ 385.3745 *or 385.3746 or section 2 or 3.5 of this act* do not apply:

(a) Except as otherwise provided in paragraph (b), the board of trustees of the school district shall provide school choice to the parents and guardians of pupils enrolled in the school, including, without limitation, a charter school sponsored by the school district,



in accordance with 20 U.S.C. § 6316(b)(1) and the regulations adopted pursuant thereto.

(b) For a charter school sponsored by the State Board or by a college or university within the Nevada System of Higher Education, the Department shall work cooperatively with the board of trustees of the school district in which the charter school is located to provide school choice to the parents and guardians of pupils enrolled in the charter school in accordance with 20 U.S.C. § 6316(b)(1) and the regulations adopted pursuant thereto.

Secs. 8 and 9. (Deleted by amendment.)

Sec. 10. NRS 385.3721 is hereby amended to read as follows:

~~385.3721 1. If a public school is designated as demonstrating need for improvement pursuant to NRS 385.3623 for 3 consecutive years, the support team established for the school pursuant to this section shall carry out the requirements of NRS 385.3741 and 385.3742.~~

~~2.~~ Except as otherwise provided in subsection ~~{3.}~~ 2, if a public school is designated as demonstrating need for improvement pursuant to NRS 385.3623 for 3 consecutive years:

(a) The board of trustees of the school district shall:

(1) Provide notice of the designation to the parents and guardians of pupils enrolled in the school on the form prescribed by the Department pursuant to NRS 385.382; and

(2) Ensure that the school receives technical assistance in the manner set forth in 20 U.S.C. § 6316(b)(4) and the regulations adopted pursuant thereto.

~~(b) The Department shall establish a support team for the school, with the membership prescribed pursuant to NRS 385.374.~~

~~3.~~ *require the board of trustees of the school district to conduct a comprehensive audit of the school which must include an audit of the curriculum, including, without limitation, methods of instruction and assessments, implemented by the school.*

2. If a charter school is designated as demonstrating need for improvement pursuant to NRS 385.3623 for 3 consecutive years:

(a) The governing body of the charter school shall provide notice of the designation to the parents and guardians of pupils enrolled in the charter school on the form prescribed by the Department pursuant to NRS 385.382.

(b) For a charter school sponsored by the board of trustees of a school district, the board of trustees shall, in conjunction with the governing body of the charter school, ensure that the charter school receives technical assistance in the manner set forth in 20 U.S.C. § 6316(b)(4) and the regulations adopted pursuant thereto.



(c) For a charter school sponsored by the State Board or by a college or university within the Nevada System of Higher Education, the Department shall, in conjunction with the governing body of the charter school, ensure that the charter school receives technical assistance in the manner set forth in 20 U.S.C. § 6316(b)(4) and the regulations adopted pursuant thereto.

(d) The Department shall ~~establish a support team for the school, with the membership prescribed pursuant to NRS 385.374.~~ ***require the governing body of the charter school to conduct a comprehensive audit of the charter school which must include an audit of the curriculum, including, without limitation, methods of instruction and assessments, implemented by the charter school.***

Sec. 11. NRS 385.374 is hereby amended to read as follows:

385.374 1. The membership of each support team established pursuant to NRS ~~{385.372}~~ **385.3745** must consist of, without limitation:

(a) Teachers and principals who are considered highly qualified and who are not employees of the public school for which the support team is established;

(b) One member appointed in accordance with subsection 3, who must serve as the team leader of the support team;

(c) Except for a charter school, at least one administrator at the district level who is employed by the board of trustees of the school district;

(d) At least one parent or guardian of a pupil who is enrolled in the public school for which the support team is established; and

(e) In addition to the requirements of paragraphs (a) to (d), inclusive, for a charter school:

(1) At least one member of the governing body of the charter school, regardless of the sponsor of the charter school; and

(2) If the charter school is sponsored by the board of trustees of a school district, at least one employee of the school district, which may include an administrator.

2. The membership of each support team established pursuant to NRS ~~{385.372}~~ **385.3745** may consist of, without limitation:

(a) Except for a charter school, one or more members of the board of trustees of the school district in which the school is located;

(b) Representatives of institutions of higher education;

(c) Representatives of regional educational laboratories;

(d) Representatives of outside consultant groups;

(e) Representatives of the regional training program for the professional development of teachers and administrators created by



NRS 391.512 that provides services to the school district in which the school is located;

(f) The Bureau; and

(g) Other persons who the Department determines are appropriate.

3. The member appointed pursuant to paragraph (b) of subsection 1 must:

(a) Be employed by the Department; or

(b) If he is not employed by the Department, have the training and experience required by the Department.

Sec. 12. NRS 385.374 is hereby amended to read as follows:

385.374 1. ~~{The}~~ *If a school support team is established in accordance with the regulations adopted by the State Board pursuant to NRS 385.361, the* membership of ~~{each}~~ *the* support team ~~{established pursuant to NRS 385.3745}~~ must consist of, without limitation:

(a) Teachers and principals who are considered highly qualified and who are not employees of the public school for which the support team is established;

(b) One member appointed in accordance with subsection 3, who must serve as the team leader of the support team;

(c) Except for a charter school, at least one administrator at the district level who is employed by the board of trustees of the school district;

(d) At least one parent or guardian of a pupil who is enrolled in the public school for which the support team is established; and

(e) In addition to the requirements of paragraphs (a) to (d), inclusive, for a charter school:

(1) At least one member of the governing body of the charter school, regardless of the sponsor of the charter school; and

(2) If the charter school is sponsored by the board of trustees of a school district, at least one employee of the school district, which may include an administrator.

2. ~~{The}~~ *If a school support team is established in accordance with the regulations adopted by the State Board pursuant to NRS 385.361, the* membership of ~~{each}~~ *the* support team ~~{established pursuant to NRS 385.3745}~~ may consist of, without limitation:

(a) Except for a charter school, one or more members of the board of trustees of the school district in which the school is located;

(b) Representatives of institutions of higher education;

(c) Representatives of regional educational laboratories;

(d) Representatives of outside consultant groups;



(e) Representatives of the regional training program for the professional development of teachers and administrators created by NRS 391.512 that provides services to the school district in which the school is located;

(f) The Bureau; and

(g) Other persons who the Department determines are appropriate.

3. The member appointed pursuant to paragraph (b) of subsection 1 must:

(a) Be employed by the Department; or

(b) If he is not employed by the Department, have the training and experience required by the Department.

Sec. 13. NRS 385.3741 is hereby amended to read as follows:

385.3741 1. Each support team established for a public school pursuant to NRS ~~{385.3721}~~ 385.3745 shall:

(a) Review and analyze the operation of the school, including, without limitation, the design and operation of the instructional program of the school.

(b) Review and analyze the data pertaining to the school upon which the report required pursuant to subsection 2 of NRS 385.347 is based and review and analyze any data that is more recent than the data upon which the report is based.

(c) Review the most recent plan to improve the achievement of the school's pupils.

(d) Review the information concerning the educational involvement accords provided to the support team pursuant to NRS 392.4575 and the information concerning the reports provided to the support team pursuant to NRS 392.456.

(e) Identify and investigate the problems and factors at the school that contributed to the designation of the school as demonstrating need for improvement.

(f) Assist the school in developing recommendations for improving the performance of pupils who are enrolled in the school.

(g) Except as otherwise provided in this paragraph, make recommendations to the board of trustees of the school district, the State Board and the Department concerning additional assistance for the school in carrying out the plan for improvement of the school. For a charter school sponsored by the State Board, the support team shall make the recommendations to the State Board and the Department. For a charter school sponsored by a college or university within the Nevada System of Higher Education, the support team shall make the recommendations to the sponsor, the State Board and the Department.



(h) In accordance with its findings pursuant to this section and NRS 385.3742, submit, on or before November 1, written revisions to the most recent plan to improve the achievement of the school's pupils for approval pursuant to NRS 385.357. The written revisions must:

- (1) Comply with NRS 385.357;
- (2) If the school is a Title I school, be developed in consultation with parents and guardians of pupils enrolled in the school and, to the extent deemed appropriate by the entity that created the support team, outside experts;
- (3) Include the data and findings of the support team that provide support for the revisions;
- (4) Set forth goals, objectives, tasks and measures for the school that are:
 - (I) Designed to improve the achievement of the school's pupils;
 - (II) Specific;
 - (III) Measurable; and
 - (IV) Conducive to reliable evaluation;
- (5) Set forth a timeline to carry out the revisions;
- (6) Set forth priorities for the school in carrying out the revisions; and
- (7) Set forth the name and duties of each person who is responsible for carrying out the revisions.

(i) Except as otherwise provided in this paragraph, work cooperatively with the board of trustees of the school district in which the school is located, the employees of the school, and the parents and guardians of pupils enrolled in the school to carry out and monitor the plan for improvement of the school. If a charter school is sponsored by the State Board, the Department shall assist the school with carrying out and monitoring the plan for improvement of the school. If a charter school is sponsored by a college or university within the Nevada System of Higher Education, that institution shall assist the school with carrying out and monitoring the plan for improvement of the school.

(j) Prepare a quarterly progress report in the format prescribed by the Department and:

- (1) Submit the progress report to the Department.
- (2) Distribute copies of the progress report to each employee of the school for review.

(k) In addition to the requirements of this section, if the support team is established for a Title I school, carry out the requirements of 20 U.S.C. § 6317(a)(5).



2. A school support team may require the school for which the support team was established to submit plans, strategies, tasks and measures that, in the determination of the support team, will assist the school in improving the achievement and proficiency of pupils enrolled in the school.

3. The Department shall prescribe a concise quarterly progress report for use by each support team in accordance with paragraph (j) of subsection 1.

Sec. 14. NRS 385.3741 is hereby amended to read as follows:

385.3741 1. ~~Each~~ *If a school support team is established pursuant to the regulations adopted by the State Board pursuant to NRS 385.361, the support team* ~~established for a public school pursuant to NRS 385.3745~~ shall:

(a) Review and analyze the operation of the school, including, without limitation, the design and operation of the instructional program of the school.

(b) Review and analyze the data pertaining to the school upon which the report required pursuant to subsection 2 of NRS 385.347 is based and review and analyze any data that is more recent than the data upon which the report is based.

(c) Review the most recent plan to improve the achievement of the school's pupils.

(d) Review the information concerning the educational involvement accords provided to the support team pursuant to NRS 392.4575 and the information concerning the reports provided to the support team pursuant to NRS 392.456.

(e) Identify and investigate the problems and factors at the school that contributed to the designation of the school as demonstrating need for improvement.

(f) Assist the school in developing recommendations for improving the performance of pupils who are enrolled in the school.

(g) Except as otherwise provided in this paragraph, make recommendations to the board of trustees of the school district, the State Board and the Department concerning additional assistance for the school in carrying out the plan for improvement of the school ~~+-~~ *, the turnaround plan for the school or the plan for restructuring the school, whichever is applicable for the school.* For a charter school sponsored by the State Board, the support team shall make the recommendations to the State Board and the Department. For a charter school sponsored by a college or university within the Nevada System of Higher Education, the support team shall make the recommendations to the sponsor, the State Board and the Department.



(h) In accordance with its findings pursuant to this section and NRS 385.3742, submit, on or before November 1, written revisions to the most recent plan to improve the achievement of the school's pupils for approval pursuant to NRS 385.357 ~~††~~, *or submit, on or before May 1, written recommendations for revisions to the turnaround plan for the school implemented pursuant to section 2 of this act or the plan for restructuring the school implemented pursuant to section 3.5 of this act, whichever is applicable for the school.* The written revisions *or recommendations, as applicable,* must:

(1) Comply with NRS 385.357 ~~††~~ *if the school has demonstrated need for improvement for less than 5 years or with section 2 or 3.5 of this act, as applicable, if the school has demonstrated need for improvement for 5 or more consecutive years;*

(2) If the school is a Title I school, be developed in consultation with parents and guardians of pupils enrolled in the school and, to the extent deemed appropriate by the entity that created the support team, outside experts;

(3) Include the data and findings of the support team that provide support for the revisions;

(4) Set forth goals, objectives, tasks and measures for the school that are:

(I) Designed to improve the achievement of the school's pupils;

(II) Specific;

(III) Measurable; and

(IV) Conducive to reliable evaluation;

(5) Set forth a timeline to carry out the revisions;

(6) Set forth priorities for the school in carrying out the revisions; and

(7) Set forth the name and duties of each person who is responsible for carrying out the revisions.

(i) Except as otherwise provided in this paragraph, work cooperatively with the board of trustees of the school district in which the school is located, the employees of the school, and the parents and guardians of pupils enrolled in the school to carry out and monitor the plan for improvement of the school. If a charter school is sponsored by the State Board, the Department shall assist the school with carrying out and monitoring the plan for improvement of the school. If a charter school is sponsored by a college or university within the Nevada System of Higher



Education, that institution shall assist the school with carrying out and monitoring the plan for improvement of the school.

(j) Prepare a quarterly progress report in the format prescribed by the Department and:

(1) Submit the progress report to the Department.

(2) Distribute copies of the progress report to each employee of the school for review.

(k) In addition to the requirements of this section, if the support team is established for a Title I school, carry out the requirements of 20 U.S.C. § 6317(a)(5).

2. A school support team may require the school for which the support team was established to submit plans, strategies, tasks and measures that, in the determination of the support team, will assist the school in improving the achievement and proficiency of pupils enrolled in the school.

3. The Department shall prescribe a concise quarterly progress report for use by each support team in accordance with paragraph (j) of subsection 1.

Sec. 14.5. NRS 385.3742 is hereby amended to read as follows:

385.3742 1. In addition to the duties prescribed in NRS 385.3741, a support team established for a school shall prepare an annual written report that includes:

(a) Information concerning the most recent plan to improve the achievement of the school's pupils, *the turnaround plan for the school or the plan for restructuring the school, whichever is applicable for the school*, including, without limitation, an evaluation of:

(1) The appropriateness of the plan for the school; and

(2) Whether the school has achieved the goals and objectives set forth in the plan;

(b) The written revisions to the plan to improve the achievement of the school's pupils *or written recommendations for revisions to the turnaround plan for the school or the plan for restructuring the school, whichever is applicable for the school*, submitted by the support team pursuant to NRS 385.3741;

(c) A summary of each program for remediation, if any, purchased for the school with money that is available from the Federal Government, this state and the school district in which the school is located, including, without limitation:

(1) The name of the program;

(2) The date on which the program was purchased and the date on which the program was carried out by the school;



(3) The percentage of personnel at the school who were trained regarding the use of the program;

(4) The satisfaction of the personnel at the school with the program; and

(5) An evaluation of whether the program has improved the academic achievement of the pupils enrolled in the school who participated in the program;

(d) An analysis of the problems and factors at the school which contributed to the designation of the school as demonstrating need for improvement, including, without limitation, issues relating to:

(1) The financial resources of the school;

(2) The administrative and educational personnel of the school;

(3) The curriculum of the school;

(4) The facilities available at the school, including the availability and accessibility of educational technology; and

(5) Any other factors that the support team believes contributed to the designation of the school as demonstrating need for improvement; and

(e) Other information concerning the school, including, without limitation:

(1) The results of the pupils who are enrolled in the school on the examinations that are administered pursuant to NRS 389.550 or the high school proficiency examination, as applicable;

(2) Records of the attendance and truancy of pupils who are enrolled in the school;

(3) The transiency rate of pupils who are enrolled in the school;

(4) A description of the number of years that each teacher has provided instruction at the school and the rate of turnover of teachers and other educational personnel employed at the school;

(5) A description of the participation of parents and legal guardians in the educational process and other activities relating to the school;

(6) A description of each source of money for the remediation of pupils who are enrolled in the school; and

(7) A description of the disciplinary problems of the pupils who are enrolled in the school, including, without limitation, the information contained in paragraphs (k) to (n), inclusive, of subsection 2 of NRS 385.347.

2. On or before November 1, the support team shall submit a copy of the final written report to the:

(a) Principal of the school;



- (b) Board of trustees of the school district in which the school is located;
- (c) Superintendent of schools of the school district in which the school is located;
- (d) Department; and
- (e) Bureau.

↳ The support team shall make the written report available, upon request, to each parent or legal guardian of a pupil who is enrolled in the school.

Sec. 15. (Deleted by amendment.)

Sec. 16. NRS 385.3744 is hereby amended to read as follows:

~~385.3744 1. Except as otherwise provided in subsection {3,} 2, if a public school that is not a Title I school is designated as demonstrating need for improvement pursuant to NRS 385.3623 for 3 consecutive years for failing to make adequate yearly progress, [the support team established for the school shall consider whether corrective action is appropriate for the school. If the support team determines that corrective action is appropriate, the support team shall make a recommendation for corrective action for the school, including, without limitation, the type of corrective action that is recommended from the list of corrective actions authorized pursuant to subsection 2. The recommendation must be submitted to:~~

~~—(a) For a school of the school district or a charter school sponsored by the board of trustees of the school district, the board of trustees;~~

~~—(b) For a charter school sponsored by the State Board or by a college or university within the Nevada System of Higher Education, the Department.~~

~~2. Regardless of whether a support team recommends corrective action for a school, the} *the* Department may, for a charter school sponsored by the State Board or by a college or university within the Nevada System of Higher Education, and the board of trustees of a school district may, for a school of the school district or a charter school sponsored by the board of trustees, take one or more of the following corrective actions for the school:~~

~~(a) {Develop and carry out a new curriculum at the school, including the provision of appropriate professional development relating to the new curriculum.~~

~~—(b)} Significantly decrease the managerial authority of the employees at the school.~~

~~{(e)} (b) Extend the school year or the school day.~~

~~{3.} 2. The Department or the board of trustees of a school district, as applicable, shall grant a delay from the imposition of~~



corrective action for a school for a period not to exceed 1 year if the school qualifies for a delay in the manner set forth in 20 U.S.C. § 6316(b)(7)(D). If the school fails to make adequate yearly progress during the period of the delay, the Department or the board of trustees, as applicable, may proceed with corrective action as if the delay never occurred.

Sec. 17. NRS 385.3745 is hereby amended to read as follows:

385.3745 1. If a public school is designated as demonstrating need for improvement pursuant to NRS 385.3623 for 4 or more consecutive years, the support team established for the school pursuant to ~~NRS 385.3721~~ *this section* shall carry out the requirements of NRS 385.3741 ~~{} and 385.3742 .~~ ~~and 385.3744, as applicable.~~

2. Except as otherwise provided in subsection 3, if a public school is designated as demonstrating need for improvement pursuant to NRS 385.3623 for 4 or more consecutive years:

(a) The board of trustees of the school district shall:

(1) Provide notice of the designation to the parents and guardians of pupils enrolled in the school on the form prescribed by the Department pursuant to NRS 385.382; and

(2) Ensure that the school receives technical assistance in the manner set forth in 20 U.S.C. § 6316(b)(4) and the regulations adopted pursuant thereto.

(b) The Department shall ~~continue~~ *establish* a support team for the school ~~{} , with the membership prescribed pursuant to NRS 385.374.~~

3. If a charter school is designated as demonstrating need for improvement pursuant to NRS 385.3623 for 4 or more consecutive years:

(a) The governing body of the charter school shall provide notice of the designation to the parents and guardians of pupils enrolled in the school on the form prescribed by the Department pursuant to NRS 385.382.

(b) For a charter school sponsored by the board of trustees of a school district, the board of trustees shall, in conjunction with the governing body of the charter school, ensure that the charter school receives technical assistance in the manner set forth in 20 U.S.C. § 6316(b)(4) and the regulations adopted pursuant thereto.

(c) For a charter school sponsored by the State Board or by a college or university within the Nevada System of Higher Education, the Department shall, in conjunction with the governing body of the charter school, ensure that the charter school receives



technical assistance in the manner set forth in 20 U.S.C. § 6316(b)(4) and the regulations adopted pursuant thereto.

(d) The Department shall ~~continue~~ **establish** a support team for the charter school ~~†~~, **with the membership prescribed pursuant to NRS 385.374.**

Sec. 18. NRS 385.3745 is hereby amended to read as follows:

~~385.3745 1. If a public school is designated as demonstrating need for improvement pursuant to NRS 385.3623 for 4 or more consecutive years, the support team established for the school pursuant to this section shall carry out the requirements of NRS 385.3741 and 385.3742.~~

~~—2.†~~ Except as otherwise provided in subsection ~~{3.} 2,~~ if a public school **that is not a Title I school** is designated as demonstrating need for improvement pursuant to NRS 385.3623 for 4 ~~or more~~ consecutive years:

(a) The board of trustees of the school district shall:

(1) **Except as otherwise provided in subsection 3, develop a turnaround plan to improve the academic achievement of pupils enrolled in the school which meets the requirements prescribed by the State Board pursuant to paragraph (b).**

(2) Provide notice of the designation to the parents and guardians of pupils enrolled in the school on the form prescribed by the Department pursuant to NRS 385.382; and

~~{2.}~~ (3) Ensure that the school receives technical assistance in the manner set forth in 20 U.S.C. § 6316(b)(4) and the regulations adopted pursuant thereto.

(b) The ~~{Department}~~ **State Board** shall ~~establish a support team for the school, with the membership prescribed pursuant to NRS 385.374.~~

~~—3.†~~ **prescribe by regulation:**

(1) **The requirements for a turnaround plan which must include, without limitation:**

(I) **A requirement that the plan is based on the results of the comprehensive audit conducted pursuant to NRS 385.3721;**

(II) **Measurable goals and objectives for obtaining adequate yearly progress;**

(III) **Specified steps or actions for obtaining adequate yearly progress; and**

(IV) **A timeline for the completion of the turnaround plan, which must provide for implementation of the plan in accordance with section 2 of this act if the school is designated as needing improvement for 5 years; and**



(2) The actions the Department may take to monitor the development of the turnaround plan developed pursuant to this section and the implementation of any corrective action at the school.

2. If a charter school is designated as demonstrating need for improvement pursuant to NRS 385.3623 for 4 ~~for more~~ consecutive years:

(a) The governing body of the charter school shall provide notice of the designation to the parents and guardians of pupils enrolled in the school on the form prescribed by the Department pursuant to NRS 385.382.

(b) For a charter school sponsored by the board of trustees of a school district, the board of trustees shall, in conjunction with the governing body of the charter school ~~ensure~~ :

(1) Except as otherwise provided in subsection 3, develop a turnaround plan to improve the academic achievement of pupils enrolled in the school which meets the requirements prescribed by the State Board pursuant to paragraph (d).

(2) Ensure that the charter school receives technical assistance in the manner set forth in 20 U.S.C. § 6316(b)(4) and the regulations adopted pursuant thereto.

(c) For a charter school sponsored by the State Board or by a college or university within the Nevada System of Higher Education, the Department shall, in conjunction with the governing body of the charter school ~~ensure~~ :

(1) Except as otherwise provided in subsection 3, develop a turnaround plan to improve the academic achievement of pupils enrolled in the school which meets the requirements prescribed by the State Board pursuant to paragraph (d).

(2) Ensure that the charter school receives technical assistance in the manner set forth in 20 U.S.C. § 6316(b)(4) and the regulations adopted pursuant thereto.

~~(d) The Department shall establish a support team for the charter school, with the membership prescribed pursuant to NRS 385.374. State Board shall prescribe by regulation:~~

(1) The requirements for a turnaround plan which must include, without limitation:

(I) A requirement that the plan is based on the results of the comprehensive audit conducted pursuant to NRS 385.3721;

(II) Measurable goals and objectives for obtaining adequate yearly progress;

(III) Specified steps or actions for obtaining adequate yearly progress; and



(IV) A timeline for the completion of the turnaround plan, which must provide for implementation of the plan in accordance with section 2 of this act if the school is designated as needing improvement for 5 years; and

(2) The actions the Department may take to monitor the implementation of the turnaround plan developed pursuant to this section and the implementation of any corrective action at the charter school.

3. If a public school is granted a delay from the development of a turnaround plan pursuant to subsection 2 of NRS 385.376 and the school fails to make adequate yearly progress during the period of the delay, a turnaround plan must be immediately developed and implemented for the school in accordance with this section as if the delay never occurred.

4. On or before June 30, a turnaround plan developed for a school must be submitted to the:

(a) Superintendent of Public Instruction;

(b) Department;

(c) Bureau;

(d) Board of trustees of the school district in which the school is located; and

(e) Principal of the school.

Sec. 19. NRS 385.3746 is hereby amended to read as follows:

385.3746 1. ~~In addition to the requirements of NRS 385.3745, if~~ *If a Title I school is designated as demonstrating need for improvement pursuant to NRS 385.3623 for 4 ~~or more~~* consecutive years:

(a) Except as otherwise provided in paragraph (b), the board of trustees of the school district shall:

(1) Provide notice of the designation to the parents and guardians of the pupils enrolled in the school on the form prescribed by the Department pursuant to NRS 385.382;

(2) Ensure that the school receives technical assistance in the manner set forth in 20 U.S.C. § 6316(b)(4) and the regulations adopted pursuant thereto;

(3) Provide school choice to the parents and guardians of pupils enrolled in the school in accordance with 20 U.S.C. § 6316(b)(1) and the regulations adopted pursuant thereto;

~~{2}~~ *(4) Provide supplemental educational services in accordance with 20 U.S.C. § 6316(e) and the regulations adopted pursuant thereto from a provider approved pursuant to NRS 385.384, unless a waiver is granted pursuant to that provision of federal law; and*



~~{(3)}~~ (5) Except as otherwise provided in subsection ~~{2, proceed with}~~ 3, *develop* a plan for restructuring the school if required by 20 U.S.C. § 6316(b)(8) and the regulations adopted pursuant thereto.

(b) *The governing body of the charter school shall provide notice of the designation to the parents and guardians of the pupils enrolled in the charter school on the form prescribed by the Department pursuant to NRS 385.382.* If the school is a charter school:

(1) Sponsored by the board of trustees of a school district, the board of trustees shall:

(I) *In conjunction with the governing body of the charter school, ensure that the charter school receives technical assistance in the manner set forth in 20 U.S.C. § 6316(b)(4) and the regulations adopted pursuant thereto;*

(II) Provide school choice to the parents and guardians of pupils enrolled in the charter school in accordance with 20 U.S.C. § 6316(b)(1); and

~~{(H)}~~ (III) Except as otherwise provided in subsection ~~{3, proceed with}~~ 4, *develop* a plan for restructuring the school if required by 20 U.S.C. § 6316(b)(8) and the regulations adopted pursuant thereto.

(2) Sponsored by the State Board or by a college or university within the Nevada System of Higher Education, the Department shall:

(I) *In conjunction with the governing body of the charter school, ensure that the charter school receives technical assistance in the manner set forth in 20 U.S.C. § 6316(b)(4) and the regulations adopted pursuant thereto;*

(II) Work cooperatively with the board of trustees of the school district in which the charter school is located to provide school choice to the parents and guardians of pupils enrolled in the school in accordance with 20 U.S.C. § 6316(b)(1) and the regulations adopted pursuant thereto; and

~~{(H)}~~ (III) Except as otherwise provided in subsection ~~{3, proceed with}~~ 4, *develop* a plan for restructuring the school if required by 20 U.S.C. § 6316(b)(8) and the regulations adopted pursuant thereto.

(3) Regardless of the sponsor, the governing body of the charter school shall provide supplemental educational services in accordance with 20 U.S.C. § 6316(e) and the regulations adopted pursuant thereto from a provider approved pursuant to



NRS 385.384, unless a waiver is granted pursuant to that provision of federal law.

2. *A plan for restructuring the school developed pursuant to this section must include, without limitation:*

(a) *A requirement that the plan is based on the results of the comprehensive audit conducted pursuant to NRS 385.3721;*

(b) *Measurable goals and objectives for obtaining adequate yearly progress;*

(c) *Specified steps or actions for obtaining adequate yearly progress; and*

(d) *A timeline for the completion of the plan for restructuring the school, which must provide for implementation of the plan in accordance with section 3.5 of this act if the school is designated as needing improvement for 5 years.*

3. The board of trustees of a school district shall grant a delay from the ~~imposition~~ *development* of a plan for restructuring for a school for a period not to exceed 1 year if the school qualifies for a delay pursuant to 20 U.S.C. § 6316(b)(7)(D). If the school fails to make adequate yearly progress during the period of the delay, the board of trustees shall *immediately develop and* proceed with ~~the~~ *the implementation of the* plan for restructuring the school as if the delay never occurred.

~~3.~~ 4. The sponsor of a charter school shall grant a delay from the ~~imposition~~ *development* of a plan for restructuring for the charter school for a period not to exceed 1 year if the charter school qualifies for a delay pursuant to 20 U.S.C. § 6316(b)(7)(D). If the charter school fails to make adequate yearly progress during the period of the delay, *a plan for restructuring must be immediately developed for the school in accordance with this section and* the Department shall proceed with ~~the~~ *the implementation of the* plan for restructuring the charter school as if the delay never occurred.

~~4. Before the board of trustees of a school district or the Department proceeds with a plan for restructuring, the board of trustees or the Department, as applicable, shall provide to the administrators, teachers and other educational personnel employed at that school, and parents and guardians of pupils enrolled in the school:~~

~~—(a) Notice that the board of trustees or the Department, as applicable, will develop a plan for restructuring the school;~~

~~—(b) An opportunity to comment before the plan to restructure is developed; and~~

~~—(c) An opportunity to participate in the development of the plan to restructure.]~~



5. *On or before June 30, a plan for restructuring developed pursuant to this section must be submitted to the:*

(a) *Superintendent of Public Instruction;*

(b) *Department;*

(c) *Bureau;*

(d) *Board of trustees of the school district in which the school is located; and*

(e) *Principal of the school.*

Sec. 20. NRS 385.376 is hereby amended to read as follows:

385.376 1. Except as otherwise provided in subsection ~~{3,}~~ 2, if a public school that is not a Title I school is designated as demonstrating need for improvement pursuant to NRS 385.3623 for 4 or more consecutive years for failure to make adequate yearly progress, ~~{the support team for the school shall:~~

~~—(a) If corrective action was not taken against the school pursuant to NRS 385.3744, consider whether corrective action is appropriate for the school.~~

~~—(b) If corrective action was taken against the school pursuant to NRS 385.3744, consider whether further corrective action is appropriate or whether consequences or sanctions, or both, are appropriate for the school.~~

~~2. Regardless of whether a support team recommends corrective action or consequences or sanctions for a school,~~ the Department may, for a charter school sponsored by the State Board or by a college or university within the Nevada System of Higher Education, and the board of trustees of a school district may, for a school of the school district or a charter school sponsored by the board of trustees, take corrective action as set forth in NRS 385.3744 or proceed with *differentiated corrective actions*, consequences or sanctions, or ~~{both,}~~ *any combination thereof*, as prescribed by the State Board pursuant to NRS 385.361.

~~{3,}~~ 2. The Department or the board of trustees of a school district, as applicable, shall grant a delay from the imposition of corrective action, *consequences* or ~~{restructuring}~~ *sanctions, or any combination thereof*, pursuant to this section for a school for a period not to exceed 1 year if the school qualifies for a delay in the manner set forth in 20 U.S.C. § 6316(b)(7)(D). If the school fails to make adequate yearly progress during the period of the delay, the Department or the board of trustees, as applicable, may proceed with corrective action, ~~{or with}~~ consequences or sanctions, or ~~{both,}~~ *any combination thereof*, for the school, as appropriate, as if the delay never occurred.



~~{4.}~~ 3. Before the board of trustees or the Department proceeds with consequences or sanctions, the board of trustees or the Department, as applicable, shall provide to the administrators, teachers and other educational personnel employed at that school, and parents and guardians of pupils enrolled in the school:

(a) Notice that the board of trustees or the Department, as applicable, will proceed with consequences or sanctions for the school;

(b) An opportunity to comment before the consequences or sanctions are carried out; and

(c) An opportunity to participate in the development of the consequences or sanctions.

Sec. 21. NRS 385.376 is hereby amended to read as follows:

385.376 1. Except as otherwise provided in subsection 2, if a public school that is not a Title I school is designated as demonstrating need for improvement pursuant to NRS 385.3623 for 4 ~~for more~~ consecutive years for failure to make adequate yearly progress, the Department may, for a charter school sponsored by the State Board or by a college or university within the Nevada System of Higher Education, and the board of trustees of a school district may, for a school of the school district or a charter school sponsored by the board of trustees, take corrective action as set forth in NRS 385.3744 or proceed with differentiated correction actions, consequences or sanctions, or any combination thereof, as prescribed by the State Board pursuant to NRS 385.361.

2. The Department or the board of trustees of a school district, as applicable, shall grant a delay from the imposition of corrective action, consequences or sanctions, or any combination thereof, pursuant to this section for a school for a period not to exceed 1 year if the school qualifies for a delay in the manner set forth in 20 U.S.C. § 6316(b)(7)(D). If the school fails to make adequate yearly progress during the period of the delay, the Department or the board of trustees, as applicable, may proceed with corrective action, consequences or sanctions, or any combination thereof, for the school, as appropriate, *pursuant to the provisions of section 2 of this act* as if the delay never occurred.

3. Before the board of trustees or the Department proceeds with consequences or sanctions, the board of trustees or the Department, as applicable, shall provide to the administrators, teachers and other educational personnel employed at that school, and parents and guardians of pupils enrolled in the school:



(a) Notice that the board of trustees or the Department, as applicable, will proceed with consequences or sanctions for the school;

(b) An opportunity to comment before the consequences or sanctions are carried out; and

(c) An opportunity to participate in the development of the consequences or sanctions.

Sec. 21.3. NRS 385.3785 is hereby amended to read as follows:

385.3785 1. The Commission shall:

(a) Establish a program of educational excellence designed exclusively for pupils enrolled in kindergarten through grade 6 in public schools in this State based upon:

(1) The plan to improve the achievement of pupils prepared by the State Board pursuant to NRS 385.34691;

(2) The plan to improve the achievement of pupils prepared by the board of trustees of each school district pursuant to NRS 385.348;

(3) The plan to improve the achievement of pupils prepared by the principal of each school pursuant to NRS 385.357, which may include a program of innovation ~~and~~, *the turnaround plan for the school implemented pursuant to section 2 of this act or the plan for restructuring the school implemented pursuant to section 3.5 of this act, whichever is applicable for the school*; and

(4) Any other information that the Commission considers relevant to the development of the program of educational excellence.

(b) Identify programs, practices and strategies that have proven effective in improving the academic achievement and proficiency of pupils.

(c) Develop a concise application and simple procedures for the submission of applications by public schools and consortiums of public schools, including, without limitation, charter schools, for participation in a program of educational excellence and for grants of money from the Account. Grants of money must be made for programs designed for the achievement of pupils that are linked to the plan to improve the achievement of pupils or for innovative programs, or both ~~and~~, *or that are linked to the turnaround plan for the school or the plan for restructuring the school, if applicable, or for innovative programs, or both*. The Commission shall not award a grant of money from the Account for a program to provide full-day kindergarten. All public schools and consortiums of public schools, including, without limitation, charter schools, are eligible to



submit such an application, regardless of whether the schools have made adequate yearly progress or failed to make adequate yearly progress. A public school or a consortium of public schools selected for participation may be approved by the Commission for participation for a period not to exceed 2 years, but may reapply.

(d) Prescribe a long-range timeline for the review, approval and evaluation of applications received from public schools and consortiums of public schools that desire to participate in the program.

(e) Establish guidelines for the review, evaluation and approval of applications for grants of money from the Account, including, without limitation, consideration of the list of priorities of public schools provided by the Department pursuant to subsection 5. To ensure consistency in the review, evaluation and approval of applications, if the guidelines authorize the review and evaluation of applications by less than the entire membership of the Commission, money must not be allocated from the Account for a grant until the entire membership of the Commission has reviewed and approved the application for the grant.

(f) Prescribe accountability measures to be carried out by a public school that participates in the program if that public school does not meet the annual measurable objectives established by the State Board pursuant to NRS 385.361, including, without limitation:

(1) The specific levels of achievement expected of schools that participate; and

(2) Conditions for schools that do not meet the grant criteria but desire to continue participation in the program and receive money from the Account, including, without limitation, a review of the leadership at the school and recommendations regarding changes to the appropriate body.

(g) Determine the amount of money that is available from the Account for those public schools and consortiums of public schools that are selected to participate in the program.

(h) Allocate money to public schools and consortiums of public schools from the Account. Allocations must be distributed not later than August 15 of each year.

(i) Establish criteria for public schools and consortiums of public schools that participate in the program and receive an allocation of money from the Account to evaluate the effectiveness of the allocation in improving the achievement of pupils, including, without limitation, a detailed analysis of:



(1) The achievement of pupils enrolled at each school that received money from the allocation based upon measurable criteria identified in , *as applicable*, the ~~plan~~ :

(I) Plan to improve the achievement of pupils for the school prepared pursuant to NRS 385.357;

(II) Turnaround plan for the school implemented pursuant to section 2 of this act; or

(III) Plan for restructuring the school implemented pursuant to section 3.5 of this act;

(2) If applicable, the effectiveness of the program of innovation on the achievement of pupils and the overall effectiveness for pupils and staff;

(3) The implementation of the applicable plans for improvement, including, without limitation, an analysis of whether the school is meeting the measurable objectives identified in the plan; and

(4) The attainment of measurable progress on the annual list of adequate yearly progress of school districts and schools.

2. To the extent money is available, the Commission shall make allocations of money to public schools and consortiums of public schools for effective programs for grades 7 through 12 that are designed to improve the achievement of pupils and effective programs of innovation for pupils. In making such allocations, the Commission shall comply with the requirements of subsection 1.

3. The Commission shall ensure, to the extent practicable, that grants of money provided pursuant to this section reflect the economic and geographic diversity of this State.

4. If a public school or consortium that receives money pursuant to subsection 1 or 2:

(a) Does not meet the criteria for effectiveness as prescribed in paragraph (i) of subsection 1;

(b) Does not, as a result of the program for which the grant of money was awarded, show improvement in the achievement of pupils, as determined in an evaluation conducted pursuant to subsection 3 of NRS 385.379; or

(c) Does not implement the program for which the money was received, as determined in an evaluation conducted pursuant to subsection 3 of NRS 385.379,

↳ over a 2-year period, the Commission may consider not awarding future allocations of money to that public school or consortium of public schools.

5. On or before July 1 of each year, the Department shall provide a list of priorities of public schools that indicates:



(a) The adequate yearly progress status of schools in the immediately preceding year; and

(b) The public schools that are considered Title I eligible by the Department based upon the poverty level of the pupils enrolled in a school in comparison to the poverty level of the pupils in the school district as a whole,

↳ for consideration by the Commission in its development of procedures for the applications.

6. A public school, including, without limitation, a charter school, or a consortium of public schools may request assistance from the school district in which the school is located in preparing an application for a grant of money pursuant to this section. A school district shall assist each public school or consortium of public schools that requests assistance pursuant to this subsection to ensure that the application of the school:

(a) Is based directly upon , *as applicable*, the ~~plan~~ :

(1) *Plan* to improve the achievement of pupils prepared for the school pursuant to NRS 385.357;

(2) *Turnaround plan for the school implemented pursuant to section 2 of this act; or*

(3) *Plan for restructuring the school implemented pursuant to section 3.5 of this act;*

(b) Is developed in accordance with the criteria established by the Commission; and

(c) Is complete and complies with all technical requirements for the submission of an application.

↳ A school district may make recommendations to the individual schools and consortiums of public schools. Such schools and consortiums of public schools are not required to follow the recommendations of a school district.

7. In carrying out the requirements of this section, the Commission shall review and consider the programs of remedial study adopted by the Department pursuant to NRS 385.389, the list of approved providers of supplemental services maintained by the Department pursuant to NRS 385.384 and the recommendations submitted by the Committee pursuant to NRS 218.5354 concerning programs, practices and strategies that have proven effective in improving the academic achievement and proficiency of pupils.

8. If a consortium of public schools is formed for the purpose of submitting an application pursuant to this section, the public schools within the consortium do not need to be located within the same school district.



Sec. 21.7. NRS 386.605 is hereby amended to read as follows:

386.605 1. On or before July 15 of each year, the governing body of a charter school shall submit the information concerning the charter school that is required pursuant to subsection 2 of NRS 385.347 to the board of trustees of the school district in which the charter school is located for inclusion in the report of the school district pursuant to that section. The information must be submitted by the charter school in a format prescribed by the board of trustees.

2. The Legislative Bureau of Educational Accountability and Program Evaluation created pursuant to NRS 218.5356 may authorize a person or entity with whom it contracts pursuant to NRS 385.359 to review and analyze information submitted by charter schools pursuant to this section and *pursuant to NRS 385.357 ~~or section 2 or 3.5 of this act, whichever is applicable for the school,~~* consult with the governing bodies of charter schools and submit written reports concerning charter schools pursuant to NRS 385.359.

Sec. 22. NRS 386.730 is hereby amended to read as follows:

386.730 1. Except as otherwise provided in subsection 2, the principal of a public school within a school district that participates in the Program of Empowerment Schools who wishes to convert to an empowerment school shall:

- (a) Establish an empowerment team for the school; and
- (b) Develop an empowerment plan for the school in consultation with:

- (1) The empowerment team; and
- (2) The school support team, if a school support team has been established for the school pursuant to NRS ~~{385.3721}~~ 385.3745.

2. The principal of a public school located in a county whose population is less than 100,000 may develop an empowerment plan for the school without establishing or consulting with an empowerment team. If a school support team has been established for the school, the principal shall develop the empowerment plan in consultation with the school support team. If an empowerment team has not been established pursuant to the exception provided in this subsection, the principal of the school shall carry out the responsibilities and duties otherwise assigned to an empowerment team pursuant to NRS 386.700 to 386.780, inclusive.

3. An empowerment team for a school must consist of the following persons:

- (a) The principal of the school;
- (b) At least two but not more than four teachers and other licensed educational personnel who are employed at the school,



selected by a recognized employee organization that represents licensed educational personnel within the school district;

(c) At least two but not more than four employees, other than teachers and other licensed educational personnel, who are employed at the school, selected by an organization that represents those employees;

(d) At least two but not more than four parents and legal guardians of pupils enrolled in the school, selected by an association of parents established for the school;

(e) At least two but not more than four representatives of the community or businesses within the community;

(f) The facilitator of the school support team, if a school support team has been established for the school pursuant to NRS ~~{385.3721;}~~ 385.3745; and

(g) Such other persons as may be necessary to meet the requirements set forth in subsection 4.

4. Of the total number of members on an empowerment team for a school:

(a) At least one member must have 5 years or more of experience in school finance;

(b) At least one member must have 5 years or more of experience in school administration or human resources;

(c) At least one member must have 5 years or more of experience in overseeing the academic programs and curriculum for a public school; and

(d) At least one member must have 5 years or more of experience in the collection and analysis of data.

↳ The provisions of this subsection do not require the appointment of four persons if one, two or three such persons satisfy the qualifications.

5. A charter school that wishes to participate in the Program of Empowerment Schools shall comply with the provisions of NRS 386.700 to 386.780, inclusive. If a charter school is approved as an empowerment school, the charter school does not forfeit its status as a charter school.

Sec. 23. NRS 386.730 is hereby amended to read as follows:

386.730 1. Except as otherwise provided in subsection 2, the principal of a public school within a school district that participates in the Program of Empowerment Schools who wishes to convert to an empowerment school shall:

(a) Establish an empowerment team for the school; and

(b) Develop an empowerment plan for the school in consultation with:



(1) The empowerment team; and
(2) The school support team, if a school support team has been established for the school *in accordance with the regulations of the State Board adopted* pursuant to NRS ~~{385.3745.}~~ **385.361**.

2. The principal of a public school located in a county whose population is less than 100,000 may develop an empowerment plan for the school without establishing or consulting with an empowerment team. If a school support team has been established for the school, the principal shall develop the empowerment plan in consultation with the school support team. If an empowerment team has not been established pursuant to the exception provided in this subsection, the principal of the school shall carry out the responsibilities and duties otherwise assigned to an empowerment team pursuant to NRS 386.700 to 386.780, inclusive.

3. An empowerment team for a school must consist of the following persons:

- (a) The principal of the school;
- (b) At least two but not more than four teachers and other licensed educational personnel who are employed at the school, selected by a recognized employee organization that represents licensed educational personnel within the school district;
- (c) At least two but not more than four employees, other than teachers and other licensed educational personnel, who are employed at the school, selected by an organization that represents those employees;
- (d) At least two but not more than four parents and legal guardians of pupils enrolled in the school, selected by an association of parents established for the school;
- (e) At least two but not more than four representatives of the community or businesses within the community;
- (f) The facilitator of the school support team, if a school support team has been established for the school pursuant to *regulations adopted by the State Board pursuant to* NRS ~~{385.3745.}~~ **385.361**; and
- (g) Such other persons as may be necessary to meet the requirements set forth in subsection 4.

4. Of the total number of members on an empowerment team for a school:

- (a) At least one member must have 5 years or more of experience in school finance;
- (b) At least one member must have 5 years or more of experience in school administration or human resources;



(c) At least one member must have 5 years or more of experience in overseeing the academic programs and curriculum for a public school; and

(d) At least one member must have 5 years or more of experience in the collection and analysis of data.

↳ The provisions of this subsection do not require the appointment of four persons if one, two or three such persons satisfy the qualifications.

5. A charter school that wishes to participate in the Program of Empowerment Schools shall comply with the provisions of NRS 386.700 to 386.780, inclusive. If a charter school is approved as an empowerment school, the charter school does not forfeit its status as a charter school.

Sec. 24. NRS 386.740 is hereby amended to read as follows:

386.740 1. Each empowerment plan for a school must:

(a) Set forth the manner by which the school will be governed;

(b) Set forth the proposed budget for the school, including, without limitation, the cost of carrying out the empowerment plan, and the manner by which the money apportioned to the school will be administered;

(c) If a school support team has been established for the school pursuant to NRS ~~385.3721~~, **385.3745**, require the principal and the empowerment team for the school to work in consultation with the school support team;

(d) Prescribe the academic plan for the school, including, without limitation, the manner by which courses of study will be provided to the pupils enrolled in the school and any special programs that will be offered for pupils;

(e) Prescribe the manner by which the achievement of pupils will be measured and reported for the school, including, without limitation, the results of the pupils on the examinations administered pursuant to NRS 389.015 and 389.550;

(f) Prescribe the manner by which teachers and other licensed educational personnel will be selected and hired for the school, which must be determined and negotiated pursuant to chapter 288 of NRS;

(g) Prescribe the manner by which all other staff for the school will be selected and hired, which must be determined and negotiated pursuant to chapter 288 of NRS;

(h) Indicate whether the empowerment plan will offer an incentive pay structure for staff and a description of that pay structure, if applicable;



(i) Indicate the intended ratio of pupils to teachers at the school, designated by grade level, which must comply with NRS 388.700 or 388.720, as applicable;

(j) Provide a description of the professional development that will be offered to the teachers and other licensed educational personnel employed at the school;

(k) Prescribe the manner by which the empowerment plan will increase the involvement of parents and legal guardians of pupils enrolled in the school;

(l) Comply with the plan to improve the achievement of the pupils enrolled in the school prepared pursuant to NRS 385.357;

(m) Address the specific educational needs and concerns of the pupils who are enrolled in the school; and

(n) Set forth the calendar and schedule for the school.

2. If the empowerment plan includes an incentive pay structure, that pay structure must:

(a) Provide an incentive for all staff employed at the school;

(b) Set forth the standards that must be achieved by the pupils enrolled in the school and any other measurable objectives that must be met to be eligible for incentive pay; and

(c) Be in addition to the salary or hourly rate of pay negotiated pursuant to chapter 288 of NRS that is otherwise payable to the employee.

3. An empowerment plan may:

(a) Request a waiver from a statute contained in this title or a regulation of the State Board or the Department.

(b) Identify the services of the school district which the school wishes to receive, including, without limitation, professional development, transportation, food services and discretionary services. Upon approval of the empowerment plan, the school district may deduct from the total apportionment to the empowerment school the costs of such services.

4. For purposes of determining the budget pursuant to paragraph (b) of subsection 1, if a public school which converts to an empowerment school is a:

(a) Charter school, the amount of the budget is the amount equal to the apportionments and allowances from the State Distributive School Account pursuant to NRS 387.121 to 387.126, inclusive, and its proportionate share of any other money available from federal, state or local sources that the school or the pupils enrolled in the school are eligible to receive.

(b) Public school, other than a charter school, the empowerment team for the school shall have discretion of 90 percent of the amount



of money from the state financial aid and local funds that the school district apportions for the school, without regard to any line-item specifications or specific uses determined advisable by the school district, unless the empowerment team determines that a lesser amount is necessary to carry out the empowerment plan.

Sec. 25. NRS 386.740 is hereby amended to read as follows:

386.740 1. Each empowerment plan for a school must:

- (a) Set forth the manner by which the school will be governed;
- (b) Set forth the proposed budget for the school, including, without limitation, the cost of carrying out the empowerment plan, and the manner by which the money apportioned to the school will be administered;
- (c) If a school support team has been established for the school *in accordance with the regulations of the State Board adopted pursuant to NRS ~~[385.3745,]~~ 385.361*, require the principal and the empowerment team for the school to work in consultation with the school support team;
- (d) Prescribe the academic plan for the school, including, without limitation, the manner by which courses of study will be provided to the pupils enrolled in the school and any special programs that will be offered for pupils;
- (e) Prescribe the manner by which the achievement of pupils will be measured and reported for the school, including, without limitation, the results of the pupils on the examinations administered pursuant to NRS 389.015 and 389.550;
- (f) Prescribe the manner by which teachers and other licensed educational personnel will be selected and hired for the school, which must be determined and negotiated pursuant to chapter 288 of NRS;
- (g) Prescribe the manner by which all other staff for the school will be selected and hired, which must be determined and negotiated pursuant to chapter 288 of NRS;
- (h) Indicate whether the empowerment plan will offer an incentive pay structure for staff and a description of that pay structure, if applicable;
- (i) Indicate the intended ratio of pupils to teachers at the school, designated by grade level, which must comply with NRS 388.700 or 388.720, as applicable;
- (j) Provide a description of the professional development that will be offered to the teachers and other licensed educational personnel employed at the school;



(k) Prescribe the manner by which the empowerment plan will increase the involvement of parents and legal guardians of pupils enrolled in the school;

(l) Comply with the plan to improve the achievement of the pupils enrolled in the school prepared pursuant to NRS 385.357 ~~4~~, *the turnaround plan for the school implemented pursuant to section 2 of this act or the plan for restructuring the school implemented pursuant to section 3.5 of this act, whichever is applicable for the school;*

(m) Address the specific educational needs and concerns of the pupils who are enrolled in the school; and

(n) Set forth the calendar and schedule for the school.

2. If the empowerment plan includes an incentive pay structure, that pay structure must:

(a) Provide an incentive for all staff employed at the school;

(b) Set forth the standards that must be achieved by the pupils enrolled in the school and any other measurable objectives that must be met to be eligible for incentive pay; and

(c) Be in addition to the salary or hourly rate of pay negotiated pursuant to chapter 288 of NRS that is otherwise payable to the employee.

3. An empowerment plan may:

(a) Request a waiver from a statute contained in this title or a regulation of the State Board or the Department.

(b) Identify the services of the school district which the school wishes to receive, including, without limitation, professional development, transportation, food services and discretionary services. Upon approval of the empowerment plan, the school district may deduct from the total apportionment to the empowerment school the costs of such services.

4. For purposes of determining the budget pursuant to paragraph (b) of subsection 1, if a public school which converts to an empowerment school is a:

(a) Charter school, the amount of the budget is the amount equal to the apportionments and allowances from the State Distributive School Account pursuant to NRS 387.121 to 387.126, inclusive, and its proportionate share of any other money available from federal, state or local sources that the school or the pupils enrolled in the school are eligible to receive.

(b) Public school, other than a charter school, the empowerment team for the school shall have discretion of 90 percent of the amount of money from the state financial aid and local funds that the school district apportions for the school, without regard to any line-item



specifications or specific uses determined advisable by the school district, unless the empowerment team determines that a lesser amount is necessary to carry out the empowerment plan.

Sec. 25.3. NRS 391.298 is hereby amended to read as follows:

391.298 If the board of trustees of a school district or the superintendent of schools of a school district schedules a day or days for the professional development of teachers or administrators employed by the school district:

1. The primary focus of that scheduled professional development must be to improve the achievement of the pupils enrolled in the school district, as set forth in the ~~plan~~ :

(a) *Plan* to improve the achievement of pupils *enrolled in the school district* prepared pursuant to NRS 385.348 ~~or~~ ;

(b) *Plan to improve the achievement of pupils prepared pursuant to NRS 385.357* ~~or~~ ;

(c) *Turnaround plan for the school implemented pursuant to section 2 of this act; or*

(d) *Plan for restructuring the school implemented pursuant to section 3.5 of this act,*

↪ as applicable.

2. The scheduled professional development must be structured so that teachers attend professional development that is designed for the specific subject areas or grades taught by those teachers.

Sec. 25.7. NRS 391.540 is hereby amended to read as follows:

391.540 1. The governing body of each regional training program shall:

(a) Adopt a training model, taking into consideration other model programs, including, without limitation, the program used by the Geographic Alliance in Nevada.

(b) Assess the training needs of teachers and administrators who are employed by the school districts within the primary jurisdiction of the regional training program and adopt priorities of training for the program based upon the assessment of needs. The board of trustees of each such school district may submit recommendations to the appropriate governing body for the types of training that should be offered by the regional training program.

(c) In making the assessment required by paragraph (b), review the plans to improve the achievement of pupils prepared pursuant to NRS 385.348 by the school districts within the primary jurisdiction of the regional training program and, as deemed necessary by the governing body, review the ~~plans~~ :

(1) *Plans* to improve the achievement of pupils prepared pursuant to NRS 385.357 ;



(2) Turnaround plans for schools implemented pursuant to section 2 of this act; and

(3) Plans for restructuring schools implemented pursuant to section 3.5 of this act,

↳ for individual schools within the primary jurisdiction of the regional training program.

(d) Prepare a 5-year plan for the regional training program, which includes, without limitation:

(1) An assessment of the training needs of teachers and administrators who are employed by the school districts within the primary jurisdiction of the regional training program; and

(2) Specific details of the training that will be offered by the regional training program for the first 2 years covered by the plan.

(e) Review the 5-year plan on an annual basis and make revisions to the plan as are necessary to serve the training needs of teachers and administrators employed by the school districts within the primary jurisdiction of the regional training program.

2. The Department, the Nevada System of Higher Education and the board of trustees of a school district may request the governing body of the regional training program that serves the school district to provide training, participate in a program or otherwise perform a service that is in addition to the duties of the regional training program that are set forth in the plan adopted pursuant to this section or otherwise required by statute. An entity may not represent that a regional training program will perform certain duties or otherwise obligate the regional training program as part of an application by that entity for a grant unless the entity has first obtained the written confirmation of the governing body of the regional training program to perform those duties or obligations. The governing body of a regional training program may, but is not required to, grant a request pursuant to this subsection.

Sec. 26. NRS 392.456 is hereby amended to read as follows:

392.456 1. The Department shall:

(a) Prescribe a form for use by teachers in elementary schools to provide reports to parents and legal guardians of pupils pursuant to this section;

(b) Work in consultation with the Legislative Bureau of Educational Accountability and Program Evaluation, the Nevada Association of School Boards, the Nevada Association of School Administrators, the Nevada State Education Association and the Nevada Parent Teacher Association in the development of the form; and



(c) Make the form available in electronic format for use by school districts and charter schools and, upon request, in any other manner deemed reasonable by the Department.

2. The form must include, without limitation:

(a) A notice to parents and legal guardians that parental involvement is important in ensuring the success of the academic achievement of pupils;

(b) A checklist indicating whether:

(1) The pupil completes his homework assignments in a timely manner;

(2) The pupil is present in the classroom when school begins each day and is present for the entire school day unless his absence is approved in accordance with NRS 392.130;

(3) The parent or legal guardian and the pupil abide by any applicable rules and policies of the school and the school district; and

(4) The pupil complies with the dress code for the school, if applicable; and

(c) A list of the resources and services available within the community to assist parents and legal guardians in addressing any issues identified on the checklist.

3. In addition to the requirements of subsection 2, the Department may prescribe additional information for inclusion on the form, including, without limitation:

(a) A report of the participation of the parent or legal guardian, including, without limitation, whether the parent or legal guardian:

(1) Completes forms and other documents that are required by the school or school district in a timely manner;

(2) Assists in carrying out a plan to improve the pupil's academic achievement, if applicable;

(3) Attends conferences between the teacher and the parent or legal guardian, if applicable; and

(4) Attends school activities.

(b) A report of whether the parent or legal guardian ensures the health and safety of the pupil, including, without limitation, whether:

(1) Current information is on file with the school that designates each person whom the school should contact if an emergency involving the pupil occurs; and

(2) Current information is on file with the school regarding the health and safety of the pupil, such as immunization records, if applicable, and any special medical needs of the pupil.



4. A teacher at an elementary school may provide the form prescribed by the Department, including the additional information prescribed pursuant to subsection 3 if the Department has prescribed such information on the form, to a parent or legal guardian of a pupil if the teacher determines that the provision of such a report would assist in improving the academic achievement of the pupil.

5. A report provided to a parent or legal guardian pursuant to this section must not be used in a manner that:

- (a) Interferes unreasonably with the personal privacy of the parent or legal guardian or the pupil;
- (b) Reprimands the parent or legal guardian; or
- (c) Affects the grade or report of progress given to a pupil based upon the information contained in the report.

6. The principal of each elementary school at which a teacher provides reports pursuant to this section shall provide to the support team established for the school pursuant to NRS ~~{385.3721,}~~ 385.3745, if applicable, the information contained in the completed reports for consideration by the support team. The information must be provided in an aggregated format and must not disclose the identity of an individual parent, legal guardian or pupil.

Sec. 27. NRS 392.456 is hereby amended to read as follows:

392.456 1. The Department shall:

(a) Prescribe a form for use by teachers in elementary schools to provide reports to parents and legal guardians of pupils pursuant to this section;

(b) Work in consultation with the Legislative Bureau of Educational Accountability and Program Evaluation, the Nevada Association of School Boards, the Nevada Association of School Administrators, the Nevada State Education Association and the Nevada Parent Teacher Association in the development of the form; and

(c) Make the form available in electronic format for use by school districts and charter schools and, upon request, in any other manner deemed reasonable by the Department.

2. The form must include, without limitation:

(a) A notice to parents and legal guardians that parental involvement is important in ensuring the success of the academic achievement of pupils;

(b) A checklist indicating whether:

(1) The pupil completes his homework assignments in a timely manner;



(2) The pupil is present in the classroom when school begins each day and is present for the entire school day unless his absence is approved in accordance with NRS 392.130;

(3) The parent or legal guardian and the pupil abide by any applicable rules and policies of the school and the school district; and

(4) The pupil complies with the dress code for the school, if applicable; and

(c) A list of the resources and services available within the community to assist parents and legal guardians in addressing any issues identified on the checklist.

3. In addition to the requirements of subsection 2, the Department may prescribe additional information for inclusion on the form, including, without limitation:

(a) A report of the participation of the parent or legal guardian, including, without limitation, whether the parent or legal guardian:

(1) Completes forms and other documents that are required by the school or school district in a timely manner;

(2) Assists in carrying out a plan to improve the pupil's academic achievement, if applicable;

(3) Attends conferences between the teacher and the parent or legal guardian, if applicable; and

(4) Attends school activities.

(b) A report of whether the parent or legal guardian ensures the health and safety of the pupil, including, without limitation, whether:

(1) Current information is on file with the school that designates each person whom the school should contact if an emergency involving the pupil occurs; and

(2) Current information is on file with the school regarding the health and safety of the pupil, such as immunization records, if applicable, and any special medical needs of the pupil.

4. A teacher at an elementary school may provide the form prescribed by the Department, including the additional information prescribed pursuant to subsection 3 if the Department has prescribed such information on the form, to a parent or legal guardian of a pupil if the teacher determines that the provision of such a report would assist in improving the academic achievement of the pupil.

5. A report provided to a parent or legal guardian pursuant to this section must not be used in a manner that:

(a) Interferes unreasonably with the personal privacy of the parent or legal guardian or the pupil;

(b) Reprimands the parent or legal guardian; or



(c) Affects the grade or report of progress given to a pupil based upon the information contained in the report.

6. The principal of each elementary school at which a teacher provides reports pursuant to this section shall provide to the support team established for the school *in accordance with the regulations of the State Board adopted* pursuant to NRS ~~{385.3745,}~~ 385.361, if applicable, the information contained in the completed reports for consideration by the support team. The information must be provided in an aggregated format and must not disclose the identity of an individual parent, legal guardian or pupil.

Sec. 28. NRS 392.4575 is hereby amended to read as follows:

392.4575 1. The Department shall prescribe a form for educational involvement accords to be used by all public schools in this State. The educational involvement accord must comply with the parental involvement policy:

(a) Required by the federal No Child Left Behind Act of 2001, as set forth in 20 U.S.C. § 6318.

(b) Adopted by the State Board pursuant to NRS 392.457.

2. Each educational involvement accord must include, without limitation:

(a) A description of how the parent or legal guardian will be involved in the education of the pupil, including, without limitation:

(1) Reading to the pupil, as applicable for the grade or reading level of the pupil;

(2) Reviewing and checking the pupil's homework; and

(3) Contributing 5 hours of time each school year, including, without limitation, by attending school-related activities, parent-teacher association meetings, parent-teacher conferences, volunteering at the school and chaperoning school-sponsored activities.

(b) The responsibilities of a pupil in a public school, including, without limitation:

(1) Reading each day before or after school, as applicable for the grade or reading level of the pupil;

(2) Using all school equipment and property appropriately and safely;

(3) Following the directions of any adult member of the staff of the school;

(4) Completing and submitting homework in a timely manner; and

(5) Respecting himself, others and all property.



(c) The responsibilities of a public school and the administrators, teachers and other personnel employed at a school, including, without limitation:

(1) Ensuring that each pupil is provided proper instruction, supervision and interaction;

(2) Maximizing the educational and social experience of each pupil;

(3) Carrying out the professional responsibility of educators to seek the best interest of each pupil; and

(4) Making staff available to the parents and legal guardians of pupils to discuss the concerns of parents and legal guardians regarding the pupils.

3. Each educational involvement accord must be accompanied by, without limitation:

(a) Information describing how the parent or legal guardian may contact the pupil's teacher and the principal of the school in which the pupil is enrolled;

(b) The curriculum of the course or standards for the grade in which the pupil is enrolled, as applicable, including, without limitation, a calendar that indicates the dates of major examinations and the due dates of significant projects, if those dates are known by the teacher at the time that the information is distributed;

(c) The homework and grading policies of the pupil's teacher or school;

(d) Directions for finding resource materials for the course or grade in which the pupil is enrolled, as applicable;

(e) Suggestions for parents and legal guardians to assist pupils in their schoolwork at home;

(f) The dates of scheduled conferences between teachers or administrators and the parents or legal guardians of the pupil;

(g) The manner in which reports of the pupil's progress will be delivered to the parent or legal guardian and how a parent or legal guardian may request a report of progress;

(h) The classroom rules and policies;

(i) The dress code of the school, if any;

(j) The availability of assistance to parents who have limited proficiency in the English language;

(k) Information describing the availability of free and reduced-price meals, including, without limitation, information regarding school breakfast, school lunch and summer meal programs;

(l) Opportunities for parents and legal guardians to become involved in the education of their children and to volunteer for the school or class; and



(m) The code of honor relating to cheating prescribed pursuant to NRS 392.461.

4. The board of trustees of each school district shall adopt a policy providing for the development and distribution of the educational involvement accord. The policy adopted by a board of trustees must require each classroom teacher to:

(a) Distribute the educational involvement accord to the parent or legal guardian of each pupil in his class at the beginning of each school year or upon a pupil's enrollment in the class, as applicable; and

(b) Provide the parent or legal guardian with a reasonable opportunity to sign the educational involvement accord.

5. Except as otherwise provided in this subsection, the board of trustees of each school district shall ensure that the form prescribed by the Department is used for the educational involvement accord of each public school in the school district. The board of trustees of a school district may authorize the use of an expanded form that contains additions to the form prescribed by the Department if the basic information contained in the expanded form complies with the form prescribed by the Department.

6. The Department and the board of trustees of each school district shall, at least once each year, review and amend their respective educational involvement accords.

7. If *a school support team is established for* an elementary school, ~~is designated as demonstrating need for improvement pursuant to NRS 385.3623 for 3 consecutive years or more,~~ the principal of the school shall provide to the support team established for the school pursuant to NRS ~~385.3721~~ 385.3745 information concerning the distribution of the educational involvement accord and the number of accords which were signed and returned by parents and legal guardians. The information must be provided in an aggregated format and must not disclose the identity of an individual parent, legal guardian or pupil.

Sec. 29. NRS 392.4575 is hereby amended to read as follows:

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(1) Reading to the pupil, as applicable for the grade or reading level of the pupil;

(2) Reviewing and checking the pupil's homework; and

(3) Contributing 5 hours of time each school year, including, without limitation, by attending school-related activities, parent-teacher association meetings, parent-teacher conferences, volunteering at the school and chaperoning school-sponsored activities.

(b) The responsibilities of a pupil in a public school, including, without limitation:

(1) Reading each day before or after school, as applicable for the grade or reading level of the pupil;

(2) Using all school equipment and property appropriately and safely;

(3) Following the directions of any adult member of the staff of the school;

(4) Completing and submitting homework in a timely manner; and

(5) Respecting himself, others and all property.

(c) The responsibilities of a public school and the administrators, teachers and other personnel employed at a school, including, without limitation:

(1) Ensuring that each pupil is provided proper instruction, supervision and interaction;

(2) Maximizing the educational and social experience of each pupil;

(3) Carrying out the professional responsibility of educators to seek the best interest of each pupil; and

(4) Making staff available to the parents and legal guardians of pupils to discuss the concerns of parents and legal guardians regarding the pupils.

3. Each educational involvement accord must be accompanied by, without limitation:

(a) Information describing how the parent or legal guardian may contact the pupil's teacher and the principal of the school in which the pupil is enrolled;

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- (c) The homework and grading policies of the pupil's teacher or school;
- (d) Directions for finding resource materials for the course or grade in which the pupil is enrolled, as applicable;
- (e) Suggestions for parents and legal guardians to assist pupils in their schoolwork at home;
- (f) The dates of scheduled conferences between teachers or administrators and the parents or legal guardians of the pupil;
- (g) The manner in which reports of the pupil's progress will be delivered to the parent or legal guardian and how a parent or legal guardian may request a report of progress;
- (h) The classroom rules and policies;
- (i) The dress code of the school, if any;
- (j) The availability of assistance to parents who have limited proficiency in the English language;
- (k) Information describing the availability of free and reduced-price meals, including, without limitation, information regarding school breakfast, school lunch and summer meal programs;
- (l) Opportunities for parents and legal guardians to become involved in the education of their children and to volunteer for the school or class; and
- (m) The code of honor relating to cheating prescribed pursuant to NRS 392.461.

4. The board of trustees of each school district shall adopt a policy providing for the development and distribution of the educational involvement accord. The policy adopted by a board of trustees must require each classroom teacher to:

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- (b) Provide the parent or legal guardian with a reasonable opportunity to sign the educational involvement accord.

5. Except as otherwise provided in this subsection, the board of trustees of each school district shall ensure that the form prescribed by the Department is used for the educational involvement accord of each public school in the school district. The board of trustees of a school district may authorize the use of an expanded form that contains additions to the form prescribed by the Department if the basic information contained in the expanded form complies with the form prescribed by the Department.



6. The Department and the board of trustees of each school district shall, at least once each year, review and amend their respective educational involvement accords.

7. If a school support team is established *in accordance with the regulations of the State Board adopted pursuant to NRS 385.361* for an elementary school, the principal of the school shall provide to the support team ~~{established for the school pursuant to NRS 385.3745}~~ information concerning the distribution of the educational involvement accord and the number of accords which were signed and returned by parents and legal guardians. The information must be provided in an aggregated format and must not disclose the identity of an individual parent, legal guardian or pupil.

Sec. 30. On or before January 1, 2010, the State Board of Education shall adopt the regulations required pursuant to sections 2 and 3.5 of this act, NRS 385.361, as amended by section 6 of this act, and NRS 385.3475, as amended by section 18 of this act.

Sec. 31. 1. This section and sections 6, 9, 10, 11, 13, 15, 16, 17, 20, 22, 24, 26, 28 and 30 of this act become effective on July 1, 2009.

2. Sections 1, 2, 3.5 and 18 of this act become effective on July 1, 2009, for the purpose of adopting regulations and on July 1, 2010, for all other purposes.

3. Sections 3, 4 to 5.7, inclusive, 7, 8, 12, 14, 14.5, 19, 21, 21.3, 21.7, 23, 25, 25.3, 25.7, 27 and 29 of this act become effective on July 1, 2010.

4. Sections 23 and 25 of this act expire by limitation on June 30, 2011.



Gauging the Gaps

A Deeper Look at Student Achievement

(b)(6)



The Education Trust

TO THE POINT

- ▶ Educators and policymakers need the best information available to measure achievement gaps and make progress in closing them.
- ▶ A comprehensive and accurate look at achievement gaps requires at least four perspectives: simple gap narrowing, gains across groups, gap size, and group comparisons.
- ▶ These perspectives on gap closing can reveal meaningful differences among states, districts, and schools.

To gain a true picture of gaps in student achievement requires looking at the data from at least four different perspectives:

- Simple Gap Narrowing: Have absolute gaps in mean performance between groups decreased over time?
- Progress for All: Have all groups of students gained over time?
- Gap Size: What is the current size of the gap between groups?
- Group Comparisons Across Jurisdictions: How does each group of students currently perform compared with their counterparts in other jurisdictions?

Gauging the Gaps

A Deeper Look at Student Achievement

BY ANNA HABASH ROWAN, DARIA HALL, AND KATI HAYCOCK

Leaders in schools, districts, and states, along with policymakers in Washington, D.C., are focusing new energy on closing long-standing gaps in performance that separate low-income students and students of color from others. It's critically important that their efforts succeed—for students, their families, their communities, and for our democracy and future prosperity. Indeed, one recent estimate compared the achievement gap's impact on our economy to that of "a permanent national recession."¹

Given the high stakes, educators and policymakers need the best information available to learn the true measure of achievement gaps and make progress in closing them.

This brief explores the pitfalls in gauging gaps simplistically and suggests four ways to gain a more sophisticated, comprehensive, and accurate picture. It then illustrates these approaches using data from the National Assessment of Educational Progress (NAEP) to show how some states are making progress in closing gaps—and others are not.

PERSPECTIVES ON GAP CLOSING: CAUTIONARY TALES

The most common way of measuring gaps is by simple subtraction: the performance of white students *minus* the performance of African-American students *equals* the African American-white achievement gap. If the resulting number is decreasing over time, then the gap is closing; if that number is stagnant or growing, then the gap is not closing.

It turns out, however, that without additional information this formulation can be misleading.

For example, from 2003 to 2009, **Georgia** and **West Virginia** both narrowed the gap separating African-American and white students on the NAEP eighth-grade math test. Before celebrating, though, we would want to be sure that Georgia did so by making progress with African-American and white

students alike. (It did.) West Virginia, however, narrowed the gap in a less desirable way: African-American students improved, but the performance of white students stagnated. Clearly, then, *how gaps close* is important. All groups should be making gains.

Two states or districts that are succeeding in narrowing gaps could differ in another way: They could have remaining gaps of very different sizes. **Delaware** and the **District of Columbia** both made significant² progress in closing their Latino-white gaps on the NAEP fourth-grade reading test, but the gaps that remain differ markedly. Despite its progress, the District of Columbia's gap remains more than three times as wide as Delaware's. And size matters. Without that perspective, our view of gap narrowing could miss the substantive differences in achievement that still separate some young people—and some jurisdictions—from others.

What's more, states and districts that are narrowing gaps can have strikingly different performance levels for the same groups of students. Take **Florida** and **Louisiana**, for example. Both have significantly narrowed their African American-white gaps in fourth-grade math, but African-American students in Florida perform substantially above their counterparts in Louisiana. The ten-point difference between the states equates to roughly a year's worth of learning for students. Thus, comparing the performance of student groups with the performance of those same groups in other jurisdictions provides a more complete picture.

In sum, each question asked in isolation provides some useful information. But together they provide a much better foundation for understanding patterns of student achievement.

Anna Habash Rowan is a policy analyst, Daria Hall is director of K-12 policy development, and Kati Haycock is president of The Education Trust.

FOUR PERSPECTIVES on State, District, or School Performance

To gain a true picture of gaps in student achievement—whether on state tests, national tests, high school graduation rates, or almost any other measure—requires looking at the data from at least four different perspectives:

- **Simple Gap Narrowing:** Have absolute gaps in mean performance between groups decreased over time?
- **Progress for All:** Have all groups of students gained over time?
- **Gap Size:** What is the current size of the gap between groups?
- **Group Comparisons Across Jurisdictions:** How does each group of students currently perform compared with their counterparts in other jurisdictions?

To illustrate what the data look like from each of the four perspectives, we'll present data on the performance of low-income and higher income students on the NAEP fourth-grade reading assessment. We chose NAEP because its results are comparable across states, thus allowing valid comparisons that would be unavailable using results of each state's own assessments.³ Unlike state assessments, which vary greatly in quality and rigor, NAEP is widely seen as a high-quality assessment that reveals how well states are doing in boosting student achievement.

Of course, a thorough understanding of achievement patterns in a state requires consideration of *all* subjects, grades, and student groups for which data are available. To enrich our picture, then, we conducted a more comprehensive analysis to identify the states that have consistently high performance—and consistently low performance—for all groups of students on the NAEP tests that are available for all states over time: fourth and eighth-grade reading and math. The results of these more comprehensive analyses are displayed in the “Top and Bottom Performers” tables within each section that follows. In addition, we provide data on the performance of *all* states on each of the four perspectives in the tables that appear at the end of this document.

Finally, each section includes an example that illustrates how a school or district can apply that perspective in analyzing its performance.

PERSPECTIVE 1: SIMPLE GAP NARROWING Have absolute gaps in mean performance between groups decreased over time?

Nationwide, low-income students and students of color perform, on average, below their peers. So it is imperative to evaluate whether we're helping these young people catch up.

From 2003 to 2009, fourth-grade reading performance for low-income and higher income students alike edged up slightly nationally, though the gap separating these groups of students did not change. This national picture conceals varying rates of gap-closing among the states. On the high end, **Illinois**, **Virginia**, and **Florida** significantly narrowed the gap between low-income and higher income students in fourth-grade reading. Gaps in these states narrowed by at least five points. At the other end of the spectrum were **Vermont** and **Oregon**, where gaps actually grew significantly.

Applying this gap-closing perspective across groups, subjects, and grades reveals a broader picture of state performance. Six states—**Delaware**, **Florida**, **Georgia**, **Louisiana**, **New York**, and **West Virginia**—and the **District of Columbia** leap to the top of the “gap narrower” chart. In other words, these seven have narrowed proportionately more of the gaps between groups than have most states. In contrast, **Oregon**, **Pennsylvania**, **Utah**, **Vermont**, and **Washington** were clear laggards, with less progress in closing gaps—and in fact, more gap widening—than anyplace else in the country.

Perspective 1: Simple Gap Narrowing NAEP Reading and Math, Grades 4 and 8, All Groups

Top States	District of Columbia, Delaware, Florida, Georgia, Louisiana, New York, West Virginia
Bottom States	Oregon, Pennsylvania, Utah, Vermont, Washington

This same approach can spotlight problems and progress within states or districts, too. State policymakers and advocates can use state assessment results to examine which districts are narrowing gaps and which are widening disparities. Similarly, district leaders could use state assessment results to look at gap-closing progress across their schools.

Determining the Top and Bottom States for Each Perspective

Under each perspective and for each state, we determined the total number of accumulated points across fourth and eighth-grade reading and math. This number was then divided by the points each state could possibly accumulate. Finally, states were ranked according to the resulting ratios.

Here's how points were awarded:

Simple Gap Narrowing: States gained a point for each gap that narrowed significantly and lost a point for each gap that widened significantly.

Progress for All: States gained a point for each subgroup that improved significantly and lost a point for each subgroup that declined significantly.

Gap Size: States gained a point for each gap that was significantly smaller than the national average and lost a point for each gap that was significantly larger than the national average.

Group Comparisons Across Jurisdictions: States gained a point for each subgroup that was performing significantly above the national average and lost a point for each subgroup that was performing significantly below the national average.

Leaders of the Godwin Heights school district in the down-on-its-heels industrial town of Wyoming, Mich., did just that and learned that one school, North Godwin Elementary, was doing a much better job of erasing the academic disparities that separate some students, including English-language learners, from their peers.⁴ Based on the school's success, district leaders tapped the North Godwin principal to lead gap-closing efforts districtwide.

PERSPECTIVE 2: PROGRESS FOR ALL

Have all groups of students gained over time?

Our country needs to improve achievement for all students and accelerate gains for those who lag behind. Reading performance for low-income fourth-grade students nationwide inched up by four points from 2003 to 2007. This represents movement in the right direction but at far too slow a pace.

Some states, however, improved much more rapidly than the nation as a whole. Reading scores of low-income students in **Alabama** increased by 11 points—considered roughly a full year's additional learning. Scores for low-income students in **Maryland**, **New Mexico**, and **Pennsylvania** rose by eight

points, and in each of these states, the performance of higher income students improved significantly as well.

As with the case of gap narrowing, the data for other states are troubling. In both **Oregon** and **West Virginia**, for example, reading scores of low-income students dropped by six points from 2003 to 2007, roughly equivalent to a half-year's learning. And in both states, the performance of higher income students did not increase significantly.

Moving from examining fourth-grade reading performance to reviewing state performance across the NAEP-tested grade levels and subjects, a different set of states emerge as leaders in making improvements for all tested groups. Eight states—**Georgia**, **Massachusetts**, **Maryland**, **New Jersey**, **Nevada**, **Pennsylvania**, **Texas**, and **Vermont**, together with the **District of Columbia**—showed significant improvement across groups. On the other hand, five states—**Michigan**, **North Carolina**, **Oregon**, **South Carolina**, and **West Virginia**—saw improvement for a much smaller proportion of their tested student groups than did their counterparts and were more likely to have experienced declines.

Perspective 2: Gains Across Groups

NAEP Reading and Math, Grades 4 and 8, All Groups

Top States	District of Columbia, Georgia, Massachusetts, Maryland, New Jersey, Nevada, Pennsylvania, Texas, Vermont
Bottom States	Michigan, North Carolina, Oregon, South Carolina, West Virginia

By using state assessment results, educators and policymakers can look at the rate of improvement across districts and schools to find out which ones are boosting student performance for all groups and where performance has stagnated or even dipped.

Ware Elementary School, a public school on the Fort Riley military base in Kansas, provides a dramatic story of improvement. In 2001, this racially diverse school was one of the first in Kansas to be designated as "on improvement," meaning that performance for all groups was among the lowest in the state. By 2008, Ware had improved so much that nearly every student was meeting standards. For example, in fifth-grade reading, 98 percent of white

students, 100 percent of African-American students, and 98 percent of low-income students met state standards.⁵ Examining the steps Ware took to achieve such improvement could yield valuable lessons for educators and policymakers everywhere.

PERSPECTIVE 3: GAP SIZE

What is the current size of the gap between groups?

In addition to examining how far a state has come in closing the gaps and looking at whether all students are gaining, it's important to know the extent of the gaps that remain. The current-year size of a state's gap suggests how far we have to go until race and income no longer play a significant role in student achievement.

Nationally and in every state, low-income students trail their higher income peers in reading performance. Yet a closer scrutiny of state data shows that some are closer to achieving equitable results than others. In five states—**North Dakota, Delaware, Hawaii, Oklahoma, and Wyoming**—the gap in reading achievement between low-income and higher income fourth-graders is 18 points or less. That's approximately half the size of the gap in Connecticut, the state with the largest gap.

Because gap size can vary from group to group, subject to subject, and grade level to grade level, it is important to weigh all three to get a comprehensive estimate of the work that remains. By that measure, eight states stand out for smaller-than-average gaps: **Delaware, Florida, Kentucky, Maine, Oklahoma, Vermont, West Virginia, and Wyoming**. By contrast, five other states—**California, Connecticut, Illinois, Rhode Island, Wisconsin**—as well as the **District of Columbia** have gaps between groups much wider than those of the country as a whole.

Perspective 3: Gap Size

NAEP Reading and Math, Grades 4 and 8, All Groups

Top States	Delaware, Florida, Kentucky, Maine, Oklahoma, Vermont, West Virginia, Wyoming
Bottom States	California, Connecticut, District of Columbia, Illinois, Rhode Island, Wisconsin

In much the same way, looking at gap size across districts and schools can enrich any picture of student achievement. Although doing so often reveals findings similar to those of the state as a whole (low-income students performing below higher income students and students of color performing below white students), such an analysis typically turns up schools or districts with much smaller gaps than others and, occasionally, even places where the gap is “reversed.”

For example, at Roxbury Preparatory Charter School, which serves Boston's Roxbury and Dorchester neighborhoods, one-quarter of low-income students performed at the advanced level on the seventh-grade English Language Arts exam in 2009, compared with 14 percent of the school's higher income students.⁶ Sometimes called a “reverse” or “negative” gap, this exceptionally high performance for low-income students shows what is possible for such students when schools really focus—as Roxbury Prep does every single day—on providing all students with access to a rich, engaging curriculum and the support necessary to successfully meet high expectations.

PERSPECTIVE 4: GROUP COMPARISONS ACROSS JURISDICTIONS

How does each group of students currently perform compared with their counterparts in other jurisdictions?

Although many assume that certain groups of children perform about the same no matter where they attend school, comparisons of group performance across jurisdictions can reveal striking differences. In fact, dramatic variations in the achievement of similar groups of children occur across states or from one district to the next.

On the NAEP fourth-grade reading assessment, for example, low-income students in a diverse group of states—from sparsely settled states such as **Montana, North Dakota, Wyoming, and Maine** to the more densely populated **Delaware, Massachusetts, Florida, and Virginia**—perform from ten to 20 points ahead of their counterparts in **Alaska, Nevada, Arizona, and California**, where performance for low-income students remains lowest. That point spread represents one to two years' worth of learning.

As for group performance across grade levels and subjects, six states clearly lead the rest. In these states—**Delaware, Massachusetts, Maryland, New Jersey,**

Texas, and Vermont—low-income and minority students typically perform substantially higher than such students in other states. At the same time, five states are clearly lagging on this indicator: Arizona, California, Louisiana, Mississippi, and Nevada. In these states, low-income students and students of color typically perform well below their counterparts elsewhere.

Perspective 4: Interjurisdictional Group Comparisons
NAEP Reading and Math, Grades 4 and 8, All Groups

Top States	Delaware, Massachusetts, Maryland, New Jersey, Texas, Vermont
Bottom States	Arizona, California, Louisiana, Mississippi, Nevada

At the local level, probing the results of state assessments can reveal variations in group performance across districts and schools. Such a comparative look at the data reveals that some districts and schools are succeeding better than others in educating similar groups of students to high levels. Likewise, the data may show that districts or schools perform well for some student groups and fall short for others.

Fairfax County, Virginia, for example, encompasses one of the state’s wealthiest and highest performing school districts. On the 2008 Virginia Standards of Learning fourth-grade reading test, Fairfax students tied for sixth among 48 districts that either are adjacent to the county or are among the largest in the state. But that commendable performance for Fairfax’s fourth-graders overall masks glaring differences in group performance.

For example, while Fairfax’s white fourth-graders performed much better than white students in most Virginia school districts (tied for third among the 48 other districts), its African-American fourth-graders actually rank below the state average for their peers. In fact, African-American students in 20 other large Virginia districts—including Richmond, Virginia Beach, and Chesapeake City, three districts with far higher poverty rates—outperformed African-American fourth-graders in Fairfax.⁷

BRINGING IT ALL TOGETHER

What can we learn about success in raising achievement and narrowing gaps by bringing these four perspectives together?

Weaving together insights from all four perspectives can create a far more complete and nuanced picture of state progress in closing the gaps. In fourth-grade reading, for example, both Florida and Virginia stand out in terms of performance for low-income students. In both states, low-income students improved more rapidly than their higher income peers, thus narrowing the gap significantly. Not only have these states raised achievement and narrowed gaps, but they are among the country’s top performers in terms of achievement of low-income students and in regard to smallest gap size between low-income and higher income students. It is important to note, however, that neither state significantly increased the performance of higher income students from 2003 to 2007.

Another group of states—Idaho, Kansas, Montana, New Hampshire, North Dakota, and Oklahoma—have not significantly narrowed the fourth-grade reading gap but are showing other good progress for low-income students. Low-income students in these states improved significantly, and their 2007 performance ranks among the highest in the nation. What’s more, these states can point to gaps between low-income students and higher income students that are among the smallest in the nation. In Idaho, Kansas, and North Dakota, the performance of higher income students increased significantly, while in Montana, New Hampshire, and Oklahoma, they did not.

The picture is more worrisome in other states. In Alaska, Arizona, and South Carolina, performance of low-income fourth-grade students is among the worst in the country in reading, and there has been no significant improvement since 2003. Low-income students in Oregon, sadly, rank among the lowest performing in the country and actually have lost ground since 2003. Meanwhile, the gap separating these students from their higher income peers has grown significantly.

To be sure, the four-perspective approach to achievement and gaps creates a more complex picture than does looking at any one indicator in isolation. But failing to apply all four analyses may cause education leaders and policymakers to interpret data in ways that are incomplete, if not misleading.

It's unlikely that any state, district, or school will rise to the top in every one of these analyses, especially if additional grades, subjects, and student groups enter the mix. Yet the multiple perspectives unquestionably show that some places have much better track records than others concerning equity and achievement for all.

Looking across subjects, grades, and groups, **Delaware, Florida, Massachusetts, Texas, and Vermont** emerge as clear leaders. These states differ in many ways, including size and diversity. Looked at from our four perspectives, though—absolute gap narrowing, gains across groups, remaining gap size, and group performance compared with other jurisdictions—these states have compiled the best track records to date.

On the other end of the spectrum appear the laggards on our composite measure—**Arizona, California, Michigan, Mississippi, and Rhode Island**. These states, regrettably, stand apart from others in compiling the worst track records in closing the achievement gaps.

Bringing It All Together: Raising Achievement and Narrowing Gaps Across Groups⁸
NAEP Reading and Math, Grades 4 and 8

Top States	Delaware, Florida, Massachusetts, Texas, Vermont
Bottom States	Arizona, California, Michigan, Mississippi, Rhode Island

BEYOND NAEP

Although we have used NAEP data to illustrate the four perspectives on performance and gap closing, a richer picture of achievement certainly would emerge by looking at other data in those ways. State assessment data can provide information about performance and gaps in grades three through eight as well as in high school, whereas state-level NAEP information is limited only to grades four and eight. Using state assessment data also would allow an exploration of results in other subjects, such as science.

Likewise, educators and policymakers could find it useful to look not only at score averages but also at the percentage of students meeting or exceeding state standards—and to do so over a longer time, where comparable data are available.

A cautionary note: An honest look at high school assessment data requires the extra step of scrutinizing the graduation rates of each subgroup. Otherwise, decision makers run the risk of seeing narrowing gaps when, in reality, lower performing students are dropping out of school before taking the high school assessment.

On the positive side, this more sophisticated analysis can yield examples of success in achievement and high school completion alike. For example, among African-American secondary school students in New York State in 2008, just 59 percent met state math standards, and just 55 percent had graduated. But Elmont Memorial Junior-Senior High School, a large, comprehensive high school serving mostly African-American and Latino students just outside of New York City, generated much higher numbers. Ninety-three percent of Elmont's African-American students met state math standards, and 97 percent graduated by 2008.⁹ Schools like Elmont show what's possible and provide roadmaps for how to get there.

CONCLUSION

As the country grapples with the challenge of closing gaps in achievement, multiple perspectives on performance data can inform the discussion. Tracking the narrowing of gaps between groups, gains for all groups, gap size, and comparisons between jurisdictions can provide education leaders with a true picture of the inequity they seek to reduce and, ultimately, end.

As the data show, meaningful differences between states—as well as between districts and schools—emerge when looking at performance in these ways. These differences should be considered when evaluating how much state and local leaders have advanced academic equity to date, as well as their readiness to make additional progress.

A frank assessment of the effectiveness of our efforts and a commitment to measuring accurately the effects of any new policies and programs will go a long way in closing achievement gaps. By considering multiple perspectives on available data, educators and policymakers can better judge whether efforts to lift today's students will produce the better educated citizenry our country needs.

NOTES

- ¹ McKinsey & Company (2009). "The Economic Impact of the Achievement Gap in America's Schools." www.mckinsey.com/client-service/Social_Sector/our_practices/Education/Knowledge_Highlights/Economic_impact.aspx
- ² Throughout this brief, the term "significant" refers to statistical significance, as determined by the National Center for Education Statistics NAEP Data Explorer.
- ³ Each state currently has its own set of reading and math assessments for grades three through eight and high school. These assessments are based on state-developed sets of standards, which are unique to that state. Thus, what it means for a student to meet one state's standards is not the same as what it means to meet another state's standards.
- ⁴ See Michigan Department of Education, <https://oeaa.state.mi.us/ayp/>
- ⁵ See Kansas Department of Education, <http://online.ksde.org/rcard/>
- ⁶ See Massachusetts Department of Education, <http://profiles.doe.mass.edu>.
- ⁷ See Virginia Department of Education, https://p1pe.doe.virginia.gov/datareports/assess_test_result.do.
- ⁸ Determining top and bottom states for bringing it all together: For each state, the total number of points earned across all four indicators was divided by the total points possible. States were then ranked according to the resulting ratios.
- ⁹ See New York State Testing and Reporting Accountability Tool, <https://www.nystart.gov/>.

NAEP Grade 4 Reading (Key: AA = African American, WH = White, NA = Native American, LA = Latino, LI = Low Income, HI = High Income)

Green	Yes, statistically significant	Red	No, statistically significant
Yellow	No change/At national average	White	Data unavailable

NATION	Did the gap narrow from 2003 to 2007?				Did achievement increase from 2003 to 2007?						Were 2007 gaps smaller than the national average?				Was 2007 achievement above the national average?						
	AA-WH	LA-WH	NA-WH	LI-HI	AA	LA	NA	WH	LI	HI	AA-WH	LA-WH	NA-WH	LI-HI	AA	LA	NA	WH	LI	HI	
AL	-5	-2	-1	1	+6	+4	+4	+2	+4	+3	27	26	24	27	203	204	206	230	205	232	
AK	+4	+5	-1	-2	-2	-4	+3	+2	+5	+3	22	23	40	30	207	206	188	228	197	227	
AZ	-10	-1	-4	-3	+11	+2	+5	+1	+2	-1	17	27	37	29	206	197	187	224	196	224	
AR	-2	+5		-4	+5	-2	+5	+3	+1	+5	31	24		26	195	202		226	205	232	
CA	-4	-1		-1	+8	+4		+4	+4	+3	27	32		30	200	195		227	195	225	
CO	0	+3		+3	+2	-1		+2	0	+3	24	30		28	210	204		234	206	235	
CT	-3	+2		+5	+2	-3		-1	-5	0	34	35		38	203	203		234	201	239	
DE	-2	-9		-1	+2	+9		0	+2	+1	20	15		18	213	218		233	214	232	
DC	-3	-15		+5	+7	+19		+4	+5	+10	67	52		28	192	206		258	188	216	
FL	7	-4		-5	+10	+0		+3	+8	+3	24	14		21	208	218		232	213	234	
GA	-2	-7		-4	+6	+12		+4	+7	+4	25	18		24	205	212		230	207	231	
HI	+5	+4		-4	0	+1		+5	+6	+2	15	22		18	212	205		227	203	221	
ID		0		+1	+5			+6	+5	+6		23	26		19	204	202		227	212	232
IL	-5	-7		-7	+7	+8		+1	-6	0	29	24		28	201	205		230	204	232	
IN	-3	+6		-1	+5	-5		+1	+3	+2	24	18		22	201	207		226	209	231	
IA	-8	-2		-3	+9	+3		+1	+4	+1	22	19		19	205	208		227	212	231	
KS	-6	+2		-2	+11	+2		+4	+5	+3	22	20		22	208	209		229	212	233	
KY	+2			+2	+2			+3	+2	+5	21			22	203			225	212	234	
LA	9			-4	+5			-3	+5	+1	26	7		25	194	213		220	200	225	
ME				+2				+2	+1	+3				19				226	213	233	
MD	-3	+2		-4	+8	+3		+5	+8	+4	28	23		27	208	213		236	207	234	
MA	+4	0		+3	+4	+7		+7	+5	+7	31	32		29	211	209		241	214	243	
MI	-10	-7		-3	+8	+5		-2	+3	0	30	17		26	197	210		227	204	229	
MN	-2	-3		0	+4	+5		+2	+2	+2	33	31	26	27	198	200	205	231	206	233	
MS	-2			-4	+3			+1	+4	-1	27			25	195			222	200	225	
MO	+3	+5		-3	-3	-5		0	+1	-2	26	14		21	200	213		226	208	230	
MT			-6	-5		+10		+3	+7	+2		10	26	19		220	204		230	215	234
NE	+15	+4		+2	-9	+1		+5	+1	+4	36	27		24	194	203		230	208	232	
NV	-3	+2		0	+9	+4		+6	+4	+4	22	27		25	202	196		224	197	222	
NH		-3		-6		+4		+1	+6	0	14	20		21	215	209		230	212	233	
NJ	10	0		-3	+12	+3		+3	+7	+4	26	24		27	212	214		238	210	238	
NM	0	-2	-10	-1	+6	+8	+16	+6	+8	+7	20	23	30	25	208	204	197	228	203	228	
NY	7	0		-2	+6	-1		-1	+1	-1	26	27		28	208	206		234	209	237	
NC	-3	+3	-5	-3	-1	-7	+2	-4	-1	-3	26	23	26	25	202	205	202	228	205	229	
ND			+3	-1		+1		+5	+5	+4				16			204	229	215	231	
OH	+3	-2		-2	+2	+7		+5	+5	+3	27	17		22	204	214		231	211	234	
OK	-6	+4	-5	-5	+8	-2	+7	+2	+5	0	19	25	10	18	204	198	213	223	209	227	
OR	+5	+9		+9	-4	-8		+1	-6	+4	25	32	17	28	198	190	206	222	200	228	
PA	-2	+1		-3	+9	+5		+6	+8	+6	33	33		30	200	200		233	207	237	
RI	+1	+1		-1	+2	+2		+3	+2	+1	29	29		27	198	198		227	202	230	
SC	-1	-2		+1	-1	0		-2	-1	-1	26	19		27	199	205		224	201	228	
SD			+2	+2			-1	+1	-1	+1		19	32	22	209	196		228	209	231	
TN	0	+2		+2	+4	+2		+4	+4	+5	32	16		27	192	208		224	202	229	
TX	0	-2		+2	+5	+7		+5	+4	+6	25	21		24	207	212		232	209	232	
UT		-4		0		+7		+3	+2	+3		26			201			226	208	229	
VT				+5				+3	-1	+4				23				229	212	235	
VA	-5	-4		-7	+7	+6		+2	+8	+1	20	17		20	213	216		233	213	233	
WA	+9	-2	+6	+2	-7	+5	-3	+3	+2	+4	23	23	24	24	206	206	205	229	210	234	
WV	-4			+3	-1			-4	-6	-3	13			19	202			216	206	225	
WI	+13	+5		+4	-9	-1		+4	0	+4	38	21		26	191	208		229	205	232	
WY		+7	-7	+1		-3	+11	+4	+2	+3		18	28	18	210	200		228	214	231	

NAEP Grade 4 Math (Key: AA = African American, WH = White, NA = Native American, LA = Latino, LI = Low Income, HI = High Income)

Green	Yes, statistically significant	Red	No, statistically significant
Yellow	No change/At national average	White	Data unavailable

NATION	Did the gap narrow from 2003 to 2009?				Did achievement increase from 2003 to 2009?						Were 2009 gaps smaller than the national average?				Was 2009 achievement above the national average?					
	AA-WH	LA-WH	NA-WH	LI-HI	AA	LA	NA	WH	LI	HI	AA-WH	LA-WH	NA-WH	LI-HI	AA	LA	NA	WH	LI	HI
AL	+2	-1	+3	0	+6	+6	+2	+5	+6	+6	26	21	21	22	222	227	227	248	228	250
AK	+3	+3	+9	0	+4	+4	-2	+7	+6	+6	24	17	33	21	225	232	216	249	226	247
AZ	-4	0	-2	+1	+7	+3	+5	+3	+2	+2	21	23	28	24	222	220	215	243	219	243
AR	-3	-4		+3	+11	+12		+8	+8	+11	28	12		22	217	233		245	229	250
CA	0	+1		+1	+5	+3		+4	+3	+5	30	28		26	217	219		247	220	246
CO	+1	-3		+1	+8	+11		+8	+9	+10	27	23		25	225	228		252	228	252
CT	-1	-1		-2	+5	+4		+3	+5	+3	31	26		28	222	227		253	225	253
DE	+1	-1		0	+3	+5		+4	+4	+4	23	18		19	226	231		249	229	248
DC	-3	-14		+10	+11	+22		+8	+12	+22	57	43		31	213	227		270	211	242
FL	+6	+1		-7	+13	+6		+7	+12	+5	22	12		16	228	238		250	235	251
GA	+1	-6		+1	+4	+12		+6	+7	+8	25	15		24	221	231		247	225	249
HI	-2	-2		0	+11	+11		+9	+8	+8	15	17		21	232	230		247	224	245
ID		-2		-1				+6	+7	+6		19		13		225		244	234	246
IL	-1	-5		-3	+6	+10		+4	+8	+4	33	21		27	216	227		249	224	251
IN	-2	0		-1	+7	+4		+5	+7	+6	24	16		18	222	230		247	232	251
IA	+7	+3		0	+11	+1		+4	+5	+5	19	22		17	226	223		245	232	249
KS	-2	+2		-1	+7	+3		+5	+6	+5	27	18		18	224	233		251	236	254
KY	+5			+4	+5			+10	+9	+12	21	14		21	220	227		241	229	249
LA	+6			0	+5			-1	+3	+3	23	10		22	218	230		241	223	245
ME				+1				+7	+7	+8	17			16	228			245	235	251
MD	-1	0		-4	+12	+11		+11	+13	+9	27	17		24	228	238		255	229	253
MA	-4	0		0	+15	+10		+11	+11	+11	21	26		23	236	232		258	237	260
MI	-3	-4		0	+2	+3		-1	+2	+2	32	16		25	212	227		243	222	247
MN	0	-3		+1	+8	+12		+9	+8	+9	28	23	22	23	227	232	233	255	234	257
MS	+1			0	+3			+4	+4	+4	26			22	215			241	221	242
MO	0	-12		+3	+5	+17		+5	+4	+7	24	8		21	221	237		245	229	250
MT		+4	-2	+1		+5	+11	+9	+8	+9		6	19	15		241	228	247	235	251
NE	+2	-8		-1	+2	+11		+3	+5	+3	32	21		20	213	224		245	227	247
NV	+6	-2		-5	+3	+11		+9	+10	+5	27	19		16	218	227		245	226	242
NH		-1		0	+9			+8	+8	+8		18		19		234		252	237	255
NJ	-3	0		0	+11	+7		+8	+8	+8	27	24		26	228	232		255	229	255
NM	0	+1	+1	+3	+8	+8	+7	+8	+6	+10	20	21	28	22	225	224	217	245	223	245
NY	-4	3		-6	+6	+10		+2	+8	+2	22	17		16	225	231		248	233	249
NC	+1	+1		0	+1	+1		+3	+3	+3	27	18	22	22	226	236	232	254	232	255
ND			-3	0		+10		+8	+8	+8			22	14		226	248	236	250	
OH	+1	-2		+1	+6	+8		+6	+6	+7	27	16		23	222	233		249	230	253
OK	-4	-3	-3	-3	+11	+10	+9	+7	+8	+5	19	12	7	13	222	229	234	241	231	244
OR	+3	0		+5	0	+3		+3	+1	+6	19	21	20	20	223	221	223	243	227	248
PA	-5	-5		-1	+11	+11		+6	+8	+8	26	22		25	223	227		249	228	253
RI	-3	-4		+1	+10	+11		+8	+7	+7	26	28		25	221	219		247	224	249
SC	+2	0		+1	-2	0		0	0	+1	25	13		22	220	232		245	226	248
SD		-5	+2	0		+10	+4	+6	+4	+5	22	13	26	17	225	233	220	247	232	248
TN	-2	-3		0	+5	+7		+4	+6	+6	26	14		20	213	225		239	222	242
TX	+1	+3		+2	+5	+3		+6	+3	+6	23	20		20	231	233		254	233	252
UT		+5		+6		+3		+8	+1	+8	25	27	27	21	221	219	219	246	227	248
VT				0				+6	+7	+7				19				248	235	254
VA	+3	+1		-1	+2	+4		+5	+5	+4	26	17		20	225	234		251	230	250
WA	0	+1	+7	0	+5	+4	-2	+5	+5	+5	20	20	21	20	227	227	227	247	231	251
WV	-2			+3	+4			+2	+1	+4	8			15	225			233	227	241
WI	-2	-1	+2	0	+8	+7	+4	+6	+8	+8	33	22	22	23	217	228	228	250	229	252
WY		-1		-1	+2			+1	+1	0		13		12		231		244	234	246

NAEP Grade 8 Reading (Key: AA = African American, WH = White, NA = Native American, LA = Latino, LI = Low Income, HI = High Income)

Green	Yes, statistically significant	Red	No, statistically significant
Yellow	No change/At national average	White	Data unavailable

NATION	Did the gap narrow from 2003 to 2007?				Did achievement increase from 2003 to 2007?						Were 2007 gaps smaller than the national average?				Was 2007 achievement above the national average?					
	AA-WH	LA-WH	NA-WH	LI-HI	AA	LA	NA	WH	LI	HI	AA-WH	LA-WH	NA-WH	LI-HI	AA	LA	NA	WH	LI	HI
AL	0	-2	0	-1	0	+2	0	-1	0	-2	26	25	22	24	244	246	248	270	247	271
AK	+1	-9	+1	0	+2	+11	+1	+2	+5	+5	20	13	34	23	250	257	236	270	244	268
AZ	-2	0	+6	0	+3	+1	-6	+1	0	0	21	28	36	24	248	241	233	269	241	265
AR	-3	+9		+4	+3	-8		+1	-2	+2	31	18		22	236	249		266	247	269
CA	+3	-2		-2	-2	+3		+1	+2	-1	29	26	15	25	237	239	251	266	239	264
CO	-4	-2		-2	+4	+2		0	+2	-1	22	25		22	252	249		275	251	273
CT	-1	+2		+2	+2	-1		+1	-2	+1	30	33		32	246	243		276	243	275
DE	-1	-10		-5	+2	+11		+1	+4	-1	23	17		16	250	257		274	254	270
DC				+3	+2	+9			+2	+5				18	238	249			234	253
FL	-5	-5		-4	+5	+5		0	+4	0	24	12		18	244	256		268	249	268
GA	0	-3		-3	+2	+5		+2	+4	+1	25	21		23	246	250		271	247	270
HI		+3		5		0		+3	+3	-2	7	13		14	255	249		262	243	257
ID		0		-3		+1		+1	+2	0				25				268	256	270
IL	-2	-5		-4	-3	0		-5	0	-5	27	21		23	244	250		271	249	272
IN	+2	-9		-4	-2	+9		-1	+3	0	26	12		21	242	255		268	251	271
IA	-2	-6		0	+2	+6		0	+1	+1	22	19		21	247	250		270	253	274
KS	-1	-2		+2	+2	+3		+2	+1	+3	27	24		22	246	248		272	253	275
KY	-7			+3	+2			-5	-5	-2	17			19	247			264	252	271
LA	-5			-1	+2			-3	0	-1	23			20	240			264	245	265
ME				-1				+2	+3	+2				14				270	261	274
MD	+1	-1		-6	+4	+7		+5	+9	+3	27	18		20	249	258		276	251	271
MA	-1	-4		-6	+1	+4		0	+5	-1	25	27		24	253	251		278	256	279
MI	+1	+11		-1	-6	-16		-5	-3	-4	31	26		25	236	241		267	244	268
MN	-2	-4		-6	+2	+4		0	+6	0	28	28	25	20	245	245	247	273	254	273
MS	+1			+4	-4			-4	-4	-1	25			24	238			264	242	266
MO	0			+2	-1			-2	-3	-1	28	22		20	242	248		270	252	271
MT			-1	0			+2	+2	+1	+2				25			249	274	260	277
NE	-4	-14		0	+4	+14		0	+1	+1	28	16		20	243	255		271	254	273
NV	14	-1		+3	+15	+2		0	-1	+2	15	24		20	248	238		263	240	260
NH				-3				-1	+2	-1				15				270	257	272
NJ	0	-6		-4	+1	+8		+2	+5	+2	29	22		26	249	257		278	251	277
NM	-5	-5	+5	+1	+2	+3	-7	-3	+1	+2	17	20	31	22	248	246	234	265	242	264
NY	-3	+1		-4	0	-4		-3	+1	-2	29	29		25	246	246		274	250	275
NC	+5	-3	+5	+1	-6	+2	-6	-1	-1	0	29	24	35	25	241	246	236	270	246	270
ND			-6	0		+4	-2	-1	-1	-2				22	24		248	270	258	272
OH	+5	+11		+2	-3	-8		+3	+1	+3	27	14		24	246	260		274	251	275
OK	-4	+8	-1	-3	+3	9	0	-1	0	-3	22	25	9	16	243	241	256	266	252	268
OR	+5	+9		+7	-2	-6		+3	0	+6	20	26	10	21	250	243	260	270	253	274
PA	0	+17		-2	+4	-13		+4	+5	+3	25	28		22	248	244		272	253	275
RI	+2	+4		+1	-3	-5		0	-4	-3	29	34		25	239	233		267	242	267
SC	+1			+4	-2			-1	-3	+1	26	24		25	242	244		268	245	269
SD			-3	+2			+3	-1	-2	0				24			249	272	259	274
TN	+1			+1	+1			+2	+2	+4	27	15		21	240	252		267	247	269
TX	+1	-1		0	+2	+4		+3	+4	+4	26	24		24	249	251		275	249	273
UT		-3		-3		+1		-2	+1	-2				15				266	252	267
VT				-3				+2	+5	+2				17				273	260	276
VA	-4	+5		-3	+2	-7		-2	+1	-2	20	14		20	252	258		273	252	272
WA	+6	+1	-3	-2	-4	+1	+5	+2	+2	+1	23	23	18	21	247	247	252	270	251	272
WV	+3			+1	-8			-5	-6	-5	15			17	241			256	246	263
WI	+1	-5		-2	-3	+3		-2	+2	0	38	22		26	231	247		270	246	272
WY		+7	-11	-1		-7	+11	0	0	-1		21	16	15		248	253	269	255	270

NAEP Grade 8 Math (Key: AA = African American, WH = White, NA = Native American, LA = Latino, LI = Low Income, HI = High Income)

Green	Yes, statistically significant	Red	No, statistically significant
Yellow	No change/At national average	White	Data unavailable

NATION	Did the gap narrow from 2003 to 2009?				Did achievement increase from 2003 to 2009?					Were 2009 gaps smaller than the national average?				Was 2009 achievement above the national average?						
	AA-WH	LA-WH	NA-WH	LI-HI	AA	LA	NA	WH	LI	HI	AA-WH	LA-WH	NA-WH	LI-HI	AA	LA	NA	WH	LI	HI
AL	-2		+3	-1	+9	+8	+2	+5	+8	+6	32	26	25	27	260	266	267	292	266	293
AK	-2	-9	0	-2	+5	+12	+3	+3	+9	+6	25	18	31	23	268	275	262	293	269	292
AZ	-5	0	+7	+5	+12	+8	0	+8	+4	+9	23	26	37	29	269	265	254	292	262	291
AR	-2	-12		+6	+11	+21		+9	+8	+13	34	15		26	251	289		284	264	290
CA	+2	0		-3	+4	+7		+6	+7	+5	39	33		27	250	256		289	258	285
CO	-1	-1		0	+8	+7		+6	+6	+6	36	32		30	263	267		299	267	296
CT	-2	0		+2	+7	+5		+5	+3	+5	37	34		34	261	263		298	263	298
DE	0	-13		-3	+7	+20		+7	+10	+7	27	16		21	267	278		294	271	292
DC				+6	+9	+20			+12	+18				24	249	285			247	272
FL	-12	-7		-8	+15	+10		+3	+13	+5	25	15		20	264	274		289	269	289
GA	-7	-2		6	+12	+8		+6	+12	+6	27	19		26	262	270		289	265	290
HI		-4		0		+13		+9	+7	+7	11	6		21	271	276		282	261	282
ID		-5		-2		+13		+8	+9	+7				18		264		292	276	294
IL	-1	-5		-4	+5	+10		+5	+8	+4	39	25		30	255	289		294	284	294
IN	-10	-7		0	+15	+12		+5	+7	+7	25	18		22	266	273		291	273	295
IA	-2	-11		-1	+3	+11		0	+3	+2	28	21		23	259	266		287	269	292
KS	-8	-7		+2	+13	+11		+4	+5	+7	30	20		23	264	274		294	276	298
KY	-2			-1	+8			+5	+7	+6	24	10		22	258	272		282	268	290
LA	-5			+1	+7			+2	+7	+8	27			25	257			283	263	288
ME				+2				+5	+4	+6	27			22	261			287	272	294
MD	+4	+1		+1	+9	+13		+14	+12	+13	37	28		31	266	275		303	267	298
MA	0	-3		-4	+12	+16		+13	+17	+13	33	34		29	272	271		305	270	307
MI	-1	-3		+1	+1	+3		0	+3	+5	40	17		29	246	289		286	260	289
MN	-7	-2		+3	+12	+6		+5	+2	+6	37	31	24	29	264	289	277	300	273	302
MS	-1			+3	+5			+4	+6	+8	28			27	251			279	256	283
MO	-4			-1	+9			+6	+9	+8	30	6		22	260	284		290	272	294
MT			+7	+4			0	+7	+4	+7		17	36	22		278	260	296	277	299
NE	-2	-3		+2	+6	+7		+4	+2	+5	38	29		27	253	282		291	267	294
NV	+2	-3		-3	+7	+12		+9	+9	+6	31	25		17	256	262		287	263	280
NH				-1				+6	+8	+7		23		20		270		293	276	296
NJ	-4	0		-4	+14	+10		+10	+14	+10	34	30		30	267	272		302	270	300
NM	+1	-1	-5	+1	+5	+8	+11	+6	+9	+10	29	26	32	24	259	262	256	288	261	284
NY	-5	+1		8	+6	0		+1	+8	0	32	32		23	262	262		294	270	293
NC	+1	-8	+6	+2	+2	+11	-3	+3	+4	+7	34	23	41	30	262	274	256	297	288	298
ND			+4	+1			+2	+6	+6	+6			33	18		263	296	280	296	
OH	+2	+7		0	+2	-3		+4	+5	+6	32	24		26	260	267		291	269	294
OK	-8	-1	0	-3	+11	+5	+4	+4	+6	+3	21	19	13	19	261	263	269	282	266	285
OR	+6	0	-4	+6	-1	+6	+10	+6	+4	+10	26	26	17	26	264	284	273	290	270	296
PA	-4	-4		-1	+13	+13		+9	+12	+11	34	28		30	260	266		294	268	298
RI	-6	-4		-4	+12	+10		+6	+8	+4	30	31		26	256	255		286	261	288
SC	-4			0	+5			+2	+5	+5	29	23		26	263	269		293	268	294
SD			-4	+2			+11	+7	+5	+6		27	29	21		268	266	295	276	297
TN	-7			-5	+12			+5	+11	+6	28	12		24	254	270		282	261	285
TX	-2	0		0	+13	+10		+11	+11	+11	28	24		24	272	277		301	276	299
UT		-6		+2		+10		+5	+1	+4		30	26	22		259	263	289	268	290
VT				0				+7	+8	+8				23				293	277	300
VA	-3	-2		-1	+6	+6		+4	+7	+6	26	19		26	268	274		294	268	294
WA	+4	+10	+6	+6	+6	0	+5	+10	+6	+11	27	32	26	28	269	264	269	295	271	299
WV	11			0	+10			-1	+1	0	7			18	263			271	262	280
WI	-8	-2		-6	+13	+7		+5	+11	+5	41	26		28	254	268		294	269	297
WY		0		0		+4		+4	+3	+3		20		17		269		289	274	291

ABOUT THE EDUCATION TRUST

The Education Trust promotes high academic achievement for all students at all levels—pre-kindergarten through college. We work alongside parents, educators, and community and business leaders across the country in transforming schools and colleges into institutions that serve all students well. Lessons learned in these efforts, together with unflinching data analyses, shape our state and national policy agendas. Our goal is to close the gaps in opportunity and achievement that consign far too many young people—especially those who are black, Latino, American Indian, or from low-income families—to lives on the margins of the American mainstream.



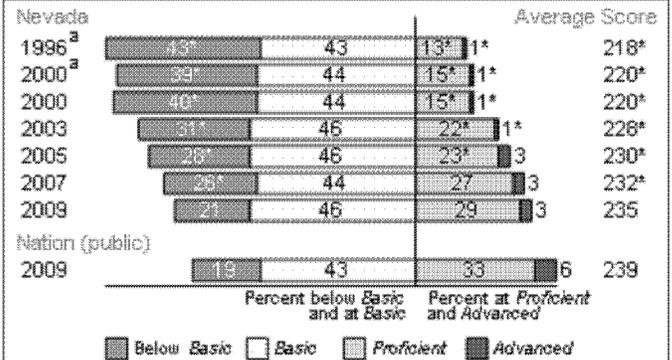
The Education Trust

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Overall Results

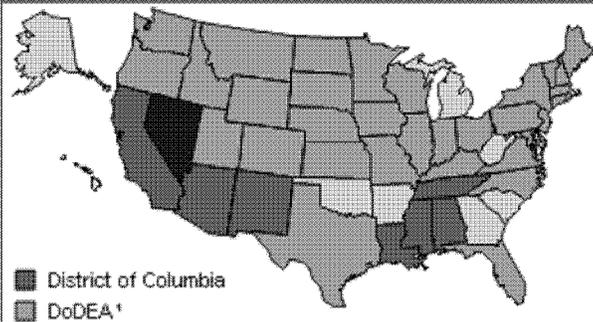
- In 2009, the average score of fourth-grade students in Nevada was 235. This was lower than the average score of 239 for public school students in the nation.
- The average score for students in Nevada in 2009 (235) was higher than their average score in 2007 (232) and was higher than their average score in 1996 (218).
- In 2009, the score gap between students in Nevada at the 75th percentile and students at the 25th percentile was 37 points. This performance gap was not significantly different from that of 1996 (40 points).
- The percentage of students in Nevada who performed at or above the NAEP *Proficient* level was 32 percent in 2009. This percentage was not significantly different from that in 2007 (30 percent) and was greater than that in 1996 (14 percent).
- The percentage of students in Nevada who performed at or above the NAEP *Basic* level was 79 percent in 2009. This percentage was greater than that in 2007 (74 percent) and was greater than that in 1996 (57 percent).

Achievement-Level Percentages and Average Score Results



* Significantly different ($p < .05$) from state's results in 2009.
^a Accommodations not permitted.
 NOTE: Detail may not sum to totals because of rounding.

Compare the Average Score in 2009 to Other States/Jurisdictions

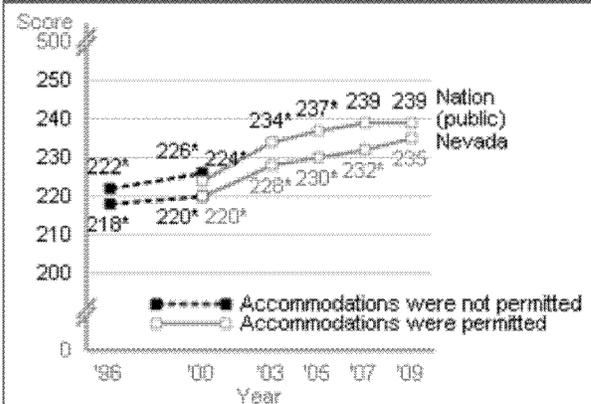


¹ Department of Defense Education Activity schools (domestic and overseas).

In 2009, the average score in **Nevada** was

- lower than those in 35 states/jurisdictions
- higher than those in 8 states/jurisdictions
- not significantly different from those in 8 states/jurisdictions

Compare the Average Score to Nation (public)



* Significantly different ($p < .05$) from 2009.

Results for Student Groups in 2009

Reporting Groups	Percent of students	Avg. score	Percentages at or above		Percent at Advanced
			Basic	Proficient	
Gender¹					
Male	50	236	79	34	4
Female	50	234	78	30	3
Race/Ethnicity					
White	42	245	90	46	5
Black	10	218	57	12	#
Hispanic	39	227	70	19	1
Asian/Pacific Islander	8	245	88	45	7
American Indian/Alaska Native	1	‡	‡	‡	‡
National School Lunch Program¹					
Eligible	41	226	69	20	1
Not eligible	58	242	86	41	5

Rounds to zero. ‡ Reporting standards not met.
 NOTE: Detail may not sum to totals because of rounding, and because the "Information not available" category for the National School Lunch Program, which provides free/reduced-price lunches, and the "Unclassified" category for race/ethnicity are not displayed.

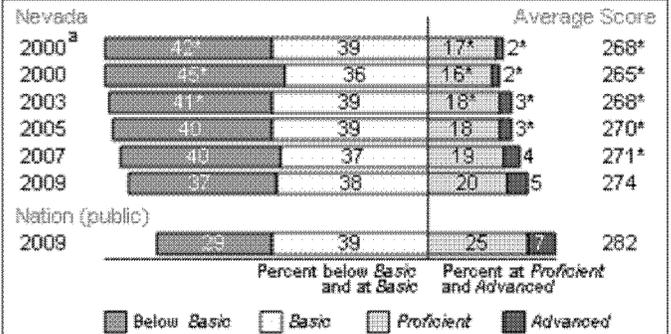
Score Gaps for Student Groups

- In 2009, male students in Nevada had an average score that was not significantly different from that of female students. This performance gap was not significantly different from that in 1996 (4 points).
- In 2009, Black students had an average score that was 27 points lower than that of White students. This performance gap was not significantly different from that in 1996 (29 points).
- In 2009, Hispanic students had an average score that was 19 points lower than that of White students. This performance gap was not significantly different from that in 1996 (21 points).
- In 2009, students who were eligible for free/reduced-price school lunch, an indicator of poverty, had an average score that was 16 points lower than that of students who were not eligible for free/reduced-price school lunch. This performance gap was not significantly different from that in 1996 (21 points).

Overall Results

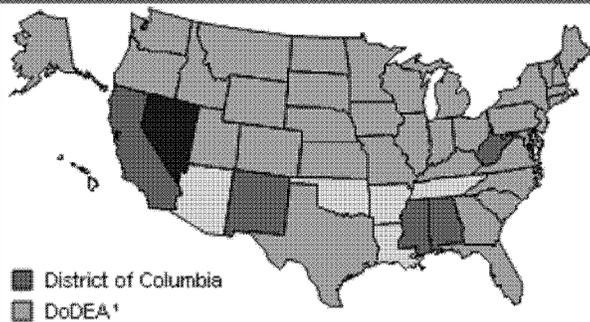
- In 2009, the average score of eighth-grade students in Nevada was 274. This was lower than the average score of 282 for public school students in the nation.
- The average score for students in Nevada in 2009 (274) was higher than their average score in 2007 (271) and was higher than their average score in 2000 (265).
- In 2009, the score gap between students in Nevada at the 75th percentile and students at the 25th percentile was 48 points. This performance gap was not significantly different from that of 2000 (50 points).
- The percentage of students in Nevada who performed at or above the NAEP *Proficient* level was 25 percent in 2009. This percentage was not significantly different from that in 2007 (23 percent) and was greater than that in 2000 (18 percent).
- The percentage of students in Nevada who performed at or above the NAEP *Basic* level was 63 percent in 2009. This percentage was not significantly different from that in 2007 (60 percent) and was greater than that in 2000 (55 percent).

Achievement-Level Percentages and Average Score Results



* Significantly different ($p < .05$) from state's results in 2009.
^a Accommodations not permitted.
 NOTE: Detail may not sum to totals because of rounding.

Compare the Average Score in 2009 to Other States/Jurisdictions

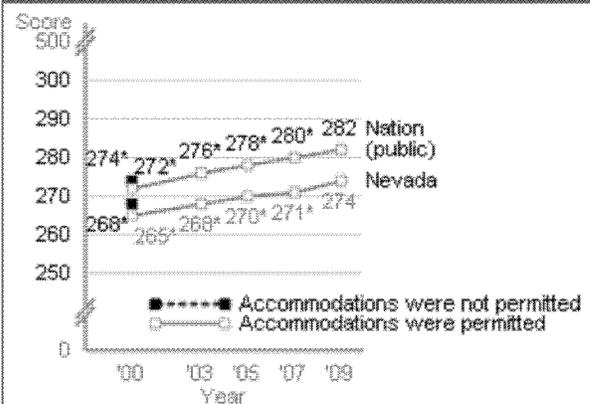


¹ Department of Defense Education Activity schools (domestic and overseas).

In 2009, the average score in **Nevada** was

- lower than those in 39 states/jurisdictions
- higher than those in 6 states/jurisdictions
- not significantly different from those in 6 states/jurisdictions

Compare the Average Score to Nation (public)



* Significantly different ($p < .05$) from 2009.

Results for Student Groups in 2009

Reporting Groups	Percent of students	Avg. score	Percentages at or above		Percent at Advanced
			Basic	Proficient	
Gender¹					
Male	50	275	64	26	5
Female	50	273	62	24	4
Race/Ethnicity					
White	44	287	78	36	8
Black	10	256	41	10	1
Hispanic	35	262	50	13	2
Asian/Pacific Islander	9	283	70	33	7
American Indian/Alaska Native	1	‡	‡	‡	‡
National School Lunch Program¹					
Eligible	35	263	51	14	2
Not eligible	65	280	70	31	6

‡ Reporting standards not met.

NOTE: Detail may not sum to totals because of rounding, and because the "Information not available" category for the National School Lunch Program, which provides free/reduced-price lunches, and the "Unclassified" category for race/ethnicity are not displayed.

Score Gaps for Student Groups

- In 2009, male students in Nevada had an average score that was not significantly different from that of female students. This performance gap was not significantly different from that in 2000 (1 point).¹
- In 2009, Black students had an average score that was 31 points lower than that of White students. This performance gap was not significantly different from that in 2000 (29 points).
- In 2009, Hispanic students had an average score that was 25 points lower than that of White students. This¹ performance gap was not significantly different from that in 2000 (24 points).
- In 2009, students who were eligible for free/reduced-price school lunch, an indicator of poverty, had an average score that was 17 points lower than that of students who were not eligible for free/reduced-price school lunch. This performance gap was narrower than that in 2000 (26 points).

Appendix A(3)(i)-4 – NAEP Achievement Gap Analysis

Grade 4 Reading

Did achievement increase from 2003-2007?						
	AA	LA	NA	WH	LI	HI
Nation	+6	+4	+4	+2	+4	+3
Nevada	+9	+4		+6	+4	+4
Was 2007 achievement above the national average?						
	AA	LA	NA	WH	LI	HI
Nation	203	204	206	230	205	232
Nevada	202	196		224	197	222

Did the gap narrow from 2003 to 2007?				
	AA-WH	LA-WH	NA-WH	LI-HI
Nation	-3	-2	-1	-1
Nevada	-3	+2		0
Were 2007 gaps smaller than national average?				
	AA-WH	LA-WH	NA-WH	LI-HI
Nation	27	26	24	27
Nevada	22	27		25

Grade 4 Math

Did achievement increase from 2003-2009?						
	AA	LA	NA	WH	LI	HI
Nation	+6	+6	+2	+5	+6	+6
Nevada	+3	+11		+9	+10	+5

RED cells = No, statistically significant **GREEN** cells = Yes, statistically significant No color = no change
 Source: Gauging the Gaps: A Deeper Look at Student Achievement, EdTrust 2010

Was 2009 achievement above the national average?						
	AA	LA	NA	WH	LI	HI
Nation	222	227	227	248	228	250
Nevada	218	227		245	226	242

Did the gap narrow from 2003 to 2009?				
	AA-WH	LA-WH	NA-WH	LI-HI
Nation	-1	-1	+3	0
Nevada	+6	-2		-5

Were 2009 gaps smaller than national average?				
	AA-WH	LA-WH	NA-WH	LI-HI
Nation	26	21	21	22
Nevada	27	19		16

Grade 8 Reading

Did achievement increase from 2003-2007?						
	AA	LA	NA	WH	LI	HI
Nation	0	+2	0	0	+1	0
Nevada	+15	+2		0	-1	+2

Was 2007 achievement above the national average?						
	AA	LA	NA	WH	LI	HI
Nation	244	246	248	270	247	271
Nevada	248	238		263	240	260

RED cells = No, statistically significant GREEN cells = Yes, statistically significant No color = no change
 Source: Gauging the Gaps: A Deeper Look at Student Achievement, EdTrust 2010

Did the gap narrow from 2003 to 2007?				
	AA-WH	LA-WH	NA-WH	LI-HI
Nation	0	-2	0	-1
Nevada	-14	-1		+3
Were 2007 gaps smaller than national average?				
	AA-WH	LA-WH	NA-WH	LI-HI
Nation	26	25	22	24
Nevada	15	24		20

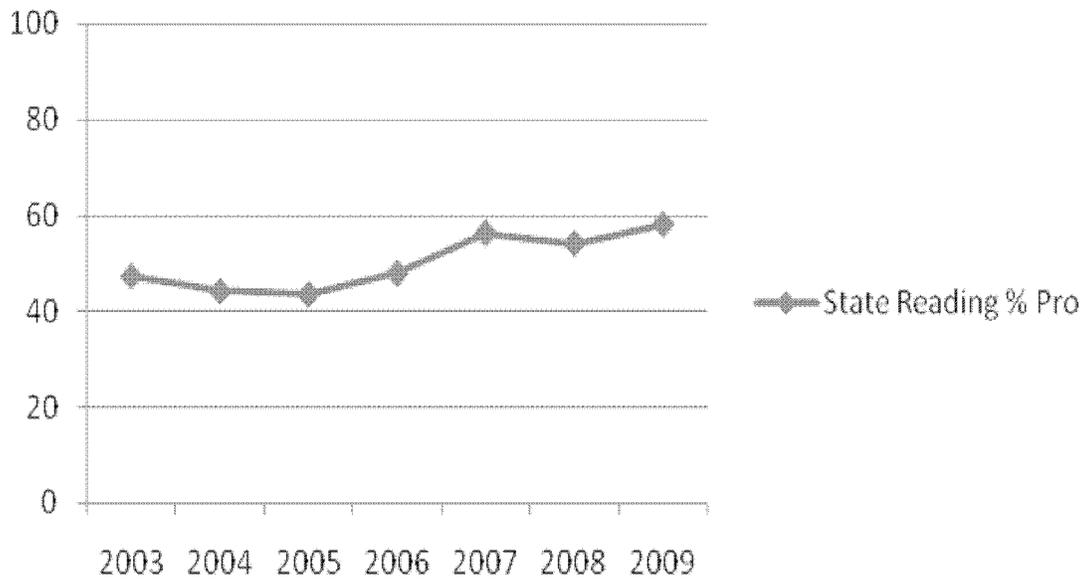
Grade 8 Math

Did achievement increase from 2003-2009?						
	AA	LA	NA	WH	LI	HI
Nation	+9	+8	+2	+5	+8	+6
Nevada	+7	+12		+9	+9	+6
Was 2009 achievement above the national average?						
	AA	LA	NA	WH	LI	HI
Nation	260	266	267	292	266	293
Nevada	256	262		287	263	280

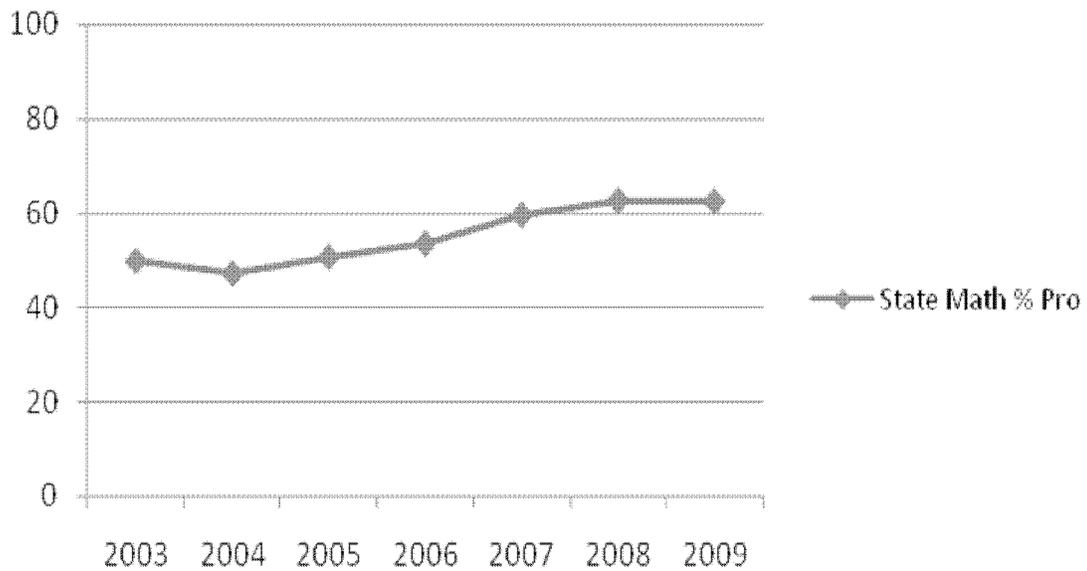
Did the gap narrow from 2003 to 2009?				
	AA-WH	LA-WH	NA-WH	LI-HI
Nation	-3	-2	+3	-1
Nevada	+2	-3		-3
Were 2009 gaps smaller than national average?				
	AA-WH	LA-WH	NA-WH	LI-HI
Nation	32	26	25	27
Nevada	31	25		17

RED cells = No, statistically significant GREEN cells = Yes, statistically significant No color = no change
 Source: Gauging the Gaps: A Deeper Look at Student Achievement, EdTrust 2010

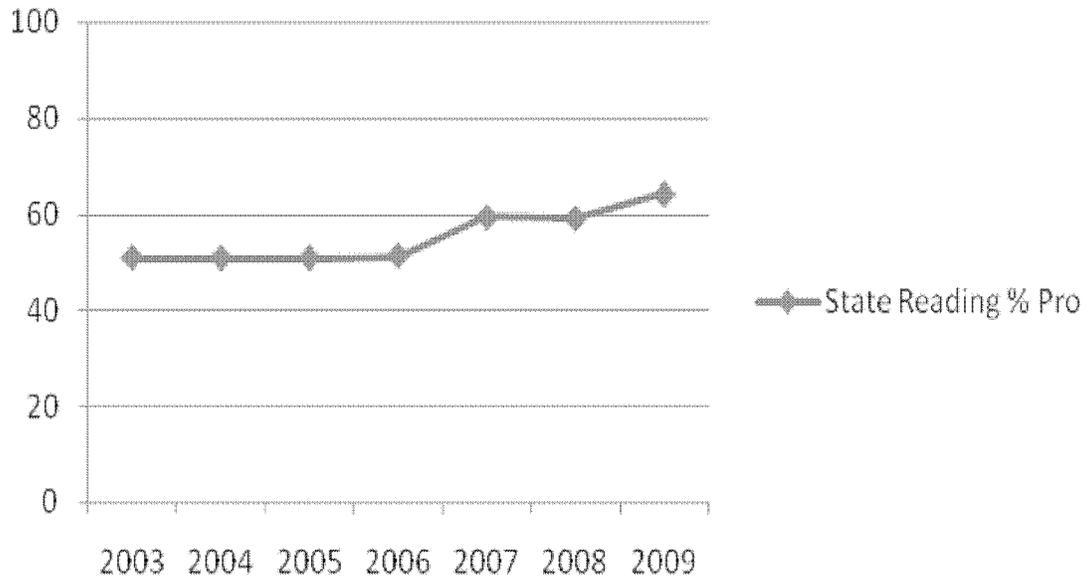
All Students CRT Reading - Grades 3 to 5



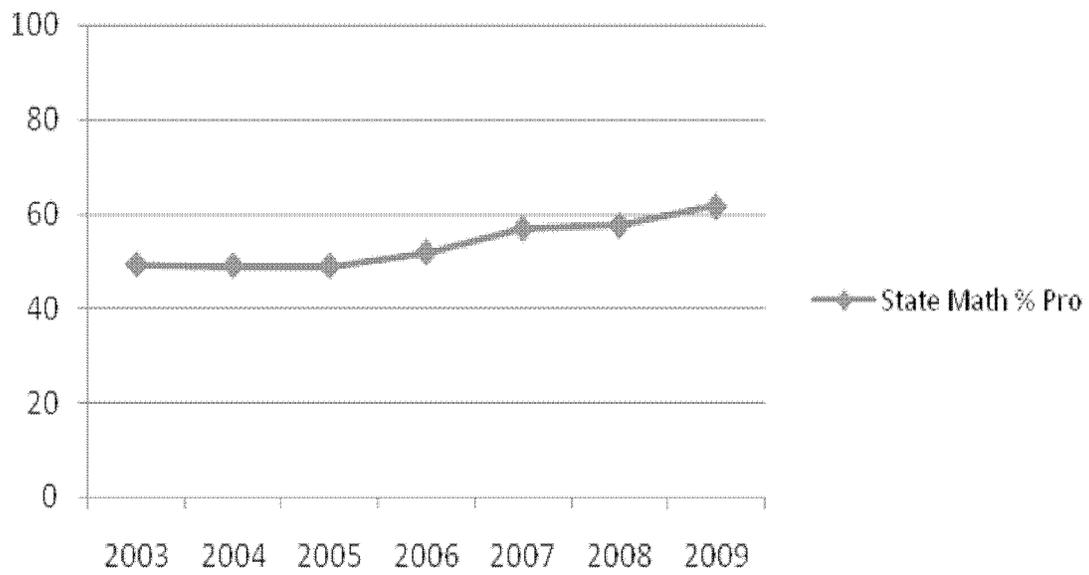
All Students CRT Math - Grades 3 to 5



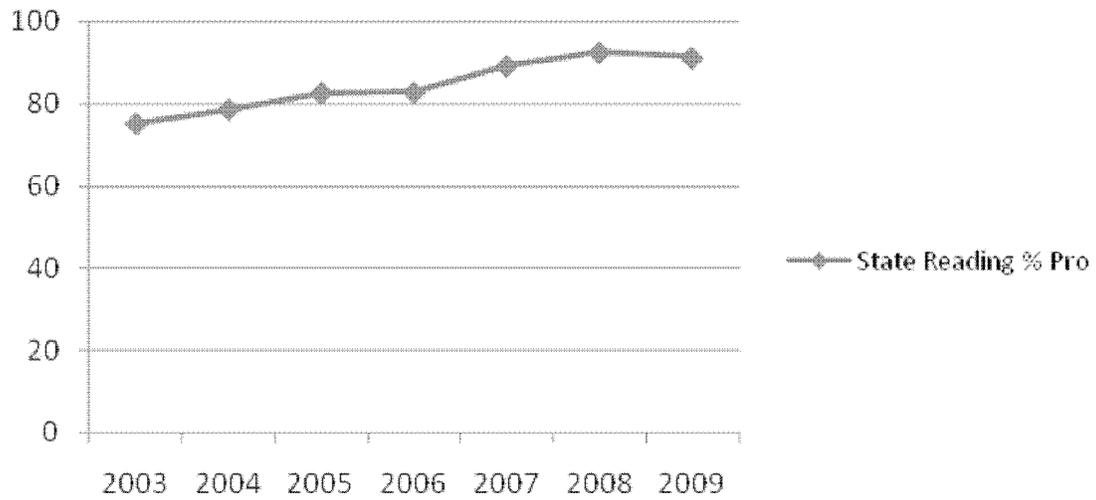
All Students CRT Reading - Grades 6 to 8



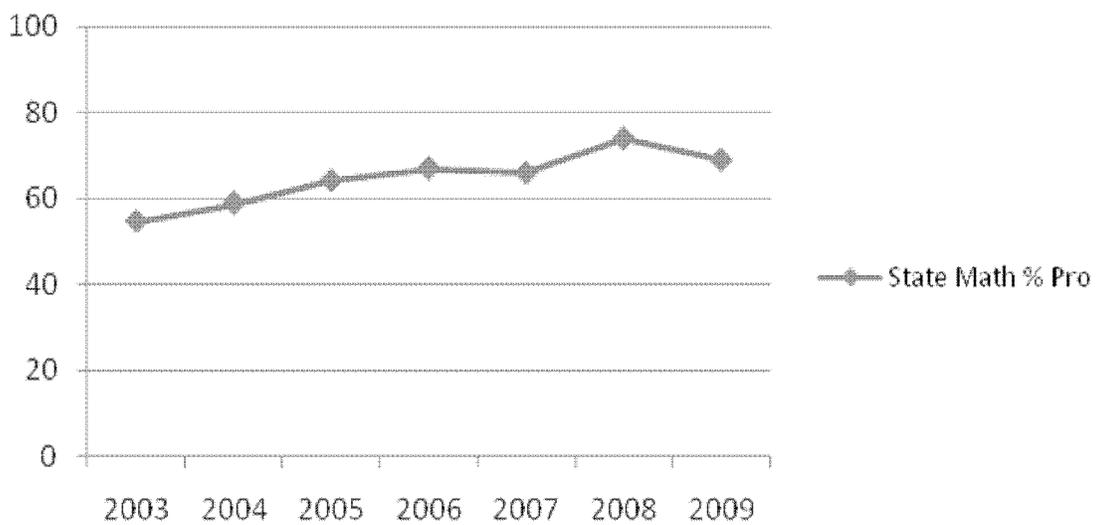
All Students CRT Math - Grades 6 to 8



All Students HSPE Reading



All Students HSPE Math



Appendix A(XX) – NAEP Average Scale Scores and Percent at or Above Proficient

Grade 4 NAEP Math

	2003		2005		2007		2009	
	Scale Score	Percent Proficient						
All students	228	23%	230	26%	232	30%	235	32%
White	236	32%	240	38%	243	43%	245	46%
American Indian	215	10%	‡	‡	‡	‡	‡	‡
African American	215	10%	214	10%	219	16%	218	12%
Hispanic	216	10%	219	13%	221	18%	227	19%
Asian/Pacific Islander	237	34%	243	42%	242	43%	245	45%
Not Special Ed	230	25%	232	28%	233	31%	237	34%
Special Ed	206	9%	212	13%	221	26%	218	16%
Not Low Income	237	33%	239	36%	242	42%	242	41%
Low Income	216	11%	219	14%	221	16%	226	20%
Not LEP	231	26%	234	30%	238	36%	239	37%
LEP	208	6%	209	7%	209	7%	220	12%

Grade 4 NAEP Reading

	2003		2005		2007		2009	
	Scale Score	Percent Proficient						
All students	207	20%	207	21%	211	24%	211	24%
White	217	28%	219	28%	224	35%	222	34%
American Indian	190	12%	‡	‡	‡	‡	‡	‡
African American	193	9%	192	10%	202	16%	201	14%
Hispanic	192	11%	194	12%	196	14%	199	13%
Asian/Pacific Islander	214	21%	212	24%	220	30%	225	38%
Not Special Ed	210	22%	209	21%	213	25%	215	25%
Special Ed	172	6%	185	10%	190	22%	177	10%
Not Low Income	218	28%	219	30%	222	33%	220	32%
Low Income	192	10%	192	9%	197	13%	200	13%
Not LEP	211	23%	212	23%	218	29%	218	29%
LEP	177	4%	176	3%	179	4%	183	5%

Grade 8 NAEP Math

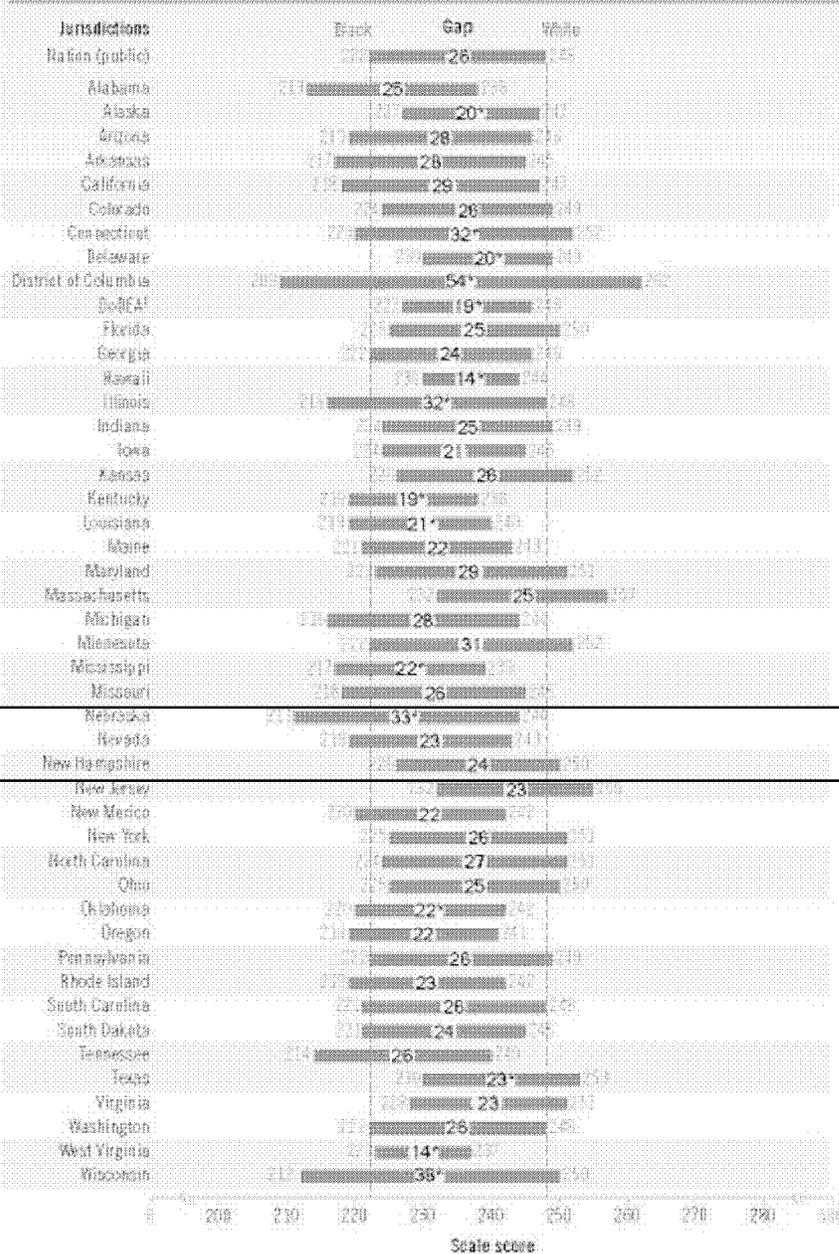
	2003		2005		2007		2009	
	Scale Score	Percent Proficient						
All students	268	20%	270	21%	271	23%	274	25%
White	278	27%	280	29%	282	32%	287	36%
American Indian	‡	‡	‡	‡	‡	‡	‡	‡
African American	248	9%	247	7%	255	12%	256	10%
Hispanic	250	7%	256	10%	257	11%	262	13%
Asian/Pacific Islander	280	31%	281	30%	285	36%	283	33%
Regular Ed	272	22%	274	23%	274	24%	277	26%
Special Ed	233	4%	233	5%	240	9%	242	9%
Not Low Income	274	25%	277	27%	279	30%	280	31%
Low Income	254	10%	256	10%	259	13%	263	14%
Not LEP	270	21%	273	23%	274	25%	278	27%
LEP	234	3%	236	4%	238	5%	234	2%

Grade 8 NAEP Reading

	2003		2005		2007		2009	
	Scale Score	Percent Proficient						
All students	252	21%	253	22%	252	22%	254	22%
White	262	29%	261	29%	263	30%	264	31%
American Indian	‡	‡	‡	‡	‡	‡	‡	‡
African American	233	4%	240	12%	248	16%	241	10%
Hispanic	237	8%	241	11%	238	11%	242	13%
Asian/Pacific Islander	260	25%	263	32%	261	26%	262	28%
Not Special Ed	257	23%	257	24%	255	23%	258	24%
Special Ed	214	2%	214	3%	218	7%	216	4%
Not Low Income	258	25%	259	28%	260	28%	260	27%
Low Income	242	13%	240	12%	240	12%	243	13%
Not LEP	254	22%	257	25%	255	23%	257	24%
LEP	218	2%	221	2%	217	6%	204	1%

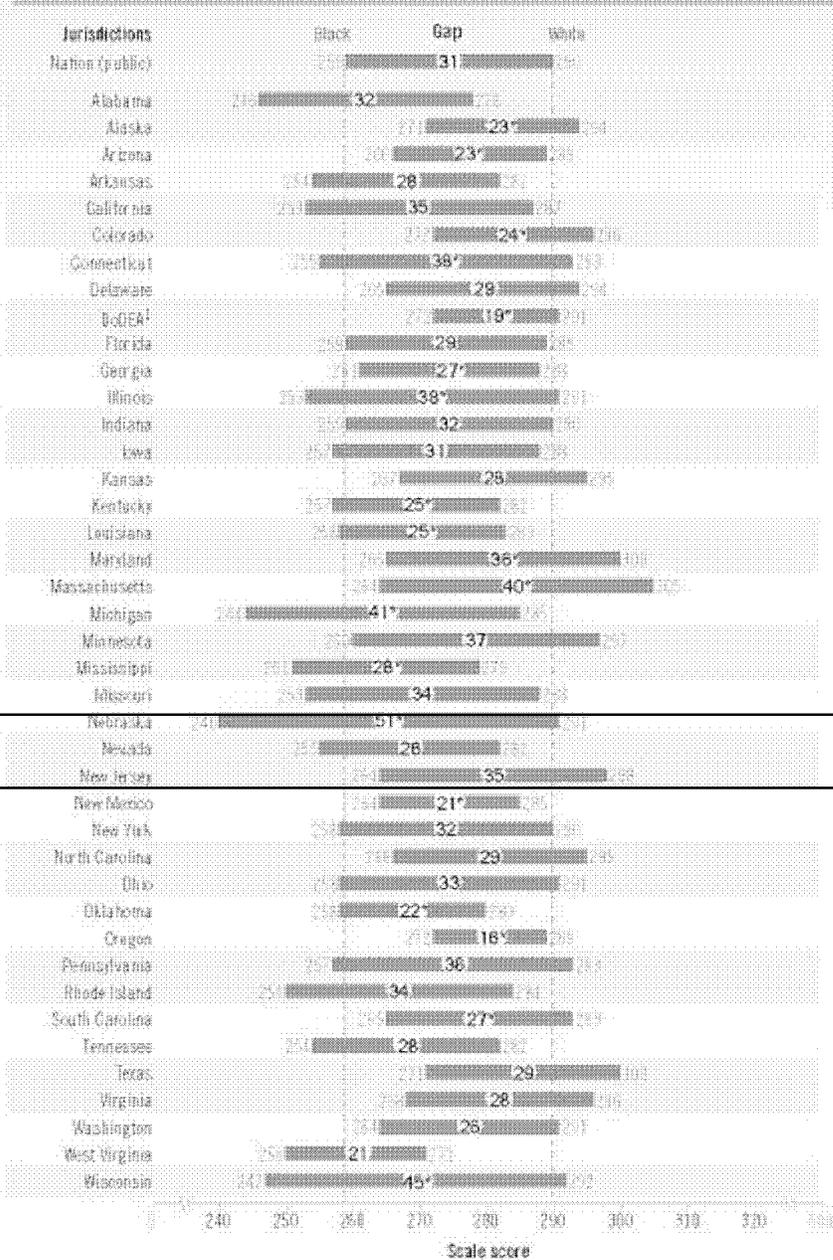
Appendix A(XX) – NAEP Achievement Black /White Gap

The Black-White achievement score gap in mathematics for public school students at grade 4, by state or jurisdiction: 2007



* Significantly different (p < .05) from the nation (public) when comparing one state to the nation at a time.
¹ Department of Defense Education Activity (overseas and domestic schools).
 NOTE: States whose Black student population size was insufficient for comparison are omitted. Reporting standards not met for Idaho, Montana, North Dakota, Utah, Vermont, and Wyoming.
 SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2007 Mathematics Assessment.

The Black-White achievement score gap in mathematics for public school students at grade 8, by state or jurisdiction: 2007



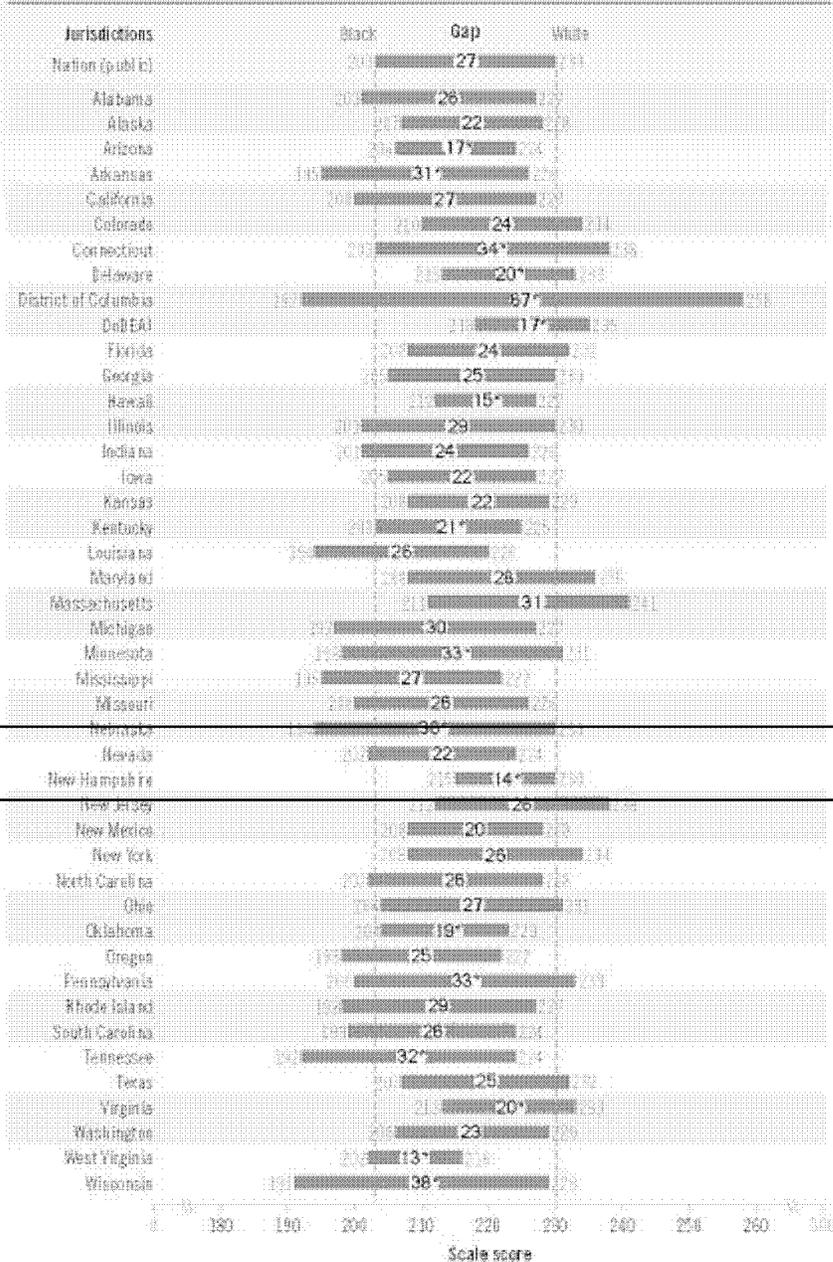
* Significantly different ($p < .05$) from the nation (public) when comparing one state to the nation at a time.

† Department of Defense Education Activity (overseas and domestic schools).

NOTE: States whose Black or White student population size was insufficient for comparison are omitted. Reporting standards not met for District of Columbia, Hawaii, Idaho, Maine, Montana, New Hampshire, North Dakota, South Dakota, Utah, Vermont, and Wyoming.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2007 Mathematics Assessment.

The Black-White achievement score gap in reading for public school students at grade 4, by state or jurisdiction: 2007



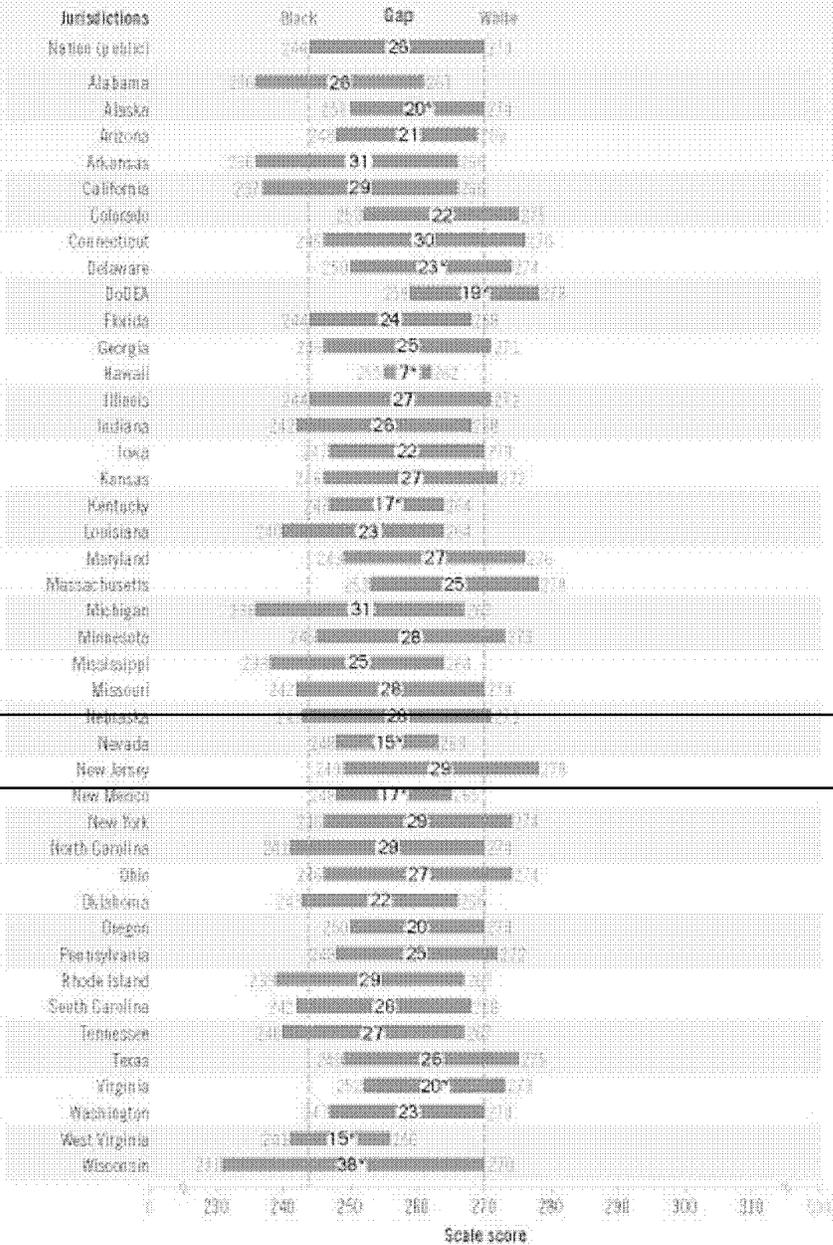
* Significantly different (p<.05) from the nation (public) when comparing one state to the nation at a time.

† Department of Defense Education Activity (overseas and domestic schools).

NOTE: States whose Black student population size was insufficient for comparison are omitted. Reporting standards not met for Idaho, Maine, Montana, North Dakota, South Dakota, Utah, Vermont, and Wyoming.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2007 Reading Assessment.

The Black-White achievement score gap in reading for public school students at grade 8, by state or jurisdiction: 2007



* Significantly different (p < .05) from the nation (public) when comparing one state to the nation at a time.

† Department of Defense Education Activity (overseas and domestic schools).

NOTE: States whose Black or White student population size was insufficient for comparison are omitted. Reporting standards not met for District of Columbia, Idaho, Maine, Montana, New Hampshire, North Dakota, South Dakota, Utah, Vermont, and Wyoming.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2007 Reading Assessment.

Table

Fourth-grade public school students identified as students with disabilities (SD) and/or English language learners (ELL) in NAEP reading, by assessment year and testing status, as a percentage of all students: Various years, 1998–2009

Year and testing status		SD and/or ELL		SD		ELL	
		Nevada	Nation (public)	Nevada	Nation (public)	Nevada	Nation (public)
1998	Identified	20	18	10	11	10	7
	Excluded	11	7	6	5	6	3
	Assessed without accommodations	8	7	4	4	4	4
	Assessed with accommodations	1	3	1	3	#	1
2002	Identified	27	21	12	13	18	9
	Excluded	10	7	5	5	7	2
	Assessed without accommodations	14	10	5	4	10	6
	Assessed with accommodations	3	4	2	4	1	1
2003	Identified	26	22	13	14	16	10
	Excluded	8	6	5	5	5	2
	Assessed without accommodations	13	10	5	4	9	7
	Assessed with accommodations	5	5	4	5	2	1
2005	Identified	25	23	12	14	16	11
	Excluded	7	7	5	5	3	2
	Assessed without accommodations	13	10	3	4	10	7
	Assessed with accommodations	5	7	3	5	3	2
2007	Identified	32	23	13	14	23	11
	Excluded	8	6	5	5	5	2
	Assessed without accommodations	16	10	4	3	11	7
	Assessed with accommodations	8	7	4	6	6	2
2009	Identified	30	23	12	13	20	11
	Excluded	4	5	3	4	2	2
	Assessed without accommodations	13	9	3	3	10	6
	Assessed with accommodations	13	9	5	7	9	3

Rounds to zero.

NOTE: Students identified as both SD and ELL were counted only once under the combined SD and/or ELL category, but were counted separately under the SD and ELL categories. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 1998–2009 Reading Assessments.

Table

Eighth-grade public school students identified as students with disabilities (SD) and/or English language learners (ELL) in NAEP reading, by assessment year and testing status, as a percentage of all students: Various years, 1998–2009

Year and testing status		SD and/or ELL		SD		ELL	
		Nevada	Nation (public)	Nevada	Nation (public)	Nevada	Nation (public)
1998	Identified	15	14	10	11	6	3
	Excluded	6	4	4	3	2	1
	Assessed without accommodations	8	7	5	5	3	2
	Assessed with accommodations	2	3	1	2	#	#
2002	Identified	20	18	13	13	9	6
	Excluded	6	6	4	5	3	2
	Assessed without accommodations	12	8	7	5	6	4
	Assessed with accommodations	2	4	2	4	#	1
2003	Identified	18	19	12	14	7	6
	Excluded	4	5	2	4	2	2
	Assessed without accommodations	9	8	5	5	4	4
	Assessed with accommodations	5	5	5	5	1	1
2005	Identified	22	19	12	13	11	6
	Excluded	4	5	3	4	2	1
	Assessed without accommodations	12	7	4	3	8	4
	Assessed with accommodations	6	6	5	6	2	1
2007	Identified	19	19	11	13	10	7
	Excluded	6	5	4	5	3	2
	Assessed without accommodations	9	7	3	3	6	4
	Assessed with accommodations	4	7	4	6	1	1
2009	Identified	17	18	11	13	8	6
	Excluded	3	4	2	4	2	1
	Assessed without accommodations	5	6	2	2	3	3
	Assessed with accommodations	9	8	6	7	3	1

Rounds to zero.

NOTE: Students identified as both SD and ELL were counted only once under the combined SD and/or ELL category, but were counted separately under the SD and ELL categories. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 1998–2009 Reading Assessments.



IC Team Model	IC Team Model
	Mission
IC Team Lab	Goal/Objectives
	Assumptions
IES Grant Project: IC Teams	Model
Effectiveness Study	Mission
Resources	
Home	The mission of Instructional Consultation as a model of team functioning is to link people and resources at all levels whereby general, special education, and pupil service personnel share the responsibility for the education of ALL students through the improved quality of service.

Goal of IC Teams

To Enhance/ Improve/ Increase Student and Staff Performance

Objectives

- Develop a systematic support network within each building, including a trained Instructional Consultation Team.
- Enhance teachers' skills in and application of best practices of instructional assessment and delivery
- Develop school-wide norms of collaboration and problem-solving
- Utilize data for classroom and school decisions

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Assumptions

- All students are learners.
- The instructional match and setting is the focus of problem-solving.
- A strong problem-solving and learning community in the school is the foundation for professional and student success.
- Change is a process, not an event.

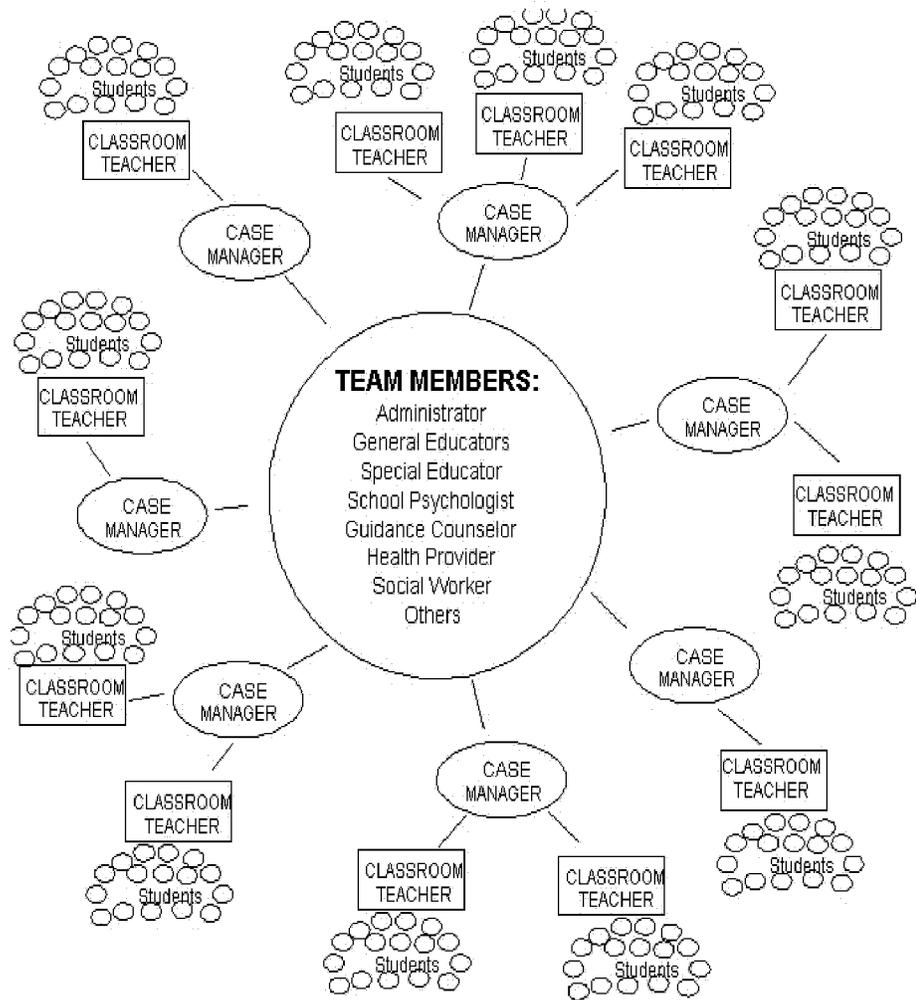
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Model

At the core of Instructional Consultation is the development, training, implementation, and evaluation of interdisciplinary school-based teams. The composition of the IC Team includes administrators, general and special educators, and pupil services personnel. Each team member is trained in Instructional Consultation and assumes a case management role when working with a classroom teacher who requests assistance of the team. Case managers and classroom teachers engage in a Collaborative Problem-Solving Process that is systematic and in which decisions are determined by the collection of specific student data. The case manager and the teacher follow the problem-solving stages of:

- Problem identification and analysis Intervention design
Intervention implementation Intervention evaluation
- Follow-up and closure

The purpose of the team is to serve as a centralized problem-solving unit, to model interactive professionalism, and to operate as a consultant panel for each other and for teachers in the building (Rosenfield & Gravois, 1996). Within the team framework, each individual team member serves as a case manager to a classroom teacher and progresses through the problem-solving process described above. The team also includes the system manager, whose role is to organize and document team functioning. This includes receiving requests for assistance, scheduling team meetings, and maintaining team records. Additionally, the team facilitator performs several functions, including helping the school to initiate the IC process, develop a team and delivery system, and to provide training and coaching to individual team members on the Instructional Consultation process.



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Direct questions and comments to ICTeams@umail.umd.edu
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State of Nevada
Office of the State Treasurer
 Date: 1/13/2010 1:04:30 PM

Millennium Scholarship Program
Scholarship General Statistics

Nevada Electronic Treasury System
 ReportID: INSTEP_General_Stats

Millennium Scholarship Statistics

<u>General Stats</u>		<u>Degrees Earned</u>		<u>Other Stats</u>	
Eligible Out of HS:	84,000	Bachelor's:	11,900	Ineligible due to funds expended:	4,352
Activated Scholarships:	59,055	Associate's:	6,577	Ineligible due to expired date:	20,920
Eligible Currently:	20,473	Certificates/Other:	595	Lost eligibility at least once:	39,691
Not Eligible Currently:	38,582			Number with 2 strikes:	6,268
Amount Distributed to Date:	\$217,709,667.45				

High School Grad year: 2000

<u>General Stats</u>		<u>Degrees Earned</u>		<u>Other Statistics</u>	
Eligible Out of HS:	7,361	Bachelor's:	2,320	Ineligible due to funds expended:	1,175
Activated Students:	5,657	Associate's:	1,122	Ineligible due to Expired Date:	6,441
Eligible Currently:	26	Certificates / Other:	86	Lost Eligibility at Least Once:	4,096
Not Eligible Currently:	5,631			Has Received 2 Strikes:	54
Amount Distributed to Date:	\$30,500,912.78				

High School Grad year: 2001

<u>General Stats</u>		<u>Degrees Earned</u>		<u>Other Statistics</u>	
Eligible Out of HS:	7,909	Bachelor's:	2,275	Ineligible due to funds expended:	1,181
Activated Students:	6,024	Associate's:	1,299	Ineligible due to Expired Date:	6,785
Eligible Currently:	30	Certificates / Other:	81	Lost Eligibility at Least Once:	4,150
Not Eligible Currently:	5,994			Has Received 2 Strikes:	185
Amount Distributed to Date:	\$32,095,021.46				

High School Grad year: 2002

<u>General Stats</u>		<u>Degrees Earned</u>		<u>Other Statistics</u>	
Eligible Out of HS:	8,203	Bachelor's:	2,335	Ineligible due to funds expended:	1,141
Activated Students:	6,217	Associate's:	1,270	Ineligible due to Expired Date:	0
Eligible Currently:	2,794	Certificates / Other:	144	Lost Eligibility at Least Once:	4,266
Not Eligible Currently:	3,423			Has Received 2 Strikes:	321
Amount Distributed to Date:	\$33,011,145.36				

High School Grad year: 2003

<u>General Stats</u>		<u>Degrees Earned</u>		<u>Other Statistics</u>	
Eligible Out of HS:	8,702	Bachelor's:	1,963	Ineligible due to funds expended:	488
Activated Students:	6,551	Associate's:	994	Ineligible due to Expired Date:	7,693
Eligible Currently:	56	Certificates / Other:	76	Lost Eligibility at Least Once:	4,997
Not Eligible Currently:	6,495			Has Received 2 Strikes:	760
Amount Distributed to Date:	\$28,047,045.01				

High School Grad year: 2004

<u>General Stats</u>		<u>Degrees Earned</u>		<u>Other Statistics</u>	
Eligible Out of HS:	9,086	Bachelor's:	1,876	Ineligible due to funds expended:	313
Activated Students:	6,601	Associate's:	826	Ineligible due to Expired Date:	0
Eligible Currently:	2,697	Certificates / Other:	115	Lost Eligibility at Least Once:	5,062
Not Eligible Currently:	3,904			Has Received 2 Strikes:	1,152
Amount Distributed to Date:	\$26,681,813.26				

High School Grad year: 2005General Stats

Eligible Out of HS:	8,630
Activated Students:	6,097
Eligible Currently:	2,576
Not Eligible Currently:	3,521
Amount Distributed to Date:	\$21,830,078.06

Degrees Earned

Bachelor's:	989
Associate's:	510
Certificates / Other:	36

Other Statistics

Ineligible due to funds expended:	54
Ineligible due to Expired Date:	0
Lost Eligibility at Least Once:	4,591
Has Received 2 Strikes:	1,625

High School Grad year: 2006General Stats

Eligible Out of HS:	8,741
Activated Students:	6,084
Eligible Currently:	2,838
Not Eligible Currently:	3,246
Amount Distributed to Date:	\$18,122,171.52

Degrees Earned

Bachelor's:	131
Associate's:	359
Certificates / Other:	36

Other Statistics

Ineligible due to funds expended:	0
Ineligible due to Expired Date:	0
Lost Eligibility at Least Once:	4,452
Has Received 2 Strikes:	1,260

High School Grad year: 2007General Stats

Eligible Out of HS:	8,164
Activated Students:	5,503
Eligible Currently:	2,914
Not Eligible Currently:	2,589
Amount Distributed to Date:	\$13,740,999.24

Degrees Earned

Bachelor's:	10
Associate's:	151
Certificates / Other:	12

Other Statistics

Ineligible due to funds expended:	0
Ineligible due to Expired Date:	0
Lost Eligibility at Least Once:	3,613
Has Received 2 Strikes:	716

High School Grad year: 2008General Stats

Eligible Out of HS:	8,782
Activated Students:	5,622
Eligible Currently:	3,207
Not Eligible Currently:	2,415
Amount Distributed to Date:	\$9,927,487.29

Degrees Earned

Bachelor's:	1
Associate's:	37
Certificates / Other:	9

Other Statistics

Ineligible due to funds expended:	0
Ineligible due to Expired Date:	0
Lost Eligibility at Least Once:	3,096
Has Received 2 Strikes:	195

High School Grad year: 2009General Stats

Eligible Out of HS:	8,420
Activated Students:	4,699
Eligible Currently:	3,335
Not Eligible Currently:	1,364
Amount Distributed to Date:	\$3,752,993.47

Degrees Earned

Bachelor's:	0
Associate's:	9
Certificates / Other:	0

Other Statistics

Ineligible due to funds expended:	0
Ineligible due to Expired Date:	0
Lost Eligibility at Least Once:	1,368
Has Received 2 Strikes:	0

High School Grad year: 2010General Stats

Eligible Out of HS:	2
Activated Students:	0
Eligible Currently:	0
Not Eligible Currently:	0
Amount Distributed to Date:	\$0.00

Degrees Earned

Bachelor's:	0
Associate's:	0
Certificates / Other:	0

Other Statistics

Ineligible due to funds expended:	0
Ineligible due to Expired Date:	0
Lost Eligibility at Least Once:	0
Has Received 2 Strikes:	0

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CHAPTER 396 - NEVADA SYSTEM OF HIGHER EDUCATION

GENERAL PROVISIONS

<u>NRS 396.005</u>	Definitions.
<u>NRS 396.010</u>	Seat of University; extension instruction, research and service activities conducted throughout State.
<u>NRS 396.020</u>	Legal and corporate name of University; name and composition of System.

BOARD OF REGENTS

<u>NRS 396.031</u>	Definitions.
<u>NRS 396.035</u>	Attachment of omitted area to appropriate district; certification and filing of attachment.
<u>NRS 396.040</u>	Number of Regents; election from certain districts; residency requirements.
<u>NRS 396.0411</u>	Maps of districts: Duties of Director of Legislative Counsel Bureau.
<u>NRS 396.0413</u>	Maps of districts: Duties of Secretary of State.
<u>NRS 396.0415</u>	District 1.
<u>NRS 396.0425</u>	District 2.
<u>NRS 396.043</u>	District 3.
<u>NRS 396.0435</u>	District 4.
<u>NRS 396.044</u>	District 5.
<u>NRS 396.0445</u>	District 6.
<u>NRS 396.045</u>	District 7.
<u>NRS 396.0451</u>	District 8.
<u>NRS 396.0453</u>	District 9.
<u>NRS 396.0455</u>	District 10.
<u>NRS 396.0456</u>	District 11.
<u>NRS 396.0457</u>	District 12.
<u>NRS 396.046</u>	District 13.
<u>NRS 396.050</u>	Oaths.
<u>NRS 396.060</u>	Vacancies.
<u>NRS 396.070</u>	Salaries and expenses of Regents; restrictions on account to pay for hosting expenditures of Regent; annual report and availability of hosting expenditures.
<u>NRS 396.080</u>	Chair of Board.
<u>NRS 396.090</u>	Secretary of Board: Employment; duties.
<u>NRS 396.100</u>	Meetings; records open to public inspection.
<u>NRS 396.110</u>	Rules of Board.
<u>NRS 396.120</u>	Copy of minutes of Regents' meetings transmitted to Governor.
<u>NRS 396.122</u>	Interest in certain contracts prohibited.

PERSONNEL

<u>NRS 396.210</u>	Chancellor: Appointment and qualifications.
<u>NRS 396.220</u>	Salary of Chancellor.
<u>NRS 396.230</u>	Duties of Chancellor and other officers.
<u>NRS 396.240</u>	Reports of Chancellor and other officers.
<u>NRS 396.251</u>	Establishment of policies and procedures for certain personnel.
<u>NRS 396.255</u>	Establishment of procedures governing contracts that faculty members and employees may enter into or benefit from.
<u>NRS 396.260</u>	Employment of alien instructor or professor through program of exchange.
<u>NRS 396.270</u>	Official oath for instructor and professor.
<u>NRS 396.280</u>	Salaries of academic staff.
<u>NRS 396.290</u>	Retirement benefits for employees of System.
<u>NRS 396.300</u>	Rules for reports of officers and teachers.
<u>NRS 396.311</u>	Community College: System of probation for professional employees.
<u>NRS 396.315</u>	Community College: System for dismissal of professional employees.
<u>NRS 396.320</u>	Grounds for dismissal or removal of certain personnel.

DISCIPLINARY HEARINGS

<u>NRS 396.323</u>	Powers of Regents and other officers to issue subpoenas; enforcement.
<u>NRS 396.324</u>	Person with communications disability entitled to use of registered legal interpreter at hearing.

POLICE DEPARTMENT; REVIEW OF POLICE MISCONDUCT

<u>NRS 396.325</u>	Creation; interlocal agreements with other law enforcement agencies.
<u>NRS 396.327</u>	Police required to wear badges.
<u>NRS 396.328</u>	Provision of accident reports and related materials upon receipt of reasonable fee; exceptions.
<u>NRS 396.329</u>	Report concerning activities of Police Department.
<u>NRS 396.3291</u>	Campus review board: Creation authorized to review allegations of misconduct by peace officers of the Police Department; membership; conditions for membership; payment of per diem and travel expenses.
<u>NRS 396.3293</u>	Campus review board: Limitation on jurisdiction; abridgement of rights of peace officer prohibited.
<u>NRS 396.3295</u>	Panel of campus review board: Membership; authority to refer complaint and review internal investigation concerning peace officer; Police Department required to provide personnel information; notice and opportunity for hearing on internal investigation; report of findings; proceedings closed to public; findings and recommendations are public records.
<u>NRS 396.3297</u>	Panel of campus review board: Authority to administer oaths, take testimony, issue subpoenas and issue commissions to take testimony; enforcement of subpoena by court.

FINANCES

<u>NRS 396.330</u>	Acceptance of grants of land.
<u>NRS 396.340</u>	Acceptance of federal appropriations and grants; annual report.
<u>NRS 396.350</u>	Irreducible University Fund.
<u>NRS 396.360</u>	Contingent University Fund.
<u>NRS 396.370</u>	Appropriations for support and maintenance of System.
<u>NRS 396.380</u>	Receipt and disbursement of money by Board of Regents; control of expenditures.
<u>NRS 396.381</u>	Board of Regents authorized to delegate authority to sign contract for obligations not issued under University Securities Law; approval by Board of Regents; authorized investment of proceeds.
<u>NRS 396.383</u>	Accounts Payable Revolving Fund.
<u>NRS 396.384</u>	Collegiate License Plate Account.
<u>NRS 396.385</u>	Use of facsimile signature by chief business officer; conditions.
<u>NRS 396.390</u>	Claims: Procedure and payment.
<u>NRS 396.400</u>	Public inspection of accounts.

UNIVERSITY FOUNDATIONS

<u>NRS 396.405</u>	Meetings; records; exemption from certain taxes; governing body; nondisclosure of contributors.
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PROPERTY; CAPITAL IMPROVEMENTS; EQUIPMENT; MATERIALS AND SUPPLIES

<u>NRS 396.420</u>	Acceptance of property.
<u>NRS 396.425</u>	Purchase of real property.
<u>NRS 396.430</u>	Sale and lease of property; use of proceeds.
<u>NRS 396.431</u>	Disclosure required for sale, lease, transfer, conveyance or exchange of land with domestic or foreign limited-liability company.
<u>NRS 396.432</u>	Disposition of unclaimed property.
<u>NRS 396.433</u>	Fidelity and other insurance.
<u>NRS 396.435</u>	Regulations governing traffic on System's property; publication; filing; penalty.
<u>NRS 396.4355</u>	Annual report concerning capital improvements; submission to Legislature.
<u>NRS 396.436</u>	Maintenance and delivery of records and controls for inventory.
<u>NRS 396.4365</u>	Maintenance and availability of material safety data sheet for hazardous materials used on buildings or grounds of campus.
<u>NRS 396.437</u>	Recycling of paper, paper products and other waste materials; regulations and procedures; exception; deposit of money received.

PROGRAMS OF INSTRUCTION, RESEARCH AND CLINICAL SERVICES

<u>NRS 396.440</u>	Course of study, terms and vacations.
<u>NRS 396.500</u>	Instruction in United States Constitution and Nevada's Constitution; examination.
<u>NRS 396.504</u>	Regents encouraged to review mission of System and parity among institutions.
<u>NRS 396.505</u>	Comprehensive plan for new programs and expansions of existing programs of instruction, public service and research; presentation of revised plan to Legislature.
<u>NRS 396.514</u>	Instruction in essentials of green building construction and design.
<u>NRS 396.515</u>	Instruction in ecology and environmental protection; inclusion in program for education of teachers.
<u>NRS 396.516</u>	Uniform course of study and policies and procedures on teaching American Sign Language.
<u>NRS 396.517</u>	Program to educate and train persons for work in nursing home.
<u>NRS 396.518</u>	Development of curriculum and standards for degree in dental hygiene or public health dental hygiene.
<u>NRS 396.519</u>	Program of student teaching and practicum.
<u>NRS 396.5195</u>	Cooperation of Regents to ensure program designed to educate teachers includes instruction in academic

standards required in high school.

<u>NRS 396.521</u>	Genetics program: Establishment.
<u>NRS 396.523</u>	Genetics program: Provision of services.
<u>NRS 396.524</u>	Genetics program: Eligibility; determination of ability to pay.
<u>NRS 396.525</u>	Genetics program: Confidentiality of records and information; exceptions.
<u>NRS 396.526</u>	Genetics program: Qualifications of personnel; exemption.
<u>NRS 396.527</u>	Genetics program: Powers of Board of Regents.
<u>NRS 396.528</u>	Energy efficiency and renewable energy: Programs of study; joint venture with public and private entities authorized; acceptance of gifts and grants.
<u>NRS 396.529</u>	Energy efficiency and renewable energy: Programs designed to improve ability of students in certain fields of study to serve renewable energy industry in this State.
<u>NRS 396.5295</u>	Energy efficiency and renewable energy: Duties of Nevada Renewable Energy Integration and Development Consortium of the System.

STUDENTS; TUITION; GRADUATION AND DIPLOMAS

<u>NRS 396.530</u>	Discrimination in admission prohibited.
<u>NRS 396.532</u>	Report concerning participation of ethnic and racial minorities, women and other protected classes in System; submission to Legislature; availability to general public.
<u>NRS 396.533</u>	Access to all library facilities within System.
<u>NRS 396.535</u>	Form required for informed consent of students concerning release or disclosure of personally identifiable information.
<u>NRS 396.540</u>	Charges for tuition; free tuition.
<u>NRS 396.543</u>	Reciprocal agreement with another state for full or partial waiver of tuition.
<u>NRS 396.544</u>	Waiver of fees for members of Nevada National Guard; eligibility for waiver; verification of membership in Guard; reimbursement upon failure of recruit to enter Guard.
<u>NRS 396.5442</u>	Waiver of fees for child, widow or widower of person killed while performing duties as member of Nevada National Guard; eligibility; verification of membership in Guard.
<u>NRS 396.5445</u>	Waiver of fees for spouse or child of member of Armed Forces who is identified as prisoner of war or missing in action; eligibility; verification of status.
<u>NRS 396.545</u>	Payment of fees and expenses of dependent child of police or highway patrol officer, firefighter or volunteer ambulance driver or attendant killed in line of duty or service; Trust Fund for the Education of Dependent Children.
<u>NRS 396.546</u>	Access to electronic version of instructional materials to students with print access disability.
<u>NRS 396.547</u>	Student government: Establishment; approval of bylaws; fees.
<u>NRS 396.548</u>	Provision of information to board of trustees of school districts regarding remedial instruction.
<u>NRS 396.550</u>	Time and standards of graduation.
<u>NRS 396.560</u>	Diploma of graduation; determination of completion of full course of study required for diploma.
<u>NRS 396.568</u>	Automatic transfer of credits earned at community college toward degree at state college or university; appeal by student if credit denied.
<u>NRS 396.580</u>	Diploma for course of study not equivalent to regular course.
<u>NRS 396.585</u>	Satisfactory progress toward obtaining degree required to participate as member of varsity athletic team.
<u>NRS 396.591</u>	Medical insurance for members of athletic teams.

STATE CLIMATOLOGIST

<u>NRS 396.595</u>	Creation of Office; employment, qualifications and duties.
<u>NRS 396.597</u>	System may provide space for office and supplies; other employment allowed.

PUBLIC SERVICE DIVISION

IN GENERAL

<u>NRS 396.600</u>	Composition.
<u>NRS 396.610</u>	Rules and regulations.

BUREAU OF MINES AND GEOLOGY

<u>NRS 396.620</u>	Analyses of ores, minerals, soil and water: Submission of samples by residents of this State; fee; maintenance of records and samples.
<u>NRS 396.630</u>	Assay to be run when same material sent from same district.
<u>NRS 396.640</u>	Analyses of samples in order received.
<u>NRS 396.650</u>	Limitations on number of samples and quantitative analyses.
<u>NRS 396.660</u>	Purpose and applicability of <u>NRS 396.620</u> to <u>396.660</u> , inclusive.

AGRICULTURAL EXTENSION

<u>NRS 396.690</u>	Acceptance of federal appropriations for agricultural extension work.
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AGRICULTURAL EXPERIMENT STATION

<u>NRS 396.740</u>	Purposes.
<u>NRS 396.750</u>	Director; assistants.
<u>NRS 396.760</u>	Acceptance of federal acts.
<u>NRS 396.770</u>	Acceptance of federal money.
<u>NRS 396.780</u>	Biennial reports.
<u>NRS 396.790</u>	Agricultural research: Nevada Agricultural Experiment Station Fund.

CENTER FOR THE ANALYSIS OF CRIME STATISTICS

<u>NRS 396.792</u>	Establishment; acceptance and use of gifts and grants.
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DESERT RESEARCH INSTITUTE

<u>NRS 396.795</u>	Establishment.
<u>NRS 396.7951</u>	Purposes.
<u>NRS 396.7952</u>	Powers of Board of Regents.
<u>NRS 396.7953</u>	Procedures and policies for personnel.
<u>NRS 396.7954</u>	Deposit of money received on behalf of Institute.
<u>NRS 396.7955</u>	Fiscal policies and procedures.
<u>NRS 396.7956</u>	Research concerning use of solar energy as source of power.

ETHICS INSTITUTE

<u>NRS 396.797</u>	Establishment.
<u>NRS 396.7971</u>	Powers of Institute.
<u>NRS 396.7972</u>	Powers of Board of Regents.
<u>NRS 396.7973</u>	Procedures and policies for personnel.
<u>NRS 396.7974</u>	Deposit of money received on behalf of Institute.
<u>NRS 396.7975</u>	Fiscal policies and procedures.

ACQUISITION OF REAL PROPERTY FOR FUTURE DEVELOPMENT AND EXPANSION OF UNIVERSITY OF NEVADA, RENO

<u>NRS 396.7992</u>	Formation of nonprofit corporation: Powers of Board of Regents.
<u>NRS 396.7993</u>	System and Board of Regents not obligated to acquire property from nonprofit corporation.
<u>NRS 396.7994</u>	Status of nonprofit corporation on formation.
<u>NRS 396.7995</u>	Limitations on activities of nonprofit corporation.
<u>NRS 396.7996</u>	Activities of nonprofit corporation public in nature.
<u>NRS 396.7997</u>	Income of nonprofit corporation.
<u>NRS 396.7998</u>	Beneficial interest of System and Board of Regents in nonprofit corporation.
<u>NRS 396.7999</u>	Approval of corporate acts by System.

ACQUISITION OF REAL PROPERTY FOR FUTURE DEVELOPMENT AND EXPANSION OF UNIVERSITY OF NEVADA, LAS VEGAS

<u>NRS 396.801</u>	Formation of nonprofit corporation: Powers of Board of Regents.
<u>NRS 396.802</u>	System and Board of Regents not obligated to acquire property from nonprofit corporation.
<u>NRS 396.803</u>	Status of nonprofit corporation on formation.
<u>NRS 396.804</u>	Limitations on activities of nonprofit corporation.
<u>NRS 396.805</u>	Activities of nonprofit corporation public in nature.
<u>NRS 396.806</u>	Income of nonprofit corporation.
<u>NRS 396.807</u>	Beneficial interest of System and Board of Regents in nonprofit corporation.
<u>NRS 396.808</u>	Approval of corporate acts by System.

UNIVERSITY SECURITIES LAW

<u>NRS 396.809</u>	Short title.
<u>NRS 396.810</u>	Purpose; supplemental nature.
<u>NRS 396.811</u>	Definitions.
<u>NRS 396.812</u>	“Acquisition” and “acquire” defined.
<u>NRS 396.813</u>	“Board” defined.
<u>NRS 396.814</u>	“Chair” and “Chair of the Board” defined.
<u>NRS 396.8145</u>	“Chancellor of the University” defined.
<u>NRS 396.815</u>	“Commercial bank” defined.
<u>NRS 396.816</u>	“Cost of any project” defined.
<u>NRS 396.8163</u>	“Disposal” and “dispose” defined.
<u>NRS 396.8167</u>	“Equip” and “equipment” defined.

<u>NRS 396.817</u>	“Facilities” defined.
<u>NRS 396.818</u>	“Federal Government” defined.
<u>NRS 396.819</u>	“Federal securities” defined.
<u>NRS 396.820</u>	“Gross revenues” and “gross pledged revenues” defined.
<u>NRS 396.821</u>	“Hereby,” “herein,” “hereinabove,” “hereinafter,” “hereinbefore,” “hereof,” “hereto,” “hereunder,” “heretofore” and “hereafter” defined.
<u>NRS 396.822</u>	“Holder” defined.
<u>NRS 396.823</u>	“Improvement” and “improve” defined.
<u>NRS 396.824</u>	“Net revenues” and “net pledged revenues” defined.
<u>NRS 396.825</u>	“Operation and maintenance expenses” defined.
<u>NRS 396.826</u>	“Operation and maintenance expenses”: Exclusions from definition.
<u>NRS 396.828</u>	“Pledged revenues” defined.
<u>NRS 396.829</u>	“Pledged revenues”: Exclusions from definition.
<u>NRS 396.831</u>	“Project” defined.
<u>NRS 396.832</u>	“Secretary of the Board” defined.
<u>NRS 396.833</u>	“Securities” defined.
<u>NRS 396.834</u>	“State” defined.
<u>NRS 396.835</u>	“Treasurer of the University” defined.
<u>NRS 396.836</u>	“Trust bank” defined.
<u>NRS 396.837</u>	“United States” defined.
<u>NRS 396.838</u>	“University” defined.
<u>NRS 396.839</u>	Bonds and other securities are special obligations payable solely out of net pledged revenues.
<u>NRS 396.8395</u>	Revenues which may be included as pledged revenues.
<u>NRS 396.840</u>	Proposed securities: Sufficiency of revenues; earnings test; estimates and adjustments.
<u>NRS 396.841</u>	Payment of securities not to be secured by encumbrance, mortgage or pledge of property; exception.
<u>NRS 396.842</u>	Recourse against individual Regents: Acceptance of securities constitutes waiver and release.
<u>NRS 396.843</u>	Bonds and other securities not obligations of or enforceable against State; restrictions on pledges, assignments and encumbrances.
<u>NRS 396.844</u>	Faith of State pledged against repeal, amendment or modification of University Securities Law.
<u>NRS 396.845</u>	Power of University or Regents to become obligated and issue securities for project; other powers.
<u>NRS 396.8455</u>	Board of Regents authorized to delegate its authority to sign contract for purchase of securities or to accept bid for securities; certain terms of securities must be approved by Board of Regents.
<u>NRS 396.846</u>	Types of securities which may be issued; series.
<u>NRS 396.847</u>	Notes and warrants: Maturity; extension or funding.
<u>NRS 396.848</u>	Temporary bonds: Conditions, terms and provisions; holder’s rights and remedies.
<u>NRS 396.849</u>	Resolution authorizing issuance of securities: Description of purposes.
<u>NRS 396.8495</u>	Resolution authorizing issuance of securities may fix rate of interest; Board of Regents authorized to enter into agreement for assurance of payment in connection with securities; exemption from limitation on rates of interest.
<u>NRS 396.850</u>	Details of securities provided by resolution.
<u>NRS 396.851</u>	Recital in securities conclusive evidence of validity and regularity of issuance.
<u>NRS 396.852</u>	Denomination, negotiability and maturity of securities; interest and interest coupons.
<u>NRS 396.853</u>	Execution, signing, countersigning and authentication of securities and coupons; facsimile signature.
<u>NRS 396.854</u>	Redemption before maturity.
<u>NRS 396.855</u>	Repurchase of bonds and other securities.
<u>NRS 396.856</u>	Use of money received from issuance of securities.
<u>NRS 396.857</u>	Disposition of unexpended balance after completion of project.
<u>NRS 396.858</u>	Validity of securities not dependent on proceedings relating to project or completion of purpose; purchasers not responsible for application of proceeds.
<u>NRS 396.859</u>	Special funds and accounts: Creation; purposes.
<u>NRS 396.860</u>	Employment of legal and other expert services; contracts for sale and other purposes.
<u>NRS 396.861</u>	Investment and reinvestment of revenues and proceeds of securities in federal securities.
<u>NRS 396.8615</u>	Investment and reinvestment of pledged revenues and proceeds of securities issued in investment contract collateralized with securities issued by Federal Government.
<u>NRS 396.862</u>	Covenants and other provisions in bonds and other securities.
<u>NRS 396.8625</u>	Agreements in connection with securities: Exchange of interest rates; payment of interest at fixed rate or variable rate; terms; exemption from limitation on rates of interest; payments from pledged revenues authorized.
<u>NRS 396.863</u>	Pledged revenues received or credited subject to immediate lien; priority and validity of lien.
<u>NRS 396.864</u>	Rights and powers of holders of securities and trustees.
<u>NRS 396.865</u>	Receivers: Appointment; powers and duties.
<u>NRS 396.866</u>	Rights and remedies cumulative.
<u>NRS 396.867</u>	Failure of holder to proceed does not relieve University and its officers, agents and employees of liability for nonperformance of duties.
<u>NRS 396.868</u>	Interim debentures: Maturity; use of proceeds; issuance.
<u>NRS 396.869</u>	Interim debentures: Security for payment.
<u>NRS 396.870</u>	Interim debentures: Extension and funding.
<u>NRS 396.871</u>	Interim debentures: Funding by reissuance of bonds pledged as collateral security; issuance of other bonds.
<u>NRS 396.872</u>	Refunding of securities payable from pledged revenues: Resolution; trust indenture; limitations on call for prior redemption; exchange of outstanding securities held by State or its agencies; outstanding securities evidencing long-term loans.
<u>NRS 396.873</u>	Refunding bonds: Exchange for outstanding bonds or federal securities; public or private sale.
<u>NRS 396.874</u>	Conditions for refunding bonds.
<u>NRS 396.875</u>	Refunding bonds: Disposition of proceeds, accrued interest and premium; costs; escrow; trusts.
<u>NRS 396.876</u>	Proceeds of refunding bonds in escrow or trust: Investment; security; sufficient amount; purchaser not responsible for application of proceeds.

<u>NRS 396.877</u>	Refunding bonds payable from pledged revenues.
<u>NRS 396.878</u>	Issuance of bonds separately or in combination.
<u>NRS 396.879</u>	Other statutory provisions applicable to refunding bonds.
<u>NRS 396.880</u>	Conclusive determination of Board of Regents that statutory limitations have been met.
<u>NRS 396.881</u>	Bonds and other securities exempt from taxation; exception.
<u>NRS 396.882</u>	Bonds and other securities legal investments for state money.
<u>NRS 396.883</u>	Legal investments for other persons.
<u>NRS 396.884</u>	Sufficiency of <u>NRS 396.809</u> to <u>396.885</u> , inclusive.
<u>NRS 396.885</u>	Liberal construction.

PROGRAM TO PROVIDE LOANS TO NURSING STUDENTS

<u>NRS 396.890</u>	Administration by Board of Regents; eligibility for loans; terms and repayment of loans; delinquency charges.
<u>NRS 396.891</u>	Limitations on amount of loans; distribution of loans among campuses of System.
<u>NRS 396.892</u>	Repayment of loans; exceptions; regulations.
<u>NRS 396.893</u>	Board of Regents may require cosigner or security for loan.
<u>NRS 396.894</u>	Board of Regents may require repayment of balance of loan under certain circumstances.
<u>NRS 396.895</u>	Recipient of loan required to comply with regulations adopted by Board of Regents; penalties.
<u>NRS 396.896</u>	Extension of period for repayment of loan: Application; approval by Board of Regents.
<u>NRS 396.897</u>	Credit towards repayment of loan for certain professional services provided without compensation.
<u>NRS 396.898</u>	Powers of Board of Regents.

HEALTH SERVICES IN UNDERSERVED AREAS

<u>NRS 396.899</u>	Nevada Health Service Corps: "Practitioner" defined.
<u>NRS 396.900</u>	Nevada Health Service Corps: Establishment by Board of Regents authorized.
<u>NRS 396.901</u>	Nevada Health Service Corps: Primary purposes.
<u>NRS 396.902</u>	Nevada Health Service Corps: Powers of University of Nevada School of Medicine.
<u>NRS 396.903</u>	Nevada Health Service Corps: Program for repayment of loans on behalf of certain practitioners.
<u>NRS 396.905</u>	Use of money by the University of Nevada School of Medicine for development of obstetrical access program.
<u>NRS 396.906</u>	Nevada Office of Rural Health: Establishment; duties; use of gifts and other money.
<u>NRS 396.907</u>	Area Health Education Center Program: Establishment; duties; use of gifts and other money.
<u>NRS 396.908</u>	Medical Education Council of Nevada: Establishment; duties; use of gifts and other money.

THE GOVERNOR GUINN MILLENNIUM SCHOLARSHIP PROGRAM

<u>NRS 396.911</u>	Legislative declaration.
<u>NRS 396.914</u>	Definitions.
<u>NRS 396.916</u>	"Eligible institution" defined.
<u>NRS 396.918</u>	"Millennium Scholarship" defined.
<u>NRS 396.922</u>	"Trust Fund" defined.
<u>NRS 396.926</u>	Creation of Program; Millennium Scholarship Trust Fund; deposit and investment of money in Fund; administration by Treasurer; use of money in Fund.
<u>NRS 396.930</u>	Eligibility requirements for Millennium Scholarship; duties and powers of Board of Regents; outreach to certain students; affidavit declaring eligibility.
<u>NRS 396.934</u>	Maximum amount of Millennium Scholarship; remedial courses excluded from payment; requirements for continuing eligibility; ineligibility if requirements not satisfied; disbursement upon certification of eligibility; procedures for refund.
<u>NRS 396.938</u>	Development of plan to direct other financial aid to students who are not eligible for Millennium Scholarships.

UNLAWFUL ACTS

<u>NRS 396.970</u>	Surreptitious electronic surveillance on campus; exceptions.
<u>NRS 396.980</u>	Use of diisocyanate in maintenance or repair of building owned or operated by System while certain persons are present.
<u>NRS 396.990</u>	Use of false or misleading degrees.

GENERAL PROVISIONS

NRS 396.005 Definitions. As used in this chapter, unless the context otherwise requires:

1. "Board of Regents" means the Board of Regents of the University of Nevada.
2. "Community college" means all of the community colleges within the Nevada System of Higher Education.
3. "State college" means all of the state colleges within the Nevada System of Higher Education.
4. "System" means the Nevada System of Higher Education.
5. "University" means all of the universities within the Nevada System of Higher Education.

(Added to NRS by 1993, 340; A 2005, 358)

NRS 396.010 Seat of University; extension instruction, research and service activities conducted throughout State.

1. The seat of the State University, as described in Section 4 of Article 11 of the Constitution of the State of Nevada, is hereby located at the Office of the Chancellor of the System.

2. Extension instruction on the collegiate level, research and service activities may be conducted throughout the State.

[Part 1:85:1873; A 1885, 75; BH § 1375; cited C § 5101; RL § 4652; NCL § 7745]—(NRS A 1957, 166, 1965, 214; 1969, 1432; 1981, 897; 1993, 341; 2005, 359)

NRS 396.020 Legal and corporate name of University; name and composition of System. The legal and corporate name of the State University is the University of Nevada. The System of:

1. Universities;
2. State colleges;
3. Community colleges;
4. Administrative services;
5. Research facilities, including, without limitation:

(a) The Desert Research Institute;

(b) The Ethics Institute; and

(c) The Center for the Analysis of Crime Statistics, established within the Department of Criminal Justice at the University of Nevada, Las Vegas; and

6. Departments within the Public Service Division,

administered under the direction of the Board of Regents is hereby collectively known as the Nevada System of Higher Education. The System is comprised of such branches and facilities as the Board of Regents deems appropriate.

[1:208:1907; RL § 4638; NCL § 7725]—(NRS A 1969, 1433; 1993, 341; 2003, 642; 2005, 359)

BOARD OF REGENTS

NRS 396.031 Definitions. As used in NRS 396.031 to 396.046, inclusive, unless the context otherwise requires:

1. “Block” means the smallest geographical unit whose boundaries were designated by the Bureau of the Census of the United States Department of Commerce in its topographically integrated geographic encoding and referencing system.

2. “Block group” means a combination of blocks whose numbers begin with the same digit.

3. “Census tract” means a combination of block groups.

4. “Census voting district” means the voting district:

(a) Based on the geographic and population databases compiled by the Bureau of the Census of the United States Department of Commerce as validated and incorporated into the geographic information system by the Legislative Counsel Bureau for use by the Nevada Legislature; and

(b) Designated in the maps filed with the Office of the Secretary of State pursuant to NRS 396.0411.

(Added to NRS by 1981, 1820; A 1991, 1095; 2001 Special Session, 365)

NRS 396.035 Attachment of omitted area to appropriate district; certification and filing of attachment.

1. If any area of this state is omitted from the provisions of NRS 396.031 to 396.046, inclusive, the county clerk, the Carson City Clerk or the Director of the Legislative Counsel Bureau, upon discovery of the omission, shall notify the Secretary of State of the omission. The Secretary of State shall attach that area to the appropriate district as follows:

(a) If the area is surrounded by a district, it must be attached to that district.

(b) If the area is contiguous to two or more districts, it must be attached to the district that has the least population.

2. Any attachments made pursuant to the provisions of this section must be certified in writing and filed with the Director of the Legislative Counsel Bureau and with the Secretary of State. No change may be made in any attachments until the districts are again reapportioned.

(Added to NRS by 1981, 1820; A 1991, 1096; 2001 Special Session, 366)

NRS 396.040 Number of Regents; election from certain districts; residency requirements.

1. The Board of Regents consists of 13 members elected by the registered voters within the districts described in NRS 396.0415 to 396.046, inclusive.

2. The members of the Board of Regents must be elected as follows:

(a) At the general election in 2002, and every 6 years thereafter, one member of the Board of Regents must be elected from districts 2, 3, 5 and 10.

(b) At the general election in 2004, and every 6 years thereafter, one member of the Board of Regents must be elected from districts 6, 7, 8, 11 and 13.

(c) At the general election in 2006, and every 6 years thereafter, one member of the Board of Regents must be elected from districts 1, 4, 9 and 12.

3. Each member of the Board of Regents must be a resident of the district from which the member is elected.

[Part 2:37:1887; A 1905, 190; 1917, 352; 1941, 91; 1931 NCL § 7727]—(NRS A 1957, 166; 1959, 81; 1967, 408; 1971, 1531; 1973, 241; 1981, 1822; 1991, 1096; 2001 Special Session, 366)

NRS 396.0411 Maps of districts: Duties of Director of Legislative Counsel Bureau. The Director of the Legislative Counsel Bureau shall:

1. Retain in an office of the Legislative Counsel Bureau, copies of maps of the districts described in NRS 396.0415 to 396.046, inclusive.

2. Make available copies of the maps to any interested person for a reasonable fee, not to exceed the actual costs of producing copies of the maps.

3. File a copy of the maps with the Secretary of State.

(Added to NRS by 1991, 1095; A 2001 Special Session, 367)

NRS 396.0413 Maps of districts: Duties of Secretary of State. The Secretary of State shall:

1. Provide to the clerk of each county and the Clerk of Carson City, copies of the maps filed pursuant to subsection 3 of NRS 396.0411.

2. Make available copies of the maps to any interested person for a reasonable fee, not to exceed the actual costs of producing copies of the maps.

(Added to NRS by 1991, 1095)

NRS 396.0415 District 1. District 1 consists of, in Clark County:

1. Census tracts 000201, 000203, 000301, 000302, 000600, 000800, 000900, 003425, 003500, 003602, 003609, 003610, 003611, 003612, 003613, 003614, 003615, 003700, 004703, 004711, 004712, 004714, 004715, 004716, 006203 and 006204.

2. Census voting districts 2004, 2021, 2044, 2056, 2083, 2112, 2117, 2129, 2142, 4021, 4022, 4033, 4060 and 4066.

3. In census tract 000101, blocks 2000, 2001, 2002, 2003, 2014 and 2015.

4. In census tract 000204, blocks 1000, 1003, 1007, 1009, 1010, 1011, 1012, 1013, 1014, 1015, 1016, 1017, 1018, 1019 and 1020.

5. In census tract 000400, blocks 1001, 1002, 1003, 1004, 1007, 3004, 3005, 3006, 3007, 3008, 3012, 3013, 3014, 3015, 4005, 4006, 4007, 4008, 4009, 4010, 4011, 4012, 4013, 4014, 4015, 4016, 4017, 6000, 6001, 6002, 6003, 6004, 6005, 6006, 6007, 6008, 6009, 6010, 6011 and 6012.

6. In census tract 000700, blocks 1001, 1002, 1003, 1004, 1005, 1006, 1007, 1008, 1009, 1010, 1011, 1012, 1013, 1014, 1015, 1016, 1017, 1018, 1019, 1020, 1021, 1022, 1023, 1024, 1025, 1026, 1027, 1028, 1029, 1030, 1031, 1032, 1033, 1034, 1035, 1036, 1037, 1038, 1039, 1040, 1041, 1042, 1043, 1044, 1045, 1046, 1047, 1048, 1049, 1050, 1051, 1052, 1053, 1054, 1055, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015 and 2016.

7. In census tract 001100, blocks 1000, 1001, 1002, 1003, 1004, 1005, 1006, 1007, 1008, 1009, 1010, 1011, 1012, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007 and 2008.

8. In census tract 003603, blocks 1022, 1023, 1024, 1030, 1031, 1032, 1033, 1034, 1035, 1036, 1037, 1038, 1039, 1040, 1041, 1042, 1043, 1044, 1045, 1046, 1047, 1048, 1049, 1058, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022 and 2023.

9. In census tract 003604, blocks 1001, 1002, 1003, 1004, 1005, 1006, 1007, 1013, 1014, 1015, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 3000, 3001, 3002, 3003, 3004, 3005, 3006, 3007, 3008, 3009, 3010 and 3011.

10. In census tract 003605, blocks 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030 and 2031.

11. In census tract 003607, blocks 1001, 1002, 1003, 1007, 1008, 1009, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 3000, 3001, 3002, 3003, 3004, 3005, 3006, 3007 and 3008.

12. In census tract 003800, blocks 1000, 1001, 1002, 1003, 1004, 1005, 1006, 1007, 1008, 1009, 1010, 1011, 1012, 1013, 1014, 1015, 1016, 1017, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 3006, 4001 and 4009.

13. In census tract 004400, block 2003.

14. In census tract 004500, block 1003.

15. In census tract 004600, blocks 1013, 1014, 1015, 1016, 1018, 2000, 2001, 2002, 2003, 2004, 2005, 3000, 3001, 3002, 3003, 3004, 3005, 3006, 3007, 3008, 3009, 3010, 3011, 3012, 3013, 3014, 3015, 3016, 3017, 3018 and 3019.

16. In census tract 004713, blocks 1001, 1004, 1005, 1006, 1007, 1008 and 1009.

17. In census tract 004717, blocks 1000, 1001, 1002, 2003, 2008, 2009, 2010, 2011 and 2012.

18. In census tract 006000, blocks 9009, 9010, 9011, 9012, 9013, 9017, 9018, 9019, 9020, 9021, 9026, 9027, 9028, 9029, 9030, 9031, 9032, 9033, 9034, 9035, 9038, 9039, 9040, 9041, 9042, 9043, 9044, 9045, 9046, 9047, 9050, 9051, 9052, 9053 and 9054.

19. In census tract 006102, blocks 3031, 3032, 3033, 3034 and 3035.

20. In census tract 006201, blocks 1000, 1001, 1002, 1003, 1004, 1005 and 1006.

21. In census tract 006202, blocks 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014 and 2015.

(Added to NRS by 1981, 1820; A 1991, 1097; 2001 Special Session, 367)

NRS 396.0425 District 2. District 2 consists of, in Clark County:

1. Census tracts 000102, 000103, 000104, 000105, 001003, 001004, 001005, 001006, 002203, 002204, 002205, 002905, 002937, 002938, 002947, 003001, 003101, 003102, 003416, 003417, 003419, 003420, 003422, 003423 and 003424.

2. Census voting districts 2049, 2051, 2052, 2054, 2055, 2104, 3027, 3029, 3104, 6028, 6029 and 6030.

3. In census tract 000101, blocks 1000, 1001, 1002, 1003, 1004, 2005, 2006, 2007, 2008, 2009, 2010, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 3001, 3008, 3009, 4000, 4001, 4002, 4003, 4004, 4005, 4006, 4007, 4008, 4009, 4010, 4011, 4012, 4013, 4014 and 4015.

4. In census tract 000204, blocks 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011 and 2012.

5. In census tract 002201, blocks 2012 and 2013.

6. In census tract 002935, blocks 1000, 1001, 1002, 1003, 1004, 1005, 1006, 1008 and 1009.

7. In census tract 002936, blocks 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2009, 2010, 2011 and 2012.

8. In census tract 002946, blocks 1000, 1001 and 1002.

9. In census tract 002949, blocks 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010 and 2011.

10. In census tract 002954, blocks 1000, 1001, 1002 and 1003.

11. In census tract 002955, blocks 1000, 1001, 1002, 1003, 1004, 1005, 1006, 1009 and 1010.
 12. In census tract 003004, block 2000.
 13. In census tract 003005, blocks 4000, 4001 and 4002.
 14. In census tract 003006, blocks 3000 and 3001.
 15. In census tract 003412, block 3017.
 16. In census tract 003413, blocks 1000, 1001, 1002, 1003, 1004, 1005, 1006, 1007, 1008, 1009, 1010, 1011, 1015, 1016, 1017, 1018, 1019 and 1023.
 17. In census tract 003415, blocks 3000, 3001, 3002, 3004, 4000, 4001, 4012, 6000, 6001, 6002, 6003, 6005, 6006, 6007, 6008, 6009 and 6015.
- (Added to NRS by 1981, 1820; A 1991, 1097; 2001 Special Session, 368; 2003, 754)

NRS 396.043 District 3. District 3 consists of, in Clark County:

1. Census tracts 002000, 002300, 002403, 002404, 002405, 002406, 002501, 002504, 002505, 002506, 002601, 002602, 002603, 002702, 002706, 002707, 002708, 002709, 002807, 002809, 002810, 002811, 002817, 002818, 002823, 002824, 002828, 002829, 002830, 002833, 002834, 005311, 005312, 005316, 005317, 005319 and 005320.
 2. Census voting districts 1111, 5014, 7050, 7060, 7061 and 7062.
 3. In census tract 000204, blocks 2000, 2001, 2002, 2013 and 2014.
 4. In census tract 001100, blocks 2009, 2010, 2011, 3000, 3001, 3002, 3003, 3004, 3005, 3006, 3007, 3008, 3009, 3010, 4000, 4001, 4002, 4003, 4004, 4005, 4006, 4007, 4008 and 4009.
 5. In census tract 002201, blocks 2010, 2011, 2014, 2015, 2016 and 2017.
 6. In census tract 002808, blocks 1000, 1001, 1002, 1003, 1004, 1005, 1006, 1007, 1008, 1009, 1010, 1011, 1012, 1013, 1014, 1015, 1016, 2001, 2002, 2003, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013 and 2014.
 7. In census tract 002814, blocks 1000, 1001, 1002, 1003, 1004, 1005, 1006, 1007, 1008, 1009, 1010, 1011, 1012, 1013, 1014, 1015, 1016, 1017, 1018, 1019, 1020 and 2000.
 8. In census tract 002831, blocks 1000, 1001, 1002, 1003, 1004 and 1005.
 9. In census tract 002832, blocks 1000, 1001, 1002, 1003, 1004, 1005, 1006, 1007, 1008, 1009, 1010, 1011, 1012, 1013, 1019 and 1020.
 10. In census tract 005322, block 1000.
- (Added to NRS by 1981, 1820; A 1991, 1098; 2001 Special Session, 369; 2003, 756)

NRS 396.0435 District 4. District 4 consists of, in Clark County:

1. Census tracts 001706, 001707, 001708, 001709, 001715, 001717, 001718, 001803, 001804, 002821, 002822, 002826, 002827, 005010, 005011, 005101, 005102, 005103, 005104, 005105, 005106, 005107, 005108, 005109, 005200, 005314, 005315, 005318, 005321, 005333, 005334, 005335, 005336, 005337, 005338, 005341, 005342, 005343 and 005345.
 2. Census voting districts 1110, 5025, 5026, 7031, 7034, 7049, 7056, 7057 and 7058.
 3. In census tract 001608, blocks 1007, 2003, 2004, 2005, 2006 and 2007.
 4. In census tract 001713, blocks 1001, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013 and 2014.
 5. In census tract 001801, blocks 1002, 1003, 1004, 1005, 1006, 1007, 1008, 1009, 2002, 2008, 2009, 2015, 2016, 2017, 2018 and 2021.
 6. In census tract 002808, blocks 2000, 2004 and 2005.
 7. In census tract 005339, blocks 1000, 1001, 1002, 1003, 1004, 1005, 1006, 1007, 1008, 1009, 1010, 1011, 1012, 1013, 1014, 1015, 1016, 1017, 1018, 1019, 1020, 1021, 1022, 1023, 1024, 1025, 1026, 1040, 1041, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022 and 2023.
- (Added to NRS by 1981, 1820; A 1991, 1098; 2001 Special Session, 370; 2003, 757)

NRS 396.044 District 5. District 5 consists of, in Clark County:

1. Census tracts 000503, 000504, 000510, 000511, 000514, 000516, 000518, 001200, 001300, 001400, 001500, 001609, 001901, 001902, 004000, 004100, 004200 and 004300.
 2. Census voting districts 2018, 2020, 2062, 2067, 2069, 4008, 4011, 4012, 4013, 4014 and 4039.
 3. In census tract 000400, blocks 5002, 5003, 5004, 5011 and 5012.
 4. In census tract 000512, blocks 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2014 and 2015.
 5. In census tract 000517, blocks 1000, 1001, 1002, 1003, 1004, 1005, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 3000, 3001, 3002, 3003, 3004, 3005, 3006, 3007, 3008 and 3009.
 6. In census tract 000519, blocks 1000, 1001, 1002, 1003, 1004, 1005, 1006, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 3001, 3002, 3003, 3004, 3005, 3006, 3007, 3008, 3009, 3010, 3011 and 3012.
 7. In census tract 000700, block 1000.
 8. In census tract 001608, blocks 2001 and 2002.
 9. In census tract 003800, blocks 4000, 4002, 4003 and 4004.
 10. In census tract 004400, blocks 1005, 1006, 1007, 1008, 1017, 1018, 1019, 2002 and 4012.
 11. In census tract 004500, blocks 2000, 2001, 2002, 2003, 2005, 2006, 2007, 2008, 3014 and 3015.
 12. In census tract 004600, blocks 1002, 1012, 1017, 1019, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014 and 2015.
 13. In census tract 004707, blocks 1002, 1003, 1004, 1005, 1006, 1007, 1008 and 1009.
 14. In census tract 004710, blocks 1004, 1005 and 1006.
 15. In census tract 004713, blocks 1002, 1003, 1010, 1011 and 1012.
 16. In census tract 004717, blocks 1003, 1004, 1005, 1006, 1007, 1008, 1009, 1010, 1011 and 1012.
- (Added to NRS by 1981, 1821; A 1991, 1099; 2001 Special Session, 371)

NRS 396.0445 District 6. District 6 consists of, in Clark County:

1. Census tracts 001606, 001607, 001610, 001611, 001612, 001613, 001710, 001716, 004708, 004709, 004907, 004910, 004911, 004912, 004914, 004915, 004916, 004917, 004918, 004919, 004920, 004921, 004922, 004923, 004924, 005005, 005006, 005007, 005008, 005009, 005012, 005411, 005412, 005421, 005422, 005423 and 006103.
 2. Census voting districts 1026, 1032, 1043, 2065, 2070, 2123, 2124 and 2126.
 3. In census tract 000512, blocks 3000, 3001, 3002, 3003, 3004, 3005, 3006, 3007, 3008, 3009, 3010, 3011, 3012 and 3013.
 4. In census tract 000517, blocks 2000, 2001, 2002 and 2003.
 5. In census tract 000519, block 3000.
 6. In census tract 001608, blocks 1000, 1001, 1002, 1003, 1004, 1005, 1006, 1008, 1009, 1010, 1011, 1012, 2000 and 2008.
 7. In census tract 001713, block 1000.
 8. In census tract 001714, blocks 1000, 1001, 1002, 1003, 1004, 1005, 1006, 1007, 1008, 1009, 1010, 1011 and 1012.
 9. In census tract 001801, blocks 2000 and 2001.
 10. In census tract 004707, blocks 1000, 1001, 1010, 2000, 2001, 2002, 2003, 2004, 2005, 2006 and 2007.
 11. In census tract 004710, blocks 1000, 1001, 1002, 1003, 1007, 1008, 1009, 1010, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007 and 2008.
 12. In census tract 006101, blocks 1000, 1001, 1002, 1003, 1004, 1005, 1006, 1007, 1008, 1015, 1016, 1017, 1052, 2000, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030 and 2031.
 13. In census tract 006201, block 2000.
 14. In census tract 006202, block 1003.
- (Added to NRS by 1981, 1821; A 1991, 1100; 2001 Special Session, 372)

NRS 396.045 District 7. District 7 consists of, in Clark County:

1. Census tracts 002915, 002916, 002919, 002939, 002940, 002941, 002944, 002950, 002951, 002952, 002953, 002957, 003003, 003210, 003211, 003212, 003213, 003214, 003215, 003216, 003217, 003218, 003219, 003220, 003221, 003222, 003223, 003224, 003225, 003226, 003227, 003418, 003421, 005804 and 005805.
 2. Census voting districts 6011, 6012 and 6013.
 3. In census tract 003004, blocks 1000, 1001, 1002, 2001, 2002, 2003, 2004, 2005 and 2006.
 4. In census tract 003005, blocks 3000, 3001, 3002, 3003, 3004, 4003, 4004 and 4005.
 5. In census tract 003006, blocks 3002, 3003, 3004, 3005, 3006 and 3007.
 6. In census tract 003415, blocks 1000, 1001, 2002 and 2003.
 7. In census tract 005803, blocks 1000, 1001, 1002, 1003, 1004, 1005, 1006, 1007, 1008, 1009, 1010, 1011, 2000, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 3000, 3001, 3002, 3003, 3004, 3005, 3006, 3007, 3008, 3009 and 3010.
 8. In census tract 005810, blocks 1003 and 1005.
- (Added to NRS by 1981, 1821; A 1991, 1100; 2001 Special Session, 372)

NRS 396.0451 District 8. District 8 consists of Churchill County, Elko County, Esmeralda County, Eureka County, Humboldt County, Lander County, Lincoln County, Mineral County, Nye County, Pershing County and White Pine County.
(Added to NRS by 1991, 1094; A 2001 Special Session, 373)

NRS 396.0453 District 9. District 9 consists of:

1. Carson City, Douglas County, Lyon County and Storey County.
 2. In Washoe County:
 - (a) Census tracts 003201, 003302 and 003304.
 - (b) Census voting districts 0134, 0145, 0148, 0764, 0771, 0790, 0797, 0814, 0819, 0825, 0844, 0887, 0929, 0932 and 0933.
 - (c) In census tract 001006, blocks 2026, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2112, 2113, 3036, 3037, 3038, 3039, 3041, 3042, 3043, 3044, 3045, 3046, 3047 and 3048.
 - (d) In census tract 001007, blocks 2016, 2017, 2018, 2019, 2020, 3013, 3014, 3015, 3016, 3017, 3018, 3019, 3020, 3021, 3022, 3027, 3028, 3029, 3030, 3031, 3032, 3033, 3034, 3035, 3036, 3038, 3039, 3042, 3043, 3044, 3045, 3046, 3047, 3048, 3049, 3051, 3052, 3053, 3054, 3055 and 3056.
 - (e) In census tract 002300, blocks 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2093, 2094, 2095, 2096, 2097, 2098, 2102, 2103, 2104, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2119 and 2995.
 - (f) In census tract 003202, blocks 1008, 1009, 1024, 1025, 1026, 2000, 2001, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 3000, 3001, 3002, 3003, 3004, 3005, 3006, 3007, 3008, 3009, 3010, 3011, 3012, 3013, 3014, 3015, 3016, 3017, 3018, 3019, 3020, 3021, 3022, 3023, 3024, 3025, 3026, 3027, 3028, 4000, 4001, 4002, 4003, 4004, 4005, 4006, 4007, 4008, 4009, 4010, 4011, 4012, 4013, 4014, 4015, 4016, 4017, 4018, 5000, 5001, 5002, 5003, 5004, 5005, 5006, 5007, 5008, 5009, 5010, 5011, 5036, 5037, 5038, 5039, 5040, 5041, 5042, 5043, 5044, 5045, 5046, 5047, 5048, 5049, 5050, 5051, 5052, 5053, 5054, 5055, 5056, 5057, 5058, 5059, 5998 and 5999.
- (Added to NRS by 1991, 1095; A 2001 Special Session, 374; 2003, 757)

NRS 396.0455 District 10. District 10 consists of, in Washoe County:

1. Census tracts 000200, 000300, 000400, 000700, 000900, 001003, 001004, 001005, 001101, 001103, 001104, 001105, 001200, 001300, 002101, 002104, 002105, 002106, 002203, 002204, 002205 and 002406.

2. Census voting districts 0101, 0144, 0222, 0254, 0306, 0307, 0333, 0340, 0342, 0343, 0345, 0353, 0400, 0402, 0410, 0413, 0444, 0446, 0503, 0504, 0509, 0511, 0512, 0513, 0534, 0535, 0537, 0539, 0710, 0731, 0769, 0779, 0787, 0798, 0834, 0847, 0879, 0917, 0935, 0936, 0938 and 0945.

3. In census tract 000100, blocks 2000, 2001, 2002, 2003, 2004, 2005, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 3024, 3025, 3026, 3027, 3028, 3029, 3030, 3031, 3032, 3033, 4000, 4001, 4002, 4003, 4004, 4005, 4006, 4007, 4008, 4009, 4010, 4011, 4012, 4013, 4014, 4015, 4016, 4017, 4018, 4019, 4020, 4021, 4022, 5002, 5003, 5004, 5005, 5010, 5011, 5012, 5013, 5014, 5015, 5019, 5020, 5021, 5039, 5040, 5041, 5042, 5043, 5044, 5045, 5046, 5047, 5051 and 5052.

4. In census tract 001006, blocks 2004, 2005, 2006, 2007, 2008, 2009, 2014, 2015, 2016, 2018, 2029, 3014 and 3035.

5. In census tract 001007, blocks 2001, 2002, 2003, 2004, 2005, 2014, 2015, 3000, 3001, 3002, 3003, 3004, 3005, 3006, 3008, 3009, 3010, 3011, 3012, 3023, 3024, 3025, 3026 and 3050.

6. In census tract 001500, blocks 3011 and 3013.

7. In census tract 001700, blocks 1023, 4000, 4001, 4002, 4003, 4004, 4005, 4006, 4007, 4008, 5003, 5004, 5005, 5006, 5007 and 5008.

8. In census tract 001800, blocks 3007, 3009, 3010, 3011, 4000, 4001, 4002, 4003, 4004, 4005, 4006, 4007, 4008, 4009, 4010, 4011, 4012, 4013, 5001, 5002, 5003, 5004, 5005, 5009, 5010 and 5011.

9. In census tract 002103, blocks 1000, 1001, 1002, 1003, 1004, 1005, 1006, 1007, 1008, 1009, 1010, 1011, 1012, 2001, 2002, 2003, 2004, 2006, 2012, 2013, 2014, 2015, 2016, 2020, 2021 and 2022.

10. In census tract 002202, blocks 1000, 1001, 1002, 1003, 1004, 1005, 1006, 1007, 1008, 1009, 1010, 1011, 1012, 1013, 1014, 1015, 1016, 1017, 1018, 1019, 1022, 1025, 1026, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2017, 2026, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036 and 2037.

11. In census tract 002401, blocks 1001, 1003, 1004, 1005, 1006, 1007, 1008, 1009, 1010, 1011, 1012, 1013, 1014, 1015, 1016, 1017, 1018, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2022 and 2023.

12. In census tract 002402, blocks 2080, 2087 and 3024.

13. In census tract 002500, blocks 1009, 3007, 3008, 3009, 3010, 3011, 3012, 3013, 3014, 3015, 3025 and 3026.

14. In census tract 003202, blocks 1005, 1006 and 1007.

(Added to NRS by 1981, 1822; A 1991, 1101; 2001 Special Session, 374; 2003, 759)

NRS 396.0456 District 11. District 11 consists of, in Washoe County:

1. Census tracts 001400, 001901, 001902, 002603, 002604, 002605, 002606, 002607, 002701, 002702, 002801, 002802, 002901, 002902, 003000, 003101, 003105, 003106, 003107, 003108, 003501, 003502, 003503, 003504, 003505, 003506, 003507 and 940100.

2. Census voting districts 0401, 0404, 0419, 0423, 0432, 0433, 0443, 0450, 0528, 0530, 0540, 0623, 0747, 0748, 0751, 0752, 0848, 0913, 0914, 0916 and 0934.

3. In census tract 000100, blocks 1000, 1001, 1002, 1003, 1004, 1005, 1006, 1007, 1008, 1009, 1010, 1011, 1012, 1013, 1014, 1015, 1016, 1017, 1018, 1019, 1020, 1021, 1022, 1023, 1024, 1025, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 3000, 3001, 3002, 3003, 3004, 3005, 3006, 3007, 3008, 3009, 3010, 3011, 3012, 3013, 3014, 3015, 3016, 3017, 3018, 3019, 3020, 3021, 3022, 3023, 5000, 5001, 5006, 5007, 5008, 5009, 5053 and 5054.

4. In census tract 001006, blocks 2110, 2111, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121 and 2999.

5. In census tract 001500, blocks 1000, 1001, 2002, 3012 and 3017.

6. In census tract 001700, blocks 1000, 1001, 1004, 1005, 1006, 1007, 1008, 1009, 1010, 1011, 1012, 1013, 1014, 1015, 1016, 1017, 1018, 1020, 1021, 1022, 1024, 1025, 1026, 2000, 2001, 2002, 5000, 5001, 5002, 5012, 5013 and 5014.

7. In census tract 001800, blocks 4014, 4015, 4016, 5000, 5006, 5007 and 5008.

8. In census tract 002103, blocks 2000 and 2999.

9. In census tract 002300, blocks 1002, 1003, 1004, 1016, 1017, 1018, 2000, 2001, 2003, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2092, 2143, 2144 and 2994.

10. In census tract 002401, block 2021.

11. In census tract 002402, blocks 1006, 1007, 1008, 1009, 1024, 2066, 2081, 2082 and 2083.

12. In census tract 002500, blocks 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2015, 2016, 2017, 2018, 2019, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 3000, 3001, 3002, 3003, 3004, 3005, 3006, 3016, 3017, 3018, 3019, 3020, 3021, 3022, 3023 and 3024.

13. In census tract 002609, blocks 1000, 1004, 1005, 1006, 1007, 1008, 1009, 1010, 1011, 1012, 1013, 1014, 1015, 1016, 1017, 1018, 1019, 1020, 1021, 1022, 1023, 1024, 1025, 1032, 1033, 1034, 1036, 1037, 1038, 1039, 1041, 1044, 1047, 1048, 1049, 1050, 1051, 1052, 1053, 1054, 1055, 1056, 1057, 1058, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2037, 2038 and 2039.

(Added to NRS by 2001 Special Session, 363; A 2003, 760)

NRS 396.0457 District 12. District 12 consists of, in Clark County:

1. Census tracts 003203, 003204, 003205, 003206, 003207, 003208, 003209, 003301, 003302, 003303, 003304, 003305, 003306, 003408, 003409, 003410, 003411, 003606, 003608, 005431, 005432, 005433, 005501, 005503, 005504, 005606, 005607, 005608, 005609, 005611, 005612, 005613 and 005901.

2. Census voting districts 1007, 2046, 2047, 2048, 2106, 2140, 3131 and 3136.
 3. In census tract 003413, blocks 2000, 2001, 2002, 2003, 2011, 2019, 2020, 2021, 2022, 2024 and 2025.
 4. In census tract 003414, block 1021.
 5. In census tract 003603, blocks 1000, 1001, 1002, 1003, 1004, 1005, 1006, 1007, 1008, 1009, 1010, 1011, 1012, 1013, 1014, 1015, 1016, 1017, 1018, 1019, 1020, 1021, 1025, 1026, 1027, 1028, 1029, 1052, 1057, 1059, 1060, 1061, 1062, 1063, 1064, 1065, 1066, 1067, 1068, 1069, 1070, 1073 and 1074.
 6. In census tract 003604, blocks 1000, 1008, 1009, 1010, 1011 and 1012.
 7. In census tract 003605, blocks 1000, 1001, 1002, 1003, 1004, 1005, 1006, 1007, 1008, 1009, 1010, 1011, 1012, 1013, 1014, 1015, 1016, 1017, 1018, 1019, 2000, 2001, 2009, 2010, 2011, 2012, 2013, 2014, 2032, 2033, 2034 and 2035.
 8. In census tract 003607, blocks 1000, 1004, 1005 and 1006.
 9. In census tract 005502, blocks 1001, 1002, 1003, 1004, 1005, 1006, 1007, 1008, 1009, 1010, 1011, 1012, 1013, 1014, 1015, 1016, 1017, 1018, 1019, 1020, 1021, 1042, 1043, 1044, 1045, 1046, 1047, 1048, 1049, 1050, 1051, 1052, 1053, 1054, 1055, 1056, 1057, 1058, 1059, 1060, 1061, 1062, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010 and 2011.
 10. In census tract 005710, blocks 1000, 1009, 1010, 1011, 1012 and 1013.
 11. In census tract 005817, blocks 1000 and 1163.
 12. In census tract 005902, blocks 1000, 1001, 1002, 1003, 1004, 1005, 1006, 1007, 1008, 1009, 1010, 1011, 1012, 1013, 1014, 1015, 1016, 1017, 1018, 1019, 1020, 1021, 1022, 1023, 1024, 1025, 1026, 1027, 1028, 1029, 1030, 1031, 1032, 1033, 1034, 1035, 1036, 1037, 1038, 1039, 1040, 1041, 1042, 1043, 1044, 1045, 1046, 1047, 1048, 1049, 1050, 1051, 1052, 1053, 1054, 1055, 1056, 1057, 1058, 1059, 1060, 1061, 1062, 1063, 1064, 1065, 1066, 1067, 1068, 1069, 1070, 1071, 1072, 1073, 1074, 1075, 1076, 1077, 1078, 1079, 1080, 1081, 1082, 1083, 1084, 1085, 1086, 1087, 1088, 1089, 1090, 1091, 1092, 1093, 1094, 1095, 1096, 1097, 1098, 1099, 1100, 1101, 1102, 1103, 1104, 1105, 1106, 1107, 1108, 1109, 1110, 1111, 1112, 1118, 1119, 1120, 1121, 1122, 1123, 1124, 1125, 1126, 1127, 1128, 1129, 1130, 1131, 1132, 1133, 1134, 1135, 1136, 1137, 1138, 1139, 1140, 1141, 1142, 1143, 1144, 1145, 1146, 1147, 1148, 1149, 1150, 1151, 1152, 1153, 1154, 1155, 1156, 1157, 1158, 1159, 1160, 1161, 1162, 1163, 1164, 1165, 1166, 1167, 1168, 1169, 1170, 1171, 1172, 1173, 1174, 1175, 1176, 1177, 1178, 1179, 1180, 1181, 1182, 1183, 1184, 1185, 1186, 1187, 1188, 1189, 1190, 1191, 1192, 1193, 1194, 1195, 1196, 1197, 1198, 1199, 1200, 1201, 1202, 1203, 1204, 1205, 1206, 1207, 1208, 1209, 1210, 1211, 1212, 1213, 1214, 1215, 1216, 1217, 1218, 1219, 1220, 1221, 1222, 1223, 1224, 1225, 1226, 1227, 1228, 1229, 1230, 1231, 1232, 1233, 1234, 1235, 1236, 1237, 1238, 1239, 1240, 1241, 1242, 1243, 1244, 1245, 1246, 1247, 1248, 1249, 1250, 1251, 1259, 1260, 1261, 1262, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041 and 9019.
 13. In census tract 006000, blocks 9000, 9001, 9002, 9003, 9004, 9005, 9006, 9007, 9008, 9048, 9049 and 9055.
 14. In census tract 006101, blocks 2001 and 2016.
 15. In census tract 006102, blocks 3000, 3001, 3002, 3003, 3004, 3005, 3006, 3007, 3008, 3009, 3010, 3011, 3012, 3013, 3014, 3015, 3016, 3017, 3018, 3019, 3020, 3021, 3022, 3023, 3024, 3025, 3026, 3027, 3028, 3029 and 3030.
- (Added to NRS by 2001 Special Session, 364)

NRS 396.046 District 13. District 13 consists of, in Clark County:

1. Census tracts 002815, 002816, 002835, 002836, 002912, 002925, 002942, 002948, 002956, 002958, 002960, 002961, 002962, 002963, 005331, 005332, 005702, 005703, 005704, 005705, 005806, 005807, 005808, 005809, 005811, 005812, 005813, 005816, 005818, 005819, 005820, 005821 and 940500.
2. Census voting districts 3138, 3188, 6040, 6042, 6062, 6066 and 6102.
3. In census tract 002814, blocks 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010 and 2011.
4. In census tract 002831, blocks 1006, 1007, 1008, 1009, 1010, 1011 and 1012.
5. In census tract 002832, blocks 1014, 1015, 1016, 1017, 1018, 1021, 1022, 1023, 1024, 1025, 1026, 1027, 1028, 1029, 1030 and 1031.
6. In census tract 002927, block 2000.
7. In census tract 002935, blocks 1007, 1010, 1011, 1012, 1013, 1014, 1015, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008 and 2009.
8. In census tract 002936, blocks 1000, 1001, 1002, 1003, 1004, 1005, 1006, 1007, 1008, 2008, 2013, 2014 and 2015.
9. In census tract 002955, blocks 1007, 1008, 1011, 1012, 1013, 2000, 2001, 2002, 2003, 2004, 2005 and 2006.
10. In census tract 005322, blocks 1001, 1002, 1003, 1004, 1005, 1006, 1007, 1008, 1009, 1010, 1011, 1012, 1013, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013 and 2014.
11. In census tract 005339, blocks 1027, 1028, 1029, 1030, 1031, 1032, 1033, 1034, 1035, 1036, 1037, 1038, 1039 and 1042.
12. In census tract 005502, block 1000.
13. In census tract 005710, blocks 1001, 1002, 1003, 1004, 1005, 1006, 1007, 1008, 1014, 1015, 1016, 1017, 1018, 1020, 1021, 1022, 1023, 1024, 1025, 1026, 1027, 1028, 1029, 1030, 1031, 1032, 1033, 1034, 1035, 1036, 1037, 1038, 1039, 1040, 1041, 1042, 1043, 1044, 1045, 1046, 1047, 1048, 1049, 1050, 1051, 1052, 1053, 1054, 1055, 1056, 1057, 1058, 1059, 1060, 1061, 1062, 1063, 1064, 1065, 1066, 1067, 1068, 1069, 1070, 1071, 1072, 1073, 1074, 1075, 1076, 1077, 1078, 1079, 1080, 1081, 1082, 1083, 1084, 1085, 1086, 1087, 1088, 1089, 1090, 1091, 1092, 1093, 1094, 1095, 1096, 1097, 1098, 1099, 1100, 1101, 1102, 1103, 1104, 1105, 1106, 1107, 1108, 1109, 1110, 1111, 1112, 1113, 1114, 1115, 1116, 1117, 1118, 1119, 1120, 1121, 1122, 1123, 1124, 1125, 1126, 1127, 1128, 1129, 1130, 1131, 1132, 1133, 1134, 1135, 1136, 1137, 1138, 1139, 1140, 1141, 1142, 1143, 1144 and 1145.
14. In census tract 005803, block 2001.
15. In census tract 005810, blocks 1000, 1001, 1002, 1004, 1006, 1007, 1008, 1009, 1010, 1011, 1012, 1013, 1014, 1015, 1016, 1017, 1018, 1019, 1020, 1021, 1022, 1023, 1024, 1025, 1026, 1027, 1028, 1029, 1030 and 1034.
16. In census tract 005817, blocks 1001, 1002, 1003, 1004, 1005, 1006, 1007, 1008, 1009, 1010, 1011, 1012, 1013, 1014,

1015, 1016, 1017, 1018, 1019, 1020, 1025, 1026, 1027, 1028, 1029, 1030, 1031, 1032, 1033, 1034, 1035, 1036, 1038, 1058, 1059, 1060, 1061, 1062, 1063, 1064, 1065, 1066, 1067, 1069, 1070, 1075, 1076, 1077, 1078, 1079, 1080, 1081, 1082, 1083, 1085, 1086, 1087, 1088, 1089, 1090, 1091, 1092, 1093, 1094, 1095, 1096, 1097, 1098, 1099, 1100, 1101, 1102, 1103, 1104, 1105, 1106, 1107, 1108, 1109, 1110, 1111, 1112, 1113, 1114, 1115, 1116, 1117, 1118, 1119, 1120, 1121, 1122, 1123, 1128, 1129, 1130, 1131, 1132, 1133, 1134, 1135, 1136, 1137, 1138, 1139, 1140, 1144, 1145, 1146, 1147, 1149, 1150, 1151, 1152, 1153, 1154, 1155, 1156, 1157, 1158, 1159, 1160, 1161, 1162 and 1164.

17. In census tract 005902, block 9011.

(Added to NRS by 1981, 1822; A 1991, 1101; 2001 Special Session, 376; 2003, 762)

NRS 396.050 Oaths. Before entering upon the discharge of the duties of the Office of Regent, every person elected as a Regent under the provisions of this chapter shall take and subscribe the official oath and file the same in the Office of the Secretary of State.

[Part 2:37:1887; A 1905, 190; 1917, 352; 1941, 91; 1931 NCL § 7727]

NRS 396.060 Vacancies. In case of a vacancy in the Board of Regents caused by death, resignation, removal, or otherwise, the Governor shall fill the vacancy by the appointment of a qualified person to serve until the next succeeding general election, when the vacancy shall be filled by election for the remainder of the unexpired term of office of the Regent originally elected.

[Part 2:37:1887; A 1905, 190; 1917, 352; 1941, 91; 1931 NCL § 7727]—(NRS A 1967, 410)

NRS 396.070 Salaries and expenses of Regents; restrictions on account to pay for hosting expenditures of Regent; annual report and availability of hosting expenditures.

1. Each member of the Board of Regents is entitled to receive a salary of \$80 for each meeting of the Board that he or she attends.

2. Each member of the Board of Regents is entitled to receive in attending meetings of the Board, or while on Board of Regents' business within the State:

(a) A per diem expense allowance not to exceed the greater of:

(1) The rate of \$60; or

(2) The maximum rate established by the Federal Government for the locality in which the travel is performed.

(b) The travel allowance provided for state officers and employees generally.

3. If an account is established for a member of the Board of Regents to pay for hosting expenditures of the member:

(a) The annual expenditures from the account may not exceed \$2,500.

(b) The account may be used only to pay for activities that are directly related to the duties of the member of the Board of Regents, including reasonable expenses for meals, beverages and small gifts. The account must not be used to pay for expenses associated with attending a sporting event or a political fundraising event.

(c) The member of the Board of Regents must submit a monthly report of expenditures from the account to the Chancellor of the System. The report must include, without limitation, the amount of money expended from the account, the specific purpose and activity for which the money was expended and, if applicable, the person for whom the money was expended.

(d) The Chancellor of the System shall compile the monthly reports into an annual report on or before January 30 of each year. The monthly reports and annual reports are public records and must be made available for public inspection.

4. As used in this section, "hosting expenditures" means reasonable expenses by or on behalf of a member of the Board of Regents who is conducting business activities necessary to provide a benefit to the System by establishing goodwill, promoting programs of the System or otherwise advancing the mission of the System.

[Part 4:37:1887; C § 1393; RL § 4642; NCL § 7729]—(NRS A 1957, 168; 1971, 175; 1977, 50; 1981, 890, 1982; 1995, 183; 2005, 1077; 2007, 602)

NRS 396.080 Chair of Board. The Board of Regents shall have the power to appoint a Chair.

[Part 4:37:1887; C § 1393; RL § 4642; NCL § 7729]—(NRS A 2005, 1078)

NRS 396.090 Secretary of Board: Employment; duties. The Board of Regents may employ a Secretary of the Board, who shall keep a full record of all proceedings of the Board.

[Part 4:37:1887; C § 1393; RL § 4642; NCL § 7729]—(NRS A 1969, 1433)

NRS 396.100 Meetings; records open to public inspection.

1. The Board of Regents may hold at least four regular meetings in each year, and may hold special meetings at the call of the Chair of the Board.

2. At all times, the records of all proceedings of the Board are open to public inspection except records of a closed meeting which have not become public.

[Part 4:37:1887; C § 1393; RL § 4642; NCL § 7729] + [5:37:1887; C § 1394; RL § 4643; NCL § 7730] + [1:244:1947; 1943 NCL § 7737.01]—(NRS A 1960, 27; 1977, 1102; 1981, 898; 1983, 1442)

NRS 396.110 Rules of Board.

1. The Board of Regents may prescribe rules for:

(a) Its own government; and

(b) The government of the System.

2. The Board of Regents shall prescribe rules for the granting of permission to carry or possess a weapon pursuant to NRS 202.265.

[Part 3:37:1887; A 1917, 52; 1945, 448; 1943 NCL § 7728]—(NRS A 1989, 657; 1993, 341)

NRS 396.120 Copy of minutes of Regents' meetings transmitted to Governor. The Secretary of the Board of Regents shall transmit to the Governor a copy of the approved minutes of each regular meeting of the Board.

[Part 3:37:1887; A 1917, 52; 1945, 448; 1943 NCL § 7728]—(NRS A 1957, 168; 1961, 174; 1969, 1433)

NRS 396.122 Interest in certain contracts prohibited. A member of the Board of Regents shall not be interested, directly or indirectly, as principal, partner, agent or otherwise, in any contract or expenditure created by the Board of Regents, or in the profits or results thereof.

(Added to NRS by 1977, 1113)

PERSONNEL

NRS 396.210 Chancellor: Appointment and qualifications.

1. After consultation with the faculty, the Board of Regents shall appoint a Chancellor of the System.

2. The Chancellor shall have a degree from a college or university recognized as equal in rank to those having membership in the Association of American Universities.

[Part 3:37:1887; A 1917, 52; 1945, 448; 1943 NCL § 7728]—(NRS A 1957, 168; 1969, 1433; 1993, 341)

NRS 396.220 Salary of Chancellor. The Board of Regents shall fix the salary of the Chancellor of the System.

[Part 3:37:1887; A 1917, 52; 1945, 448; 1943 NCL § 7728]—(NRS A 1969, 1433; 1993, 341)

NRS 396.230 Duties of Chancellor and other officers. The Board of Regents shall prescribe the duties of the Chancellor and such other officers of the System as the Board deems appropriate.

[Part 3:37:1887; A 1917, 52; 1945, 448; 1943 NCL § 7728] + [8:37:1887; C § 1397; RL § 4646; NCL § 7733]—(NRS A 1957, 169; 1965, 94; 1969, 1433; 1993, 341)

NRS 396.240 Reports of Chancellor and other officers. The Chancellor and other officers of the System shall make such reports to the Board of Regents as they deem appropriate or as the Board of Regents may require.

[6:37:1887; C § 1395; RL § 4644; NCL § 7731]—(NRS A 1969, 1433; 1993, 341)

NRS 396.251 Establishment of policies and procedures for certain personnel.

1. The Board of Regents may establish policies and procedures for personnel which govern student employees, physicians engaged in a program for residency training and postdoctoral fellows of the System and which are separate from the policies and procedures established for the unclassified personnel of the System. Any such policy or procedure does not diminish the eligibility of those persons for coverage as employees under the provisions of chapters 616A to 616D, inclusive, or chapter 617 of NRS.

2. In establishing policies and procedures pursuant to subsection 1, the Board of Regents is not bound by any of the other provisions of this chapter or the provisions of title 23 of NRS. Those provisions do not apply to a student employee, a physician engaged in a program for residency training or a postdoctoral fellow of the System unless otherwise provided by the Board of Regents.

(Added to NRS by 1987, 290; A 1993, 342; 1999, 235)

NRS 396.255 Establishment of procedures governing contracts that faculty members and employees may enter into or benefit from. The Board of Regents shall, to carry out the purposes of subsection 3 of NRS 281.221, subsection 3 of NRS 281.230 and subsection 3 of NRS 281A.430, establish policies governing the contracts that faculty members and employees of the System may enter into or benefit from.

(Added to NRS by 2001, 1627)

NRS 396.260 Employment of alien instructor or professor through program of exchange. Notwithstanding the provisions of any other law, the Board of Regents may employ any teacher, instructor or professor authorized to teach in the United States under the teacher exchange programs authorized by laws of the Congress of the United States.

[10.2:37:1887; added 1956, 199]—(NRS A 1959, 284; 1969, 1434)

NRS 396.270 Official oath for instructor and professor.

1. Each teacher, instructor and professor employed by the Board of Regents whose compensation is payable out of the public funds, except teachers, instructors and professors employed pursuant to the provisions of NRS 396.260, shall take and subscribe to the constitutional oath of office before entering upon the discharge of his or her duties.

2. The oath of office, when taken and subscribed, shall be filed in the Office of the Board of Regents.

[10.3:37:1887; added 1956, 199]—(NRS A 1993, 342)

NRS 396.280 Salaries of academic staff. The Board of Regents shall have the power to fix the salaries of the academic staff of the System.

[Part 3:37:1887; A 1917, 52; 1945, 448; 1943 NCL § 7728]—(NRS A 1957, 169; 1993, 342)

NRS 396.290 Retirement benefits for employees of System. Except as otherwise provided in NRS 396.251 and 396.7953, all employees of the System, including those employees who were receiving benefits under the provisions of chapter 204, Statutes of Nevada 1915, and chapter 99, Statutes of Nevada 1943, may elect to receive the benefits provided

under the contract of integration entered into between the Board of Regents and the Public Employees' Retirement Board on June 30, 1950, pursuant to the provisions of NRS 286.370 or may exercise an option to receive the benefits provided under NRS 286.802 to 286.816, inclusive.

[9:2:1957]—(NRS A 1969, 244, 1434; 1987, 291; 1993, 342)

NRS 396.300 Rules for reports of officers and teachers. The Board of Regents may prescribe rules for the reports of officers and teachers of the System.

[Part 3:37:1887; A 1917, 52; 1945, 448; 1943 NCL § 7728]—(NRS A 1993, 342)

NRS 396.311 Community College: System of probation for professional employees. The Board of Regents shall adopt regulations establishing a system of probation for the professional employees of the Community Colleges. The regulations must provide for a probationary period of such length as the Board deems appropriate.

(Added to NRS by 1975, 1025; A 1981, 898; 1993, 342)

NRS 396.315 Community College: System for dismissal of professional employees. The Board of Regents shall adopt and promulgate regulations establishing a fair dismissal system for the professional employees of the Community Colleges who have completed probation as required by the Board pursuant to NRS 396.311. The regulations must provide that no professional employee who has successfully completed his or her probationary period is subject to termination or nonrenewal of his or her contract except for good cause shown. The regulations must specify what constitutes good cause for such termination or nonrenewal of contract, and must include provisions for:

1. Adequate notice;
 2. A hearing to determine whether good cause exists, to be held before an impartial hearing officer or hearing committee selected in a manner provided by the Board; and
 3. Opportunity for review of the decision of the hearing officer or hearing committee,
- in any case involving termination or nonrenewal of the contract of a professional employee who has completed probation.

(Added to NRS by 1975, 1025; A 1981, 898)

NRS 396.320 Grounds for dismissal or removal of certain personnel.

1. The willful neglect or failure on the part of any teacher, instructor, professor, president or chancellor in the System to observe and carry out the requirements of this chapter is sufficient cause for the dismissal or removal of the person from his or her position.

2. It is sufficient cause for the dismissal of any teacher, instructor, professor, president or chancellor in the System when the person advocates, or is a member of an organization which advocates, overthrow of the Government of the United States or of the State by force, violence or other unlawful means.

[Part 1:20:1955] + [10.8:37:1887; added 1956, 199]—(NRS A 1969, 1434; 1993, 342)

DISCIPLINARY HEARINGS

NRS 396.323 Powers of Regents and other officers to issue subpoenas; enforcement.

1. The Board of Regents, the Chancellor of the System and the presidents of all the branches and facilities within the System may issue subpoenas in all instances involving disciplinary hearings of members of the System.

2. Those persons may issue subpoenas requiring the attendance of witnesses before them together with all books, memoranda, papers and other documents relative to the matters under investigation or to be heard, administer oaths and take testimony thereunder.

3. The district court in and for the county in which any hearing is being conducted by any of the persons named in subsection 1 may compel the attendance of witnesses, the giving of testimony and the production of books and papers as required by any subpoena issued by the person holding the hearing.

4. In case of the refusal of any witness to attend or testify or produce any papers required by the subpoena, the person holding the hearing may report to the district court in and for the county in which the hearing is pending by petition, setting forth:

(a) That due notice has been given of the time and place of attendance of the witness or the production of the books and papers;

(b) That the witness has been subpoenaed in the manner prescribed in this chapter; and

(c) That the witness has failed and refused to attend or produce the papers required by subpoena before the person holding the hearing named in the subpoena, or has refused to answer questions propounded to the witness in the course of the hearing,

➤ and asking an order of the court compelling the witness to attend and testify or produce the books or papers before the person.

5. The court, upon petition of the person holding the hearing, shall enter an order directing the witness to appear before the court at a time and place to be fixed by the court in the order, the time must not be more than 10 days after the date of the order, and then and there show cause why the witness has not attended or testified or produced the books or papers before the person holding the hearing. A certified copy of the order must be served upon the witness. If it appears to the court that the subpoena was regularly issued by the person holding the hearing, the court shall thereupon enter an order that the witness appear before the person at the time and place fixed in the order and testify or produce the required books or papers, and upon failure to obey the order the witness must be dealt with as for contempt of court.

(Added to NRS by 1971, 852; A 1981, 898; 1993, 343)

NRS 396.324 Person with communications disability entitled to use of registered legal interpreter at hearing. The person who is the subject of a disciplinary hearing under this chapter or who is a witness at that hearing, and who is a person

with a communications disability as defined in NRS 50.050, is entitled to the services of an interpreter at public expense in accordance with the provisions of NRS 50.050 to 50.053, inclusive. The interpreter must be appointed by the person who presides at the hearing.

(Added to NRS by 1979, 658; A 2001, 1778; 2007, 174)

POLICE DEPARTMENT; REVIEW OF POLICE MISCONDUCT

NRS 396.325 Creation; interlocal agreements with other law enforcement agencies. The Board of Regents may:

1. Create a Police Department for the System and appoint one or more persons to be members of the Department; and
2. Authorize the Department to enter into interlocal agreements pursuant to chapter 277 of NRS with other law enforcement agencies to provide for the rendering of mutual aid.

(Added to NRS by 1965, 304; A 1969, 1434; 1991, 1701; 1993, 344, 1416, 2531; 1995, 571, 572)

NRS 396.327 Police required to wear badges. Every member of the Police Department for the System must be supplied with, authorized and required to wear a badge bearing the words "University Police, Nevada."

(Added to NRS by 1965, 304; A 1969, 1434; 1993, 344)

NRS 396.328 Provision of accident reports and related materials upon receipt of reasonable fee; exceptions. The Police Department for the System shall, within 7 days after receipt of a written request of a person who claims to have sustained damages as a result of an accident, or the person's legal representative or insurer, and upon receipt of a reasonable fee to cover the cost of reproduction, provide the person, his or her legal representative or insurer, as applicable, with a copy of the accident report and all statements by witnesses and photographs in the possession or under the control of the Department that concern the accident, unless:

1. The materials are privileged or confidential pursuant to a specific statute; or
2. The accident involved:
 - (a) The death or substantial bodily harm of a person;
 - (b) Failure to stop at the scene of an accident; or
 - (c) The commission of a felony.

(Added to NRS by 1987, 1052; A 1993, 344; 2005, 703)

NRS 396.329 Report concerning activities of Police Department.

1. The Board of Regents of the University of Nevada shall, not later than April 15 of each odd-numbered year, prepare and submit to the Director of the Legislative Counsel Bureau for submission to the Legislature, a report concerning the activities of the Police Department for the System.

2. The report must include, without limitation:

(a) A copy of each of the annual security reports compiled for the immediately preceding 2 years pursuant to 20 U.S.C. § 1092, including the executive summary and statistics regarding crimes on campus; and

(b) A statement of:

- (1) The policy of each police department regarding the use of force and the equipment authorized for use by its officers in carrying out that policy;
- (2) The activities performed by each police department during the reporting period to improve or maintain public relations between the campus and the community;
- (3) The number of full-time and reserve officers in each police department;
- (4) The programs held in each police department during the reporting period in which training was given to its officers and the rates of participation in those programs; and
- (5) The number, itemized by each police department, of incidents during the reporting period in which an excessive use of force was alleged and the number of those allegations which were sustained.

(Added to NRS by 1993, 424)

NRS 396.3291 Campus review board: Creation authorized to review allegations of misconduct by peace officers of the Police Department; membership; conditions for membership; payment of per diem and travel expenses.

1. The Board of Regents may create on each campus of the System a campus review board to advise the president or other chief administrative officer of the campus and, upon request, the Board of Regents on issues concerning allegations made against peace officers of the Police Department for the System involving misconduct while serving on the campus.

2. A campus review board created pursuant to subsection 1 must consist of not less than 15 members.

3. A campus review board must be appointed by the Board of Regents from a list of names submitted by interested persons within the System and in the general public. If an insufficient number of names of persons interested in serving on a campus review board are submitted, the Board of Regents shall appoint the remaining members in the manner it deems appropriate.

4. A person appointed to a campus review board:

- (a) Must be a resident of this State;
- (b) Must not be employed as a peace officer;
- (c) Must complete training relating to law enforcement before serving as a member of the campus review board, including, without limitation, training in the policies and procedures of the Police Department for the System, the provisions of chapter 284 of NRS, the regulations adopted pursuant thereto and NRS 289.010 to 289.120, inclusive, and the terms and conditions of employment of the peace officers of the System; and

(d) Shall serve without salary, but may receive from the System such per diem allowances and travel expenses as are authorized by the Board of Regents.

(Added to NRS by 2001, 1463; A 2005, 625)

NRS 396.3293 Campus review board: Limitation on jurisdiction; abridgement of rights of peace officer prohibited. A campus review board created pursuant to NRS 396.3291:

1. Does not have jurisdiction over any matter in which it is alleged that a crime has been committed.
2. Shall not abridge the rights of a peace officer of the Police Department for the System that are granted pursuant to a contract or by law.

(Added to NRS by 2001, 1464)

NRS 396.3295 Panel of campus review board: Membership; authority to refer complaint and review internal investigation concerning peace officer; Police Department required to provide personnel information; notice and opportunity for hearing on internal investigation; report of findings; proceedings closed to public; findings and recommendations are public records.

1. A campus review board created pursuant to NRS 396.3291 shall meet in panels to carry out its duties.
2. Members must be selected randomly to serve on a panel, and each panel shall select one of its members to serve as chair of the panel.
3. A panel of a campus review board may:
 - (a) Refer a complaint against a peace officer of the Police Department for the System who has served on the campus to the office of the Police Department for the System on the campus.
 - (b) Review an internal investigation of such a peace officer and make recommendations regarding any disciplinary action against the peace officer that is recommended by the office of the Police Department for the System on the campus, including, without limitation:
 - (1) Increasing or decreasing the recommended level of discipline; and
 - (2) Exonerating the peace officer who has been the subject of the internal investigation.
4. The Police Department for the System shall make available to a panel of a campus review board any information within a personnel file that is specific to a complaint against a peace officer of the Police Department for the System who has served on the campus, or any other material that is specific to the complaint.
5. When reviewing an internal investigation of a peace officer of the system pursuant to subsection 3, a panel of a campus review board shall provide the peace officer with notice and an opportunity to be heard. The peace officer may represent himself or herself at the hearing before the panel or be represented by an attorney or other person of his or her own choosing. The campus review board and the Police Department for the System are not responsible for providing such representation.
6. The chair of a panel of a campus review board shall report the findings and recommendations of the panel regarding disciplinary action to the office of the Police Department for the System on the campus, the president or other chief administrative officer of the campus and, upon request, the Board of Regents.
7. A proceeding of a panel of a campus review board must be closed to the public.
8. The findings and recommendations of a panel of a campus review board are public records unless otherwise declared confidential by state or federal law.

(Added to NRS by 2001, 1464)

NRS 396.3297 Panel of campus review board: Authority to administer oaths, take testimony, issue subpoenas and issue commissions to take testimony; enforcement of subpoena by court.

1. A panel of a campus review board created pursuant to NRS 396.3291 may:
 - (a) Administer oaths;
 - (b) Take testimony;
 - (c) Within the scope of its jurisdiction, issue subpoenas to compel the attendance of witnesses to testify before the panel;
 - (d) Require the production of books, papers and documents specific to a complaint; and
 - (e) Issue commissions to take testimony.
2. If a witness refuses to attend or testify or produce books, papers or documents as required by the subpoena, the panel may petition the district court to order the witness to appear or testify or produce the requested books, papers or documents.

(Added to NRS by 2001, 1464)

FINANCES

NRS 396.330 Acceptance of grants of land.

1. The State of Nevada hereby accepts the grants of lands made by the Government of the United States to this state, in the following Acts of Congress, upon the terms and conditions expressed in such acts, and agrees to comply therewith:

(a) "An Act donating Public Lands to the several States and Territories which may provide Colleges for the Benefit of Agriculture and the Mechanic Arts," approved July 2, 1862 (c. 130, 12 Stat. 503), as amended by "An Act extending the Time within which the States and Territories may accept the Grant of Lands made by the Act entitled 'An Act donating public Lands to the several States and Territories which may provide Colleges for the Benefit of Agriculture and the Mechanic Arts,' approved July second, eighteen hundred and sixty-two," approved April 14, 1864 (c. 58, 13 Stat. 47), and as extended by "An act concerning certain Lands granted to the State of Nevada," approved July 4, 1866 (c. 166, 14 Stat. 86).

(b) "An Act concerning certain Lands granted to the State of Nevada," approved July 4, 1866 (c. 166, 14 Stat. 86).

2. The State of Nevada hereby accepts all grants of public lands made by the Government of the United States to this state prior to February 13, 1867, upon the terms and conditions so granted, as modified in "An act concerning certain Lands granted to the State of Nevada," approved July 4, 1866 (c. 166, 14 Stat. 86).

[1:101:1865] + [1:16:1867] + [2:16:1867] + [3:16:1867]

NRS 396.340 Acceptance of federal appropriations and grants; annual report.

1. The System was, and now is, established in accordance with the provisions of the Constitution of the State of Nevada, and also in accordance with the provisions of an Act of Congress entitled "An Act donating Public Lands to the several States and Territories which may provide Colleges for the Benefit of Agriculture and the Mechanic Arts," approved July 2, 1862 (c. 130, 12 Stat. 503), and acts amendatory thereof or supplementary thereto.

2. The Board of Regents are the proper trustees of the System to receive and disburse all appropriations made to this State under the provisions of an Act of Congress entitled "An Act to apply a portion of the proceeds of the public lands to the more complete endowment and support of the colleges for the benefit of agriculture and mechanic arts, established under the provisions of an Act of Congress approved July second, eighteen hundred and sixty-two," approved August 30, 1890 (c. 841, 26 Stat. 419), and all appropriations hereafter to be made under the Act.

3. The Board of Regents shall make a report at the end of each fiscal year, in connection with its annual report to the Governor, of other matters concerning the System, including the amounts received and disbursed under the provisions of this section. The Governor shall transmit all annual reports to the Legislature.

4. The Legislature of Nevada hereby gratefully assents to the purposes of all grants of money made heretofore and all which may hereafter be made to the State of Nevada by Congress, under the Act of Congress, the title of which is recited in subsection 2, and agrees that the grants must be used only for the purposes named in the Act of Congress, or acts amendatory thereof or supplemental thereto.

[1:59:1891; C § 1416; RL § 4656; NCL § 7750] + [2:59:1891; C § 1417; RL § 4657; NCL § 7751] + [3:59:1891; C § 1418; RL § 4658; NCL § 7752] + [4:59:1891; C § 1419; RL § 4659; NCL § 7753]—(NRS A 1969, 1434; 1993, 345; 2005, 359)

NRS 396.350 Irreducible University Fund.

1. The moneys arising from the sale of the 72 sections of land granted this state by the Act of Congress entitled "An act concerning Lands granted to the State of Nevada," approved July 4, 1866 (c. 166, 14 Stat. 86), for the establishment and maintenance of a university, which sale was directed by the provisions of section 4 of chapter 85, Statutes of Nevada 1873, constitute a fund to be known as the Irreducible University Fund. The money in the Fund must be invested by the Board of Regents in United States bonds, bonds of this state, bonds of other states of the Union or bonds of any county in the State of Nevada. The investments are subject to such further restrictions and regulations as may be provided by law.

2. The interest only of the proceeds resulting from the investments described in subsection 1 must be used for the maintenance of the System, and any surplus interest must be added to the principal sum.

[Part 4:85:1873; A 1929, 61; NCL § 7746]—(NRS A 1993, 345)

NRS 396.360 Contingent University Fund. The interest derived from the Irreducible University Fund shall be and constitute a fund to be known as the Contingent University Fund.

[Part 4:85:1873; A 1929, 61; NCL § 7746]—(NRS A 1999, 427)

NRS 396.370 Appropriations for support and maintenance of System.

1. The following money is hereby set aside and inviolably appropriated for the support and maintenance of the System, and must be paid out for the purposes designated by law creating the several funds:

(a) The interest derived from the investment of all money from the sale of the 90,000 acres of land granted to the State of Nevada by the Act of Congress entitled "An Act donating Public Lands to the several States and Territories which may provide Colleges for the Benefit of Agriculture and the Mechanic Arts," approved July 2, 1862 (c. 130, 12 Stat. 503).

(b) The interest derived from the investment of all money from the sale of the 72 sections of land granted to the State of Nevada by the Act of Congress entitled "An act concerning certain Lands granted to the State of Nevada," approved July 4, 1866 (c. 166, 14 Stat. 86), for the establishment and maintenance of a university.

2. Additional state maintenance and support of the System must be provided by direct legislative appropriation from the General Fund, upon the presentation of budgets in the manner required by law.

[1:259:1913; A 1949, 288; 1943 NCL § 7740]—(NRS A 1957, 128; 1969, 1435; 1993, 345; 1999, 427)

NRS 396.380 Receipt and disbursement of money by Board of Regents; control of expenditures.

1. The members of the Board of Regents are the sole trustees to receive and disburse all money of the System for the purposes provided in NRS 396.370.

2. The Board of Regents shall control the expenditures of all money appropriated for the support and maintenance of the System and all money received from any other source.

[Part 3:37:1887; A 1917, 52; 1945, 448; 1943 NCL § 7728] + [Part 2:259:1913; 1919 RL p. 3208; NCL § 7741]—(NRS A 1993, 346)

NRS 396.381 Board of Regents authorized to delegate authority to sign contract for obligations not issued under University Securities Law; approval by Board of Regents; authorized investment of proceeds.

1. Before the sale or delivery by the System of an obligation to repay money in any form, other than an obligation issued under the University Securities Law, the Board of Regents may delegate to the Chancellor of the System or the Vice Chancellor for Finance of the System the authority to sign a contract for the sale or exchange of the obligation or to accept a binding bid for the obligation subject to the requirements specified by the Board of Regents concerning:

(a) The rate or rates of interest on the obligation;

(b) The dates on which and the prices at which the obligation may be prepaid before maturity;

(c) The price at which the obligation will be sold or the property for which the obligation will be exchanged;

(d) The principal amount of the obligation and the amount of principal and interest due on any specific dates; and

(e) Covenants to protect the owner of the obligation and the System that the Chancellor or the Vice Chancellor for

Finance determines are necessary or desirable to obtain favorable terms for the System. A determination made pursuant to this paragraph, absent fraud or gross abuse of discretion, is conclusive.

2. All terms of the obligation other than:

- (a) The rate or rates of interest;
- (b) The dates and prices for the prepayment of the obligation;
- (c) The price for the sale of the obligation or property for which it will be exchanged;
- (d) The principal amount of the obligation;
- (e) The requirements for the payment of principal and interest on specific dates; and
- (f) Covenants to protect the owner of the obligation and the System that the Chancellor or the Vice Chancellor for

Finance determines are necessary or desirable to obtain favorable terms for the System as provided in paragraph (e) of subsection 1,

↳ must be approved by the Board of Regents before the obligation is delivered.

3. The final rate or rates of interest, dates and prices of prepayments, price for the sale of the obligation or property for which it is exchanged, principal amount, requirements for payment of principal and interest on specific dates, and covenants as described in paragraph (e) of subsection 1, are not required to be approved by the Board of Regents if each of those terms complies with the requirements specified by the Board of Regents before the contract for the purchase or delivery of the obligation is signed or the bid for the obligation is accepted.

4. The proceeds of any money borrowed pursuant to this section may be invested as provided in NRS 396.861 and 396.8615.

(Added to NRS by 2007, 1901)

NRS 396.383 Accounts Payable Revolving Fund.

1. The Nevada System of Higher Education Accounts Payable Revolving Fund is hereby created. The Board of Regents may deposit the money of the Fund in one or more state or national banks or credit unions in the State of Nevada.

2. The chief business officer of each business center of the System shall:

- (a) Pay from the fund such operating expenses of the System as the Board of Regents may by rule prescribe.
- (b) Submit claims to the State Board of Examiners for money of the System on deposit in the State Treasury or elsewhere to replace money paid from the Nevada System of Higher Education Accounts Payable Revolving Fund.

(Added to NRS by 1961, 280; A 1969, 1435; 1971, 876; 1981, 899; 1993, 346; 1999, 1490; 2005, 360)

NRS 396.384 Collegiate License Plate Account.

1. The Collegiate License Plate Account is hereby created in the State General Fund.

2. The money in the Account does not lapse to the State General Fund at the end of any fiscal year.

3. The Board of Regents shall administer the Account.

4. The money in the Account must only be used for academic and athletic scholarships for students of the University of Nevada, Reno, and the University of Nevada, Las Vegas. One-half of the money must be used for academic scholarships, and one-half of the money must be used for athletic scholarships.

(Added to NRS by 1993, 1346)

NRS 396.385 Use of facsimile signature by chief business officer; conditions. The Board of Regents may authorize the chief business officer of each business center of the System to use a facsimile signature produced through a mechanical device in place of his or her handwritten signature whenever the necessity may arise, subject to the following conditions:

1. The mechanical device must be of such a nature that the facsimile signature may be removed from the mechanical device and kept in a separate secure place.

2. The facsimile signature may only be used under the direction and supervision of the chief business officer of the business center.

3. The registered key to the mechanical device must be kept in a vault at all times when the key is not in use.

(Added to NRS by 1960, 38; A 1961, 281; 1965, 94; 1971, 877; 1981, 899; 1993, 346)

NRS 396.390 Claims: Procedure and payment.

1. Before payment, all claims of every name and nature involving the payment of money by or under the direction of the Board of Regents from funds set aside and appropriated must be passed upon by the State Board of Examiners.

2. The Board of Regents shall, with the approval of the Governor, require all officers and employees of the System whose duties, as prescribed by law, require the officers or employees to approve claims against any public funds to file the claims in the office of the Board of Regents for transmittal.

[12:37:1887; C § 1401; RL § 4650; NCL § 7737] + [Part 2:259:1913; 1919 RL p. 3208; NCL § 7741] + [1:87:1939; 1931 NCL § 5233]—(NRS A 1969, 1436; 1993, 347)

NRS 396.400 Public inspection of accounts. The Board of Regents shall keep open to public inspection an account of receipts and expenditures.

[Part 3:37:1887; A 1917, 52; 1945, 448; 1943 NCL § 7728]

UNIVERSITY FOUNDATIONS

NRS 396.405 Meetings; records; exemption from certain taxes; governing body; nondisclosure of contributors.

1. A university foundation:

(a) Shall comply with the provisions of chapter 241 of NRS;

(b) Except as otherwise provided in subsection 2, shall make its records public and open to inspection pursuant to NRS

239.010:

(c) Is exempt from the taxes imposed by NRS 375.020, 375.023 and 375.026 pursuant to subsection 14 of NRS 375.090; and

(d) May allow a president or an administrator of the university, state college or community college which it supports to serve as a member of its governing body.

2. A university foundation is not required to disclose the name of any contributor or potential contributor to the university foundation, the amount of his or her contribution or any information which may reveal or lead to the discovery of his or her identity. The university foundation shall, upon request, allow a contributor to examine, during regular business hours, any record, document or other information of the foundation relating to that contributor.

3. As used in this section, "university foundation" means a nonprofit corporation, association or institution or a charitable organization that is:

(a) Organized and operated primarily for the purpose of fundraising in support of a university, state college or a community college;

(b) Formed pursuant to the laws of this State; and

(c) Exempt from taxation pursuant to 26 U.S.C. § 501(c)(3).

(Added to NRS by 1993, 2623; A 2003, 3492; 2003, 20th Special Session, 206; 2005, 360, 963; 2009, 2290)

PROPERTY; CAPITAL IMPROVEMENTS; EQUIPMENT; MATERIALS AND SUPPLIES

NRS 396.420 Acceptance of property.

1. The Board of Regents may accept and take in the name of the System, for the benefit of any branch or facility of the System, by grant, gift, devise or bequest, any property for any purpose appropriate to the System.

2. Property so acquired must be taken, received, held, managed, invested, and the proceeds thereof used, bestowed and applied by the Board of Regents for the purposes, provisions and conditions prescribed by the respective grant, gift, devise or bequest.

3. Nothing in this chapter prohibits the State of Nevada from accepting and taking by grant, gift, devise or bequest any property for the use and benefit of the System.

[Part 3:37:1887; A 1917, 52; 1945, 448; 1943 NCL § 7728]—(NRS A 1969, 1436; 1993, 347)

NRS 396.425 Purchase of real property.

1. The Board of Regents may purchase real property for cash or by making a cash down payment and executing or assuming an obligation to pay the remainder of the price in deferred installments.

2. Such obligation may be secured by a mortgage or deed of trust of the real property acquired, but shall not constitute an obligation of the State of Nevada.

(Added to NRS by 1967, 1094)

NRS 396.430 Sale and lease of property; use of proceeds.

1. The Board of Regents may sell or lease any property granted, donated, devised or bequeathed to the System if:

(a) The sale or lease is not prohibited by or inconsistent with the provisions or conditions prescribed by the grant, gift, devise or bequest; and

(b) The sale or lease is approved by the Governor.

2. The proceeds and rents from the sale or lease must be held, managed, invested, used, bestowed and applied by the Board of Regents for the purposes, provisions and conditions prescribed by the original grant, gift, devise or bequest of the property so sold or leased.

[Part 3:37:1887; A 1917, 52; 1945, 448; 1943 NCL § 7728]—(NRS A 1973, 388; 1993, 347)

NRS 396.431 Disclosure required for sale, lease, transfer, conveyance or exchange of land with domestic or foreign limited-liability company.

1. If the System sells, leases, transfers or conveys land to, or exchanges land with, a domestic or foreign limited-liability company, the Board of Regents shall require the domestic or foreign limited-liability company to submit a disclosure to the Board of Regents setting forth the name of any person who holds an ownership interest of 1 percent or more in the domestic or foreign limited-liability company. The disclosure must be made available for public inspection upon request.

2. As used in this section, "land" includes all lands, including improvements and fixtures thereon, lands under water, all easements and hereditaments, corporeal or incorporeal, and every estate, interest and right, legal or equitable, in lands or water, and all rights, interests, privileges, easements, encumbrances and franchises relating to the same, including terms for years and liens by way of judgment, mortgage or otherwise.

(Added to NRS by 2005, 2209)

NRS 396.432 Disposition of unclaimed property. Any property which is in the possession of any authorized agent of the System and which is not claimed within 1 year by the owner of the property or the owner's authorized agent or representative must be disposed of by the System in the following manner:

1. Money may be forfeited to the System;

2. Personal property may be sold at public auction and the proceeds forfeited to the System; and

3. Any property not otherwise disposed of as provided in this section must be donated to a charitable institution.

(Added to NRS by 1969, 407; A 1969, 1448; 1993, 347)

NRS 396.433 Fidelity and other insurance.

1. The Board of Regents may budget for and purchase fidelity insurance and insurance against:

(a) Any liability arising under NRS 41.031.

(b) Tort liability on the part of any of its employees resulting from an act or omission in the scope of his or her employment.

(c) The expense of defending a claim against itself whether or not liability exists on such claim.

2. Such insurance shall be limited in amount according to the limitation of liability imposed by NRS 41.035 and shall be purchased from companies authorized to do business in the State of Nevada.

3. Each contract of insurance shall be free of any condition of contingent liability and shall contain a clause which provides that no assessment may be levied against the insured over and above the premium fixed by such contract.

(Added to NRS by 1959, 404; A 1967, 107)

NRS 396.435 Regulations governing traffic on System's property; publication; filing; penalty.

1. The Board of Regents may by affirmative vote of a majority of its members adopt, amend, repeal and enforce reasonable regulations governing vehicular and pedestrian traffic on all property owned or used by the System.

2. The regulations have the force and effect of law.

3. A copy of every such regulation, giving the date that it takes effect, must be filed with the Secretary of State, and copies of the regulations must be published immediately after adoption and issued in pamphlet form for distribution to faculty and students of the System and to the general public.

4. A person who violates any regulation adopted pursuant to this section is guilty of a misdemeanor.

(Added to NRS by 1959, 241; A 1969, 1436; 1993, 348)

NRS 396.4355 Annual report concerning capital improvements; submission to Legislature.

1. The Board of Regents shall, for each fiscal year, compile a report concerning the capital improvements owned, leased or operated by the System.

2. The report of the capital improvements required pursuant to subsection 1 must be prepared in such detail as is required by generally accepted accounting principles.

3. The Board of Regents shall, on or before February 1 of each year, submit, in any format, including an electronic format, a copy of the report compiled pursuant to subsection 1 to the Director of the Legislative Counsel Bureau for distribution to each regular session of the Legislature.

(Added to NRS by 2005, 1404)

NRS 396.436 Maintenance and delivery of records and controls for inventory. The Board of Regents shall cause perpetual inventory records and controls to be maintained for all equipment, materials and supplies stored or used by or belonging to the System. Copies of current inventory records and controls must be delivered to the Chief of the Purchasing Division of the Department of Administration, and the copies must satisfy the requirements of NRS 333.220.

(Added to NRS by 1967, 62; A 1973, 1474; 1993, 348, 1597; 1995, 579; 1997, 471)

NRS 396.4365 Maintenance and availability of material safety data sheet for hazardous materials used on buildings or grounds of campus.

1. The Board of Regents shall ensure that each university, state college and community college within the System:

(a) Maintains at the university, state college or community college a material safety data sheet for each hazardous chemical used on the buildings or grounds of the university, state college or community college;

(b) Complies with any safety precautions contained in those sheets; and

(c) Makes those sheets available to all the personnel of the university, state college or community college and the parents of each student attending the university, state college or community college.

2. For the purposes of this section, "material safety data sheet" has the meaning ascribed to it in 29 C.F.R. § 1910.1200.

(Added to NRS by 1997, 3354; A 2005, 360)

NRS 396.437 Recycling of paper, paper products and other waste materials; regulations and procedures; exception; deposit of money received.

1. Except as otherwise provided in this section, the System shall recycle or cause to be recycled the paper and paper products it uses. This subsection does not apply to confidential documents if there is an additional cost for recycling those documents.

2. The System is not required to comply with the requirements of subsection 1 if the Board of Regents determines that the cost to recycle or cause to be recycled the paper and paper products used by the System or one of its branches or facilities is unreasonable and would place an undue burden on the operations of the System, branch or facility.

3. The Board of Regents shall adopt regulations which prescribe the procedure for the disposition of the paper and paper products to be recycled. The Board of Regents shall prescribe procedures for the recycling of other waste material produced on the premises of the System, a branch or a facility, including, without limitation, the placement of recycling containers on the premises of the System, a branch or a facility where services for the collection of solid waste are provided.

4. Any money received by the System for recycling or causing to be recycled the paper and paper products it uses and other waste material it produces must be accounted for separately and used to carry out the provisions of this section.

5. As used in this section:

(a) "Paper" includes newspaper, high-grade office paper, fine paper, bond paper, offset paper, xerographic paper, mimeo paper, duplicator paper and any other cellulosic material which contains not more than 10 percent by weight or volume of a noncellulosic material, including, but not limited to, a laminate, binder, coating and saturant.

(b) "Paper product" means any paper article or commodity, including, but not limited to, paper napkins, towels, cardboard, construction material, paper and any other cellulosic material which contains not more than 10 percent by weight or volume of a noncellulosic material, including, but not limited to, a laminate, binder, coating and saturant.

- (c) "Solid waste" has the meaning ascribed to it in NRS 444.490.
(Added to NRS by 1991, 907; A 1993, 348; 1999, 3184; 2009, 835)

PROGRAMS OF INSTRUCTION, RESEARCH AND CLINICAL SERVICES

NRS 396.440 Course of study, terms and vacations. The Board of Regents may prescribe the course of study, the commencement and duration of the terms, and the length of the vacations for the System.
[Part 3:37:1887; A 1917, 52; 1945, 448; 1943 NCL § 7728]—(NRS A 1993, 349)

NRS 396.500 Instruction in United States Constitution and Nevada's Constitution; examination.

1. Instruction within the System must be given in the essentials of the Constitution of the United States and the Constitution of the State of Nevada, including the origin and history of the Constitutions and the study of and devotion to American institutions and ideals.
2. The instruction required in subsection 1 must be given during at least 1 year of the college grades.
3. The System shall not issue a certificate or diploma of graduation to a student who has not passed a satisfactory examination upon the Constitutions.
[10.6:37:1887; added 1956, 199]—(NRS A 1993, 349)

NRS 396.504 Regents encouraged to review mission of System and parity among institutions. The Legislature hereby encourages the Board of Regents to review periodically their mission for higher education, as the number of institutions within the System expands and the focus of each institution is defined and further redefined, to determine whether there is unnecessary duplication of programs or courses within the System which might be more appropriate for a different institution. The System is encouraged to review the core curriculum at each institution to determine whether there is parity among the institutions of the System.

(Added to NRS by 2005, 1095)

NRS 396.505 Comprehensive plan for new programs and expansions of existing programs of instruction, public service and research; presentation of revised plan to Legislature.

1. The Board of Regents shall prepare a comprehensive plan for the next 4 years which explains:
 - (a) Any anticipated new programs and expansions of existing programs of instruction, public service or research, itemized by year and by purpose;
 - (b) The anticipated cost of each new or expanded program described under paragraph (a);
 - (c) The amount and source of any money anticipated to be available, from sources other than legislative appropriation, to meet each item of anticipated cost listed pursuant to paragraph (b); and
 - (d) Any further information concerning its comprehensive planning which the Board of Regents may deem appropriate.
2. The Board of Regents shall biennially bring the plan up to date for the ensuing 4 years, and shall present the revised plan to the Legislature not later than February 1 of each odd-numbered year.
(Added to NRS by 1967, 1380; A 1973, 313; 1993, 349)

NRS 396.514 Instruction in essentials of green building construction and design. Instruction within the System must be given in the essentials of green building construction and design to assist students in preparing for the Leadership in Energy and Environmental Design Professional Accreditation Exam or its equivalent.
(Added to NRS by 2005, 22nd Special Session, 72)

NRS 396.515 Instruction in ecology and environmental protection; inclusion in program for education of teachers.

Instruction within the System must be given in the essentials of ecology and environmental protection. Such instruction must be included in the program developed by the System for the education of teachers.
(Added to NRS by 1971, 1187; A 1993, 349)

NRS 396.516 Uniform course of study and policies and procedures on teaching American Sign Language. The Board of Regents may approve a uniform course of study and develop policies and procedures on the teaching of American Sign Language in the System.
(Added to NRS by 1995, 150; A 2005, 360)

NRS 396.517 Program to educate and train persons for work in nursing home.

1. The Board of Regents may plan for and establish a model program to educate and train persons for work in a nursing home.
2. The program must be developed and administered through the community colleges and the University of Nevada School of Medicine.
3. The Board of Regents may carry out the program through a joint venture with one or more nursing homes, but the Board of Regents must have final authority to direct and supervise the program.
4. The Board of Regents may apply for any available grants and accept any gifts, grants or donations for the support of the program.
(Added to NRS by 1991, 1570)

NRS 396.518 Development of curriculum and standards for degree in dental hygiene or public health dental hygiene. The Board of Regents may, to the extent that money is available, develop the curriculum and standards required for a student in the System to earn a bachelor of science degree in dental hygiene or a master's degree in public health dental

hygiene.

(Added to NRS by 2001, 2691)

NRS 396.519 Program of student teaching and practicum. The Board of Regents shall establish a program of student teaching and practicum which requires a division of the System to enter into agreements with the school districts in this state for the assignment of university students for training purposes as student teachers, counselors or trainees in a library.

(Added to NRS by 1993, 1239; A 1995, 558)

NRS 396.5195 Cooperation of Regents to ensure program designed to educate teachers includes instruction in academic standards required in high school. The Board of Regents shall, in cooperation with the State Board and the Council to Establish Academic Standards for Public Schools, ensure that students enrolled in a program developed by the System for the education of teachers are provided instruction regarding the standards of content and performance required of pupils enrolled in high schools in this State.

(Added to NRS by 2005, 1095)

NRS 396.521 Genetics program: Establishment.

1. The Board of Regents, in cooperation with the Health Division of the Department of Health and Human Services, may establish a genetics program to provide clinical genetic and diagnostic services to residents of Nevada who have or may have a hereditary, chromosomal or multifactorial disorder.

2. The University of Nevada School of Medicine must provide consultation and other appropriate services to the genetics program.

(Added to NRS by 1991, 2065; A 1993, 349)

NRS 396.523 Genetics program: Provision of services. The genetics program must provide the following services:

1. Genetic counseling;

2. Proband evaluation;

3. Screening for hereditary disorders;

4. Laboratory testing for analysis of chromosomes and other specialized diagnostic procedures to detect hereditary disorders;

5. Medical management of hereditary disorders;

6. Specialized prenatal diagnostic techniques;

7. Appropriate follow-up and referral services;

8. Educational programs for providers of health care and the community; and

9. Maintenance of a registry for research and evaluation.

(Added to NRS by 1991, 2065)

NRS 396.524 Genetics program: Eligibility; determination of ability to pay.

1. Any person residing in Nevada is eligible for services through the genetics program. A person must not be denied services through the genetics program because of his or her inability to pay for the services.

2. A determination of ability to pay must be based on the following factors:

(a) Resources of the person, including hospital and medical insurance;

(b) Other available sources of payment, including any governmental aid for medically indigent persons;

(c) Estimated cost of care;

(d) Length of treatment;

(e) Household size in relation to income; and

(f) Debts and obligations.

(Added to NRS by 1991, 2066)

NRS 396.525 Genetics program: Confidentiality of records and information; exceptions.

1. Except as otherwise provided in subsection 2 and NRS 239.0115 and 439.538, the records of the genetics program concerning the clients and families of clients are confidential.

2. The genetics program may share information in its possession with the University of Nevada School of Medicine and the Health Division of the Department of Health and Human Services, if the confidentiality of the information is otherwise maintained in accordance with the terms and conditions required by law.

(Added to NRS by 1991, 2066; A 2007, 1979, 2102)

NRS 396.526 Genetics program: Qualifications of personnel; exemption.

1. The genetics program must include a geneticist and a cytogeneticist and such other personnel as determined by the Board of Regents and the Health Division of the Department of Health and Human Services.

2. Except as otherwise provided in subsection 3:

(a) The clinical services provided by the genetics program must be supervised by a geneticist who is certified or eligible to be certified by the American Board of Medical Genetics and who is a physician licensed in this State.

(b) A cytogeneticist employed by the genetics program must be certified or eligible to be certified by the American Board of Medical Genetics and:

(1) Be a licensed physician; or

(2) Have a degree of doctor of philosophy in a medical or biological science from an accredited college or university and experience in cytogenetics as approved by the University of Nevada School of Medicine.

3. The State Board of Health may exempt a geneticist or a cytogeneticist employed by the genetics program from the

requirements provided in subsection 2 upon receipt of clear and convincing evidence that hiring a geneticist or a cytogeneticist with qualifications other than those required by subsection 2 substantially complies with the intent of the law and is in the interest of the safety of the public.

(Added to NRS by 1991, 2066; A 1993, 350)

NRS 396.527 Genetics program: Powers of Board of Regents. The Board of Regents may:

1. Apply for any matching money available for the genetics program from the Federal Government or any other source and accept any gifts, grants or donations for the support of the program.
2. Adopt regulations necessary to carry out the provisions of NRS 396.521 to 396.527, inclusive.
3. Receive, invest, disburse and account for all money received from the Federal Government or any other source for the genetics program.

(Added to NRS by 1991, 2066)

NRS 396.528 Energy efficiency and renewable energy: Programs of study; joint venture with public and private entities authorized; acceptance of gifts and grants.

1. The Board of Regents may plan for and establish programs for the study of energy efficiency and renewable energy resources within the System.
2. The Board of Regents may carry out a program established pursuant to this section through a joint venture with one or more public or private entities, but the Board of Regents must have final authority to direct and supervise the program.
3. The Board of Regents may apply for any available grants and accept any gifts, grants or donations for the support of a program for the study of energy efficiency and renewable energy resources established pursuant to this section.

(Added to NRS by 2009, 817)

NRS 396.529 Energy efficiency and renewable energy: Programs designed to improve ability of students in certain fields of study to serve renewable energy industry in this State. To the extent money is available, the Board of Regents shall establish within the fields of science, engineering, business administration and political science within the System programs designed to improve the ability of students in those fields to serve the renewable energy industry in this State.

(Added to NRS by 2009, 1407)

NRS 396.5295 Energy efficiency and renewable energy: Duties of Nevada Renewable Energy Integration and Development Consortium of the System. To the extent money is available, the Nevada Renewable Energy Integration and Development Consortium of the Nevada System of Higher Education or its successor organization shall:

1. Serve as a resource of information concerning research that is conducted relating to renewable energy and energy efficiency in this State.
2. Work with the Nevada Institute for Renewable Energy Commercialization or its successor organization to establish a mechanism for transferring technology to the marketplace, including, without limitation, within the limits of available grant money, establishing support for start-up energy technology businesses and ensuring the appropriate protection of intellectual property.
3. Provide information concerning renewable energy and energy efficiency to the Office of Energy and the Renewable Energy and Energy Efficiency Authority.

(Added to NRS by 2009, 1407)

STUDENTS; TUITION; GRADUATION AND DIPLOMAS

NRS 396.530 Discrimination in admission prohibited. The Board of Regents shall not discriminate in the admission of students on account of national origin, religion, age, physical disability, sex, race or color.
[9:37:1887; C § 1398; RL § 4647; NCL § 7734]—(NRS A 1987, 290; 1993, 2165)

NRS 396.532 Report concerning participation of ethnic and racial minorities, women and other protected classes in System; submission to Legislature; availability to general public.

1. The Board of Regents of the University of Nevada shall, not later than February 1 of each odd-numbered year, prepare and submit to the Director of the Legislative Counsel Bureau for submission to the Legislature, a report concerning the participation of ethnic and racial minorities, women and other members of protected classes in the System. The report must cover each of the immediately preceding 2 academic years.
2. The Board shall make the report submitted pursuant to subsection 1 available to the general public, including publishing it on the website maintained by the System.
3. The report must include, but is not limited to:
 - (a) The number of students divided by ethnic category;
 - (b) The number of employees divided by ethnic category and occupational classification, as defined by the National Center for Education Statistics;
 - (c) The number of students divided by gender;
 - (d) The number of employees divided by gender and occupational classification, as defined by the National Center for Education Statistics;
 - (e) Any information necessary to determine the impact of policy changes on the number of protected classes specified in subsection 1 who are enrolled at or employed by the System;
 - (f) The efforts of each institution to increase the enrollment in underrepresented ethnic and racial categories through outreach programs and recruitment to maintain levels of minority enrollment comparable to the distribution of the population

of the State; and

(g) The efforts of each institution to retain and graduate students in underrepresented ethnic and racial categories through retention and other related programs.

(Added to NRS by 2009, 568)

NRS 396.533 Access to all library facilities within System. A student who is enrolled in a university, state college or community college within the System must be granted access to all the library facilities that are available to students enrolled in any of the institutions within the System and must be adequately informed of the library services that are available.

(Added to NRS by 2005, 1096)

NRS 396.535 Form required for informed consent of students concerning release or disclosure of personally identifiable information.

1. The Board of Regents shall prescribe a form that provides for the informed consent of students concerning the directory information that a university, university foundation, state college or community college, as applicable, makes public. The form must:

(a) Allow each student a reasonable opportunity to indicate whether the student opts not to authorize the release or disclosure of personally identifiable information concerning the student for:

(1) Commercial purposes, without the prior written consent of the student;

(2) Noncommercial purposes, without the prior written consent of the student; or

(3) Both commercial and noncommercial purposes, without the prior written consent of the student.

(b) Inform the student that:

(1) If the student does not return the form indicating that his or her personally identifiable information must not be released or disclosed, then it is probable that the information will be released or disclosed.

(2) If the student returns the form indicating that his or her personally identifiable information must not be released or disclosed, then the university, university foundation, state college or community college, as applicable, will not release or disclose the information without the student's prior written consent.

(c) Be included with the other forms required for admission to the university, state college or community college, as applicable.

2. Except as otherwise required by federal law, a university, university foundation, state college or community college shall not release, disclose or otherwise use any personally identifiable information concerning a student without the prior written consent of the student for:

(a) Commercial or noncommercial purposes if the student has returned a form indicating that the student does not authorize release or disclosure for those purposes without his or her consent;

(b) Commercial purposes if the student has returned a form indicating that the student does not authorize release or disclosure for those purposes without his or her consent; or

(c) Noncommercial purposes if the student has returned a form indicating that the student does not authorize release or disclosure for those purposes.

3. As used in this section:

(a) "Commercial purposes" means the use of directory information by any person, including, without limitation, a corporation or other business, outside of the System to solicit or provide facilities, goods or services in exchange for the payment of any purchase price, fee, contribution, donation or other valuable consideration.

(b) "Directory information" has the meaning ascribed to it in 20 U.S.C. § 1232g(a)(5)(A).

(c) "Personally identifiable information" means information that may be used to identify a person, including, without limitation, the name, address, telephone number, date of birth, and directory information of a person.

(d) "University foundation" has the meaning ascribed to it in NRS 396.405.

(Added to NRS by 2003, 2486)

NRS 396.540 Charges for tuition; free tuition.

1. For the purposes of this section:

(a) "Bona fide resident" shall be construed in accordance with the provisions of NRS 10.155 and policies established by the Board of Regents, to the extent that those policies do not conflict with any statute. The qualification "bona fide" is intended to ensure that the residence is genuine and established for purposes other than the avoidance of tuition.

(b) "Matriculation" has the meaning ascribed to it in regulations adopted by the Board of Regents.

(c) "Tuition charge" means a charge assessed against students who are not residents of Nevada and which is in addition to registration fees or other fees assessed against students who are residents of Nevada.

2. The Board of Regents may fix a tuition charge for students at all campuses of the System, but tuition must be free to:

(a) All students whose families have been bona fide residents of the State of Nevada for at least 12 months before the matriculation of the student at a university, state college or community college within the System;

(b) All students whose families reside outside of the State of Nevada, providing such students have themselves been bona fide residents of the State of Nevada for at least 12 months before their matriculation at a university, state college or community college within the System;

(c) All public school teachers who are employed full-time by school districts in the State of Nevada;

(d) All full-time teachers in private elementary, secondary and postsecondary educational institutions in the State of Nevada whose curricula meet the requirements of chapter 394 of NRS;

(e) Employees of the System who take classes other than during their regular working hours;

(f) Members of the Armed Forces of the United States who are on active duty and stationed at a military installation in the State of Nevada; and

(g) Veterans of the Armed Forces of the United States who were honorably discharged and who were on active duty

while stationed at a military installation in the State of Nevada or a military installation in another state which has a specific nexus to this State, including, without limitation, the Marine Corps Mountain Warfare Training Center located at Pickel Meadow, California, on the date of discharge.

3. The Board of Regents may grant tuitions free each semester to other worthwhile and deserving students from other states and foreign countries, in a number not to exceed a number equal to 3 percent of the total matriculated enrollment of students for the last preceding fall semester.

[10:37:1887; A 1921, 7; 1945, 258; 1943 NCL § 7735]—(NRS A 1959, 285; 1963, 78; 1965, 214; 1969, 1436; 1975, 1517; 2005, 361, 1421; 2009, 2291)

NRS 396.543 Reciprocal agreement with another state for full or partial waiver of tuition.

1. The Board of Regents may enter into an agreement with another state for the granting of full or partial waivers of the nonresident tuition to residents of the other state who are students at or are eligible for admission to any branch of the System if the agreement provides that, under substantially the same circumstances, the other state will grant reciprocal waivers to residents of Nevada who are students at or are eligible for admission to universities or colleges in the other state.

2. Each agreement must specify:

(a) The criteria for granting the waivers; and

(b) The specific universities, state colleges and community colleges for which the waivers will be granted.

3. The Board of Regents shall provide by regulation for the administration of any waivers for which an agreement is entered into pursuant to subsection 1.

4. The waivers granted pursuant to this section must not be included in the number of waivers determined for the purpose of applying the limitation in subsection 3 of NRS 396.540.

(Added to NRS by 1983, 1043; A 1993, 350; 2005, 361)

NRS 396.544 Waiver of fees for members of Nevada National Guard; eligibility for waiver; verification of membership in Guard; reimbursement upon failure of recruit to enter Guard.

1. The Board of Regents of the University of Nevada may grant a waiver of registration fees and laboratory fees for any member of the active Nevada National Guard, including, without limitation, a recruit, who attends a school within the System as a full-time or part-time student. For the purpose of assessing fees and charges against a person to whom a waiver is granted pursuant to this subsection, including, without limitation, tuition charges pursuant to NRS 396.540, such a person shall be deemed to be a bona fide resident of this State.

2. To be eligible for a waiver pursuant to subsection 1, a person must:

(a) Be a member in good standing of the active Nevada National Guard, including, without limitation, a recruit, at the beginning of and throughout the entire semester for which the waiver is granted; and

(b) Maintain at least a 2.0 grade point average, on a 4.0 grading scale, each semester, or the equivalent of a 2.0 grade point average if a different grading scale is used.

3. The Board of Regents may request the Adjutant General to verify the membership in the active Nevada National Guard of a person who is seeking or has been granted a waiver of registration fees and laboratory fees pursuant to subsection 1. The Adjutant General shall, upon receiving such a request, notify the Board of Regents in writing concerning the status and dates of membership of that person in the active Nevada National Guard.

4. If a waiver is granted pursuant to subsection 1 for a recruit and the recruit does not enter full-time National Guard duty within 1 year after enlisting, the recruit shall reimburse the Board of Regents for all registration fees and laboratory fees waived on behalf of the recruit if the recruit's failure to enter full-time National Guard duty is attributable to his or her own conduct.

5. As used in this section:

(a) "Full-time National Guard duty" has the meaning ascribed to it in 32 U.S.C. § 101(19).

(b) "Recruit" means a person who has enlisted in the Nevada National Guard but has not begun his or her required military duty.

(Added to NRS by 2003, 20th Special Session, 271; A 2005, 583)

NRS 396.5442 Waiver of fees for child, widow or widower of person killed while performing duties as member of Nevada National Guard; eligibility; verification of membership in Guard.

1. The Board of Regents may grant a waiver of registration fees and laboratory fees for a child, widow or widower of a person who was killed while performing his or her duties as a member of the Nevada National Guard. For the purpose of assessing fees and charges against a person to whom such a waiver is granted, including, without limitation, tuition charges pursuant to NRS 396.540, the person shall be deemed to be a bona fide resident of this State.

2. A person is eligible for a waiver pursuant to subsection 1 if the person maintains at least a 2.0 grade point average, on a 4.0 grading scale, each semester or the equivalent of a 2.0 grade point average if a different scale is used.

3. A child may use a waiver granted pursuant to this section for 10 years after the child attains the age of 18 years or, if the child enrolls in the System before the age of 18 years, for 10 years after the date of such enrollment. A widow or widower may use a waiver granted pursuant to this section for 10 years after the date of the death of the member.

4. The Board of Regents may request the Adjutant General to verify that a person is the child, widow or widower of a person who was killed while performing his or her duties as a member of the Nevada National Guard. The Adjutant General shall, upon receiving such a request, notify the Board of Regents in writing concerning the status of that person.

(Added to NRS by 2009, 54)

NRS 396.5445 Waiver of fees for spouse or child of member of Armed Forces who is identified as prisoner of war or missing in action; eligibility; verification of status.

1. The Board of Regents may grant a waiver of registration fees and laboratory fees for a spouse or child of a person who

is identified as a prisoner of war or missing in action while performing his or her duties as a member of the Armed Forces of the United States. For the purpose of assessing fees and charges against a person to whom such a waiver is granted, including, without limitation, tuition charges pursuant to NRS 396.540, the person shall be deemed to be a bona fide resident of this State.

2. A person is eligible for a waiver pursuant to subsection 1 if the person maintains at least a 2.0 grade point average, on a 4.0 grading scale, each semester or the equivalent of a 2.0 grade point average if a different scale is used.

3. A spouse may use a waiver granted pursuant to this section for 10 years after the date on which the member of the Armed Forces was identified as a prisoner of war or missing in action. A child may use a waiver granted pursuant to this section for 10 years after the child attains the age of 18 years or, if the child enrolls in the System before the age of 18 years, for 10 years after the date of such enrollment.

4. The Board of Regents may request such documentation as it deems necessary to verify that a person is the spouse or child of a member of the Armed Forces of the United States who is identified as a prisoner of war or missing in action while performing his or her duties as a member of the Armed Forces.

(Added to NRS by 2009, 55)

NRS 396.545 Payment of fees and expenses of dependent child of police or highway patrol officer, firefighter or volunteer ambulance driver or attendant killed in line of duty or service; Trust Fund for the Education of Dependent Children.

1. To the extent of legislative appropriation, the Board of Regents shall pay all registration fees, laboratory fees and expenses for required textbooks and course materials assessed against or incurred by a dependent child of:

(a) A police officer, firefighter or officer of the Nevada Highway Patrol who was killed in the line of duty; or

(b) A volunteer ambulance driver or attendant who was killed while engaged as a volunteer ambulance driver or attendant,

→ for classes taken towards satisfying the requirements of an undergraduate degree at a school within the System. No such payment may be made for any fee assessed after the child reaches the age of 23 years.

2. There is hereby created in the State Treasury a Trust Fund for the Education of Dependent Children. The Board of Regents shall administer the Trust Fund. The Board of Regents may accept gifts and grants for deposit in the Trust Fund. All money held by the State Treasurer or received by the Board of Regents for that purpose must be deposited in the Trust Fund. The money in the Trust Fund must be invested as the money in other state funds is invested. After deducting all applicable charges, all interest and income earned on the money in the Trust Fund must be credited to the Trust Fund.

3. As used in this section:

(a) "Firefighter" means a person who is a salaried employee or volunteer member of a fire prevention or suppression unit organized by a local government and whose principal duty is to control and extinguish fires.

(b) "Local government" means a county, city, unincorporated town or metropolitan police department.

(c) "Police officer" means a person who is a salaried employee of a police department or other law enforcement agency organized or operated by a local government and whose principal duty is to enforce the law.

(d) "Volunteer ambulance driver or attendant" means a person who is a driver of or attendant on an ambulance owned or operated by:

(1) A nonprofit organization that provides volunteer ambulance service in any county, city or town in this State; or

(2) A political subdivision of this State.

(Added to NRS by 1995, 2219; A 1997, 469; 2005, 327, 361)

NRS 396.546 Access to electronic version of instructional materials to students with print access disability.

1. In the most timely manner practicable after receiving a written request for an electronic version of instructional material from a student with a print access disability, an institution shall provide to the student, at no cost, an electronic version of each requested instructional material that the institution determines is essential to the success of the student in a course of study offered by an institution of the System in which the student is enrolled.

2. If an institution receives a request for an electronic version of nonprinted instructional material from a student pursuant to subsection 1 and an electronic version of the nonprinted instructional material is not currently available at the institution or at another institution of the System, the institution must contact the publisher of the nonprinted instructional material and request an electronic version of the nonprinted instructional material. If the publisher:

(a) Has an electronic version of the nonprinted instructional material, the publisher must provide the electronic version to the institution for distribution to the student; or

(b) Does not have an electronic version of the nonprinted instructional material, the institution must create and provide to the student an electronic version in the most timely manner practicable after the institution is notified by the publisher that the publisher does not have an electronic version of the nonprinted instructional material.

3. As used in this section:

(a) "Institution" means any university, state college or community college within the System.

(b) "Instructional material" means any published textbook and other published material that is used by students of the System. The term does not include nontextual mathematics and science materials unless, as determined by the Board of Regents, such materials are commercially available in a format that is compatible for use with equipment which is used by students of the System with print access disabilities to convert material into a format that provides them with the ability to have increased independent access to the material. The term includes, without limitation, nonprinted instructional material.

(c) "Nonprinted instructional material" means instructional material that is in a format other than print. The term does not include a website or Internet link that is associated with instructional material. The term includes, without limitation, instructional material that requires electronic equipment other than a computer or computer peripheral for the material to be used as a learning resource, such as a software program, videodisc, videotape and audiotape.

(d) "Print access disability" means a condition in which a person's independent reading of, reading comprehension of, or visual access to printed material is limited or reduced because of a sensory, neurological, cognitive, physical or psychiatric disability.

(Added to NRS by 2003, 915)

NRS 396.547 Student government: Establishment; approval of bylaws; fees.

1. The student body of each branch of the System may establish a student government. The student government shall adopt a set of bylaws which are subject to the approval of:

- (a) A majority of the students who vote in an election held for that purpose; and
- (b) The Board of Regents.

2. Such a student government to the extent of its authority set forth in the bylaws is self-governing and independent of the administration of the System, financially and otherwise.

3. The Board of Regents shall collect a fee from each undergraduate student at a branch of the System for the support of the student government of that branch upon:

- (a) Receipt of a request by the student government for the imposition of such a fee; and
- (b) Approval by the Board of Regents of the amount of the fee so requested.

(Added to NRS by 1983, 1030; A 1993, 350)

NRS 396.548 Provision of information to board of trustees of school districts regarding remedial instruction. The Board of Regents shall require employees of the System to provide to the board of trustees of each school district of this State, as appropriate, information regarding the:

1. Number of pupils who graduated from a high school in the district in the immediately preceding year and enrolled in remedial courses in reading, writing or mathematics at a university, state college or community college within the System.

2. Costs incurred by the System in providing remedial instruction pursuant to subsection 1.

(Added to NRS by 1997, 1775; A 2005, 362)

NRS 396.550 Time and standards of graduation. The Board of Regents shall have the power to prescribe the time and standards of graduation.

[Part 3:37:1887; A 1917, 52; 1945, 448; 1943 NCL § 7728]

NRS 396.560 Diploma of graduation; determination of completion of full course of study required for diploma.

1. Upon the recommendation of a president of a branch within the System, the Board of Regents shall issue to those who worthily complete the full course of study in the school of mines or in the school of agriculture, or in the school of liberal arts, or in any equivalent course that may hereafter be prescribed, a diploma of graduation, conferring the proper academic degree, from the System.

2. The Board of Regents shall not issue such a diploma to a student who has not completed the full course of study as set forth in this section.

3. For the purposes of this section, a student at a university or state college within the System completes the full course of study for a diploma of graduation if, in accordance with the policy of the Board of Regents, the student satisfies the requirements for graduation and a degree as set forth in the catalog of the university or state college that is in effect at the time the student:

(a) First enrolls in the university or state college or is admitted to the academic program or department of the student's major if the program or department has a formal process for admitting students to the program or department; or

(b) Graduates,

↳ whichever the student elects. A student who changes his or her major must elect the catalog of the year of the latest change of the major or the year of graduation. A student may not elect a catalog that is more than 10 years old at the time of his or her graduation.

[Part 7:37:1887; A 1891, 92; 1895, 89; C § 1396; RL § 4645; NCL § 7732]—(NRS A 1969, 1437; 1993, 351; 2005, 1096)

NRS 396.568 Automatic transfer of credits earned at community college toward degree at state college or university; appeal by student if credit denied.

1. All credits earned by a student in a course at a community college within the System, including, without limitation, all credits earned in a course toward the award of an associate's degree must automatically transfer toward the course work required of the student in his or her major or minor, or other course work required of the student, for the award of a baccalaureate degree upon graduation of the student from any university or state college within the System.

2. Pursuant to the policy of the Board of Regents, a student who is awarded an associate's degree:

(a) Shall be deemed to have completed the course of study required of a sophomore.

(b) If the student enrolls in another institution within the System, must be enrolled as a junior.

3. All credits earned toward the completion of a degree of associate of arts, associate of science or associate of business must automatically transfer toward the course work required for the award of a baccalaureate degree upon the graduation of the student from any university or college within the System.

↳ If the transfer of credit pursuant to this section is denied and the student believes that the credit should be applied to his or her degree, the student may appeal the decision. The appeal process must be made available to all students and may be posted on the website of the System.

(Added to NRS by 1997, 1475; A 2003, 1249; 2005, 1096)

NRS 396.580 Diploma for course of study not equivalent to regular course. Upon the recommendation of a president

of a branch within the System, the Board of Regents shall issue to those who worthily complete the full course of study in any other department of the System, not equivalent to a regular course, a diploma of graduation, but the diploma must bear the name of the department from which it is issued, and in no case may it bear the heading of the regular diploma issued by the Board of Regents.

[Part 7:37:1887; A 1891, 92; 1895, 89; C § 1396; RL § 4645; NCL § 7732]—(NRS A 1969, 1437; 1993, 351)

NRS 396.585 Satisfactory progress toward obtaining degree required to participate as member of varsity athletic team.

1. The Board of Regents shall require each student who participates as a member of a varsity athletic team which represents the University of Nevada, Reno, or the University of Nevada, Las Vegas, to make satisfactory progress toward obtaining a degree as a condition of participation as a member of the team.

2. The Board of Regents shall establish standards for determining whether a student is making satisfactory progress toward obtaining his or her degree as required by this section. The standards must:

(a) Include a requirement that a student enroll in a sufficient number of courses in each semester that are required to obtain the academic degree the student is seeking to allow the student to complete the requirements for obtaining the degree within a reasonable period after the student's admission.

(b) Include a requirement that a student maintain a minimum grade point average in the courses required pursuant to paragraph (a).

(Added to NRS by 1993, 336)

NRS 396.591 Medical insurance for members of athletic teams. The University of Nevada, Reno, and the University of Nevada, Las Vegas, may each elect to insure members of varsity and freshman athletic teams representing the respective campuses for unlimited medical coverage for injuries incurred while the members of the teams are engaged in organized practice or actual competition or any activity related thereto. Such insurance must be obtained from a private carrier.

(Added to NRS by 1973, 288; A 1981, 900, 1527; 1999, 1826)

STATE CLIMATOLOGIST

NRS 396.595 Creation of Office; employment, qualifications and duties.

1. The Office of State Climatologist is hereby created.

2. The Director of the State Department of Conservation and Natural Resources shall employ as the State Climatologist a person who has received the approval of:

(a) The National Climatic Data Center of the National Oceanic and Atmospheric Administration;

(b) The Western Regional Director of the National Weather Service; and

(c) An officer of the System.

3. The State Climatologist shall:

(a) Maintain descriptions of and information on the climate in this state, including the atmospheric conditions and levels of precipitation; and

(b) Publish his or her findings concerning the climate in this state at least quarterly.

(Added to NRS by 1985, 688; A 1993, 351; 1995, 806)

NRS 396.597 System may provide space for office and supplies; other employment allowed.

1. The System may provide the State Climatologist with adequate space for an office and necessary supplies.

2. The State Climatologist may, in addition to his or her employment as State Climatologist:

(a) Be employed by the Board of Regents as a member of the teaching staff of one of the branches or facilities within the System; and

(b) Accept employment as a consultant.

(Added to NRS by 1985, 689; A 1993, 352)

PUBLIC SERVICE DIVISION

In General

NRS 396.600 Composition. The Public Service Division of the System consists of the following public service departments:

1. Agricultural Extension.

2. Agricultural Experiment Station.

3. Bureau of Mines and Geology.

4. Such other departments as the Board of Regents may designate.

[1:98:1915; 1919 RL p. 3209; NCL § 7765] + [Part 2:98:1915; 1919 RL p. 3210; NCL § 7766] + [3:98:1915; 1919 RL p. 3210; NCL § 7767] + [5:98:1915; 1919 RL p. 3210; NCL § 7769]—(NRS A 1957, 766; 1959, 618; 1969, 1437; 1971, 368; 1985, 1125; 1993, 352)

NRS 396.610 Rules and regulations. All rules and regulations necessary for the proper administration and enforcement of the Public Service Division of the System must be made by the presidents, the Chancellor and the Board of Regents.

[4:98:1915; 1919 RL p. 3210; NCL § 7768]—(NRS A 1969, 1438; 1993, 352)

Bureau of Mines and Geology

NRS 396.620 Analyses of ores, minerals, soil and water: Submission of samples by residents of this State; fee; maintenance of records and samples.

1. Subject to the limitations specified in NRS 396.620 to 396.660, inclusive, the Chancellor shall cause to be analyzed by an appropriate employee of the System any ores, minerals, soil or water taken from within the boundaries of the State of Nevada and sent by any resident of the State for that purpose. Persons sending samples from post offices in states bordering Nevada may be required to furnish evidence that their samples are taken in Nevada and that they are Nevada residents. Any resident of the State may send any such substance for analysis. The report of the results of the analysis must be mailed to him or her within 10 working days after it has been received if he or she has supplied the information for the maintenance of records as provided in this section. The report sent to him or her must also contain as nearly as possible an explanation of the uses and market value of the substance.

2. For each sample sent for analysis, the System shall charge a fee of \$5 which must be used to defray the expense of conducting the analysis and storing the sample.

3. The System shall keep a record, open for inspection, under such rules as may be made by the Board of Regents, of all minerals, ores or other matters so sent, with a history of the minerals or other matters, stating the name and residence of the person from whom received, as nearly as possible the location from which the material was taken, including the district and county, and any other relevant information. This information for the records may be required to be filed with the System before any work is done on the material sent, and the 10-day limit for reports will count from the time the information is received by the System. The System shall cause the preparation and printing of forms for providing the information and shall distribute the forms at no charge.

4. A portion of the sample analyzed must be kept by the System for 3 months after the report is sent out, in case any question should arise in relation to the report or additional information be desired. After that time expires, samples may be destroyed or used for any desirable purpose.

[1:84:1895; A 1931, 229; 1933, 147; 1931 NCL § 7754]—(NRS A 1969, 1526; 1981, 1715; 1985, 466; 1993, 352, 1597; 1995, 579; 1997, 20; 2005, 1092)

NRS 396.630 Assay to be run when same material sent from same district. If the same general kind of matter for analysis is sent from the same district and previous analyses have shown its character and values, it shall not be necessary to analyze the same, but an assay shall be run to determine the value thereof, and shall be sent by mail to the person desiring the same.

[2:84:1895; A 1933, 147; 1931 NCL § 7755]

NRS 396.640 Analyses of samples in order received. Samples for analysis shall be analyzed in the order received, as far as possible.

[3:84:1895; A 1933, 147; 1931 NCL § 7756]

NRS 396.650 Limitations on number of samples and quantitative analyses.

1. Gold and silver samples requiring assays and exact quantitative determinations are limited to two in any 30-day period; and of the so-called strategic or war minerals, such as antimony, arsenic, beryllium, manganese, magnesium, tungsten, molybdenum, quicksilver, zinc, lead, copper, tin, chromium, cadmium, or other strategic minerals for the assaying of which the average assay office is not equipped, there shall be run up to five assays or quantitative determinations for any single person or associated group of persons. Samples sent for ordinary rock and mineral determinations are limited to 10 in any 30-day period.

2. In order to save the State unnecessary expense, if preliminary examinations by microscope and qualitative tests indicate material of no economic value, exact quantitative analyses are not to be run on such samples, and reports on such material will indicate why such material has no commercial value.

[Part 4:84:1895; A 1897, 91; 1925, 29; 1931, 229; 1933, 147; 1943, 180; 1943 NCL § 7757]

NRS 396.660 Purpose and applicability of NRS 396.620 to 396.660, inclusive.

1. The main object of NRS 396.620 to 396.660, inclusive, as it relates to ore samples, is to aid the prospector in the discovery of new mineral deposits.

2. NRS 396.620 to 396.660, inclusive, shall not apply in the following cases:

(a) To operating mines. The term "operating mines" as used in this subsection means those properties milling or shipping ore or being worked by hired labor.

(b) To engineers sampling mines or prospects for purposes of valuation.

(c) To so-called "control assays" to check other assayers on ore known to be of value.

[Part 4:84:1895; A 1897, 91; 1925, 29; 1931, 229; 1933, 147; 1943, 180; 1943 NCL § 7757]

Agricultural Extension

NRS 396.690 Acceptance of federal appropriations for agricultural extension work. The assent of the State of Nevada by its Legislature is hereby given to the provisions and requirements of an Act of Congress entitled "An Act to provide for cooperative extension work between the agricultural colleges in the several States receiving the benefits of an Act of Congress approved July second, eighteen hundred and sixty-two, and of Acts supplementary thereto, and the United States Department of Agriculture," approved May 8, 1914 (c. 79, 38 Stat. 372), and any acts amendatory thereof and supplemental thereto. The Board of Regents is hereby authorized and empowered to receive the grants of money appropriated under such federal acts, and to organize and conduct agricultural extension work which must be carried on in connection with the College of Agriculture of the System, in accordance with the terms and conditions expressed in such Acts of Congress.

[1:9:1915; 1919 RL p. 3209; NCL § 7748]—(NRS A 1969, 1438; 1993, 353)

Agricultural Experiment Station

NRS 396.740 Purposes. The Agricultural Experiment Station, organized and established by the Board of Regents in connection with the System, is hereby recognized and continues as a part of the System. The Agricultural Experiment Station must be conducted for the purposes of acquiring and diffusing among the people useful and practical information on subjects connected with agriculture and to promote scientific investigation and experiment respecting the principles and applications of agricultural science.

[Part 1:26:1889; C § 1411; RL § 456; NCL § 374]—(NRS A 1969, 1438; 1993, 353)

NRS 396.750 Director; assistants. The Board of Regents, upon recommendation of the appropriate officer of the System shall appoint a qualified person to conduct the Agricultural Experiment Station and grant him or her such assistants as it deems necessary.

[2:26:1889; C § 1412; RL § 457; NCL § 375] + [Part 3:98:1915; 1919 RL p. 3210; NCL § 7767]—(NRS A 1969, 1438; 1993, 353)

NRS 396.760 Acceptance of federal acts. The Board of Regents and the Director appointed by the Board shall, to the best of their ability, observe and carry out the requirements of an Act of Congress entitled “An Act to establish agricultural experiment stations in connection with the colleges established in the several states under the provisions of an act approved July second, eighteen hundred and sixty-two, and of the acts supplementary thereto,” approved March 2, 1887 (c. 314, 24 Stat. 440), and all acts amendatory thereof and supplemental thereto. The Board of Regents shall have charge of the receipts, safekeeping and expenditure of all money appropriated by Congress for the benefit and use of the Agricultural Experiment Station.

[Part 3:26:1889; C § 1413; RL § 458; NCL § 376]

NRS 396.770 Acceptance of federal money. The Legislature of Nevada hereby gratefully assents to the purposes of all grants of money made heretofore and all which may hereafter be made to the State of Nevada by Congress, under the Act of Congress entitled “An Act to establish agricultural experiment stations in connection with the colleges established in the several states under the provisions of an act approved July second, eighteen hundred and sixty-two, and of the acts supplementary thereto,” approved March 2, 1887 (c. 314, 24 Stat. 440), and agrees that the same shall be used only for the purposes named in the Act of Congress or acts amendatory thereof or supplemental thereto.

[5:26:1889; C § 1415; RL § 460; NCL § 378]

NRS 396.780 Biennial reports. The Director and the Board of Regents shall make a report to the Governor before September 1 of each even-numbered year covering the biennium ending June 30 of such year. The Governor shall transmit all reports to the Legislature.

[Part 4:26:1889; C § 1414; RL § 459; NCL § 377]—(NRS A 1969, 1457)

NRS 396.790 Agricultural research: Nevada Agricultural Experiment Station Fund.

1. The Director of the Nevada Agricultural Experiment Station of the System, with the approval of the Board of Regents, is hereby authorized and directed to enter into cooperative agreements with the United States Department of Agriculture under the provisions of an Act of Congress entitled “An Act to provide for further research into basic laws and principles relating to agriculture and to improve and facilitate the marketing and distribution of agricultural products,” approved August 14, 1946 (c. 966, 60 Stat. 1082; 7 U.S.C. § 427).

2. The Nevada Agricultural Experiment Station Fund is hereby created. Support for the Fund must be provided by legislative appropriation from the State General Fund.

3. All claims against the Nevada Agricultural Experiment Station Fund must be certified by the Director of the Nevada Agricultural Experiment Station, approved by the Board of Regents and the State Board of Examiners and when so certified and approved, the State Controller is authorized to draw his or her warrants in payment of the claim, and the State Treasurer is authorized to pay the claim.

[Part 1:229:1947; 1943 NCL § 363.11] + [Part 2:229:1947; A 1949, 545] + [3:229:1947; 1943 NCL § 363.13]—(NRS A 1969, 1438; 1993, 353)

CENTER FOR THE ANALYSIS OF CRIME STATISTICS

NRS 396.792 Establishment; acceptance and use of gifts and grants. The Center for the Analysis of Crime Statistics is hereby established within the Department of Criminal Justice at the University of Nevada, Las Vegas. The Center may:

1. Apply for any available grants and accept any gifts, grants or donations; and
2. Use any such gifts, grants or donations to aid the Center in carrying out its duties and functions.

(Added to NRS by 2003, 642)

DESERT RESEARCH INSTITUTE

NRS 396.795 Establishment. To contribute more effectively to the security of the nation and to promote the general welfare of the State of Nevada and its citizens through the development of educational and scientific research, the Board of Regents may establish for educational and scientific research a facility within the System to be known as the Desert Research Institute.

(Added to NRS by 1959, 285; A 1981, 900; 1993, 354)

NRS 396.7951 Purposes. The primary purposes of the Institute are to:

1. Foster and conduct fundamental scientific, economic, social or educational investigations and applied research for industry, governmental or private agencies or individuals;
 2. Encourage and foster a desire in students and faculty to conduct research;
 3. Discover and develop talent for conducting research;
 4. Acquire and disseminate knowledge related to the projects undertaken; and
 5. Promote all research within the System generally.
- (Added to NRS by 1959, 286; A 1969, 1439; 1993, 354)

NRS 396.7952 Powers of Board of Regents. To further the development of the research activities of the System, the Board of Regents, on behalf of the Desert Research Institute, may:

1. Enter into contracts with governmental or private agencies or natural persons who wish to use the services or facilities of the Desert Research Institute.
 2. Receive and hold, by gift, bequest, devise, grant, purchase or otherwise, any real or personal property, including patents, copyrights, royalties and contracts from natural persons or corporations.
 3. Manage, invest, use and dispose of any property so received, either as specified by the donor or for the furtherance of the objectives of the Desert Research Institute.
 4. Receive, invest, disburse and account for all money acquired pursuant to subsection 2 or through contractual or sponsored arrangements with governmental or private agencies or natural persons.
- (Added to NRS by 1959, 286; A 1965, 93; 1979, 215; 1993, 354)

NRS 396.7953 Procedures and policies for personnel.

1. The Board of Regents may devise and establish personnel policies and procedures in connection with the operation of contractual or sponsored research activities of the Institute, apart from those personnel policies and procedures which are established for the professional personnel of other branches or facilities of the System.
 2. In devising and establishing such personnel policies and procedures, the Board of Regents is not bound by any of the other provisions of this chapter or the provisions of title 23 of NRS and none of those provisions are applicable to any person employed in connection with the operation of contractual or sponsored research activities of the Institute except as may be prescribed by the Board of Regents.
- (Added to NRS by 1959, 286; A 1981, 900; 1993, 354)

NRS 396.7954 Deposit of money received on behalf of Institute. Any money received by the Board of Regents on behalf of the Desert Research Institute pursuant to NRS 396.7952, may be deposited by the Board of Regents to the credit of the Desert Research Institute in one or more state or national banks or credit unions in the State of Nevada. Such deposits may be either time deposits or on open account subject to check without notice. The Board of Regents may act through any authorized agent or agents in depositing or withdrawing any money in such accounts.

(Added to NRS by 1959, 286; A 1999, 1490)

NRS 396.7955 Fiscal policies and procedures.

1. The Board of Regents shall devise and establish fiscal policies and procedures in connection with the operation of contractual or sponsored research activities of the institute, apart from those fiscal policies and procedures which are applicable to other branches or facilities of the System.
 2. None of the other provisions of this chapter or the provisions of titles 23 or 31 of NRS or any other statute relating to public officers and employees or public financial administration applies to the receipt, investment, management, disbursement, use, expenditure or accounting for any money or property received by the Board of Regents pursuant to NRS 396.7952, except as otherwise provided in subsection 4 of NRS 396.7952.
 3. Any funds received by or made available to the Board of Regents for the Desert Research Institute by the State of Nevada, whether pursuant to direct legislative appropriation or otherwise, are subject to all laws relating to public funds and expenditures.
- (Added to NRS by 1959, 287; A 1981, 900; 1993, 355)

NRS 396.7956 Research concerning use of solar energy as source of power.

1. The Legislature finds that:
 - (a) Basic scientific research is essential to any real solution of the energy crisis affecting many parts of the nation.
 - (b) Investigation of the potential contribution of harnessed solar energy may offer some significant answers to the problem of diminishing power resources.
 - (c) The facilities of the Desert Research Institute are uniquely capable of being applied to the study of solar energy as a source of power generation.
 2. The Board of Regents, through the Desert Research Institute, is authorized and encouraged to undertake research concerning the use of solar energy as a source of power. As part of the study, consideration must be given to the relative advantages and disadvantages of the various methods of power generation through the utilization of solar energy.
- (Added to NRS by 1973, 268; A 1993, 355)

ETHICS INSTITUTE

NRS 396.797 Establishment. The Board of Regents shall establish for educational research an Ethics Institute as a facility within the System to study questions and define standards regarding medical ethics.

(Added to NRS by 1987, 1232; A 1993, 355)

NRS 396.7971 Powers of Institute. The Ethics Institute may:

1. Plan and arrange educational activities to provide for practical applications of ethical consensus in medical practice.
2. Act as a forum for persons to address issues of medical ethics.
3. Coordinate informed communication between providers of health care and persons who make public policy in matters of medical ethics.
4. Act as a clearinghouse of information for members of the medical profession, hospital administrators, persons who make public policy and the public on matters of medical ethics.

(Added to NRS by 1987, 1233)

NRS 396.7972 Powers of Board of Regents. The Board of Regents, on behalf of the Ethics Institute, may:

1. Enter into contracts with persons or governmental agencies who wish to use the services or facilities of the Ethics Institute.
2. Accept gifts or grants of money or property.
3. Receive and hold any real or personal property, including patents, copyrights, royalties and contracts.
4. Manage, invest, use and dispose of any property received, either as specified by the donor or for the furtherance of the objectives of the Ethics Institute.

(Added to NRS by 1987, 1233)

NRS 396.7973 Procedures and policies for personnel.

1. The Board of Regents may establish policies and procedures for personnel in connection with the operation of contractual or sponsored activities of the Ethics Institute, apart from those policies and procedures which are established for the professional personnel of other branches or facilities of the System.

2. In establishing the policies and procedures, the Board of Regents is not bound by any of the other provisions of this chapter or the provisions of title 23 of NRS and none of those provisions are applicable to any person employed in connection with the operation of contractual or sponsored activities of the Institute except as may be prescribed by the Board of Regents.

(Added to NRS by 1987, 1233; A 1993, 355)

NRS 396.7974 Deposit of money received on behalf of Institute. Any money received by the Board of Regents on behalf of the Ethics Institute pursuant to NRS 396.7972, may be deposited by the Board of Regents to the credit of the Ethics Institute in any financial institution in the State of Nevada that is federally insured or insured by a private insurer approved pursuant to NRS 678.755. The Board of Regents may act through any authorized agent in depositing or withdrawing any money in such an account.

(Added to NRS by 1987, 1233; A 1999, 1491)

NRS 396.7975 Fiscal policies and procedures.

1. The Board of Regents shall establish fiscal policies and procedures in connection with the operation of contractual or sponsored activities of the Ethics Institute, apart from those fiscal policies and procedures which are applicable to other branches or facilities of the System.

2. None of the other provisions of this chapter or the provisions of title 23 or 31 of NRS or any other statute relating to public officers and employees or public financial administration applies to the receipt, investment, management, disbursement, use, expenditure or accounting for any money or property received by the Board of Regents pursuant to NRS 396.7972.

3. Any money received by or made available to the Board of Regents for the Ethics Institute is subject to all laws relating to public money and expenditures.

(Added to NRS by 1987, 1233; A 1993, 356)

ACQUISITION OF REAL PROPERTY FOR FUTURE DEVELOPMENT AND EXPANSION OF UNIVERSITY OF NEVADA, RENO

NRS 396.7992 Formation of nonprofit corporation: Powers of Board of Regents. The Board of Regents, in the name and on behalf of the System, may:

1. Cause to be formed a nonprofit corporation pursuant to chapter 82 of NRS for the acquisition of real property for the future development and expansion of the University of Nevada, Reno, in Washoe County.

2. Provide the name of the corporation.

3. Specify that it is formed for charitable and educational purposes, subject to the basic object provided therefor in subsection 1.

4. Specify incidental powers which the corporation may exercise, including without limitation:

(a) The power to solicit and receive contributions, gifts, grants, devises and bequests of real and personal property, or any combination thereof;

(b) The powers enumerated in NRS 82.121; and

(c) The power to do all acts and things as may be necessary or convenient or desirable to carry out the objects and purposes for which the corporation is formed.

5. Provide for:

(a) The location and relocation of the principal office of the corporation;

(b) The distribution of its assets, after the liquidation of its obligations, if any, to the System or its Board of Regents, as it may determine, for the benefit of the System upon any dissolution and liquidation of the corporation;

(c) Its perpetual existence;

- (d) Its governing body and appointments and reappointments of members thereto; and
- (e) The adoption and alteration from time to time of bylaws by the corporation.

(Added to NRS by 1968, 2; A 1969, 1439; 1981, 696; 1991, 1314; 1993, 356)

NRS 396.7993 System and Board of Regents not obligated to acquire property from nonprofit corporation.

Neither the System nor the Board of Regents is obligated to acquire from such a nonprofit corporation any property acquired by it, except as is otherwise provided in NRS 396.7998.

(Added to NRS by 1968, 3; A 1969, 1448; 1993, 357)

NRS 396.7994 Status of nonprofit corporation on formation. Such a nonprofit corporation, upon its formation, is:

1. A corporate agency of the System and the Board of Regents;
2. A body corporate and politic; and
3. A political subdivision of this state.

(Added to NRS by 1968, 3; A 1969, 1448; 1993, 357)

NRS 396.7995 Limitations on activities of nonprofit corporation. No part of the activities of such corporation shall consist of carrying on propaganda, or otherwise attempting to influence legislation, or participation or intervention in (including without limitation the publishing or distribution of statements) any political campaign on behalf of any candidate for public office.

(Added to NRS by 1968, 3)

NRS 396.7996 Activities of nonprofit corporation public in nature. The activities of such corporation are hereby determined to be essentially public in nature.

(Added to NRS by 1968, 3)

NRS 396.7997 Income of nonprofit corporation. Any income of the corporation shall not inure to any member thereof or to any other private person, partnership or corporation, excluding any payment of the nonprofit corporation's operation and maintenance expenses, any securities requirements, and any other obligations based on contract or tort.

(Added to NRS by 1968, 3)

NRS 396.7998 Beneficial interest of System and Board of Regents in nonprofit corporation. The System, or the Board of Regents, as it may determine, has the beneficial interest in the corporation while any obligations evidenced by its bonds or other securities remain outstanding. The System or the Board of Regents, as it may determine, may obligate itself to take full legal title to the property of the corporation upon the retirement of its securities.

(Added to NRS by 1968, 3; A 1969, 1448; 1993, 357)

NRS 396.7999 Approval of corporate acts by System. The System, acting by and through the Board of Regents may:

1. Approve the corporation and any securities issued thereby.
2. Do all acts necessary, convenient or desirable, as the Board may determine, to carry out the provisions of this section.

(Added to NRS by 1968, 3; A 1993, 357)

ACQUISITION OF REAL PROPERTY FOR FUTURE DEVELOPMENT AND EXPANSION OF UNIVERSITY OF NEVADA, LAS VEGAS

NRS 396.801 Formation of nonprofit corporation: Powers of Board of Regents. The Board of Regents, in the name and on the behalf of the System, may:

1. Cause to be formed a nonprofit corporation pursuant to chapter 82 of NRS for the acquisition of real property for the future development and expansion of the University of Nevada, Las Vegas, in Clark County.
2. Provide the name of the corporation.
3. Specify that it is formed for charitable and educational purposes, subject to the basic object provided therefor in subsection 1.
4. Specify incidental powers which the corporation may exercise, including without limitation:
 - (a) The power to solicit and receive contributions, gifts, grants, devises and bequests of real and personal property, or any combination thereof;
 - (b) The powers enumerated in NRS 82.121; and
 - (c) The power to do all acts and things as may be necessary or convenient or desirable to carry out the objects and purposes for which the corporation is formed.
5. Provide for:
 - (a) The location and relocation of the principal office of the corporation;
 - (b) The distribution of its assets, after the liquidation of its obligations, if any, to the System or the Board of Regents, as it may determine, for the benefit of the University of Nevada, Las Vegas, upon any dissolution and liquidation of the corporation;
 - (c) Its perpetual existence;
 - (d) Its governing body and appointments and reappointments of members thereto; and
 - (e) The adoption and alteration from time to time of bylaws by the corporation.

(Added to NRS by 1967, 1342; A 1969, 1439; 1981, 696; 1991, 1315; 1993, 357)

NRS 396.802 System and Board of Regents not obligated to acquire property from nonprofit corporation. Neither

the System nor the Board of Regents is obligated to acquire from such a nonprofit corporation any property acquired by it, except as is otherwise provided in NRS 396.807.

(Added to NRS by 1967, 1342; A 1969, 1448; 1993, 358)

NRS 396.803 Status of nonprofit corporation on formation. Such a nonprofit corporation, upon its formation, is:

1. A corporate agency of the System and the Board of Regents;
2. A body corporate and politic; and
3. A political subdivision of this state.

(Added to NRS by 1967, 1342; A 1969, 1448; 1993, 358)

NRS 396.804 Limitations on activities of nonprofit corporation. No part of the activities of such corporation shall consist of carrying on propaganda, or otherwise attempting to influence legislation, or participation or intervention in (including without limitation the publishing or distribution of statements) any political campaign on behalf of any candidate for public office.

(Added to NRS by 1967, 1343)

NRS 396.805 Activities of nonprofit corporation public in nature. The activities of such corporation are hereby determined to be essentially public in nature.

(Added to NRS by 1967, 1343)

NRS 396.806 Income of nonprofit corporation. Any income of the corporation shall not inure to any member thereof or to any other private person, partnership or corporation, excluding any payment of the nonprofit corporation's operation and maintenance expenses, any securities requirements, and any other obligations based on contract or tort.

(Added to NRS by 1967, 1343)

NRS 396.807 Beneficial interest of System and Board of Regents in nonprofit corporation. The System, or the Board of Regents, as it may determine, has the beneficial interest in the corporation while any obligations evidenced by its bonds or other securities remain outstanding and the System or the Board of Regents, as it may determine, may obligate itself to take full legal title to the property of the corporation upon the retirement of its securities.

(Added to NRS by 1967, 1343; A 1969, 1448; 1993, 358)

NRS 396.808 Approval of corporate acts by System. The System, acting by and through the Board of Regents may:

1. Approve the corporation and any securities issued thereby.
2. Do all acts necessary, convenient or desirable, as the Board may determine, to carry out the provisions of this section.

(Added to NRS by 1967, 1343; A 1993, 358)

UNIVERSITY SECURITIES LAW

NRS 396.809 Short title. NRS 396.809 to 396.885, inclusive, may be known as the University Securities Law.

(Added to NRS by 1967, 2; A 2001, 2650)

NRS 396.810 Purpose; supplemental nature. It is the purpose of the University Securities Law to provide a procedure for financing any projects otherwise authorized by law and for the issuance of securities to evidence or reevidence obligations incurred in connection with any projects. The University Securities Law is supplemental in nature, and nothing herein contained shall be construed as authorizing any particular project nor as authorizing the incurrence of any obligations to defray the cost of any project.

(Added to NRS by 1967, 3)

NRS 396.811 Definitions. The terms in NRS 396.812 to 396.838, inclusive, defined for all purposes of the University Securities Law and of any act amendatory thereof, supplemental thereto or relating thereto, and of any instrument or document appertaining thereto, except where the context by clear implication otherwise requires, have the meanings herein specified.

(Added to NRS by 1967, 3)

NRS 396.812 "Acquisition" and "acquire" defined. "Acquisition" or "acquire" includes the opening, laying out, establishment, purchase, construction, securing, installation, reconstruction, lease, gift, grant from the Federal Government, this state, any body corporate and politic therein, or any person, the endowment, bequest, devise, transfer, assignment, option to purchase, other contract or other acquirement, or any combination thereof, of any properties pertaining to a project, or an interest therein.

(Added to NRS by 1967, 3)

NRS 396.813 "Board" defined. "Board" means the Board of Regents of the University of Nevada, constituting the governing body of the State University and a body corporate and politic by the name of the "Board of Regents of the University of Nevada," is a political subdivision of this state, and means any successor governing body of the University.

(Added to NRS by 1967, 3; A 1969, 1440)

NRS 396.814 "Chair" and "Chair of the Board" defined. "Chair," or "Chair of the Board," or any phrase of similar import, means the de facto or de jure presiding officer of the Board, or his or her successor in functions, if any.

(Added to NRS by 1967, 3)

NRS 396.8145 “Chancellor of the University” defined. “Chancellor of the University” means the de facto or de jure presiding officer of the System and its Chief Administrative Officer, now designated as the Chancellor of the System, and formerly designated as the Chancellor of the University of Nevada System and the President of the University of Nevada, or his or her successor in functions, if any. “Chancellor of the University” does not mean the chief administrative officer of either the branch of the University in Washoe County or the branch of the University in Clark County, now designated respectively as the “President of the University of Nevada, Reno” and the “President of the University of Nevada, Las Vegas.” The latter officer was formerly designated as the “Chancellor of Nevada Southern University.” Both of these officers are responsible and subordinate to the Chancellor of the System.

(Added to NRS by 1971, 2126; A 1993, 358)

NRS 396.815 “Commercial bank” defined. “Commercial bank” means:

1. A state or national bank or trust company that is a member of the Federal Deposit Insurance Corporation, including, without limitation, a branch of the Federal Reserve Bank.

2. A credit union whose deposits are insured by the National Credit Union Share Insurance Fund or by a private insurer approved pursuant to NRS 678.755.

(Added to NRS by 1967, 3; A 1999, 1491)

NRS 396.816 “Cost of any project” defined. “Cost of any project,” or any phrase of similar import, means all or any part designated by the Board of the cost of any project, or interest therein, which cost at the option of the Board may include all or any part of the incidental costs pertaining to the project, including, without limitation:

1. Preliminary expenses advanced by the University or the Board from funds available for use therefor, or advanced by this state, the Federal Government, or from any other source, with the approval of the Board, or any combination thereof;

2. The costs in the making of surveys, audits, preliminary plans, other plans, specifications, estimates of costs and other preliminaries;

3. The costs of premiums on builders’ risk insurance and performance bonds, or a reasonably allocable share thereof;

4. The costs of appraising, printing, estimates, advice, services of engineers, architects, financial consultants, attorneys at law, clerical help, or other agents or employees;

5. The costs of making, publishing, posting, mailing and otherwise giving any notice in connection with a project, the filing or recordation of instruments, the taking of options, the issuance of bonds and other securities, and bank fees and expenses;

6. The costs of contingencies;

7. The costs of the capitalization with proceeds of bonds or other securities issued hereunder of any operation and maintenance expenses appertaining to any facilities to be acquired as a project and of any interest on bonds or other securities for any period not exceeding the period estimated by the Board to effect the project plus 1 year, of any discount on bonds or other securities, and of any reserves for the payment of the principal of and interest on the bonds or other securities, of any replacement expenses, and of any other cost of issuance of the bonds or other securities;

8. The costs of amending any resolution or other instrument authorizing the issuance of or otherwise appertaining to outstanding bonds or other securities of the University or the Board;

9. The costs of funding any medium-term obligations, construction loans and other temporary loans of not exceeding 5 years appertaining to a project and of the incidental expenses incurred in connection with such loans; and

10. All other expenses necessary or desirable and appertaining to a project, as estimated or otherwise ascertained by the Board.

(Added to NRS by 1967, 3; A 1975, 872; 1997, 558)

NRS 396.8163 “Disposal” and “dispose” defined. “Disposal” or “dispose” means the sale, destruction, razing, loan, lease, grant, transfer, assignment, option to sell, other contract, or other disposition, or any combination thereof, of facilities, other property, or any interest therein.

(Added to NRS by 1971, 2126)

NRS 396.8167 “Equip” and “equipment” defined. “Equip” or “equipment” means the furnishing of all related or appurtenant machinery, furnishings, apparatus, paraphernalia and other gear, or any combination thereof, pertaining to any project or other property, or any interest therein.

(Added to NRS by 1971, 2126)

NRS 396.817 “Facilities” defined. “Facilities” means buildings, structures or other income-producing facilities from the operation of which or in connection with which pledged revenues for the payment of any bonds or other securities issued hereunder are derived, including without limitation any facilities to be acquired with the proceeds of the bonds or securities issued hereunder.

(Added to NRS by 1967, 4)

NRS 396.818 “Federal Government” defined. “Federal Government” means the United States, or any agency, instrumentality or corporation thereof.

(Added to NRS by 1967, 4)

NRS 396.819 “Federal securities” defined. “Federal securities” means bills, certificates of indebtedness, notes, bonds or similar securities which are direct obligations of, or the principal and interest of which securities are unconditionally

guaranteed by, the United States.

(Added to NRS by 1967, 4)

NRS 396.820 “Gross revenues” and “gross pledged revenues” defined. “Gross revenues” or “gross pledged revenues” means all pledged revenues received by the University or the Board, or both the University and the Board, and pledged for the payment of any securities issued hereunder.

(Added to NRS by 1967, 4)

NRS 396.821 “Hereby,” “herein,” “hereinabove,” “hereinafter,” “hereinbefore,” “hereof,” “hereto,” “hereunder,” “heretofore” and “hereafter” defined. “Hereby,” “herein,” “hereinabove,” “hereinafter,” “hereinbefore,” “hereof,” “hereto,” “hereunder,” and any similar term refer to the University Securities Law and not solely to the particular portion thereof in which such word is used; “heretofore” means before the adoption of the University Securities Law; and “hereafter” means after the adoption of the University Securities Law.

(Added to NRS by 1967, 4)

NRS 396.822 “Holder” defined. “Holder,” or any similar term, when used in conjunction with any coupons, any bonds or any other securities issued hereunder, means the person in possession and the apparent owner of the designated item if such obligation is registered for payment to bearer or is not registered, or the term means the registered owner of the designated item if it is at the time registered for payment otherwise than to bearer.

(Added to NRS by 1967, 4)

NRS 396.823 “Improvement” and “improve” defined. “Improvement” or “improve” includes the extension, widening, lengthening, betterment, alteration, reconstruction or other major improvement, or any combination thereof, of any properties pertaining to a project, or an interest therein, but does not mean renovation, reconditioning, patching, general maintenance or other minor repair.

(Added to NRS by 1967, 4)

NRS 396.824 “Net revenues” and “net pledged revenues” defined. “Net revenues” or “net pledged revenues” means “gross revenues,” after the deduction of operation and maintenance expenses.

(Added to NRS by 1967, 5)

NRS 396.825 “Operation and maintenance expenses” defined. “Operation and maintenance expenses,” or any phrase of similar import, means all reasonable and necessary current expenses of the University or the Board, or of both the University and the Board, as the case may be, paid or accrued, of operating, maintaining and repairing the facilities pertaining to the pledged revenues for the payment of the bonds or other securities issued hereunder; and the term may include at the Board’s option (except as limited by contract or otherwise limited by law), without limiting the generality of the foregoing:

1. Legal and overhead expenses of the various university departments directly related and reasonably allocable to the administration of the facilities;
2. Fidelity bond and insurance premiums appertaining to the facilities, or a reasonably allocable share of a premium of any blanket bond or policy pertaining to the facilities;
3. The reasonable charges of any paying agent, or commercial bank, trust bank, or other depository bank appertaining to any securities issued by the University or by the Board or appertaining to any facilities;
4. Contractual services, professional services, salaries, administrative expenses, and costs of labor appertaining to facilities;
5. The costs incurred by the Board in the collection of all or any part of the pledged revenues, including without limitation revenues appertaining to any facilities;
6. Any costs of utility services furnished to the facilities by the University or otherwise; and
7. Reasonable allowances for the depreciation of furniture and equipment for the facilities.

(Added to NRS by 1967, 5)

NRS 396.826 “Operation and maintenance expenses”: Exclusions from definition. The term “operation and maintenance expenses” does not include:

1. Any allowance for depreciation, except as otherwise provided in subsection 7 of NRS 396.825;
2. Any costs of reconstruction, improvements, extensions or betterments;
3. Any accumulation of reserves for capital replacements;
4. Any reserves for operation, maintenance or repair of any facilities;
5. Any allowance for the redemption of any bond or other security evidencing a loan or other obligation or the payment of any interest thereon;
6. Any liabilities incurred in the acquisition or improvement of any properties comprising any project or any existing facilities, or any combination thereof; and
7. Any other ground of legal liability not based on contract.

(Added to NRS by 1967, 5)

NRS 396.828 “Pledged revenues” defined. “Pledged revenues” means the money pledged wholly or in part for the payment of bonds or other securities issued hereunder and, subject to any existing pledges or other contractual limitations, may include at the Board’s discretion, all loans, grants or contributions to the University or the Board, if any, conditional or unconditional, from the Federal Government, the State, any public body or other donor for the payment of the principal of, the interest on and any prior redemption premiums due in connection with any securities issued hereunder, or any

combination thereof, and may include income or money derived from one, all or any combination of the following sources of revenue, including, without limitation, student fees and other fees, rates and charges appertaining thereto:

1. Dormitories, apartments and other facilities for housing;
 2. Cafeterias, dining halls and other facilities for food service;
 3. Student union and other facilities for student activities;
 4. Store or other facilities for the sale or lease of books, stationery, student supplies, faculty supplies, office supplies and like material;
 5. Stadium, arena, theater, field house and other athletic or recreational facilities for use in part by spectators or otherwise;
 6. Land and any structures, other facilities, or other improvements thereon used or available for use for the parking of vehicles used for the transportation by land or air of persons to or from such land and any improvements thereon;
 7. Properties for providing heat or any other utility furnished by the University or the Board to any facilities on its campus;
 8. Investments and reinvestments of unrestricted endowments;
 9. Any revenue derived from or otherwise pertaining to the imposition and collection of fees for dental services provided at a facility of the University; and
 10. Facilities of the University or the Board, including, without limitation, money from:
 - (a) Grants by any person or the Federal Government;
 - (b) Contracts and leases with any person or governmental entity;
 - (c) The operation of any buildings, structures or other facilities of the University or the Board;
 - (d) The investment of any money of the Desert Research Institute; and
 - (e) Any other revenue received by the Desert Research Institute, or by the Board on behalf of the Desert Research Institute pursuant to NRS 396.795 to 396.7956, inclusive.
- (Added to NRS by 1967, 5; A 1971, 2120; 1987, 1125; 1999, 2646; 2003, 1617)

NRS 396.829 “Pledged revenues”: Exclusions from definition. The term “pledged revenues” does not include any of the following:

1. The proceeds of any tuition charges and registration fees;
2. The principal of any endowments, restricted or unrestricted;
3. The proceeds of any levy of any general (ad valorem) property taxes; and
4. The proceeds of any grants, appropriations or other donations from the Federal Government, this state or any other donor except as otherwise provided in NRS 396.828 and any other statute which may authorize the pledge of particular revenues.

(Added to NRS by 1967, 6; A 1971, 2121; 1979, 359; 2003, 1618)

NRS 396.831 “Project” defined. “Project” means any undertaking or undertakings which the Board is authorized by law (other than NRS 396.809 to 396.885, inclusive) to complete in its name or in the name of the University, the cost of which the Board is authorized by law (other than NRS 396.809 to 396.885, inclusive) to defray by the issuance of bonds or other securities of the Board or the University as provided hereunder.

(Added to NRS by 1967, 6)

NRS 396.832 “Secretary of the Board” defined. “Secretary of the Board” means the de facto or de jure Secretary of the Board of Regents of the University of Nevada, or his or her successor in functions, if any.

(Added to NRS by 1967, 6)

NRS 396.833 “Securities” defined. “Securities” means notes, warrants, bonds, temporary bonds and interim debentures authorized to be issued hereunder in the name and on the behalf of the University or of the Board for the benefit of the University.

(Added to NRS by 1967, 6)

NRS 396.834 “State” defined. “State” means the State of Nevada, or any board, department or other agency or instrumentality thereof, in the United States; and where the context so indicates, “State” means the geographical area comprising the State of Nevada.

(Added to NRS by 1967, 6; A 1971, 2121)

NRS 396.835 “Treasurer of the University” defined. “Treasurer of the University” means the de facto or de jure Treasurer of the Board and ex officio Treasurer of the System, or his or her successor in functions, if any.

(Added to NRS by 1967, 6; A 1969, 1440; 1993, 358)

NRS 396.836 “Trust bank” defined. “Trust bank” means:

1. A commercial bank that is authorized to exercise and is exercising trust powers.
2. A branch of the Federal Reserve Bank.
3. A credit union whose deposits are insured by the National Credit Union Share Insurance Fund or by a private insurer approved pursuant to NRS 678.755 that is authorized to exercise and is exercising trust powers.

(Added to NRS by 1967, 6; A 1999, 1491)

NRS 396.837 “United States” defined. “United States” means the United States of America; and where the context so indicates, “United States” means the geographical area comprising the United States of America.

(Added to NRS by 1967, 7; A 1971, 2121)

NRS 396.838 “University” defined. “University” means the Nevada System of Higher Education, the State University constituting a body corporate and politic, a political subdivision of this State, with the seat located in the City of Reno, in the County of Washoe and State of Nevada.

(Added to NRS by 1967, 7; A 1969, 1440; 1993, 358; 2005, 362)

NRS 396.839 Bonds and other securities are special obligations payable solely out of net pledged revenues.

1. Any bonds or other securities issued hereunder, together with any interest accruing thereon and any prior redemption premiums due in connection therewith, shall be payable and collectible solely out of net pledged revenues; the holder or holders thereof may not look to any general or other fund for such payment of such securities, except the net revenues pledged therefor; the securities shall not constitute an indebtedness or a debt within the meaning of any constitutional or statutory provision or limitation, if any such limitation appertains thereto; the bonds or other securities shall not be considered or held to be general obligations of the University or the Board but shall constitute the special obligations of either the University or the Board; and the Board shall not pledge the full faith and credit for their payment of either the University or the Board.

2. None of the covenants, agreements, representations and warranties contained in any resolution authorizing the issuance of bonds or other securities hereunder or in any other instrument appertaining thereto, in the absence of any breach thereof, shall ever impose or shall be construed as imposing any liability, obligation or charge against the University or the Board (except the special funds pledged therefor) or against the general credit of either the University or Board, payable out of the general fund of either, or out of any funds derived from taxation.

(Added to NRS by 1967, 7)

NRS 396.8395 Revenues which may be included as pledged revenues. Subject to any existing pledges or other contractual limitations and to the provisions of NRS 396.810:

1. The Board may include, without limitation, as pledged revenues for the payment of bonds or other securities issued hereunder:

(a) The gross revenues derived from the fees designated as the capital improvement fee, the student union building fee, the student center building fee, and the student union capital improvement fee, or words of similar import, except for the words pertaining to any such fee designating the campus or campuses of the System to which the pledged fee or fees pertain, or any combination thereof; and

(b) The gross revenues derived from the fee designated as the general fund fee, except for the words pertaining thereto designating the campus or campuses of the system to which the pledged fee pertains, but subject to the limitation stated in subsection 5 of NRS 396.840.

2. The Board may also include, without limitation, as pledged revenues for the payment of bonds or other securities issued hereunder, regardless of the location of the campus or campuses on which the project or projects are to be done for which the securities are authorized, the pledged revenues designated in subsection 1 pertaining to:

(a) One, all or any combination of the campuses relating to the community colleges if the project or projects relate thereto and to one or more campuses thereof; or

(b) Either or both the University of Nevada, Reno, and the University of Nevada, Las Vegas, if the project or projects relate to either of those campuses, the Desert Research Institute or any combination thereof.

(Added to NRS by 1979, 359; A 1987, 1126; 1993, 359)

NRS 396.840 Proposed securities: Sufficiency of revenues; earnings test; estimates and adjustments.

1. Before any securities are actually issued payable from any net pledged revenues, except for any securities issued solely for the purpose of funding or refunding or both funding and refunding outstanding securities, any such revenues for the next preceding 12 months, for the next preceding calendar year, or for the next preceding fiscal year, as defined and otherwise determined by the Board, shall be sufficient to pay an amount representing 110 percent of the combined maximum annual principal and interest requirements to be paid during such 12 months, calendar year, fiscal year or bond year, as defined and otherwise determined by the Board, of any outstanding securities payable from and constituting a lien upon such net pledged revenues and the securities proposed to be issued (excluding any reserves therefor), except as otherwise expressly provided in this section.

2. In any determination of whether or not any proposed securities meet the earnings test limiting their issuance as provided in subsection 1 of this section:

(a) There shall be deducted from or added to any gross pledged revenues any estimated decrease or increase in such revenues resulting from any decreased or increased or additional fees, rates or charges fixed by the Board, whether or not appertaining to any additional facilities for which the proposed securities are authorized to be issued; and

(b) There shall be deducted from or added to any operation and maintenance expenses any estimated decrease or increase in such expenses, whether or not resulting from any additional facilities for which the proposed securities are authorized to be issued.

3. The respective annual principal and interest requirements (including as an interest requirement the amount of any prior redemption premiums due on any prior redemption date as of which any outstanding securities have been called or have been ordered by the Board to be called for prior redemption) shall be reduced to the extent such requirements are scheduled to be paid with any moneys held in trust or escrow for that purpose in any trust bank or trust banks within or without or both within and without the State, including without limitation the known minimum yield from any investment or reinvestment of any such moneys in federal securities.

4. The estimates and adjustments provided in subsections 2 and 3 of this section and the calculations required by subsection 1 of this section shall be made by the Treasurer of the University; and his or her estimates, adjustments and

determination of whether the earnings test provided in subsection 1 of this section has been met shall be conclusively presumed to be accurate. Nothing contained in this section shall be construed to prohibit the issuance of securities merely because there were no pledged revenues nor operation and maintenance expenses, in the absence of such adjustments, in the next preceding 12 months, calendar year, or fiscal year, as the case may be.

5. There must be excluded from the calculations required by subsections 1 to 4, inclusive, the proceeds of any general fund fee or fees to be pledged to the payment of the securities (other than any securities issued solely for the purpose of funding or refunding or both funding and refunding outstanding securities). The proceeds of a general fund fee or fees must not be pledged to the payment of any such securities (other than any such funding or refunding or both funding and refunding securities) unless the remaining pledged revenues do not contravene the limitations imposed by those subsections.

6. Nothing herein contained prevents the Board from providing an earnings test in any resolution authorizing the issuance of securities or in any other proceedings appertaining thereto which test limits the issuance of any additional securities.

(Added to NRS by 1967, 7; A 1979, 360)

NRS 396.841 Payment of securities not to be secured by encumbrance, mortgage or pledge of property; exception.

The payment of securities shall not be secured by an encumbrance, mortgage or other pledge of property of the University or the Board, except for the pledged revenues of the University or the Board. No property of either the University or the Board, subject to such exception, shall be liable to be forfeited or taken in payment of securities.

(Added to NRS by 1967, 8)

NRS 396.842 Recourse against individual Regents: Acceptance of securities constitutes waiver and release. No recourse shall be had for the payment of the principal of, any interest on, and any prior redemption premiums due in connection with any bonds or other securities of the University or the Board or for any claim based thereon or otherwise upon the resolution authorizing their issuance or other instrument appertaining thereto, against any individual Regent of the Board, past, present or future, either directly or indirectly through the Board or the University, or otherwise, whether by virtue of any Constitution, statute or rule of law, or by the enforcement of any penalty or otherwise, all such liability, if any, being by the acceptance of the securities and as a part of the consideration of their issuance specially waived and released.

(Added to NRS by 1967, 8; A 1975, 872)

NRS 396.843 Bonds and other securities not obligations of or enforceable against State; restrictions on pledges, assignments and encumbrances.

1. Any bonds or other securities issued hereunder shall not be considered to be obligations general, special or otherwise of the State, nor to be securities or debt of the State, and shall not be enforceable against the State.

2. Nothing in the University Securities Law shall be construed to authorize the University or the Board in any way to obligate the State (except as herein otherwise expressly provided in NRS 396.844), or to pledge, assign or encumber in any way, or to permit the pledging, assigning or encumbering in any way, of any tuition charges and registration fees paid to the University or the Board, of the proceeds of any general (ad valorem) property taxes derived directly or indirectly by the University or the Board for the benefit of the University, of any income or gain derived from the investment and reinvestment of moneys accounted for in either the Irreducible University Fund or the Contingent University Fund, of grants, appropriations or other donations made by the Federal Government, the State Legislature or any other donor (except for the interest or other gain derived from the investment and reinvestment of the principal of unrestricted endowments, as permitted by subsection 8 of NRS 396.828), and of any revenues derived from the operation of or otherwise appertaining to any buildings, structures or other facilities of the Board or University (except for those classifications thereof designated in subsections 1 to 6, inclusive, of NRS 396.828).

(Added to NRS by 1967, 8)

NRS 396.844 Faith of State pledged against repeal, amendment or modification of University Securities Law.

1. The faith of the State is hereby pledged that the University Securities Law, any law supplemental or otherwise appertaining thereto, and any other act concerning the bonds and other securities of the Board or the University or the pledged revenues, or both such securities and such revenues, shall not be repealed nor amended or otherwise directly or indirectly modified in such a manner as to impair adversely any outstanding securities of the University or the Board, until all such securities payable from the pledged revenues have been discharged in full or provision has been fully made therefor, including without limitation the known minimum yield from the investment or reinvestment of moneys pledged therefor in federal securities.

2. The State may at any time provide by act that no further obligations appertaining to any pledged revenues or any part thereof shall be incurred thereafter.

(Added to NRS by 1967, 9)

NRS 396.845 Power of University or Regents to become obligated and issue securities for project; other powers.

1. Where any project is otherwise authorized by law and where the University or the Board is otherwise authorized by law to issue its securities to defray the cost of the project, at any time or from time to time the University or the Board may borrow money or otherwise become obligated for the project and may evidence any such obligation by the issuance of the University's or the Board's securities.

2. In connection with any project so authorized, the University or the Board, except as herein otherwise provided, may:

- (a) Have a corporate seal and alter the same at pleasure;
- (b) Sue and be sued;
- (c) Acquire and hold real or personal property, or rights or interests therein, and water rights;
- (d) Dispose of unnecessary or obsolete property, or rights or interests therein;

- (e) Make contracts and execute all instruments necessary or convenient, as determined by the Board;
 - (f) Acquire by contract or contracts or by its own agents and employees, or otherwise acquire any properties as any project or projects so authorized, and operate and maintain such properties; and
 - (g) Accept grants of money or materials or property of any kind from the Federal Government, the State, any agency or political subdivision thereof, or any person, upon such terms and conditions as the Federal Government, the State, or such agency or political subdivision, or person may impose.
- (Added to NRS by 1967, 9)

NRS 396.8455 Board of Regents authorized to delegate its authority to sign contract for purchase of securities or to accept bid for securities; certain terms of securities must be approved by Board of Regents.

1. The Board may, before any sale of securities, whether by competitive bid or negotiated sale, delegate to the Chancellor of the University or the Vice Chancellor for Finance of the University the authority to sign a contract for the purchase of the securities or to accept a binding bid for the securities subject to the requirements specified by the Board concerning:

- (a) The rate of interest on the securities;
- (b) The dates on which and the prices at which the securities may be called for redemption before maturity;
- (c) The price at which the securities will be sold; and
- (d) The principal amount of the securities and the amount of principal maturing in any particular year.

2. All terms of the securities other than:

- (a) The rate of interest;
- (b) The dates and prices for the redemption of the securities;
- (c) The price for the sale of the securities;
- (d) The principal amount of the securities; and
- (e) The requirements for the principal maturing in particular years,

→ must be approved by the Board before the securities are delivered.

3. The final rate of interest, dates and prices of redemption, price for the sale of the securities, principal amount and the requirements for the principal amount maturing in particular years are not required to be approved by the Board if each of those terms complies with the requirements specified by the Board before the contract for the purchase of the securities is signed or the bid for the securities is accepted.

(Added to NRS by 2001, 2647)

NRS 396.846 Types of securities which may be issued; series. The University or the Board may issue in one series or more, without their being authorized at any election, in anticipation of net pledged revenues, and constituting special obligations of the University or the Board, any one or more or all of the following types of securities:

1. Notes, evidencing any amount borrowed by the University or the Board;
2. Warrants, evidencing the amount due to any person for any services, or supplies, equipment or other materials furnished to the University or the Board for the benefit of the University and appertaining to an authorized project;
3. Bonds, evidencing any amount borrowed by the University or the Board and constituting long-term financing;
4. Temporary bonds, pending the preparation of and exchangeable for definitive bonds of like character and in principal amount when prepared and issued in compliance with the conditions and limitations herein provided; and
5. Interim debentures, evidencing any emergency loans, construction loans, and other temporary loans of not exceeding 3 years, in supplementation of long-term financing and the issuance of bonds, as provided in NRS 396.868 to 396.871, inclusive.

(Added to NRS by 1967, 10)

NRS 396.847 Notes and warrants: Maturity; extension or funding. Notes and warrants may mature at such time or times not exceeding 1 year from the date or the respective dates of their issuance as the Board may determine. They shall not be extended or funded except by the issuance of bonds or interim debentures in compliance with NRS 396.868 and other provisions herein supplemental thereto.

(Added to NRS by 1967, 10)

NRS 396.848 Temporary bonds: Conditions, terms and provisions; holder's rights and remedies. Each temporary bond shall set forth substantially the same conditions, terms and provisions as the definitive bond for which it is exchanged. Each holder of a temporary bond shall have all the rights and remedies which he or she would have as a holder of the definitive bond for which the temporary bond is to be exchanged.

(Added to NRS by 1967, 10)

NRS 396.849 Resolution authorizing issuance of securities: Description of purposes. The resolution authorizing the issuance of any securities hereunder shall describe the purpose or purposes for which they are issued at least in general terms and may describe any purpose in detail.

(Added to NRS by 1967, 10)

NRS 396.8495 Resolution authorizing issuance of securities may fix rate of interest; Board of Regents authorized to enter into agreement for assurance of payment in connection with securities; exemption from limitation on rates of interest.

1. The resolution authorizing the issuance of any securities or any trust indenture or other instrument appertaining thereto may fix a rate or rates of interest or provide for the determination of the rate or rates from time to time by a designated agent according to the procedure specified in that resolution or other instrument. The rate so determined must approximate the rates then being paid for other securities which contain similar provisions and have an equivalent rating. The Board may contract

with or select any person to make that determination.

2. The Board may enter into an agreement with a third party for an assurance of payment of the principal of, the interest on, or premiums, if any, due in connection with any securities issued by the Board. The obligation of the Board to reimburse that third party for any advances made pursuant to that agreement may be provided in that agreement, recited in those securities or evidenced by another instrument as designated in the resolution authorizing the issuance of those securities or any other instrument appertaining thereto. The Board may assign its rights under that agreement.

3. In fixing the rate or rates of interest for securities pursuant to subsection 1 or the rate or rates of interest imposed on the Board for reimbursement of any advances made under an agreement pursuant to subsection 2, the Board is not subject to any limitations on rates of interest provided by statute, including, without limitation, NRS 396.852. The resolution fixing that rate or rates of interest must contain the findings of the Board that the procedure specified therein for determining that rate or rates is reasonable under existing or anticipated conditions in the market and is necessary and advisable for marketing the securities. These findings are conclusive. This section does not prohibit the Board from fixing a maximum rate of interest.

(Added to NRS by 2001, 2647)

NRS 396.850 Details of securities provided by resolution. Except as herein otherwise provided and as otherwise provided in any other act the provisions of which are relevant by express reference herein thereto, any securities issued hereunder must be:

1. In such form;
2. Issued in such manner, at, above or below par at such a discount not exceeding 9 percent of the principal amount of the securities, at public or private sale, and at a price which will result in an effective interest rate which does not exceed by more than 3 percent the Index of Revenue Bonds which was most recently published before the bids are received or a negotiated offer is accepted; and
3. Issued with such recitals, terms, covenants, conditions and other provisions,
 - as may be provided by the Board in a resolution authorizing their issuance and in any indenture or other proceedings appertaining thereto.

(Added to NRS by 1967, 10; A 1969, 1298; 1971, 2120; 1975, 873; 1981, 1416; 1983, 584)

NRS 396.851 Recital in securities conclusive evidence of validity and regularity of issuance. A resolution providing for the issuance of bonds or other securities hereunder or an indenture or other proceedings appertaining thereto may provide that the securities contain a recital that they are issued pursuant to the University Securities Law, which recital shall be conclusive evidence of their validity and the regularity of their issuance.

(Added to NRS by 1967, 11)

NRS 396.852 Denomination, negotiability and maturity of securities; interest and interest coupons.

1. Except as otherwise provided in this section and NRS 99.067, as the Board may determine, any bonds and other securities issued hereunder must:

- (a) Be of a convenient denomination or denominations;
- (b) Be fully negotiable within the meaning of and for all the purposes of the Uniform Commercial Code—Investment Securities;
- (c) Mature at such time or serially at such times in regular numerical order at annual or other designated intervals in amounts designated and fixed by the Board, but not exceeding 50 years from their date;
- (d) Bear interest at a rate or rates which do not exceed by more than 3 percent the Index of Revenue Bonds which was most recently published before the bids are received or a negotiated offer is accepted, the interest on each bond to be payable annually, semiannually, or at other designated intervals, but the first interest payment date may be for interest accruing for any other period;
- (e) Be made payable in lawful money of the United States, at the office of the Treasurer of the University or any commercial bank or commercial banks within or without or both within and without the State as may be provided by the Board; and
- (f) Be printed at such place within or without this state, as the Board may determine.

2. Any bonds issued hereunder must have one or two sets of interest coupons, bearing the number of the bond to which they are respectively attached, numbered consecutively in regular numerical order, and attached in such a manner that they can be removed upon the payment of the installments of interest without injury to the bonds, except as herein otherwise provided.

(Added to NRS by 1967, 11; A 1969, 1298; 1971, 2121; 1975, 873; 1981, 1416; 1983, 584; 2009, 2661)

NRS 396.853 Execution, signing, countersigning and authentication of securities and coupons; facsimile signature.

1. Bonds and other securities issued hereunder shall be executed in the name of the University or the Board, shall be signed by the Chair of the Board, shall be attested by the Secretary of the Board, shall be countersigned by the Chancellor of the University, and shall be countersigned by the Treasurer of the University; and the bonds or other securities shall be authenticated by the official seal of the University or the Board. Any coupons shall be signed by the Treasurer of the University. Facsimile signatures may be used on any coupons.

2. Any bonds or other securities, including without limitation any certificates endorsed thereon, may be executed as provided in the Uniform Facsimile Signatures of Public Officials Act, cited as chapter 351 of NRS. (A compliance therewith is not a condition precedent to the execution of any coupon with a facsimile signature.)

3. The bonds, any coupons appertaining thereto, and other securities, bearing the signatures of the officers in office at the time of the signing thereof, shall be the valid and binding obligations of the University or the Board, as the case may be, notwithstanding that before the delivery thereof and payment therefor, any or all of the persons whose signatures appear thereon have ceased to fill their respective offices.

4. Any officer authorized or permitted to sign any bonds, any coupons, or any other securities, at the time of their execution and of a signature certificate appertaining thereto, may adopt as and for his or her own facsimile signature the facsimile signature of his or her predecessor in office in the event that such facsimile signature appears upon the bonds, coupons and other securities appertaining thereto, or any combination thereof.

(Added to NRS by 1967, 11; A 1969, 1441)

NRS 396.854 Redemption before maturity. The Board may provide for the redemption of any or all of the bonds or other securities before maturity, in such order, by lot or otherwise, at such time or times, without or with the payment of such premium or premiums not exceeding 9 percent of the principal amount of each bond or other security so redeemed, and otherwise upon such terms as may be provided by the Board in the resolution authorizing the issuance of the securities or other instrument appertaining thereto.

(Added to NRS by 1967, 12; A 1971, 2122; 1975, 873; 1981, 1416)

NRS 396.855 Repurchase of bonds and other securities. Any bonds or other securities may be repurchased by the Board out of any funds available for such purpose at a price of not more than the principal amount thereof and accrued interest, plus the amount of the premium, if any, which might on the next prior redemption date of such securities be paid to the holders thereof if such securities should be called for redemption on such date pursuant to their terms, and all securities so repurchased shall be cancelled; but if the securities may not be called for prior redemption at the University's or the Board's option within 1 year from the date of their purchase, they may be repurchased without limitation as to price.

(Added to NRS by 1967, 12)

NRS 396.856 Use of money received from issuance of securities. All moneys received from the issuance of any securities herein authorized shall be used solely for the purpose or purposes for which issued and to defray the cost of the project thereby delineated. Any accrued interest and any premium shall be applied to the cost of the project or to the payment of the interest on or the principal of the securities, or both interest and principal, or shall be deposited in a reserve therefor, or any combination thereof, as the Board may determine.

(Added to NRS by 1967, 12)

NRS 396.857 Disposition of unexpended balance after completion of project. Any unexpended balance of the proceeds of such securities remaining after the completion of the acquisition or improvement of properties pertaining to the project or otherwise the completion of the purpose or purposes for which such securities were issued must be credited immediately to the Special Capital Construction Fund for Higher Education, or any other fund or account of the University or the Board for the construction therefor of capital improvements, or the fund or account created for the payment of the interest on or the principal of the securities, or both principal and interest, and must be used therefor, subject to the provisions as to the times and methods for their payment as stated in the securities and the proceedings authorizing or otherwise appertaining to their issuance, or so paid into a reserve therefor, or any combination thereof, as the Board may determine.

(Added to NRS by 1967, 12; A 1979, 361; 1983, 134)

NRS 396.858 Validity of securities not dependent on proceedings relating to project or completion of purpose; purchasers not responsible for application of proceeds.

1. The validity of any securities shall not be dependent on nor affected by the validity or regularity of any proceedings relating to a project or the proper completion of any purpose for which the securities are issued.

2. The purchaser or purchasers of the securities shall in no manner be responsible for the application of the proceeds of the securities by the University or the Board or any officers, agents and employees of the Board or the University, or of both.

(Added to NRS by 1967, 12)

NRS 396.859 Special funds and accounts: Creation; purposes. The Board in any resolution authorizing the issuance of bonds or other securities hereunder or in any instrument or other proceedings appertaining thereto may create special funds and accounts for the payment of the cost of a project, of operation and maintenance expenses, of the securities, including the accumulation and maintenance of reserves therefor, of improvements, including the accumulation and maintenance of reserves therefor, and of other obligations appertaining to the securities, any project or otherwise in connection with the University.

(Added to NRS by 1967, 12)

NRS 396.860 Employment of legal and other expert services; contracts for sale and other purposes.

1. The Board on its behalf or on the University's behalf may employ legal, fiscal, engineering, and other expert services in connection with any project or otherwise appertaining to the University and the authorization, sale and issuance of bonds and other securities hereunder.

2. The Board on its behalf or on the University's behalf is authorized to enter into any contracts or arrangements, not inconsistent with the provisions hereof, with respect to the sale of bonds or other securities hereunder, the employment of bond counsel, and other matters as the Board may determine to be necessary or desirable in accomplishing the purposes hereof.

(Added to NRS by 1967, 13)

NRS 396.861 Investment and reinvestment of revenues and proceeds of securities in federal securities.

1. The Board may cause to be invested and reinvested any pledged revenues and any proceeds of bonds or other securities issued hereunder in federal securities and may cause such revenues, proceeds of securities and federal securities to be deposited in any trust bank or trust banks within or without or both within and without this state and secured in such

manner and subject to such terms and conditions as the Board may determine, with or without the payment of any interest on such deposit, including without limitation time deposits evidenced by certificates of deposit.

2. Any federal securities and any such certificates of deposit thus held may, from time to time, be sold and the proceeds may be so reinvested or redeposited as provided in this section.

3. Sales and redemptions of any federal securities and such certificates of deposit thus held shall, from time to time, be made in season so that the proceeds may be applied to the purposes for which the money with which the federal securities and certificates of deposit were originally acquired was placed in the treasury of the University or the Board.

4. Any gain from any such investments or reinvestments may be credited to any fund or account pledged for the payment of any securities issued hereunder, including any reserve therefor, or any other fund or account appertaining to a project or otherwise appertaining to the University.

5. It is lawful for any commercial bank incorporated under the laws of this state which may act as depository of the proceeds of any securities issued hereunder, any federal securities owned by the University or the Board, any pledged revenues, and any moneys otherwise appertaining to the University to furnish such indemnifying bonds or to pledge such federal securities or such other securities as may be required by the Board.

(Added to NRS by 1967, 13)

NRS 396.8615 Investment and reinvestment of pledged revenues and proceeds of securities issued in investment contract collateralized with securities issued by Federal Government. In addition to the investments permitted by NRS 396.861, the Board, subject to any contractual limitations from time to time imposed upon the University by any resolution authorizing the issuance of outstanding securities or by any trust indenture or other proceedings appertaining thereto, may cause to be invested and reinvested, except as otherwise provided in NRS 396.876, any pledged revenues and any proceeds of securities issued hereunder in an investment contract that is collateralized with securities issued by the Federal Government or agencies of the Federal Government if:

1. The collateral has a market value of at least 102 percent of the amount invested and any accrued unpaid interest thereon;

2. The University receives a security interest in the collateral that is fully perfected and the collateral is held in custody for the University or its trustee by a third-party agent of the University which is a commercial bank authorized to exercise trust powers;

3. The market value of the collateral is determined not less frequently than weekly and, if the ratio required by subsection 1 is not met, sufficient additional collateral is deposited with the agent of the University to meet that ratio within 2 business days after the determination; and

4. The party with whom the investment contract is executed is a commercial bank, or that party or a guarantor of the performance of that party is:

(a) An insurance company which has a rating on its ability to pay claims of not less than "Aa2" by Moody's Investors Service, Inc., or "AA" by Standard and Poor's Ratings Services, or their equivalent; or

(b) An entity which has a credit rating on its outstanding long-term debt of not less than "A2" by Moody's Investors Service, Inc., or "A" by Standard and Poor's Ratings Services, or their equivalent.

(Added to NRS by 2001, 2648)

NRS 396.862 Covenants and other provisions in bonds and other securities. Any resolution providing for the issuance of any bonds or other securities hereunder payable from pledged revenues and any indenture or other instrument or proceedings appertaining thereto may at the discretion of the Board contain covenants or other provisions, notwithstanding such covenants and provisions may limit the exercise of powers conferred hereby, in order to secure the payment of such securities, in agreement with the holders of such securities, including without limitation covenants or other provisions as to any one or more of the following:

1. The pledged revenues to be fixed, charged or levied and the collection, use and disposition thereof, including but not limited to the foreclosure of liens for delinquencies, the discontinuance of services, facilities or use of any properties or facilities, prohibition against free service, the collection of penalties and collection costs, and the use and disposition of any moneys of the University or the Board, derived or to be derived, from any source herein designated;

2. The acquisition, improvement or equipment of all or any part of properties pertaining to any project or any facilities;

3. The creation and maintenance of reserves or sinking funds to secure the payment of the principal of and interest on any securities or of operation and maintenance expenses of any facilities, or part thereof, and the source, custody, security, regulation, use and disposition of any such reserves or funds, including but not limited to the powers and duties of any trustee with regard thereto;

4. A fair and reasonable payment by the University or the Board from the general fund of the University or the Board or other available moneys to the account of any designated facilities for services rendered thereby to the University or the Board;

5. The payment of the cost of any project by delineating the purpose or purposes to which the proceeds of the sale of securities may be applied, and the custody, security, use, expenditure, application and disposition thereof;

6. The application of any accrued interest and any premium from the sale of any bonds or other securities hereunder to the cost of a project, to any bond fund or other fund or account for the payment of interest on or the principal of the bonds or other securities, or both interest and principal, or to any reserve fund or account therefor, or any combination thereof;

7. The registration of the bonds or other securities for payment as to principal only, or as to both principal and interest, at the option of any holder of a bond or other security, or for registration for payment only in either manner designated;

8. The endorsement of payments of interest on the bonds or other securities or for reconverting the bonds or other securities into coupon bonds or other coupon securities, or both for such endorsement and such reconversion, where any bond or other security is registered for payment as to interest; and where interest accruing on the securities is not represented by interest coupons the securities may provide for the endorsing of payments of interest thereon;

9. The endorsement of payments of principal on the bonds or other securities, where any bond or other securities are registered for payment as to principal;
10. The initial issuance of one or more bonds or other securities aggregating the amount of the entire issue or any portion thereof, and the endorsement of payments of interest or principal, or both interest and principal, on the securities;
11. The manner and circumstances in and under which any such bond or other securities may in the future, at the request of the holder thereof, be converted into bonds or other securities of larger or smaller denominations, which bonds or other securities of larger or smaller denominations may in turn be either coupon bonds or other coupon securities or bonds or other securities registered for payment, or coupon bonds or other coupon securities with provisions for registration for payment;
12. The reissuance of any outstanding bond or other securities, and the terms and conditions thereof, whether lost, apparently destroyed, wrongfully taken, or for any other reason, as provided in the Uniform Commercial Code—Investment Securities, or otherwise;
13. The temporary investment and any reinvestment of proceeds of bonds or other securities or pledged revenues, or both such proceeds and revenues, in federal securities;
14. The deposit of moneys or federal securities, or both moneys and such securities, with and securing their repayment by a commercial bank or commercial banks within or without or both within and without this state;
15. The pledge of and the creation of a lien upon pledged revenues or the proceeds of bonds or other securities pending their application to defray the cost of any project, or both such revenues and proceeds of securities, to secure the payment of bonds or other securities issued hereunder;
16. The payment of the principal of and interest on any securities, and the sources and methods thereof, the rank or priority of any securities as to any lien or security for payment, or the acceleration of any maturity of any securities, or the issuance of other or additional securities payable from or constituting a charge against or lien upon any pledged revenues or other moneys pledged for the payment of securities and the creation of future liens and encumbrances thereagainst;
17. The use, regulation, inspection, management, operation, maintenance or disposition, or any limitation or regulation of the use, of all or any part of the facilities or any property of the Board or University; and the making and enforcement of reasonable parietal rules that shall insure the use of the facilities by all students in attendance at the University who reside on the campus of the University, or otherwise, to the maximum extent to which the facilities are capable of serving such students;
18. The determination or definition of pledged revenues from any facilities or of operation and maintenance expenses of facilities, the use and disposition of such revenues and the manner of and limitations upon paying such expenses;
19. The creation of special funds and accounts appertaining to any pledged revenues or to the bonds or other securities issued hereunder;
20. The insurance to be carried by the University or the Board or any other person in interest and use and disposition of insurance moneys, the acquisition of completion, performance, surety and fidelity bonds appertaining to any project or funds, or both, and the use and disposition of any proceeds of such bonds;
21. Books of account, the inspection and audit thereof, and other records appertaining to any project, facilities or pledged revenues;
22. The assumption or payment or discharge of any obligation, lien or other claim relating to any part of any project, any facilities, or any securities having or which may have a lien on any part of any pledged revenues or other moneys of the Board or University;
23. Limitations on the powers of the University or the Board to acquire or operate, or permit the acquisition or operation of, any structures, facilities or properties which may compete or tend to compete with any facilities;
24. The vesting in a corporate or other trustee or trustees such property, rights, powers and duties in trust as the Board may determine which may include any or all of the rights, powers and duties of the trustee appointed by the holders of securities, and limiting or abrogating the right of such holders to appoint a trustee, or limiting the rights, duties and powers of such trustee;
25. The payment of costs or expenses incident to the enforcement of the securities or of the provisions of the resolution or of any covenant or contract with the holders of the securities;
26. Events of default, rights and liabilities arising therefrom, and the rights, liabilities, powers and duties arising upon the breach by the University or the Board of any covenants, conditions or obligations;
27. The terms and conditions upon which the holders of the securities or any portion, percentage or amount of them may enforce any covenants or provisions made hereunder or duties imposed thereby;
28. The terms and conditions upon which the holders of the securities or of a specified portion, percentage or amount thereof, or any trustee therefor, shall be entitled to the appointment of a receiver, which receiver may enter and take possession of any facilities or service, operate and maintain the same, prescribe fees, rates and charges, and collect, receive and apply all revenues thereafter arising therefrom in the same manner as the Board itself might do;
29. A procedure by which the terms of any resolution authorizing securities, or any other contract with any holders of securities, including but not limited to an indenture of trust or similar instrument, may be amended or abrogated, and as to the amount of securities the holders of which must consent thereto, and the manner in which such consent may be given;
30. The terms and conditions upon which any or all of the securities shall become or may be declared due before maturity, and as to the terms and conditions upon which such declaration and its consequences may be waived; and
31. All such acts and things as may be necessary or convenient or desirable in order to secure the securities, or in the discretion of the Board tend to make the securities more marketable, notwithstanding that such covenant, act or thing may not be enumerated herein, it being the intention hereof to give the Board power to do all things in the issuance of the University's or the Board's securities and for their security except as herein expressly limited.

(Added to NRS by 1967, 13; A 1971, 2122)

NRS 396.8625 Agreements in connection with securities: Exchange of interest rates; payment of interest at fixed rate or variable rate; terms; exemption from limitation on rates of interest; payments from pledged revenues

authorized.

1. The University, in connection with securities it has issued or proposes to issue, may enter into an agreement for an exchange of interest rates as provided in this section if the Board finds that such an agreement would be in the best interests of the University.

2. The University may enter into an agreement to exchange interest rates only if:

(a) The long-term debt obligations of the person with whom the University enters the agreement are rated "A" or better by a nationally recognized rating agency; or

(b) The obligations pursuant to the agreement of the person with whom the University enters the agreement are either:

(1) Guaranteed by a person whose long-term debt obligations are rated "A" or better by a nationally recognized rating agency; or

(2) Collateralized by obligations deposited with the University or an agent of the University which would be legal investments for the State pursuant to NRS 355.140 and which have a market value at the time the agreement is made of not less than 100 percent of the principal amount upon which the exchange of interest rates is based.

3. The University may agree, with respect to securities that the University has issued or proposes to issue bearing interest at a variable rate, to pay sums equal to interest at a fixed rate or rates or at a different variable rate determined pursuant to a formula set forth in the agreement on an amount not to exceed the principal amount of the securities with respect to which the agreement is made, in exchange for an agreement to pay sums equal to interest on the same principal amount at a variable rate determined pursuant to a formula set forth in the agreement.

4. The University may agree, with respect to securities that the University has issued or proposes to issue bearing interest at a fixed rate or rates, to pay sums equal to interest at a variable rate determined pursuant to a formula set forth in the agreement on an amount not to exceed the outstanding principal amount of the securities with respect to which the agreement is made, in exchange for an agreement to pay sums equal to interest on the same principal amount at a fixed rate or rates set forth in the agreement.

5. The term of an agreement entered into pursuant to this section must not exceed the term of the securities with respect to which the agreement was made.

6. The University's obligations to make payments under the agreement may be secured by any of the pledged revenues that are pledged to the securities in connection with the agreement as executed, so long as the pledge does not violate the terms of any resolution or other instrument appertaining to outstanding securities issued hereunder.

7. Limitations upon the rate of interest on securities do not apply to interest paid pursuant to an agreement entered into pursuant to this section.

8. If the University has entered into an agreement pursuant to this section with respect to those securities, it may treat the amount or rate of interest on the securities as the amount or rate of interest payable after giving effect to the agreement for the purpose of calculating:

(a) Rates and charges of a revenue-producing enterprise whose revenues are pledged to or used to pay the securities;

(b) Statutory requirements concerning revenue coverage that are applicable to the securities; and

(c) Any other amounts which are based upon the rate of interest of the securities.

9. Subject to covenants applicable to the securities, any payments required to be made by the University under the agreement may be made from pledged revenues that are pledged to pay debt service on the securities with respect to which the agreement was made or from any other legally available source.

(Added to NRS by 2001, 2648)

NRS 396.863 Pledged revenues received or credited subject to immediate lien; priority and validity of lien.

1. Revenues pledged for the payment of any securities, as received by or otherwise credited to the University or the Board, shall immediately be subject to the lien of each such pledge without any physical delivery thereof, any filing, or further act.

2. The lien of each such pledge and the obligation to perform the contractual provisions made in the authorizing resolution or other instrument appertaining thereto shall have priority over any or all other obligations and liabilities of the University or the Board, except as may be otherwise provided herein or in such resolution or other instrument, and subject to any prior pledges and liens theretofore created.

3. The lien of each such pledge shall be valid and binding as against all persons having claims of any kind in tort, contract or otherwise against the Board or University irrespective of whether such persons have notice thereof.

(Added to NRS by 1967, 16)

NRS 396.864 Rights and powers of holders of securities and trustees. Subject to any contractual limitations binding upon the holders of any issue or series of securities, or trustee therefor, including but not limited to the restriction of the exercise of any remedy to a specified proportion, percentage or number of such holders, and subject to any prior or superior rights of others, any holder of securities, or trustee therefor, shall have the right and power, for the equal benefit and protection of all holders of securities similarly situated:

1. By mandamus or other suit, action or proceeding at law or in equity to enforce his or her rights against the Board or University, or both, the Chancellor of the University, and any other of the officers, agents and employees of the Board or University, or both, to require and compel the Board or University, or both, or any such officers, agents or employees to perform and carry out their respective duties, obligations or other commitments hereunder and their respective covenants and agreements with the holder of any security;

2. By action or suit in equity to require the Board or University, or both, to account as if they were the trustee of an express trust;

3. By action or suit in equity to have appointed a receiver, which receiver may enter and take possession of any facilities and any pledged revenues for the payment of the securities, prescribe sufficient fees derived from the facilities, and collect, receive and apply all pledged revenues or other moneys pledged for the payment of the securities in the same manner as the

Board itself might do in accordance with the obligations of the University or the Board; and

4. By action or suit in equity to enjoin any acts or things which may be unlawful or in violation of the rights of the holder of any securities and to bring suit thereupon.

(Added to NRS by 1967, 17; A 1969, 1441)

NRS 396.865 Receivers: Appointment; powers and duties.

1. If a resolution of the Board authorizing or providing for the issuance of any securities of any series or any other proceedings appertaining thereto contains a provision authorized by subsection 28 of NRS 396.862 and further provides in substance that any trustee appointed pursuant to subsection 24 of NRS 396.862 shall have the powers provided by that subsection, then such trustee, whether or not all of the bonds or other securities of such series have been declared due and payable, shall be entitled as of right to the appointment of a receiver of the facilities appertaining thereto.

2. Any receiver appointed as permitted by subsection 28 of NRS 396.862 may enter upon and take possession of the facilities and property appertaining thereto, and, subject to any pledge or contract with the holders of such securities, shall take possession of all moneys and other property derived from or applicable to the acquisition, operation, maintenance or improvement of the facilities and proceed with such acquisition, operation, maintenance or improvement which the Board on its behalf or on the behalf of the University is under any obligation to do, and operate, maintain, equip and improve the facilities, and fix, charge, collect, enforce and receive the service charges and all revenues thereafter arising subject to any pledge thereof or contract with the holders of such securities relating thereto and perform the public duties and carry out the contracts and obligations of the University or the Board in the same manner as the Board itself might do and under the direction of the court.

(Added to NRS by 1967, 17; A 1969, 1601)

NRS 396.866 Rights and remedies cumulative. No right or remedy conferred upon any holder of any securities or any coupon appertaining thereto or any trustee for such holder hereby or by any proceedings appertaining to the issuance of such securities or coupons is exclusive of any right or remedy, but each such right or remedy is cumulative and in addition to every other right or remedy and may be exercised without exhausting and without regard to any other remedy conferred hereby or by any other law.

(Added to NRS by 1967, 18)

NRS 396.867 Failure of holder to proceed does not relieve University and its officers, agents and employees of liability for nonperformance of duties. The failure of any holder of any securities or any coupons appertaining thereto so to proceed as herein provided or in such proceedings shall not relieve the Board or the University, or any of their officers, agents and employees of any liability for failure to perform or carry out any duty, obligation or other commitment.

(Added to NRS by 1967, 18)

NRS 396.868 Interim debentures: Maturity; use of proceeds; issuance.

1. Any interim debentures may mature at such time or times not exceeding a period of time equal to the estimated time needed to effect the purpose or purposes for which they are issued or for which the bonds are authorized to be issued, but not exceeding 5 years from the date of the interim debentures, as the Board may determine.

2. The proceeds of interim debentures shall be used to defray the cost of the project appertaining thereto.

3. Any notes or warrants or both notes and warrants may be funded with the proceeds of interim debentures, as well as with the proceeds of bonds.

4. Except as otherwise provided in NRS 396.868 to 396.871, inclusive, interim debentures shall be issued as provided herein for Board or University securities in NRS 396.839 to 396.867, inclusive, and 396.880 to 396.885, inclusive.

(Added to NRS by 1967, 18; A 1969, 1602; 1975, 874)

NRS 396.869 Interim debentures: Security for payment.

1. Pledged revenues and other money, including without limitation proceeds of bonds to be issued or reissued after the issuance of interim debentures, and bonds issued to secure the payment of interim debentures, or any combination thereof, may be pledged to secure the payment of interim debentures.

2. Any bonds pledged as collateral security for the payment of any interim debentures mature at such time or times as the Board may determine, but in no event exceeding 50 years from the dates of such bonds and such interim debentures, or if the dates are not the same, from whichever date is the earlier.

3. Any bonds pledged as collateral security must not be issued in an aggregate principal amount exceeding the aggregate principal amount of the interim debenture or interim debentures secured by a pledge of the bonds, nor shall they bear interest at any time which, with any interest accruing at the same time on the interim debenture or interim debentures so secured, exceeds by more than 3 percent the Index of Revenue Bonds which was most recently published before the bids are received or a negotiated offer is accepted.

(Added to NRS by 1967, 18; A 1969, 1298; 1971, 2125; 1975, 874; 1981, 1417; 1983, 585)

NRS 396.870 Interim debentures: Extension and funding. No interim debentures issued pursuant to the provisions hereof shall be extended or funded except by the issuance or reissuance of a bond or bonds in compliance herewith.

(Added to NRS by 1967, 18)

NRS 396.871 Interim debentures: Funding by reissuance of bonds pledged as collateral security; issuance of other bonds.

1. For the purpose of funding any interim debentures, any bonds pledged as collateral security to secure the payment of such interim debentures (upon their surrender as pledged property) may be reissued, and any bonds not previously issued but

authorized to be issued by any law for a purpose or purposes the same as or encompassing the purpose or purposes for which the interim debentures were issued, may be issued for such a funding.

2. Any such bonds shall mature at such time or times as the Board may determine, but in no event exceeding 50 years from the dates of the interim debentures so funded and the bonds so pledged as collateral security, or if the dates are not the same, from whichever date is the earlier.

3. Bonds for funding (including but not necessarily limited to any such reissued bonds) and bonds for any other purpose or purposes may be issued separately or issued in combination in one series or more.

4. Except as herein otherwise provided in NRS 396.868 to 396.871, inclusive, any such funding bonds shall be issued as is provided herein for other bonds.

(Added to NRS by 1967, 19)

NRS 396.872 Refunding of securities payable from pledged revenues: Resolution; trust indenture; limitations on call for prior redemption; exchange of outstanding securities held by State or its agencies; outstanding securities evidencing long-term loans.

1. Any bonds of the Board or University issued hereunder or pursuant to any other act and payable from any pledged revenues may be refunded by the Board on its behalf or on behalf of the University by the adoption of a resolution or resolutions by the Board and by any trust indenture or other proceedings appertaining thereto, authorizing the issuance of bonds to refund, pay and discharge all or any part of such outstanding bonds of any one or more or all outstanding issues:

(a) For the acceleration, deceleration or other modification of the payment of such obligations, including any interest thereon in arrears, or about to become due for any period not exceeding 3 years from the date of the refunding bonds;

(b) For the purpose of reducing interest costs or effecting other economies;

(c) For the purpose of modifying or eliminating restrictive contractual limitations appertaining to the issuance of additional bonds, otherwise concerning the outstanding bonds, or otherwise relating to any facilities appertaining thereto; or

(d) For any combination of the purposes stated in paragraphs (a), (b) and (c).

2. Nothing contained herein nor in any other law of this state shall be construed to permit the Board to call on its behalf or on behalf of the Board or University bonds or other securities now or hereafter outstanding for prior redemption in order to fund or refund such securities or in order to pay them prior to their stated maturities, unless the right to call such securities for prior redemption was specifically reserved and stated in such securities at the time of their issuance, and all conditions with respect to the manner, price and time applicable to such prior redemption as set forth in the proceedings authorizing the outstanding securities are strictly observed. It is the intention of this subsection to make it certain that the holder of no outstanding bond or other security may be compelled to surrender such security for funding or refunding prior to its stated maturity or optional date of prior redemption expressly reserved therein, even though such funding or refunding might result in financial benefit to the Board or University.

3. Notwithstanding the provisions of subsection 2 of this section or of any other law, this state, acting by and through the State Board of Finance, may agree with the University or its Board to exchange any outstanding bonds or other securities of the University or the Board and held by the State, or any agency, corporation, department or other instrumentality of the State, for funding or refunding bonds or other funding securities of the University or the Board, or otherwise to surrender at such price and time and otherwise upon such conditions and other terms and in such manner as may be mutually agreeable such outstanding bonds or other securities to the Board for funding or refunding at any time prior to their respective maturities or to any date as of which the Board has the right and option to call on its behalf or on behalf of the University such outstanding bonds or other securities for prior redemption as expressly provided in the outstanding securities and any resolution, trust indenture or other proceedings authorizing their issuance.

4. Any provision herein concerning the refunding of outstanding bonds includes any outstanding securities evidencing long-term loans to the University or the Board regardless of whether such securities are designated as bonds, certificates, single certificates or otherwise.

(Added to NRS by 1967, 19; A 1969, 1602)

NRS 396.873 Refunding bonds: Exchange for outstanding bonds or federal securities; public or private sale.

1. Any bonds issued for refunding purposes may either be delivered in exchange for the outstanding bonds being refunded or may be publicly or privately sold.

2. The refunding bonds, or any part thereof, may be exchanged by the Board for federal securities which have been made available for escrow investment by any purchaser of refunding bonds, upon terms of exchange mutually agreed upon, and any federal securities so received by the Board shall be placed in escrow as provided in NRS 396.875 and 396.876.

(Added to NRS by 1967, 20)

NRS 396.874 Conditions for refunding bonds.

1. No bonds may be refunded hereunder unless the holders thereof voluntarily surrender them for exchange or payment, or unless they either mature or are callable for prior redemption under their terms within 25 years after the date of issuance of the refunding bonds. Provision must be made for paying the securities within that period.

2. The maturity of any bond refunded may not be extended beyond 25 years, or beyond 1 year next following the date of the last outstanding maturity, whichever limitation is later, nor may any interest thereon be increased to any rate which exceeds by more than 3 percent the Index of Revenue Bonds which was most recently published before the bids are received or a negotiated offer is accepted.

3. The principal amount of the refunding bonds may exceed, be less than or be the same as the principal amount of the bonds being refunded so long as provision is duly and sufficiently made for their payment.

(Added to NRS by 1967, 20; A 1969, 1299; 1971, 2125; 1975, 874; 1981, 1417; 1983, 585, 1034, 1596)

NRS 396.875 Refunding bonds: Disposition of proceeds, accrued interest and premium; costs; escrow; trusts.

1. Except as herein otherwise provided, the proceeds of refunding bonds shall either be immediately applied to the retirement of the bonds to be refunded or be placed in escrow or trust in any trust bank or trust banks within or without or both within and without this state to be applied to the payment of the refunded bonds or the refunding bonds, or both the refunded bonds and the refunding bonds, upon their presentation therefor to the extent, in such priority and otherwise in the manner which the Board may determine.

2. The incidental costs of the refunding of bonds may be paid by the purchaser of the refunding bonds or be defrayed from any general fund or other available revenues of the University or the Board or from the proceeds of the refunding bonds, or from the interest or other yield derived from the investment of any refunding bond proceeds or other moneys in escrow or trust, or from any other sources legally available therefor, or any combination thereof, as the Board may determine.

3. Any accrued interest and any premium appertaining to a sale of refunding bonds may be applied to the payment of the interest thereon or the principal thereof, or to both interest and principal, or may be deposited in a reserve therefor, or may be used to refund bonds by deposit in escrow, trust or otherwise, or may be used to defray any incidental costs appertaining to the refunding, or any combination thereof, as the Board may determine.

(Added to NRS by 1967, 20)

NRS 396.876 Proceeds of refunding bonds in escrow or trust: Investment; security; sufficient amount; purchaser not responsible for application of proceeds.

1. Any such escrow or trust shall not necessarily be limited to proceeds of refunding bonds but may include other moneys available for its purpose.

2. Any proceeds in escrow or trust, pending such use, may be invested or reinvested in federal securities.

3. Any trust bank accounting for federal securities in such escrow or trust may place them for safekeeping wholly or in part in any trust bank or trust banks within or without or both within and without this state.

4. Any trust bank shall continuously secure any moneys placed in escrow or trust and not so invested or reinvested in federal securities by a pledge in any trust bank or trust banks within or without or both within and without the State of federal securities in an amount at all times at least equal to the total uninvested amount of such moneys accounted for in such escrow or trust.

5. Such proceeds and investments in escrow or trust, together with any interest or other gain to be derived from any such investment, shall be in an amount at all times at least sufficient to pay principal, interest, any prior redemption premiums due, and any charges of the escrow agent or trustee and any other incidental expenses payable therefrom, except to the extent provision may have been previously otherwise made therefor, as such obligations become due at their respective maturities or due at designated prior redemption date or dates in connection with which the Board shall have exercised or shall be obligated to exercise a prior redemption option on its behalf or on behalf of the University.

6. The computations made in determining such sufficiency shall be verified by a certified public accountant licensed to practice in this state or in any other state.

7. Any purchaser of any refunding bond issued hereunder shall in no manner be responsible for the application of the proceeds thereof by the Board or the University or any of their respective officers, agents or employees.

(Added to NRS by 1967, 21)

NRS 396.877 Refunding bonds payable from pledged revenues. Refunding bonds may be made payable from any pledged revenues which might be legally pledged for the payment of the bonds being refunded at the time of the refunding or at the time of the issuance of the bonds being refunded, as the Board may determine, notwithstanding the revenue sources or the pledge of such revenues for the payment of the outstanding bonds being refunded is hereby modified.

(Added to NRS by 1967, 21)

NRS 396.878 Issuance of bonds separately or in combination. Bonds for refunding and bonds for any other purpose or purposes authorized by any other law may be issued separately or issued in combination in one series or more by the University or the Board.

(Added to NRS by 1967, 22)

NRS 396.879 Other statutory provisions applicable to refunding bonds. Except as in NRS 396.872 to 396.878, inclusive, expressly provided or necessarily implied, the relevant provisions elsewhere herein appertaining generally to the issuance of bonds to defray the cost of any project shall be equally applicable in the authorization and issuance of refunding bonds, including their terms and security, the covenants and other provisions of the resolution authorizing the issuance of the bonds, or other instruments or proceedings appertaining thereto, and other aspects of the bonds.

(Added to NRS by 1967, 22)

NRS 396.880 Conclusive determination of Board of Regents that statutory limitations have been met. The determination of the Board that the limitations hereunder imposed upon the issuance of bonds or upon the issuance of other securities hereunder, including without limitation any securities for funding or refunding securities, have been met shall be conclusive in the absence of fraud or arbitrary and gross abuse of discretion regardless of whether the authorizing resolution or the securities thereby authorized contain a recital as authorized by NRS 396.851.

(Added to NRS by 1967, 22; A 1969, 1603)

NRS 396.881 Bonds and other securities exempt from taxation; exception.

1. Except as otherwise provided in subsection 2, bonds and other securities issued pursuant to the provisions of the University Securities Law, their transfer and the income therefrom must forever be and remain free and exempt from taxation by this state or any subdivision thereof.

2. The provisions of subsection 1 do not apply to the tax on estates imposed pursuant to the provisions of chapter 375A

of NRS or the tax on generation-skipping transfers imposed pursuant to the provisions of chapter 375B of NRS.

(Added to NRS by 1967, 22; A 1989, 2108; 1991, 1712)

NRS 396.882 Bonds and other securities legal investments for state money. It is legal for the State Board of Finance to invest any permanent state funds or other state funds available for investment in any of the bonds or other securities authorized to be issued pursuant to the provisions hereof.

(Added to NRS by 1967, 22)

NRS 396.883 Legal investments for other persons.

1. It is legal for any bank, trust company, banker, savings bank or institution, savings and loan association, investment company and any other person carrying on a banking or investment business, any insurance company, insurance association, or any other person carrying on an insurance business, and any executor, administrator, curator, trustee or any other fiduciary, to invest funds or money in his or her custody in any of the bonds or other securities issued hereunder.

2. Nothing contained in this section with regard to legal investments relieves any representative of any corporation or other person of any duty of exercising reasonable care in selecting securities.

(Added to NRS by 1967, 22; A 1983, 134)

NRS 396.884 Sufficiency of NRS 396.809 to 396.885, inclusive.

1. NRS 396.809 to 396.885, inclusive, without reference to other statutes of this state, except as herein otherwise expressly provided, shall constitute full authority for the exercise of the incidental powers herein granted concerning the borrowing of money to defray wholly or in part the cost of any project appertaining to the University or the Board, or to refinance outstanding loans, or both, and the issuance of bonds or other securities to evidence such loans or other obligations or to fund or refund outstanding securities, or any combination thereof, as the Board may determine.

2. No other act or law with regard to the authorization or issuance of securities or the exercise of any other power herein granted that requires an approval, or in any way impedes or restricts the carrying out of the acts herein authorized to be done shall be construed as applying to any proceedings taken hereunder or acts done pursuant hereto, except as herein otherwise provided.

3. The powers conferred by NRS 396.809 to 396.885, inclusive, shall be in addition and supplemental to, and not in substitution for, and the limitations imposed by NRS 396.809 to 396.885, inclusive, shall not affect the powers conferred by, any other law.

4. Nothing contained in NRS 396.809 to 396.885, inclusive, shall be construed as preventing the exercise of any power granted to the Board or to the University acting by and through the Board, or any officer, agent or employee thereof, by any other law.

5. No part of NRS 396.809 to 396.885, inclusive, shall repeal or affect any other law or part thereof, it being intended that NRS 396.809 to 396.885, inclusive, shall provide a separate method of accomplishing their objectives and not an exclusive one; and NRS 396.809 to 396.885, inclusive, shall not be construed as repealing, amending or changing any such other law.

(Added to NRS by 1967, 22)

NRS 396.885 Liberal construction. NRS 396.809 to 396.885, inclusive, being necessary to secure the public health, safety, convenience and welfare shall be liberally construed to effect their purposes.

(Added to NRS by 1967, 23)

PROGRAM TO PROVIDE LOANS TO NURSING STUDENTS

NRS 396.890 Administration by Board of Regents; eligibility for loans; terms and repayment of loans; delinquency charges.

1. The Board of Regents may administer, directly or through a designated officer or employee of the System, a program to provide loans for fees, books and living expenses to students in the nursing programs of the System.

2. Each student to whom a loan is made must:

(a) Have been a "bona fide resident" of Nevada, as that term is defined in NRS 396.540, for at least 6 months prior to the "matriculation" of the student in the System, as that term is defined pursuant to NRS 396.540;

(b) Be enrolled at the time the loan is made in a nursing program of the System for the purpose of becoming a licensed practical nurse or registered nurse;

(c) Fulfill all requirements for classification as a full-time student showing progression towards completion of the program; and

(d) Maintain at least a 2.00 grade point average in each class and at least a 2.75 overall grade point average, on a 4.0 grading scale.

3. Each loan must be made upon the following terms:

(a) All loans must bear interest at 8 percent per annum from the date when the student receives the loan.

(b) Each student receiving a loan must repay the loan with interest following the termination of the student's education for which the loan is made. The loan must be repaid in monthly installments over the period allowed with the first installment due 1 year after the date of the termination of the student's education for which the loan is made. The amounts of the installments must not be less than \$50 and may be calculated to allow a smaller payment at the beginning of the period of repayment, with each succeeding payment gradually increasing so that the total amount due will have been paid within the period for repayment. The period for repayment of the loans must be:

(1) Five years for loans which total less than \$10,000.

(2) Eight years for loans which total \$10,000 or more, but less than \$20,000.

- (3) Ten years for loans which total \$20,000 or more.
4. A delinquency charge may be assessed on any installment delinquent 10 days or more in the amount of 8 percent of the installment or \$4, whichever is greater, but not more than \$15.
5. The reasonable costs of collection and an attorney's fee may be recovered in the event of delinquency.
(Added to NRS by 1989, 2134; A 1993, 359; 2005, 1421)

NRS 396.891 Limitations on amount of loans; distribution of loans among campuses of System.

1. The loans made pursuant to NRS 396.890 to 396.898, inclusive, must not exceed the following amounts per student per semester. If the student is enrolled in a program of:
 - (a) A community college, \$1,700.
 - (b) A university, \$2,005.
2. Any money distributed pursuant to NRS 396.890 to 396.898, inclusive, must be distributed among the campuses of the System in amounts that will allow the same percentage of eligible students enrolled in the licensed practical nurse and registered practical nurse programs of each campus to receive loans.
(Added to NRS by 1989, 2135; A 1993, 360)

NRS 396.892 Repayment of loans; exceptions; regulations.

1. Each student who receives a loan made pursuant to NRS 396.890 to 396.898, inclusive, shall repay the loan and accrued interest pursuant to the terms of the loan unless the student:
 - (a) Practices nursing in a rural area of Nevada or as an employee of the State for 6 months for each academic year for which he or she received a loan; or
 - (b) Practices nursing in any other area of Nevada for 1 year for each academic year for which he or she received a loan.
2. The Board of Regents may adopt regulations:
 - (a) Extending the time for completing the required practice beyond 5 years for persons who are granted extensions because of hardship; and
 - (b) Granting prorated credit towards repayment of a loan for time a person practices nursing as required, for cases in which the period for required practice is only partially completed.
 ➤ and such other regulations as are necessary to carry out the provisions of NRS 396.890 to 396.898, inclusive.
3. As used in this section, "practices nursing in a rural area" means that the person practices nursing in an area located in a county whose population is less than 45,000 at least half of the total time the person spends in the practice of nursing, and not less than 20 hours per week.
(Added to NRS by 1989, 2135; A 2001, 1988)

NRS 396.893 Board of Regents may require cosigner or security for loan. The Board of Regents or its designee may require:

1. A student to acquire, as security for a student loan, insurance on the student's life and on the student's health or against the student's disability, or both.
2. That a financially responsible person agree to be jointly liable with the recipient for the repayment of the loan.
(Added to NRS by 1989, 2136)

NRS 396.894 Board of Regents may require repayment of balance of loan under certain circumstances. The Board of Regents or its designee may require, upon notice to a recipient of a loan, that the recipient repay the balance and any unpaid interest on the loan at once if:

1. An installment is not paid within 30 days after it is due;
2. The recipient fails to notify the Board of Regents or its designee, within 30 days, of:
 - (a) A change of name or of the address of his or her home or place of practice; or
 - (b) The termination of the education for which he or she received the loan; or
3. The recipient fails to comply with any other requirement or perform any other obligation the recipient is required to perform pursuant to any agreement with the Board of Regents or its designee.
(Added to NRS by 1989, 2136)

NRS 396.895 Recipient of loan required to comply with regulations adopted by Board of Regents; penalties. A recipient of a loan made pursuant to NRS 396.890 to 396.898, inclusive, shall comply with the regulations adopted by the Board of Regents. If the recipient fails so to comply, the Board of Regents or its designee may:

1. For each infraction, impose a fine of not more than \$200 against any recipient in any academic year, and may deny additional money to any student who fails to pay the fine when due;
2. Increase the portion of any future loan to be repaid by the recipient; and
3. Extend the time a recipient is required to practice nursing to repay his or her loan.
(Added to NRS by 1989, 2136)

NRS 396.896 Extension of period for repayment of loan: Application; approval by Board of Regents.

1. The Board of Regents or its designee may, after receiving an application stating the reasons therefor, grant an extension of the period for the repayment of a loan in case of hardship arising out of the individual circumstances of a recipient. The extension must be for a period that will reasonably alleviate that hardship.
2. Applications for extensions must be filed within the time prescribed by regulation of the Board of Regents.
(Added to NRS by 1989, 2136)

NRS 396.897 Credit towards repayment of loan for certain professional services provided without compensation.

A person obligated to repay a student loan may, as determined by the Board of Regents or its designee, receive credit towards payment of the loan for professional services provided without compensation to the State or any of its political subdivisions.

(Added to NRS by 1989, 2136)

NRS 396.898 Powers of Board of Regents. The Board of Regents may:

1. Receive, invest, disburse and account for all money received for the program.
2. Report to the Governor and the Legislature before September 1 of any year preceding a regular session of the Legislature, setting forth in detail the transactions conducted by it during the biennium ending June 30 of such year.
3. Make recommendations for any legislative action deemed by it advisable.

(Added to NRS by 1989, 2136)

HEALTH SERVICES IN UNDERSERVED AREAS

NRS 396.899 Nevada Health Service Corps: "Practitioner" defined. As used in NRS 396.899 to 396.903, inclusive, unless the context otherwise requires, "practitioner" has the meaning ascribed to it in NRS 439A.0195.

(Added to NRS by 2003, 20th Special Session, 276)

NRS 396.900 Nevada Health Service Corps: Establishment by Board of Regents authorized. The University of Nevada School of Medicine may establish a Nevada Health Service Corps to encourage practitioners to practice in areas of Nevada in which a shortage of that type of practitioner exists.

(Added to NRS by 1989, 2155; A 1993, 360; 2003, 20th Special Session, 279)

NRS 396.901 Nevada Health Service Corps: Primary purposes. The primary purposes of the Nevada Health Service Corps must be to:

1. Recruit practitioners for participation in the program;
2. Designate areas of Nevada in which a shortage of each type of practitioner exists;
3. Match practitioners with the designated areas; and
4. Help practitioners to negotiate contracts to serve in the designated areas.

(Added to NRS by 1989, 2156; A 2003, 20th Special Session, 279)

NRS 396.902 Nevada Health Service Corps: Powers of University of Nevada School of Medicine. The University of Nevada School of Medicine may:

1. Apply for any matching money available for the program from the Federal Government.
2. Adopt regulations necessary to carry out the provisions of NRS 396.899 to 396.903, inclusive.
3. Receive, invest, disburse and account for all money received from the Federal Government or any other source for this program.

(Added to NRS by 1989, 2156; A 2003, 20th Special Session, 279)

NRS 396.903 Nevada Health Service Corps: Program for repayment of loans on behalf of certain practitioners.

1. The University of Nevada School of Medicine may authorize the Nevada Health Service Corps to administer a program under which money for loans is repaid on behalf of a practitioner for each year he or she practices in an area of Nevada in which a shortage of that type of practitioner exists, as determined by the Nevada Office of Rural Health within the University of Nevada School of Medicine and the Nevada Health Service Corps.

2. To qualify for the program, a practitioner required to be licensed pursuant to the provisions of chapter 630, 630A, 633 or 634 of NRS must have completed his or her primary care residency and hold an active license issued pursuant to chapter 630, 630A, 633 or 634 of NRS. All other practitioners must have completed training in a certified program and have an active license, certification or registration from the State of Nevada.

(Added to NRS by 1989, 2155; A 2003, 20th Special Session, 279)

NRS 396.905 Use of money by the University of Nevada School of Medicine for development of obstetrical access program. Any gift, donation, bequest, grant or other source of money received by the University of Nevada School of Medicine for the development of an obstetrical access program may be used to:

1. Provide financial support and education to faculty and residents in the Departments of Family and Community Medicine and Obstetrics and Gynecology within the University of Nevada School of Medicine and to expand the clinical services provided by such faculty and residents in areas and to populations that need obstetrical services.

2. Provide money to Nevada Health Centers, Inc., or its successor, to expand the clinical prenatal and obstetrical practice base of community health center clinics and to provide uninsured, underinsured and Medicaid patients with increased access to clinical prenatal and obstetrical care.

3. Establish a fund that allows practicing community providers of prenatal care that are participating in the obstetrical access program to draw upon money to partially compensate them for providing care to patients who have no access to clinical care because of their financial status.

4. Develop a database of clinical practitioners providing prenatal or obstetrical services throughout the State to monitor and analyze:

(a) The relationship between declining services and the supply and distribution of appropriate providers of health care;

(b) The impact of access to care issues on pregnant women, including, without limitation, poor birth outcomes which result from lack of access to care, the financial impact of such poor birth outcomes and the effects of receiving inadequate prenatal care; and

(c) The impact of adverse judicial decisions on the delivery of obstetrical services.

5. Subsidize malpractice costs for clinical providers of prenatal care who maintain at least 30 percent or more of prenatal or obstetrical patients in their practice who are uninsured, underinsured or insured by Medicaid, or who use a sliding fee scale based on a patient's financial resources when charging for such services. The subsidy must be calculated based on the number of qualified clinical providers of prenatal care, the proportion of financially compromised patients served by such providers and the total amount of money available for subsidies.

(Added to NRS by 2003, 20th Special Session, 276)

NRS 396.906 Nevada Office of Rural Health: Establishment; duties; use of gifts and other money.

1. The Nevada Office of Rural Health is hereby established within the University of Nevada School of Medicine to administer matters relating to the delivery of health care services to rural and frontier areas in this state. The Nevada Office of Rural Health shall:

(a) Evaluate the need for programs concerning the delivery of health care services to rural and frontier areas in this state and make recommendations to the University of Nevada School of Medicine and the Legislature to carry out such programs; and

(b) Establish, administer and coordinate programs which affect the delivery of health care services to rural and frontier areas in this state, including, without limitation, programs relating to:

(1) The education and training of providers of health care who provide services in rural and frontier areas;

(2) The needs of rural and frontier areas for health care services and the manner in which such health care services may be effectively delivered;

(3) The delivery of health care services to rural and frontier areas;

(4) The financing of the delivery of health care services to rural and frontier areas; or

(5) The collection of data necessary for the Nevada Office of Rural Health to carry out its duties concerning the delivery of health care services to rural and frontier areas.

2. Any gift, donation, bequest, grant or other source of money received by the Nevada Office of Rural Health may be used to carry out the provisions of this section.

(Added to NRS by 2003, 20th Special Session, 277)

NRS 396.907 Area Health Education Center Program: Establishment; duties; use of gifts and other money.

1. The Area Health Education Center Program is hereby established within the University of Nevada School of Medicine to support education and training programs for students studying to become practitioners, or residents or practitioners who will provide or are providing health care services in medically underserved areas in this state, including urban and rural areas. The Area Health Education Center Program shall:

(a) Assist the area health education centers within Nevada in providing:

(1) Career opportunities in health care;

(2) Information to practitioners and other providers of health care;

(3) Continuing education for practitioners and other providers of health care; and

(4) Stipends for the education and training of students studying to become practitioners and residents who will provide or who are providing health care services in medically underserved areas in this state;

(b) Assess and develop training programs concerning the appropriate curriculum for primary care and other priority health care services;

(c) Enhance the training programs in primary care by providing additional entry-level positions and faculty to increase the availability of practitioners and other providers of health care;

(d) Increase the percentage of medical students committing to residencies and careers in primary care;

(e) Provide a greater percentage of primary care residents to medically underserved areas in this state;

(f) Develop and enhance training programs necessary to address the primary health care needs of persons in this state; and

(g) Establish interdisciplinary opportunities for education and training for practitioners and other providers of health care.

2. Any gift, donation, bequest, grant or other source of money received by the Area Health Education Center Program may be used to carry out the provisions of this section.

3. As used in this section, "practitioner" has the meaning ascribed to it in NRS 439A.0195.

(Added to NRS by 2003, 20th Special Session, 277)

NRS 396.908 Medical Education Council of Nevada: Establishment; duties; use of gifts and other money.

1. The Medical Education Council of Nevada is hereby established within the University of Nevada School of Medicine to ensure that Nevada has an adequate, well-trained health care workforce to meet the needs of the residents of this State. The Medical Education Council of Nevada shall:

(a) Determine the workforce needs for the provision of health care services in this State;

(b) Determine the number and types of positions of employment for which money appropriated to the Medical Education Council of Nevada may be used, including, without limitation, positions for practitioners, other providers of health care and other personnel to staff health care facilities and programs;

(c) Investigate and make recommendations to the University of Nevada School of Medicine and the Legislature on the status and needs of practitioners, other providers of health care and other personnel of health care facilities or programs;

(d) Determine a method for reimbursing institutions that sponsor practitioners, other providers of health care or other personnel of health care facilities or programs;

(e) To the extent authorized by federal law, prepare and submit a formal application to the Centers for Medicare and Medicaid Services of the United States Department of Health and Human Services for the purpose of receiving and dispersing federal money for graduate medical education expenses;

(f) Distribute a portion of any money it receives for graduate medical education expenses in a manner that:

(1) Prepares postgraduate medical and dental residents, as defined by the Accreditation Council for Graduate Medical Education, to provide inpatient, outpatient and hospital services in various communities and in geographically diverse settings;

(2) Encourages the coordination of interdisciplinary clinical training by practitioners and other providers of health care to such postgraduate medical and dental residents; and

(3) Promotes funding for accredited clinical training programs provided by practitioners or other providers of health care to such postgraduate medical and dental residents;

(g) Apply for grants, gifts and donations from public and private sources, including the Federal Government, to carry out the objectives of the Medical Education Council of Nevada;

(h) Initiate a cooperative agreement with the Department of Health and Human Services to promote the intergovernmental transfer of money for the purposes of receiving and dispersing money to carry out the objectives of the Medical Education Council of Nevada; and

(i) Distribute additional financial resources to training programs for practitioners, other providers of health care or other personnel of health care facilities or programs in the State.

2. Any gift, donation, bequest, grant or other source of money received by the Medical Education Council of Nevada may be used to carry out the provisions of this section.

3. As used in this section, "practitioner" has the meaning ascribed to it in NRS 439A.0195.

(Added to NRS by 2003, 20th Special Session, 278)

THE GOVERNOR GUINN MILLENNIUM SCHOLARSHIP PROGRAM

NRS 396.911 Legislative declaration.

1. The Legislature hereby declares that its priorities in expending the proceeds to the State of Nevada from settlement agreements with and civil actions against manufacturers of tobacco products are:

(a) To increase the number of Nevada students who attend and graduate from Nevada institutions of higher education; and

(b) To assist Nevada residents in obtaining and maintaining good health.

2. To further these priorities, the Legislature hereby declares that it is in the best interest of the residents of the State of Nevada that all money received by the State of Nevada pursuant to any settlement entered into by the State of Nevada and a manufacturer of tobacco products and all money recovered by the State of Nevada from a judgment in a civil action against a manufacturer of tobacco products be dedicated solely toward the achievement of the following goals:

(a) Increasing the number of residents of the State of Nevada who enroll in and attend a university, college or community college in the State of Nevada;

(b) Reducing and preventing the use of tobacco products, alcohol and illegal drugs, especially by children;

(c) Expanding the availability of health insurance and health care for children and adults in this State, especially for children and for adults with disabilities;

(d) Assisting senior citizens who have modest incomes in purchasing prescription drugs and assisting those senior citizens in meeting their needs related to health care, home care, respite care and their ability to live independent of institutional care; and

(e) Promoting the general health of all residents of the State of Nevada.

(Added to NRS by 1999, 2750; A 2001, 1416)

NRS 396.914 Definitions. As used in NRS 396.911 to 396.938, inclusive, unless the context otherwise requires, the words and terms defined in NRS 396.916, 396.918 and 396.922 have the meanings ascribed to them in those sections.

(Added to NRS by 1999, 2751; A 2001, 1416)

NRS 396.916 "Eligible institution" defined. "Eligible institution" means:

1. A university, state college or community college within the System; or

2. Any other nonsectarian college or university that:

(a) Was originally established in, and is organized under the laws of, this state;

(b) Is exempt from taxation pursuant to 26 U.S.C. § 501(c)(3); and

(c) Is accredited by a regional accrediting agency recognized by the United States Department of Education.

(Added to NRS by 2001, 1415)

NRS 396.918 "Millennium Scholarship" defined. "Millennium Scholarship" means a Governor Guinn Millennium Scholarship that is awarded from the Trust Fund to a student.

(Added to NRS by 1999, 2751; A 2005, 22nd Special Session, 147)

NRS 396.922 "Trust Fund" defined. "Trust Fund" means the Millennium Scholarship Trust Fund created pursuant to NRS 396.926.

(Added to NRS by 1999, 2751)

NRS 396.926 Creation of Program; Millennium Scholarship Trust Fund; deposit and investment of money in Fund; administration by Treasurer; use of money in Fund.

1. The Governor Guinn Millennium Scholarship Program is hereby created for the distribution of the Governor Guinn Millennium Scholarships in accordance with NRS 396.911 to 396.938, inclusive. The Millennium Scholarship Trust Fund is hereby created in the State Treasury. The State Treasurer may accept gifts, grants, bequests and donations for deposit in the Trust Fund.

2. The State Treasurer shall deposit in the Trust Fund:

(a) Forty percent of all money received by the State of Nevada pursuant to any settlement entered into by the State of Nevada and a manufacturer of tobacco products;

(b) Forty percent of all money recovered by the State of Nevada from a judgment in a civil action against a manufacturer of tobacco products; and

(c) Any gifts, grants, bequests or donations specifically designated for the Trust Fund by the donor.

3. The State Treasurer shall administer the Trust Fund. As administrator of the Trust Fund, the State Treasurer, except as otherwise provided in this section:

(a) Shall maintain the financial records of the Trust Fund;

(b) Shall invest the money in the Trust Fund as the money in other state funds is invested;

(c) Shall manage any account associated with the Trust Fund;

(d) Shall maintain any instruments that evidence investments made with the money in the Trust Fund;

(e) May contract with vendors for any good or service that is necessary to carry out the provisions of this section; and

(f) May perform any other duties necessary to administer the Trust Fund.

4. In addition to the investments authorized pursuant to paragraph (b) of subsection 3, the State Treasurer may, except as otherwise provided in subsection 5, invest the money in the Trust Fund in:

(a) Common or preferred stock of a corporation created by or existing under the laws of the United States or of a state, district or territory of the United States, if:

(1) The stock of the corporation is:

(I) Listed on a national stock exchange; or

(II) Traded in the over-the-counter market, if the price quotations for the over-the-counter stock are quoted by the National Association of Securities Dealers Automated Quotations System (NASDAQ);

(2) The outstanding shares of the corporation have a total market value of not less than \$50,000,000;

(3) The maximum investment in stock is not greater than 25 percent of the book value of the total investments of the Trust Fund;

(4) Except for investments made pursuant to paragraph (c), the amount of an investment in a single corporation is not greater than 3 percent of the book value of the assets of the Trust Fund; and

(5) Except for investments made pursuant to paragraph (c), the total amount of shares owned by the Trust Fund is not greater than 5 percent of the outstanding stock of a single corporation.

(b) A pooled or commingled real estate fund or a real estate security that is managed by a corporate trustee or by an investment advisory firm that is registered with the Securities and Exchange Commission, either of which may be retained by the State Treasurer as an investment manager. The shares and the pooled or commingled fund must be held in trust. The total book value of an investment made under this paragraph must not at any time be greater than 5 percent of the total book value of all investments of the Trust Fund.

(c) Mutual funds or common trust funds that consist of any combination of the investments authorized pursuant to paragraph (b) of subsection 3 and paragraphs (a) and (b) of this subsection.

5. The State Treasurer shall not invest any money in the Trust Fund pursuant to subsection 4 unless the State Treasurer obtains a judicial determination that the proposed investment or category of investments will not violate the provisions of Section 9 of Article 8 of the Constitution of the State of Nevada. The State Treasurer shall contract for the services of independent contractors to manage any investments of the State Treasurer made pursuant to subsection 4. The State Treasurer shall establish such criteria for the qualifications of such an independent contractor as are appropriate to ensure that each independent contractor has expertise in the management of such investments.

6. All interest and income earned on the money in the Trust Fund must, after deducting any applicable charges, be credited to the Trust Fund. All claims against the Trust Fund must be paid as other claims against the State are paid.

7. Not more than 3 percent of the anticipated annual revenue to the State of Nevada from the settlement agreements with and civil actions against manufacturers of tobacco products anticipated for deposit in the Trust Fund may be used to pay the costs of administering the Trust Fund.

8. The money in the Trust Fund remains in the Fund and does not revert to the State General Fund at the end of any fiscal year.

9. Money in the Trust Fund may be used only for the purposes set forth in NRS 396.914 to 396.934, inclusive.

(Added to NRS by 1999, 2751; A 2001, 2299; 2005, 22nd Special Session, 147)

NRS 396.930 Eligibility requirements for Millennium Scholarship; duties and powers of Board of Regents; outreach to certain students; affidavit declaring eligibility.

1. Except as otherwise provided in subsections 2 and 3, a student may apply to the Board of Regents for a Millennium Scholarship if the student:

(a) Except as otherwise provided in paragraph (e) of subsection 2, has been a resident of this State for at least 2 years before the student applies for the Millennium Scholarship;

(b) Except as otherwise provided in paragraph (c), graduated from a public or private high school in this State:

(1) After May 1, 2000, but not later than May 1, 2003; or

(2) After May 1, 2003, and, except as otherwise provided in paragraphs (c), (d) and (f) of subsection 2, not more than 6 years before the student applies for the Millennium Scholarship;

(c) Does not satisfy the requirements of paragraph (b) and:

(1) Was enrolled as a pupil in a public or private high school in this State with a class of pupils who were regularly scheduled to graduate after May 1, 2000;

(2) Received his or her high school diploma within 4 years after he or she was regularly scheduled to graduate; and

(3) Applies for the Millennium Scholarship not more than 6 years after he or she was regularly scheduled to graduate from high school;

(d) Maintained in high school in the courses designated by the Board of Regents pursuant to paragraph (b) of subsection 2, at least:

(1) A 3.00 grade point average on a 4.0 grading scale, if the student was a member of the graduating class of 2003 or 2004;

(2) A 3.10 grade point average on a 4.0 grading scale, if the student was a member of the graduating class of 2005 or 2006; or

(3) A 3.25 grade point average on a 4.0 grading scale, if the student was a member of the graduating class of 2007 or a later graduating class; and

(e) Is enrolled in at least:

(1) Six semester credit hours in a community college within the System;

(2) Twelve semester credit hours in another eligible institution; or

(3) A total of 12 or more semester credit hours in eligible institutions if the student is enrolled in more than one eligible institution.

2. The Board of Regents:

(a) Shall define the core curriculum that a student must complete in high school to be eligible for a Millennium Scholarship.

(b) Shall designate the courses in which a student must earn the minimum grade point averages set forth in paragraph (d) of subsection 1.

(c) May establish criteria with respect to students who have been on active duty serving in the Armed Forces of the United States to exempt such students from the 6-year limitation on applications that is set forth in subparagraph (2) of paragraph (b) of subsection 1.

(d) Shall establish criteria with respect to students who have a documented physical or mental disability or who were previously subject to an individualized education program under the Individuals with Disabilities Education Act, 20 U.S.C. §§ 1400 et seq., or a plan under Title V of the Rehabilitation Act of 1973, 29 U.S.C. §§ 791 et seq. The criteria must provide an exemption for those students from:

(1) The 6-year limitation on applications that is set forth in subparagraph (2) of paragraph (b) of subsection 1 and subparagraph (3) of paragraph (c) of subsection 1 and any limitation applicable to students who are eligible pursuant to subparagraph (1) of paragraph (b) of subsection 1.

(2) The minimum number of credits prescribed in paragraph (e) of subsection 1.

(e) Shall establish criteria with respect to students who have a parent or legal guardian on active duty in the Armed Forces of the United States to exempt such students from the residency requirement set forth in paragraph (a) of subsection 1 or subsection 3.

(f) Shall establish criteria with respect to students who have been actively serving or participating in a charitable, religious or public service assignment or mission to exempt such students from the 6-year limitation on applications that is set forth in subparagraph (2) of paragraph (b) of subsection 1. Such criteria must provide for the award of Millennium Scholarships to those students who qualify for the exemption and who otherwise meet the eligibility criteria to the extent that money is available to award Millennium Scholarships to the students after all other obligations for the award of Millennium Scholarships for the current school year have been satisfied.

3. Except as otherwise provided in paragraph (c) of subsection 1, for students who did not graduate from a public or private high school in this State and who, except as otherwise provided in paragraph (e) of subsection 2, have been residents of this State for at least 2 years, the Board of Regents shall establish:

(a) The minimum score on a standardized test that such students must receive; or

(b) Other criteria that students must meet,

to be eligible for Millennium Scholarships.

4. In awarding Millennium Scholarships, the Board of Regents shall enhance its outreach to students who:

(a) Are pursuing a career in education or health care;

(b) Come from families who lack sufficient financial resources to pay for the costs of sending their children to an eligible institution; or

(c) Substantially participated in an antismoking, antidrug or antialcohol program during high school.

5. The Board of Regents shall establish a procedure by which an applicant for a Millennium Scholarship is required to execute an affidavit declaring the applicant's eligibility for a Millennium Scholarship pursuant to the requirements of this section. The affidavit must include a declaration that the applicant is a citizen of the United States or has lawful immigration status, or that the applicant has filed an application to legalize the applicant's immigration status or will file an application to legalize his or her immigration status as soon as he or she is eligible to do so.

(Added to NRS by 1999, 2751; A 2001, 1416; 2003, 2962; 2005, 22nd Special Session, 149; 2007, 23rd Special Session, 10; 2009, 76, 706)

NRS 396.934 Maximum amount of Millennium Scholarship; remedial courses excluded from payment; requirements for continuing eligibility; ineligibility if requirements not satisfied; disbursement upon certification of eligibility; procedures for refund.

1. Except as otherwise provided in this section, within the limits of money available in the Trust Fund, a student who is eligible for a Millennium Scholarship is entitled to receive:

(a) If he or she is enrolled in a community college within the System, including, without limitation, a summer academic term, \$40 per credit for each lower division course and \$60 per credit for each upper division course in which the student is enrolled, or the amount of money that is necessary for the student to pay the costs of attending the community college that are not otherwise satisfied by other grants or scholarships, whichever is less. The Board of Regents shall provide for the designation of upper and lower division courses for the purposes of this paragraph.

(b) If he or she is enrolled in a state college within the System, including, without limitation, a summer academic term,

\$60 per credit for which the student is enrolled, or the amount of money that is necessary for the student to pay the costs of attending the state college that are not otherwise satisfied by other grants or scholarships, whichever is less.

(c) If he or she is enrolled in another eligible institution, including, without limitation, a summer academic term, \$80 per credit for which the student is enrolled, or the amount of money that is necessary for the student to pay the costs of attending the university that are not otherwise satisfied by other grants or scholarships, whichever is less.

(d) If he or she is enrolled in more than one eligible institution, including, without limitation, a summer academic term, the amount authorized pursuant to paragraph (a), (b) or (c), or a combination thereof, in accordance with procedures and guidelines established by the Board of Regents.

➤ In no event may a student who is eligible for a Millennium Scholarship receive more than the cost of 12 semester credits per semester pursuant to this subsection.

2. No student may be awarded a Millennium Scholarship:

(a) To pay for remedial courses.

(b) For a total amount in excess of \$10,000.

3. A student who receives a Millennium Scholarship shall:

(a) Make satisfactory academic progress toward a recognized degree or certificate, as determined by the Board of Regents pursuant to subsection 7; and

(b) If the student graduated from high school after May 1, 2003, maintain:

(1) At least a 2.60 grade point average on a 4.0 grading scale for each semester during the first year of enrollment in the Governor Guinn Millennium Scholarship Program.

(2) At least a 2.75 grade point average on a 4.0 grading scale for each semester during the second year of enrollment in the Governor Guinn Millennium Scholarship Program and for each semester during each year of enrollment thereafter.

4. If a student does not satisfy the requirements of subsection 3 during one semester of enrollment, excluding a summer academic term, he or she is not eligible for the Millennium Scholarship for the succeeding semester of enrollment. If such a student:

(a) Subsequently satisfies the requirements of subsection 3 in a semester in which he or she is not eligible for the Millennium Scholarship, the student is eligible for the Millennium Scholarship for the student's next semester of enrollment.

(b) Fails a second time to satisfy the requirements of subsection 3 during any subsequent semester, excluding a summer academic term, the student is no longer eligible for a Millennium Scholarship.

5. A Millennium Scholarship must be used only:

(a) For the payment of registration fees and laboratory fees and expenses;

(b) To purchase required textbooks and course materials; and

(c) For other costs related to the attendance of the student at the eligible institution.

6. The Board of Regents shall certify a list of eligible students to the State Treasurer. The State Treasurer shall disburse a Millennium Scholarship for each semester on behalf of an eligible student directly to the eligible institution in which the student is enrolled, upon certification from the eligible institution of the number of credits for which the student is enrolled, which must meet or exceed the minimum number of credits required for eligibility and certification that the student is in good standing and making satisfactory academic progress toward a recognized degree or certificate, as determined by the Board of Regents pursuant to subsection 7. The Millennium Scholarship must be administered by the eligible institution as other similar scholarships are administered and may be used only for the expenditures authorized pursuant to subsection 5. If a student is enrolled in more than one eligible institution, the Millennium Scholarship must be administered by the eligible institution at which the student is enrolled in a program of study leading to a recognized degree or certificate.

7. The Board of Regents shall establish:

(a) Criteria for determining whether a student is making satisfactory academic progress toward a recognized degree or certificate for purposes of subsection 6.

(b) Procedures to ensure that all money from a Millennium Scholarship awarded to a student that is refunded in whole or in part for any reason is refunded to the Trust Fund and not the student.

(c) Procedures and guidelines for the administration of a Millennium Scholarship for students who are enrolled in more than one eligible institution.

(Added to NRS by 1999, 2752; A 2001, 1417, 2003, 2963; 2005, 22nd Special Session, 150; 2009, 78)

NRS 396.938 Development of plan to direct other financial aid to students who are not eligible for Millennium Scholarships. The Board of Regents shall develop a plan to direct a significant portion of other available financial aid to culturally disadvantaged or at-risk students, and students who graduated from high school before May 1, 2000, who wish to attend college and have the potential to be successful, but who do not otherwise meet the eligibility requirements for Millennium Scholarships.

(Added to NRS by 1999, 2753)

UNLAWFUL ACTS

NRS 396.970 Surreptitious electronic surveillance on campus; exceptions.

1. Except as otherwise provided in subsection 2, it is unlawful for a person to engage in any kind of surreptitious electronic surveillance on a campus of the System without the knowledge of the person being observed.

2. Subsection 1 does not apply to any electronic surveillance:

(a) Authorized by a court order issued to a public officer, based upon a showing of probable cause to believe that criminal activity is occurring on the property under surveillance;

(b) By a law enforcement agency pursuant to a criminal investigation;

(c) Which is necessary as part of a system of security used to protect and ensure the safety of persons on the campus; or

(d) Of a class or laboratory when authorized by the teacher of the class or laboratory.

(Added to NRS by 1993, 2138)

NRS 396.980 Use of diisocyanate in maintenance or repair of building owned or operated by System while certain persons are present.

1. It is unlawful for a person who knows or in the exercise of reasonable care should know that a substance or material contains at least one-tenth of 1 percent by weight or volume of a diisocyanate to use, or cause or permit another person to use, the substance or material in the maintenance or repair of a building owned or operated by the System while any person who is not necessary to the maintenance or repair is present in the building.

2. A person who knows or in the exercise of reasonable care should know that a substance or material which contains at least one-tenth of 1 percent by weight or volume of a diisocyanate has been used in the maintenance or repair of a building owned or operated by the System shall ensure that the building is not occupied for at least 4 hours following the use of that substance or material by any person who is not necessary to the maintenance or repair.

3. A person who violates subsection 1 or 2 is guilty of a gross misdemeanor.

4. For the purposes of this section, "diisocyanate" includes, without limitation, toluene diisocyanate (TDI), methylene bisphenyl isocyanate (MDI) or hexamethylene diisocyanate (HDI).

(Added to NRS by 1997, 3353)

NRS 396.990 Use of false or misleading degrees.

1. It is unlawful for a person knowingly to use or attempt to use:

(a) A false or misleading degree or honorary degree conferred by the System or another public postsecondary educational institution, regardless of whether that institution is located in this State and regardless of whether that institution is authorized to operate in this State; or

(b) A degree or honorary degree conferred by the System or another public postsecondary educational institution in a false or misleading manner, regardless of whether that institution is located in this State and regardless of whether that institution is authorized to operate in this State,

↳ in connection with admission to any institution of higher education or in connection with any business, employment, occupation, profession, trade or public office.

2. Unless a greater penalty is provided by specific statute, a person who violates the provisions of this section is guilty of a misdemeanor and shall be punished by a fine of not more than \$5,000 or by imprisonment in the county jail for not more than 6 months, or by both fine and imprisonment.

3. In addition to any criminal penalty imposed pursuant to subsection 2, a person who violates the provisions of this section is subject to a civil penalty in an amount not to exceed \$5,000 for each violation. The Attorney General or any district attorney of this State may recover the penalty in a civil action brought in the name of the State of Nevada in any court of competent jurisdiction.

4. For the purposes of this section, a degree or honorary degree is false or misleading or is used in a false or misleading manner if it:

(a) States or suggests that the person named in the degree or honorary degree has completed the requirements of an academic or professional program of study in a particular field of endeavor beyond the secondary school level and the person has not, in fact, completed the requirements of the program of study;

(b) Is offered as his or her own by a person other than the person who completed the requirements of the program of study; or

(c) Is awarded, bestowed, conferred, given, granted, conveyed or sold:

(1) Based upon more than 10 percent of the recipient's documented life experience and not based upon actual completion of academic work; or

(2) In violation of this chapter.

5. As used in this section:

(a) "Degree" has the meaning ascribed to it in NRS 394.620.

(b) "Honorary degree" has the meaning ascribed to it in NRS 394.620.

(Added to NRS by 2005, 619)

SAGE School Improvement Guidebook

2008

(Revised April 2007)

*Nevada school improvement for Student
Achievement Gap Elimination*



Nevada Department of Education

Prepared by:

Nevada Department of Education
700 E. Fifth Street
Carson City, Nevada 89701

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ACKNOWLEDGEMENTS

The Nevada Department of Education wishes to acknowledge all the time and effort of the many people who have contributed to the development and evolution of the Nevada SAGE (Student Achievement Gap Elimination) school improvement process.

Special thanks is extended to the SAGE Revision Workgroup for their invaluable contributions to the 2007 revision and expansion of the SAGE Guidebook; to the SAGE Advisory Group for their input as the drafts become finalized; to Shelby Moulden for his graphic design contributions; and to Dr. David Leitner for his work in providing the foundational material that went into the creation of the SAGE School Improvement Guidebook. In addition, the enhancements and final product of this project could never have been accomplished without the time, effort, collegiality, and expertise of the many committed staff members of the Nevada Department of Education.

SAGE Guidebook Road Map

Where are you in the Continuous Improvement Cycle?		
➔ If creating a new plan or revising a current plan:		Page #
	• Consider Site and External Planning Teams	
	◦ School Improvement Plan Team (All schools)	11
	◦ School Support Team (In Need of Improvement Schools–Year 3 & beyond)	A7
	• Follow process guide for the Planning Phase	1
	• Consider Essential Foundations of School Improvement	9
	• Review Facilitator Information	31
	• Check requirements of Nevada law regarding school improvement	A1
	• If a high school, review the Northwest Accreditation and SAGE crosswalk	B1
➔ If carrying out the actions in the plan:		
	• Consider continuation of Essential Foundations of School Improvement	9
	• Follow guide for Implementation/Monitoring Phase	101
➔ If determining the effectiveness of the plan:		
	• Follow process guide for Evaluation Phase	111
	• Record recommendations for Planning Phase	119

Introduction

The culture behind Nevada’s school improvement process embraces **high expectations for every student** and is built upon the foundation of the following beliefs:

- The work of schools is student learning;
- All children benefit from challenging and relevant curriculum;
- Curriculum, instruction, and assessments must be closely aligned to State Standards;
- Every teacher can be an expert when provided collaborative and sustained professional development focused on improved instruction;
- School culture and the learning environment can promote continuous improvement.
- Parental support and involvement are critical to improved student performance;
- Effective use of data is vital to continuous improvement of teaching and learning.

Comprehensive improvement plans take several years to implement and demonstrate improvement in the targeted areas. A continuous improvement cycle provides the opportunity for ongoing identification of effective practices and/or actions that should be continued and ineffective practices and/or actions that should be revised or eliminated.

There have been many successful school improvement efforts. The education research literature includes hundreds of examples of school improvement that have resulted in increased student learning, improved parent involvement, decreased dropout rates, and an increased percentage of students who enroll in college. The SAGE (Student Achievement Gap Elimination) school improvement process provides schools with a framework for problem solving to target the school improvement efforts best suited for them.

SAGE is the required school improvement process for Title I schools in Nevada that are designated as in need of improvement. In addition, SAGE is a useful resource for all schools needing or wishing to complete a significant self-examination to improve status quo.

The purpose of SAGE is to help external facilitators, administrators, teachers, parents, and community members to participate in a continuous improvement cycle that identifies potential barriers and develops a way to move the school from where it is now to an environment in which all students can achieve to their highest potential. Many Nevada school districts and schools have used the improvement process outlined in this guidebook to improve student learning. SAGE presents school improvement as a three-phase cycle, as listed below.

1. The **planning phase** includes an inquiry process and master plan design;
2. The **implementation/monitoring phase** includes ongoing monitoring of implementation and of the impact on student learning and achievement;
3. The **evaluation phase** examines the effectiveness of the school improvement plan.

Once the plan has been developed, implemented, monitored, and evaluated, the phases are repeated, becoming a continuous improvement cycle in which the school regularly monitors and reviews the school improvement plan as needed.

There are numerous obstacles to effective school improvement. Chief among these obstacles is that even though school improvement efforts target schools, a school is a collection of individuals. To the extent that the needed changes involve the behavior of the members of the organizations, change must ultimately occur at the individual level. That is, individual teachers, administrators, and parents must in some way change what they are doing with the belief that this will change what students do (independently and in interaction with teachers) to improve student learning.

To optimize the impact of school improvement efforts, other elements of support need to be set in place. SAGE presents six essential foundations to support school improvement. Attending to these foundations helps the school leadership, the school improvement planning teams, and the school community as a whole lay the groundwork for successful improvement of student learning. The six essential foundations necessary to support school improvement include: (a) Governance Structure; (b) Decision-making Process; (c) Teacher Collaboration; (d) Team Building; (e) Communication; and (f) Managing Change (See Attachment 1P, p. 9 for descriptions of each essential foundation).

The SAGE school improvement process provides schools with the means to meet the accountability requirements that were established both by the passage of the No Child Left Behind Act of 2001 (NCLB) and Senate Bill 1 (SB 1). The Nevada Legislature in 2003 passed legislation that, regardless of AYP performance, improvement plans be developed/ revised and implemented annually by all schools, school districts, and the state through its State Board of Education. Additional requirements exist for schools identified as in need of improvement. Each school identified for school improvement must, within three months after being identified, develop or revise a school plan in consultation with school staff, the local educational agency serving the school, and outside experts (See Appendix A, for state laws regarding school improvement plans).

You are about to embark on a difficult and time-consuming but extremely rewarding journey of school improvement. The purpose of having a school improvement plan is so that you know your students will be better prepared academically because of what the staff and students at your school do. It may be that the academic achievement of students in your school is growing as you implement your school improvement plan, but this growth may not be significant or sufficient to meet achievement targets and close achievement gaps. For this reason, the improvement process incorporates a planning/revision phase each year to ensure that the school improvement plan is on the right track. School improvement takes time. Lasting change happens slowly but it does happen.

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|| **The SAGE School Improvement Guidebook is available online at the Nevada**
|| **Department of Education website. The online version provides several formats for ease** ||
|| **of downloading and copying purposes.** ||
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Reading First Schools Served in the Years Served

Year	District	Schools Served	Number of Schools/Year
2004-2005	Clark	Beckley, Cully, Cunningham, Edwards, Fyfe, Griffith, Harmon, Hinman, Jydstrup, Moore, Reed, Rundle, Hal Smith, Vegas Verdes, Warren, Wasden, Wynn (17)	30
	Elko	Southside, West Wendover (2)	
	Esmeralda	Dyer, Goldfield, Silver Peak (3)	
	Lyon	Fernley (1)	
	Nye	Hafen (1)	
	Pershing	Lovelock (1)	
	Washoe	Dodson, Greenbrae, Alice Smith, Warner (4)	
	White Pine	Norman (1)	
2005-2006	Clark	Beckley, Cully, Cunningham, Edwards, Fyfe, Griffith, Harmon, Hinman, Jydstrup, Moore, Reed, Rundle, Hal Smith, Vegas Verdes, Warren, Wasden, Wynn (17)	30
	Elko	Southside, West Wendover (2)	
	Esmeralda	Dyer, Goldfield, Silver Peak (3)	
	Lyon	Fernley (1)	
	Nye	Hafen (1)	
	Pershing	Lovelock (1)	
	Washoe	Dodson, Greenbrae, Alice Smith, Warner (4)	
	White Pine	Norman (1)	
2006-2007	Clark	Beckley, Cunningham, Edwards, Fyfe, Griffith, Harmon, Hinman, Jydstrup, Moore, Reed, Rundle, Hal Smith, Vegas Verdes, Wasden, Winn (15)	27
	Elko	Southside, West Wendover (2)	
	Esmeralda	Dyer, Goldfield, Silver Peak (3)	
	Lyon	Fernley (1)	
	Pershing	Lovelock (1)	
	White Pine	Norman (1)	
	Washoe	Dodson, Greenbrae, Alice Smith, Warner (4)	
2007-2008	Clark	Beckley, Cunningham, Edwards, Fyfe, Griffith, Harmon, Hinman, Jydstrup, Moore, Reed, Rundle, Hal Smith, Vegas Verdes, Wasden (14)	26
	Elko	Southside, West Wendover (2)	
	Esmeralda	Dyer, Goldfield, Silver Peak (3)	
	Lyon	Fernley (1)	
	Pershing	Lovelock (1)	
	White Pine	Norman (1)	
	Washoe	Dodson, Greenbrae, Alice Smith, Warner (4)	

2008-2009	Clark	Edwards, Griffith, Harmon, Hinman, Moore, Reed, Rundle, Hal Smith, Vegas Verdes, Wasden (10)	20
	Elko	Southside, West Wendover (2)	
	Esmeralda	Dyer, Goldfield, Silver Peak (3)	
	Lyon	Fernley (1)	
	Pershing	Lovelock (1)	
	Washoe	Dodson, Greenbrae, AliceSmith (3)	
2009-2010	Clark	Edwards, Hinman, Vegas Verdes (3)	7
	Pershing	Lovelock (1)	
	Washoe	Dodson, Greenbrae, Alice Smith (3)	

Prepared by CP/NDE/5-14-2010

Section B:

Standards and Assessments

KEITH W. RHEAULT
Superintendent of Public Instruction

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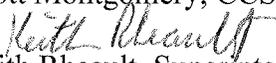
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May 20, 2009

MEMORANDUM

TO: Dana Linn, NGA Center
Scott Montgomery, CCSSO

FROM: 
Keith Rheault, Superintendent of Public Instruction
Nevada Department of Education

SUBJECT: Signed Memorandum of Agreement for Nevada to Participate in Common Core Standards Initiative

On behalf of Governor Jim Gibbons and the Nevada Department of Education, I am officially submitting the signed Memorandum of Agreement (MOA) so that the State of Nevada can be considered a full participant in the Common Core Standards Initiative. We look forward to participating in this exciting initiative and thank both NGA and CCSSO for their work in facilitating the process.

I will be serving as the point of contact for the initiative. My contact information is as follows:

Dr. Keith Rheault
Superintendent of Public Instruction
krheault@doe.nv.gov
Phone: 775-687-9217
FAX: 775-687-9202

Copy: Mendy Elliott, Deputy Chief of Staff
Governor Jim Gibbons

**The Council of Chief State School Officers and
The National Governors Association Center for Best Practices**

**Common Core Standards
Memorandum of Agreement**

Purpose. This document commits states to a state-led process that will draw on evidence and lead to development and adoption of a common core of state standards (common core) in English language arts and mathematics for grades K-12. These standards will be aligned with college and work expectations, include rigorous content and skills, and be internationally benchmarked. The intent is that these standards will be aligned to state assessment and classroom practice. The second phase of this initiative will be the development of common assessments aligned to the core standards developed through this process.

Background. Our state education leaders are committed to ensuring all students graduate from high school ready for college, work, and success in the global economy and society. State standards provide a key foundation to drive this reform. Today, however, state standards differ significantly in terms of the incremental content and skills expected of students.

Over the last several years, many individual states have made great strides in developing high-quality standards and assessments. These efforts provide a strong foundation for further action. For example, a majority of states (35) have joined the American Diploma Project (ADP) and have worked individually to align their state standards with college and work expectations. Of the 15 states that have completed this work, studies show significant similarities in core standards across the states. States also have made progress through initiatives to upgrade standards and assessments, for example, the New England Common Assessment Program.

Benefits to States. The time is right for a state-led, nation-wide effort to establish a common core of standards that raises the bar for all students. This initiative presents a significant opportunity to accelerate and drive education reform toward the goal of ensuring that all children graduate from high school ready for college, work, and competing in the global economy and society. With the adoption of this common core, participating states will be able to:

- Articulate to parents, teachers, and the general public expectations for students;
- Align textbooks, digital media, and curricula to the internationally benchmarked standards;
- Ensure professional development to educators is based on identified need and best practices;
- Develop and implement an assessment system to measure student performance against the common core; and
- Evaluate policy changes needed to help students and educators meet the common core standards and “end-of-high-school” expectations.

An important tenet of this work will be to increase the rigor and relevance of state standards across all participating states; therefore, no state will see a decrease in the level of student expectations that exist in their current state standards.

Process and Structure

- **Common Core State-Based Leadership.** The Council of Chief State School Officers (CCSSO) and the National Governors Association Center for Best Practices (NGA Center) shall assume responsibility for coordinating the process that will lead to state adoption of a common core set of standards. These organizations represent governors and state commissioners of education who are charged with defining K-12 expectations at the state level. As such, these organizations will

facilitate a state-led process to develop a set of common core standards in English language arts and math that are:

- Fewer, clearer, and higher, to best drive effective policy and practice;
 - Aligned with college and work expectations, so that all students are prepared for success upon graduating from high school;
 - Inclusive of rigorous content and application of knowledge through high-order skills, so that all students are prepared for the 21st century;
 - Internationally benchmarked, so that all students are prepared for succeeding in our global economy and society; and
 - Research and evidence-based.
- **National Validation Committee.** CCSSO and the NGA Center will create an expert validation group that will serve a several purposes, including validating end-of-course expectations, providing leadership for the development of K-12 standards, and certifying state adoption of the common core. The group will be comprised of national and international experts on standards. Participating states will have the opportunity to nominate individuals to the group. The national validation committee shall provide an independent review of the common core. The national validation committee will review the common core as it is developed and offer comments, suggestions, and validation of the process and products developed by the standards development group. The group will use evidence as the driving factor in validating the common core.
- **Develop End-of-High-School Expectations.** CCSSO and the NGA Center will convene Achieve, ACT and the College Board in an open, inclusive, and efficient process to develop a set of end-of-high-school expectations in English language arts and mathematics based on evidence. We will ask all participating states to review and provide input on these expectations. This work will be completed by July 2009.
- **Develop K-12 Standards in English Language Arts and Math.** CCSSO and the NGA Center will convene Achieve, ACT, and the College Board in an open, inclusive, and efficient process to develop K-12 standards that are grounded in empirical research and draw on best practices in standards development. We will ask participating states to provide input into the drafting of the common core and work as partners in the common core standards development process. This work will be completed by December 2009.
- **Adoption.** The goal of this effort is to develop a true common core of state standards that are internationally benchmarked. Each state adopting the common core either directly or by fully aligning its state standards may do so in accordance with current state timelines for standards adoption not to exceed three (3) years.

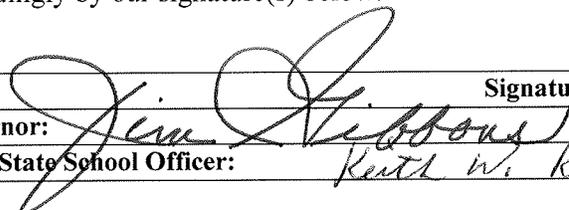
This effort is voluntary for states, and it is fully intended that states adopting the common core may choose to include additional state standards beyond the common core. States that choose to align their standards to the common core standards agree to ensure that the common core represents at least 85 percent of the state's standards in English language arts and mathematics.

Further, the goal is to establish an ongoing development process that can support continuous improvement of this first version of the common core based on research and evidence-based learning and can support the development of assessments that are aligned to the common core across the states, for accountability and other appropriate purposes.

- **National Policy Forum.** CCSSO and the NGA Center will convene a National Policy Forum (Forum) comprised of signatory national organizations (e.g., the Alliance for Excellent Education, Business Roundtable, National School Boards Association, Council of Great City Schools, Hunt Institute, National Association of State Boards of Education, National Education Association, and others) to share ideas, gather input, and inform the common core initiative. The forum is intended as a place for refining our shared understanding of the scope and elements of a common core; sharing and coordinating the various forms of implementation of a common core; providing a means to develop common messaging between and among participating organizations; and building public will and support.

- **Federal Role.** The parties support a state-led effort and not a federal effort to develop a common core of state standards; there is, however, an appropriate federal role in supporting this state-led effort. In particular, the federal government can provide key financial support for this effort in developing a common core of state standards and in moving toward common assessments, such as through the Race to the Top Fund authorized in the American Recovery and Reinvestment Act of 2009. Further, the federal government can incentivize this effort through a range of tiered incentives, such as providing states with greater flexibility in the use of existing federal funds, supporting a revised state accountability structure, and offering financial support for states to effectively implement the standards. Additionally, the federal government can provide additional long-term financial support for the development of common assessments, teacher and principal professional development, other related common core standards supports, and a research agenda that can help continually improve the common core over time. Finally, the federal government can revise and align existing federal education laws with the lessons learned from states' international benchmarking efforts and from federal research.

Agreement. The undersigned state leaders agree to the process and structure as described above and attest accordingly by our signature(s) below.

Signatures	
Governor:	
Chief State School Officer:	<i>Keith W. Rheault, Nevada Dept. of Education</i>

Introduction to the Draft Common Core Standards

March 9, 2010

The Council of Chief State School Officers (CCSSO) and the National Governors Association Center for Best Practices (NGA Center) are pleased to present the draft Kindergarten-12 grade level Common Core State Standards documents that our organizations have produced on behalf of 48 states, two territories, and the District of Columbia. These English language arts and mathematics standards represent a set of expectations for student knowledge and skills that will result in high school graduates who are prepared for success in college and careers.

To develop these standards, CCSSO and the NGA Center worked with representatives from participating states, a wide range of educators, content experts, researchers, national organizations, and community groups. These drafts reflect their input, and we are grateful for the time and insight hundreds of individuals have contributed to the development of these important documents.

Now, we seek public comment on these draft documents and encourage input via our online survey available at www.corestandards.org. The public comment period will end on April 2, 2010.

After our work groups have had an opportunity to review all of the feedback from the general public and state-led reviews, they will produce final documents. It is expected that the final set of standards documents will be available in late spring 2010.

You will notice that the college- and career-readiness standards have been incorporated into this draft. The final English language arts and mathematics standards documents will include college- and career-readiness standards along with the K-12 grade level standards.

The criteria that we used to develop the college- and career-readiness standards, as well as these K-12 grade level standards are:

- Aligned with college and work expectations;
- Include rigorous content *and* application of knowledge through high-order skills;
- Build upon strengths and lessons of current state standards;
- Informed by top-performing countries, so that all students are prepared to succeed in our global economy and society; and,
- Evidence and/or research-based.

The following links provide more information about the [criteria](#) and [considerations](#) for standards development.

The standards development process has maximized the best practices and research from across the nation and the world. While we have used all available research to shape these documents, we recognize that there is more to be learned about the most essential knowledge for student success. As new research is conducted and we evaluate the

implementation of the common core standards, we plan to revise the standards accordingly on a set review cycle.

Our organizations would also like to thank our advisory group, which provides advice and guidance on this initiative. Members of this group include experts from Achieve, Inc., ACT, the College Board, the National Association of State Boards of Education, and the State Higher Education Executive Officers.

Application of Common Core State Standards for English Language Learners

English language learners (ELLs) must be held to the same level of standards expected of students who are already proficient in English. However, these students are acquiring both English language proficiency and content area knowledge concurrently, so some students will require additional time, and all will require appropriate instructional support and aligned assessments.

ELLs are a heterogeneous group with differences in ethnic background, first language, socioeconomic status, quality of prior schooling, and levels of English language proficiency. Effectively educating these students requires diagnosing each student instructionally, adjusting instruction accordingly, and closely monitoring student progress. For example, ELLs who are literate in a first language that shares cognates with English can apply first-language vocabulary knowledge when reading in English; likewise ELLs with high levels of schooling can bring to bear conceptual knowledge developed in their first language when reading in a second language. However, ELLs with limited or interrupted schooling will need to acquire background knowledge prerequisite to educational tasks at hand. Those ELLs who are newcomers to U.S. schools will need sufficiently scaffolded instruction and assessments to make sense of content delivered in a second language and to display this content knowledge.

English Language Arts

The common core standards for English language arts (ELA) articulate rigorous grade-level expectations in the areas of speaking, listening, reading, and writing to prepare all students to be college and career ready, including English language learners. Second-language learners also will benefit from instruction about how to negotiate situations outside of those settings so they are able to participate on equal footing with native speakers in all aspects of social, economic, and civic endeavors.

ELLs bring with them many resources that enhance their education and can serve as resources for schools and society. Many ELLs have first language and literacy knowledge and skills that boost their acquisition of language and literacy in a second language; additionally, they bring an array of talents and cultural practices and perspectives that enrich our schools and our society. Teachers must build on this enormous reservoir of talent and provide those students who need it with additional time and appropriate instructional support. This includes language proficiency standards that teachers can use in conjunction with the ELA standards to assist ELLs in becoming proficient and literate in English.

To help ELLs meet high academic standards in language arts it is essential that they have access to:

- Teachers and personnel at the school and district levels who are well prepared and qualified to support ELLs while taking advantage of the many strengths and skills they bring to the classroom;

- Literacy-rich school environments where students are immersed in a variety of language experiences;
- Instruction that develops foundational skills in English that enable ELLs to participate fully in grade-level coursework;
- Coursework that prepares ELLs for postsecondary education or the workplace yet is made comprehensible for students learning content in a second language (through specific pedagogical techniques and additional resources);
- Opportunities for classroom discourse and interaction that are well-designed to enable ELLs to develop communicative strengths in language arts;
- Ongoing assessment and feedback to guide learning; and
- Speakers of English who know the language well enough to provide ELLs with models and support.

Mathematics

ELLs can participate in mathematical discussions as they learn English. Mathematics instruction for ELL students should draw on multiple resources and modes available in classrooms—such as objects, drawings, inscriptions, and gestures—as well as home languages and mathematical experiences outside of school. While mathematics instruction for ELLs should address mathematical discourse and academic language, this involves much more than vocabulary instruction.

Language is a resource for learning mathematics; it is not only a tool for communicating, but also a tool for thinking and reasoning mathematically. All languages and language varieties (e.g., different dialects, home or everyday ways of talking, vernacular, slang) provide resources for mathematical thinking, reasoning, and communicating.

Regular and active participation in the classroom—not only reading and listening but also discussing, explaining, writing, representing, and presenting—is critical to the success of ELLs in mathematics. Research has shown that ELLs can produce explanations, presentations, etc. and participate in classroom discussions *as they are learning English*.

ELLs, like English-speaking students, require regular access to teaching practices that are most effective for improving student achievement. Mathematical tasks should be kept at high cognitive demand; teachers and students should attend explicitly to concepts; and students should wrestle with important mathematics.

Overall, research suggests that:

- Language switching can be swift, highly automatic, and facilitate rather than inhibit solving word problems in the second language, as long as the student’s language proficiency is sufficient for understanding the text of the word problem.
- Instruction should ensure that students understand the text of word problems before they attempt to solve them.
- Instruction should include a focus on “mathematical discourse” and “academic language” because these are important for ELLs. Although it is critical that

students who are learning English have opportunities to communicate mathematically, this is not primarily a matter of learning vocabulary. Students learn to participate in mathematical reasoning, not by learning vocabulary, but by making conjectures, presenting explanations, and/or constructing arguments.

- While vocabulary instruction is important, it is not sufficient for supporting mathematical communication. Furthermore, vocabulary drill and practice are not the most effective instructional practices for learning vocabulary. Research has demonstrated that vocabulary learning occurs most successfully through instructional environments that are language-rich, actively involve students in using language, require that students both understand spoken or written words and also express that understanding orally and in writing, and require students to use words in multiple ways over extended periods of time. To develop written and oral communication skills, students need to participate in negotiating meaning for mathematical situations and in mathematical practices that require output from students.

Application of Common Core State Standards for Students with Disabilities

The Common Core Standards articulate rigorous, grade-level expectations in the areas of English language arts and mathematics to prepare students to be college and career ready.

All students, including students with disabilities— students eligible under the Individuals with Disabilities Education Act (IDEA) — must be challenged to excel within the general curriculum and prepared for success in their post-school lives, including college and/ or careers. The common core state standards provide a historic opportunity to improve access to academic content standards for students with disabilities. The continued development of understanding about research-based instructional practices and a focus on their effective implementation will also help improve access to the common core state standards.

Students with disabilities are a heterogeneous group with one common characteristic: the presence of disabling conditions that significantly hinder their abilities to benefit from general education (IDEA 34 CFR §300.39, 2004). Therefore, *how* these high standards are taught and assessed is of the utmost importance in reaching this diverse group of students.

For special education students to meet high academic standards and to fully demonstrate their conceptual and procedural knowledge and skills in mathematics and English language arts, their instruction must incorporate supports and often times, accommodations, including:

- Special education supports and related services designed to meet the unique needs of these students and to enable their access to the general education curriculum (IDEA 34 CFR §300.34, 2004).
- An Individualized Education Program, which includes annual goals aligned with and chosen to facilitate their attainment of grade-level academic standards.
- Teachers and specialized instructional support personnel who are prepared and qualified to deliver high-quality, evidence-based, individualized instruction and support services.

Promoting a culture of high expectations for all students is a fundamental goal of the common core state standards. To participate with success in the general curriculum, students with disabilities, as appropriate, may be provided additional supports and services, such as:

- Instructional supports for learning, based on the principles of Universal Design for Learning, which foster student engagement by presenting information in multiple ways and allowing for diverse avenues of action and expression.
- Instructional accommodations —changes in materials or procedures— which do not change the standards but allow students to learn within the framework of the common core state standards.

- Assistive technology devices and services to ensure access to the general education curriculum and the common core state standards.

For some students with significant cognitive disabilities to access certain standards, those standards may need to be extended and/or adjusted. However, standards should be extended and/or adjusted only after students receive access to multiple means of learning and demonstrating knowledge. Any extensions and/ or adjustments must align with and retain the rigor and high expectations of the common core state standards.

COMMON CORE STATE STANDARDS

FOR Mathematics

DRAFT

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Introduction

Toward greater focus and coherence

The composite standards [of Hong Kong, Korea and Singapore] have a number of features that can inform an international benchmarking process for the development of K–6 mathematics standards in the US. First, the composite standards concentrate the early learning of mathematics on the number, measurement, and geometry strands with less emphasis on data analysis and little exposure to algebra. The Hong Kong standards for grades 1–3 devote approximately half the targeted time to numbers and almost all the time remaining to geometry and measurement.

Ginsburg, Leinwand and Decker, 2009

Mathematics experiences in early childhood settings should concentrate on (1) number (which includes whole number, operations, and relations) and (2) geometry, spatial relations, and measurement, with more mathematics learning time devoted to number than to other topics. The mathematical process goals should be integrated in these content areas. Children should understand the concepts and learn the skills exemplified in the teaching-learning paths described in this report.

National Research Council, 2009

In general, the US textbooks do a much worse job than the Singapore textbooks in clarifying the mathematical concepts that students must learn. Because the mathematics concepts in these textbooks are often weak, the presentation becomes more mechanical than is ideal. We looked at both traditional and non-traditional textbooks used in the US and found this conceptual weakness in both.

Ginsburg et al., 2005

Notable in the research base for these standards are conclusions from TIMSS and other studies of high-performing countries that the traditional US mathematics curriculum must become substantially more coherent and more focused in order to improve student achievement in mathematics. To deliver on the promise of common standards, the standards must address the problem of a curriculum that is ‘a mile wide and an inch deep.’ The draft Common Core State Standards for Mathematics are a substantial answer to this challenge.

It is important to recognize that “fewer standards” are no substitute for *focused* standards. Achieving “fewer standards” would be easy to do by simply resorting to broad, general statements. Instead, the draft Common Core State Standards for Mathematics aim for clarity and specificity.

Assessing the coherence of a set of standards is more difficult than assessing their focus. William Schmidt and Richard Houang (2002) have said that content standards and curricula are coherent if they are:

articulated over time as a sequence of topics and performances that are logical and reflect, where appropriate, the sequential or hierarchical nature of the disciplinary content from which the subject matter derives. That is, what and how students are taught should reflect not only the topics that fall within a certain academic discipline, but also the key ideas that determine how knowledge is organized and generated within that discipline. This implies that “to be coherent,” a set of content standards must evolve from particulars (e.g., the meaning and operations of whole numbers, including simple math facts and routine computational procedures associated with whole numbers and fractions) to deeper structures inherent in the discipline. This deeper structure then serves as a means for connecting the particulars (such as an understanding of the rational number system and its properties). (emphasis added)

The draft Common Core State Standards for Mathematics endeavor to follow such a design, not only by stressing conceptual understanding of the key ideas, but also by continually returning to organizing principles such as place value or the laws of arithmetic to structure those ideas.

The standards in this draft document define what students should understand and be able to do. Asking a student to understand something means asking a teacher to assess whether the student has understood it. But what does mathematical understanding look like? One hallmark of mathematical understanding is the ability to justify, in a way appropriate to the student’s mathematical maturity, *why* a particular mathematical statement is true or where a mathematical rule comes from. There is a world of difference between the student who can summon a mnemonic device such as “FOIL” to expand a product such as $(a + b)(x + y)$ and a student who can explain where that mnemonic comes from. Teachers often observe this difference firsthand, even if large-scale assessments in the year 2010 often do not. The student who can explain the rule understands the mathematics, and may have a better chance to succeed at a less familiar task such as expanding $(a + b + c)(x + y)$. Mathematical understanding and procedural skill are equally important, and both are assessable using mathematical tasks of sufficient richness.

The draft Common Core State Standards for Mathematics begin on the next page with eight Standards for Mathematical Practice. These are not a list of individual math topics, but rather a list of ways in which developing student-practitioners of mathematics increasingly ought to engage with those topics as they grow in mathematical maturity and expertise throughout the elementary, middle and high school years.

Grateful acknowledgment is here made to Dr. Cathy Kessel for editing the draft standards.

Mathematics | Standards for Mathematical Practice

Proficient students of all ages expect mathematics to make sense. They take an active stance in solving mathematical problems. When faced with a non-routine problem, they have the courage to plunge in and try something, and they have the procedural and conceptual tools to continue. They are experimenters and inventors, and can adapt known strategies to new problems. They think strategically.

The practices described below are encouraged in apprentices by expert mathematical thinkers. Students who engage in these practices, individually and with their classmates, discover ideas and gain insights that spur them to pursue mathematics beyond the classroom walls. They learn that effort counts in mathematical achievement. Encouraging these practices in students of all ages should be as much a goal of the mathematics curriculum as the learning of specific content.

1 Make sense of problems and persevere in solving them.

Mathematically proficient students start by explaining to themselves the meaning of a problem and looking for entry points to its solution. They analyze givens, constraints, relationships, and goals. They make conjectures about the form and meaning of the solution and plan a solution pathway rather than simply jumping into a solution attempt. They consider analogous problems, and try special cases and simpler forms of the original problem in order to gain insight into its solution. They monitor and evaluate their progress and change course if necessary. Older students might, depending on the context of the problem, transform algebraic expressions or change the viewing window on their graphing calculator to get the information they need.

Mathematically proficient students can explain correspondences between equations, verbal descriptions, tables, and graphs or draw diagrams of important features and relationships, graph data, and search for regularity or trends. Younger students might rely on using concrete objects or pictures to help conceptualize and solve a problem. Mathematically proficient students check their answers to problems using a different method, and they continually ask themselves, “Does this make sense?” They can understand the approaches of others to solving complex problems and identify correspondences between different approaches.

2 Reason abstractly and quantitatively.

Mathematically proficient students make sense of the quantities and their relationships in problem situations. Students bring two complementary abilities to bear on problems involving quantitative relationships: the ability to *decontextualize*—to abstract a given situation and represent it symbolically and manipulate the representing symbols as if they have a life of their own, without necessarily attending to their referents—and the ability to *contextualize*, to pause as needed during the manipulation process in order to probe into the referents for the symbols involved. Quantitative reasoning entails habits of creating a coherent representation of the problem at hand; considering the units involved; attending to the meaning of quantities, not just how to compute them; and knowing and flexibly using different properties of operations and objects.

3 Construct viable arguments and critique the reasoning of others.

Mathematically proficient students understand and use stated assumptions, definitions, and previously established results in constructing arguments. They make conjectures and build a logical progression of statements to explore the truth of their conjectures. They are able to analyze situations by breaking them into cases, and can recognize and use counterexamples. They justify their conclusions, communicate them to others, and respond to the arguments of others. They reason inductively about data, making plausible arguments that take into account the context from which the data arose. Mathematically proficient students are also able to compare the effectiveness of two plausible arguments, distinguish correct logic or reasoning from that which is flawed, and—if there is a flaw in an argument—explain what it is. Elementary students can construct arguments using concrete referents such as objects, drawings, diagrams, and actions. Such arguments can make sense and be correct, even though they are not generalized or made formal until later grades. Later, students learn to determine domains to which an argument applies. Students at all grades can listen or read the arguments of others, decide whether they make sense, and ask useful questions to clarify or improve the arguments.

4 Model with mathematics.

Mathematically proficient students can apply the mathematics they know to solve problems arising in everyday life, society, and the workplace. In early grades, this might be as simple as writing an addition equation to describe a situation. In middle grades, a

student might apply proportional reasoning to plan a school event or analyze a problem in the community. By high school, a student might use geometry to solve a design problem or use a function to describe how one quantity of interest depends on another. Mathematically proficient students who can apply what they know are comfortable making assumptions and approximations to simplify a complicated situation, realizing that these may need revision later. They are able to identify important quantities in a practical situation and map their relationships using such tools as diagrams, 2-by-2 tables, graphs, flowcharts and formulas. They can analyze those relationships mathematically to draw conclusions. They routinely interpret their mathematical results in the context of the situation and reflect on whether the results make sense, possibly improving the model if it has not served its purpose.

5 Use appropriate tools strategically.

Mathematically proficient students consider the available tools when solving a mathematical problem. These tools might include pencil and paper, concrete models, ruler, protractor, calculator, spreadsheet, computer algebra system, statistical package, or dynamic geometry software. Proficient students are sufficiently familiar with tools appropriate for their grade or course to make sound decisions about when each of these tools might be helpful, recognizing both the insight to be gained and their limitations. For example, mathematically proficient high school students interpret graphs of functions and solutions generated using a graphing calculator. They detect possible errors by strategically using estimation and other mathematical knowledge. When making mathematical models, they know that technology can enable them to visualize the results of varying assumptions, explore consequences, and compare predictions with data. Mathematically proficient students at various grade levels are able to identify relevant external mathematical resources, such as digital content located on a website, and use them to pose or solve problems. They are able to use technological tools to explore and deepen their understanding of concepts.

6 Attend to precision.

Mathematically proficient students try to communicate precisely to others. They try to use clear definitions in discussion with others and in their own reasoning. They state the meaning of the symbols they choose, are careful about specifying units of measure, and labeling axes to clarify the correspondence with quantities in a problem. They express numerical answers with a degree of precision appropriate for the problem context. In the elementary grades, students give carefully formulated explanations to each other. By the time they reach high school they have learned to examine claims and make explicit use of definitions.

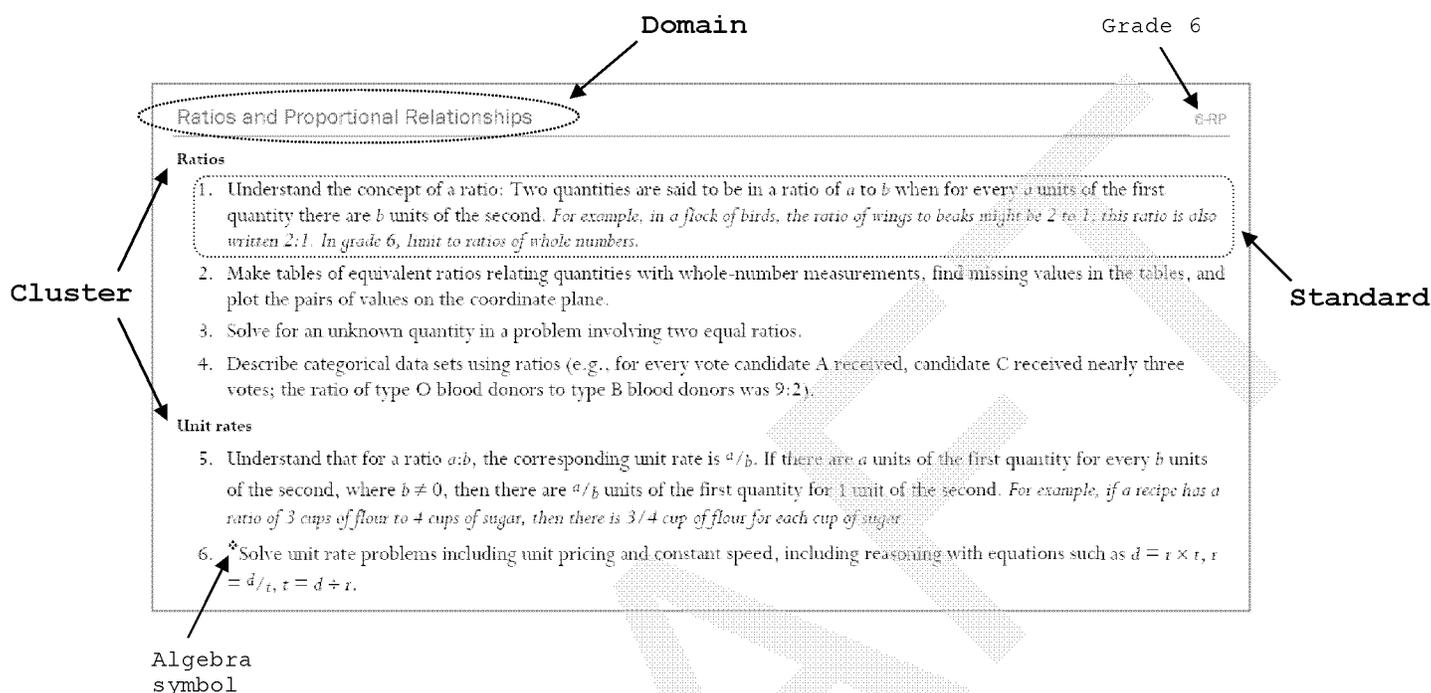
7 Look for and make use of structure.

Mathematically proficient students look closely to discern a pattern or structure. Young students, for example, might notice that three and seven more is the same amount as seven and three more, or they may sort a collection of shapes according to how many sides the shapes have. Later, students will see 7×8 equals the well remembered $7 \times 5 + 7 \times 3$, in preparation for learning about the distributive property. In the expression $x^2 + 9x + 14$, older students can see the 14 as 2×7 and the 9 as $2 + 7$. They recognize the significance of an existing line in a geometric figure and can use the strategy of drawing an auxiliary line for solving problems. They also can step back for an overview and shift perspective. They can see complicated things, such as some algebraic expressions, as single objects or as composed of several objects. For example, they can see $5 - 3(x - y)^2$ as 5 minus a positive number times a square and use that to realize that its value cannot be more than 5 for any real numbers x and y .

8 Look for and express regularity in repeated reasoning.

Mathematically proficient students notice if calculations are repeated, and look both for general methods and for shortcuts. Upper elementary students might notice when dividing 25 by 11 that they are repeating the same calculations over and over again, and conclude they have a repeating decimal. By paying attention to the calculation of slope as they repeatedly check whether points are on the line through (1, 2) with slope 3, middle school students might abstract the equation $(y - 2)/(x - 1) = 3$. Noticing the regularity in the way terms cancel when expanding $(x - 1)(x + 1)$, $(x - 1)(x^2 + x + 1)$, and $(x - 1)(x^3 + x^2 + x + 1)$ might lead them to the general formula for the sum of a geometric series. As they work to solve a problem, mathematically proficient students maintain oversight of the process, while attending to the details. They continually evaluate the reasonableness of their intermediate results.

How to read the grade level standards



Standards define what students should understand and be able to do. **Clusters** are groups of related standards. Note that standards from different clusters may sometimes be closely related, because mathematics is a connected subject. **Domains** are larger groups of related standards. For each grade level in Grades K–8, the standards are organized into four or five domains. Standards from different domains may sometimes be closely related.

Algebra Symbol: Key standards for the development of algebraic thinking in Grades K–5 are indicated by $*$.

Dotted Underlines: Dotted underlines, for example, decade words, indicate terms that are explained in the Glossary. In each grade, underlining is used for the first occurrence of a defined term, but not in subsequent occurrences.

Note on Grade Placement of Topics. What students can learn at any particular grade level depends upon what they have learned before. Ideally then, each standard in this document might have been phrased in the form, “Students who already know A should next come to learn B.” But in the year 2010 this approach is unrealistic—not least because existing education research cannot specify all such learning pathways. Of necessity therefore, grade placements for specific topics have been made on the basis of state and international comparisons and the collective experience and collective professional judgment of educators, researchers and mathematicians. One promise of common state standards is that over time they will allow research on learning progressions to inform and improve the design of standards to a much greater extent than is possible today. Learning opportunities will continue to vary across schools and school systems, and educators should make every effort to meet the needs of individual students based on their current understanding.

Note on Ordering of Topics within a Grade. These standards do not dictate curriculum. In particular, just because topic A appears before topic B in the standards for a given grade, it does not necessarily mean that topic A must be taught before topic B. A teacher might prefer to teach topic B before topic A, or might choose to highlight connections by teaching topic A and topic B at the same time. Or, a teacher might prefer to teach a topic of his or her own choosing that leads, as a byproduct, to students reaching the standards for topics A and B.

Overview of the Mathematics Standards Grades K–5

This table shows the domains and clusters in each grade K–5

	<i>K</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
Number— Counting and Cardinality	<ul style="list-style-type: none"> Number names Counting to tell the number of objects Comparing and ordering numbers 					
Number— Operations and the Problems They Solve	<ul style="list-style-type: none"> Composing and decomposing numbers; addition and subtraction 	<ul style="list-style-type: none"> Addition and subtraction Describing situations and solving problems with addition and subtraction 	<ul style="list-style-type: none"> Addition and subtraction Describing situations and solving problems with addition and subtraction 	<ul style="list-style-type: none"> Multiplication and division Describing situations and solving problems with multiplication and division 	<ul style="list-style-type: none"> Multiplication and Division Problem solving with the four operations 	
Number— Base Ten	<ul style="list-style-type: none"> Two-digit numbers Composing and decomposing ten 	<ul style="list-style-type: none"> Numbers up to 100 Adding and subtracting in base ten 	<ul style="list-style-type: none"> Numbers up to 1000 Adding and subtracting in base ten 	<ul style="list-style-type: none"> Numbers up to 10,000 Adding and subtracting in base ten Multiplying and dividing in base ten 	<ul style="list-style-type: none"> Numbers up to 100,000 Multiplying and dividing in base ten 	<ul style="list-style-type: none"> Whole numbers in base ten Decimal concepts Operations on decimals
Number— Fractions				<ul style="list-style-type: none"> Fractions as representations of numbers Fractional quantities 	<ul style="list-style-type: none"> Operations on fractions Decimal concepts 	<ul style="list-style-type: none"> Fraction equivalence Operations on fractions
Measurement and Data	<ul style="list-style-type: none"> Direct measurement Representing and interpreting data 	<ul style="list-style-type: none"> Length measurement Time measurement Representing and interpreting data 	<ul style="list-style-type: none"> Length measurement Time and money Representing and interpreting data 	<ul style="list-style-type: none"> The number line and units of measure Perimeter and area Representing and interpreting data 	<ul style="list-style-type: none"> The number line and units of measure Perimeter and area Angle measurement Representing and interpreting data 	<ul style="list-style-type: none"> Units of measure Volume Representing and interpreting data
Geometry	<ul style="list-style-type: none"> Shapes, their attributes, and spatial reasoning 	<ul style="list-style-type: none"> Shapes, their attributes, and spatial reasoning 	<ul style="list-style-type: none"> Shapes, their attributes, and spatial reasoning 	<ul style="list-style-type: none"> Properties of 2-dimensional shapes Structuring rectangular shapes 	<ul style="list-style-type: none"> Lines and angles Line symmetry 	<ul style="list-style-type: none"> Coordinates Plane figures

Overview of the Mathematics Standards Grades 6–8

This table shows the domains and clusters in each grade 6–8.

	Grade		
	6	7	8
Ratios and Proportional Relationships	<ul style="list-style-type: none"> Ratios Unit rates 	<ul style="list-style-type: none"> Analyzing proportional relationships Percent 	
The Number System	<ul style="list-style-type: none"> Operations The system of rational numbers 	<ul style="list-style-type: none"> The system of rational numbers The system of real numbers 	<ul style="list-style-type: none"> The system of real numbers
Expressions and Equations	<ul style="list-style-type: none"> Expressions Quantitative relationships and the algebraic approach to problems 	<ul style="list-style-type: none"> Expressions Quantitative relationships and the algebraic approach to solving problems 	<ul style="list-style-type: none"> Slopes of lines in the coordinate plane Linear equations and systems
Functions			<ul style="list-style-type: none"> Function concepts Functional relationships between quantities
Geometry	<ul style="list-style-type: none"> Properties of area, surface area, and volume 	<ul style="list-style-type: none"> Congruence and similarity Angles 	<ul style="list-style-type: none"> Congruence and similarity The Pythagorean Theorem Plane and solid geometry
Statistics and Probability	<ul style="list-style-type: none"> Variability and measures of center Summarizing and describing distributions 	<ul style="list-style-type: none"> Situations involving randomness Random sampling to draw inferences about a population Comparative inferences about two populations 	<ul style="list-style-type: none"> Patterns of association in bivariate data

Mathematics | Kindergarten

In Kindergarten, instructional time should focus on two critical areas: (1) representing, comparing and ordering whole numbers and joining and separating sets; (2) describing shapes and space. More learning time in Kindergarten should be devoted to number than to other topics.

(1) Students use numbers, including written numerals, to represent quantities and to solve quantitative problems, such as counting objects in a set; creating a set with a given number of objects; comparing and ordering sets or numerals; and modeling simple joining and separating situations with objects. They choose, combine, and apply effective strategies for answering quantitative questions, including quickly recognizing the cardinalities of small sets of objects, counting and producing sets of given sizes, counting the number of objects in combined sets, or counting the number of objects that remain in a set after some are taken away.

(2) Students describe their physical world using geometric ideas (e.g., shape, orientation, spatial relations) and vocabulary. They identify, name, and describe basic shapes, such as squares, triangles, circles, rectangles, (regular) hexagons, and (isosceles) trapezoids, presented in a variety of ways (e.g., with different sizes or orientations), as well as three-dimensional shapes such as spheres, cubes, and cylinders. They use basic shapes and spatial reasoning to model objects in their environment and to construct more complex shapes.

Number names

1. Say the number name sequence to 100.
2. Know the decade words to ninety and recite them in order (“ten, twenty, thirty, ...”).
3. Say the number name sequence forward or backward beginning from a given number within the known sequence (instead of always beginning at 1).
4. Write numbers from 1 to 20 in base-ten notation.

Counting to tell the number of objects

5. Count to answer “how many?” questions about as many as 20 things. *Objects may be arranged in a line, a rectangular array, a circle, or a scattered configuration.*
6. Understand that when counting objects,
 - a. The number names are said in the standard order.
 - b. Each object is paired with one and only one number name.
 - c. The last number name said tells the number of objects counted.
7. Understand that when counting forward, each successive number name refers to a quantity that is 1 larger.

Comparing and ordering numbers

8. Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group, e.g., by using matching and counting strategies. *Include groups with up to ten objects.*
9. Compare and put in order numbers between 1 and 10 presented in written symbols: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10.

Number—Operations and the Problems They Solve**Composing and decomposing numbers; addition and subtraction**

1. Understand addition as putting together—e.g., finding the number of objects in a group formed by putting two groups together. Understand subtraction as taking apart—e.g., finding the number of objects left when a one group is taken from another.
2. Represent addition and subtraction with objects, fingers, mental images, drawings, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations. *Note that drawings need not show details, but should show the mathematics in the problem. (This note also applies wherever drawings are mentioned in subsequent standards.)*
3. *Decompose numbers less than or equal to 10 into pairs in various ways, e.g., using objects or drawings, and record each decomposition by a drawing or equation (e.g., $5 = 2 + 3$). Compose numbers whose sum is less than or equal to 10, e.g., using objects or drawings, and record each composition by a drawing or equation (e.g., $3 + 1 = 4$).*
4. Compose and decompose numbers less than or equal to 10 in two different ways, and record compositions and decompositions by drawings or equations. *For example, 7 might be composed or decomposed in two different ways by a drawing showing how a group of 2 and a group of 5 together make the same number as do a group of 3 and a group of 4.*
5. *Understand that addition and subtraction are related. *For example, when a group of 9 is decomposed into a group of 6 and a group of 3, this means not only $9 = 6 + 3$ but also $9 - 3 = 6$ and $9 - 6 = 3$.*
6. *Solve addition and subtraction word problems, and calculate additions and subtractions within 10, e.g., using objects or drawings to represent the problem.
7. Fluently add and subtract, for sums and minuends of 5 or less.

Number—Base Ten**Two-digit numbers**

1. Understand that 10 can be thought of as a bundle of ones—a unit called a “ten.”
2. Understand that a teen number is composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones.
3. Compose and decompose teen numbers into a ten and some ones, e.g., by using objects or drawings, and record the compositions and decompositions in base-ten notation. *For example, $10 + 8 = 18$ and $14 = 10 + 4$.*
4. Put in order numbers presented in base-ten notation from 1 to 20 (inclusive), and be able to explain the reasoning.
5. Understand that a decade word refers to one, two, three, four, five, six, seven, eight, or nine tens.
6. Understand that the two digits of a two-digit number represent amounts of tens and ones. *In 29, for example, the 2 represents two tens and the 9 represents nine ones.*

Composing and decomposing ten

7. Decompose 10 into pairs of numbers, e.g., by using objects or drawings, and record each decomposition with a drawing or equation.
8. Compose numbers to make 10, e.g., by using objects or drawings, and record each composition with a drawing or equation.
9. *For any number from 1 to 9, find the number that makes 10 when added to the given number, e.g., by using objects or drawings, and record the answer with a drawing or equation.

Measurement and Data

K-MD

Direct measurement

1. Understand that objects have measurable attributes, such as length or weight. A single object might have several measurable attributes of interest.
2. Directly compare two objects with a measurable attribute in common, to see which object has “more of” the attribute. *For example, directly compare the heights of two books and identify which book is taller.*

Representing and interpreting data

3. Classify objects or people into given categories; count the numbers in each category and sort the categories by count. *Limit category counts to be less than or equal to 10.*

Geometry

K-G

Shapes, their attributes, and spatial reasoning

1. Describe objects in the environment using names of shapes, and describe the relative positions of these objects using terms such as *above*, *below*, *beside*, *in front of*, *behind*, and *next to*.
2. Understand that names of shapes apply regardless of the orientation or overall size of the shape. *For example, a square in any orientation is still a square. Students may initially need to physically rotate a shape until it is “level” before they can correctly name it.*
3. Understand that shapes can be two-dimensional (lying in a plane, “flat”) or three-dimensional (“solid”).
4. Understand that shapes can be seen as having parts, such as sides and vertices (“corners”), and that shapes can be put together to compose other shapes.
5. Analyze and compare a variety of two- and three-dimensional shapes, in different sizes and orientations, using informal language to describe their similarities, differences, component parts (e.g., number of sides and vertices) and other attributes (e.g., having sides of equal length).
6. Combine two- or three-dimensional shapes to solve problems such as deciding which puzzle piece will fit into a place in a puzzle.

Mathematics | Grade 1

In Grade 1, instructional time should focus on four critical areas: (1) developing understanding of addition, subtraction, and strategies for additions and subtractions within 20; (2) developing understanding of whole number relationships, including grouping in tens and ones, (3) developing understanding of linear measurement and measuring lengths, and (4) composing and decomposing geometric shapes.

(1) Students develop strategies for adding and subtracting whole numbers based on their prior work with small numbers. They use a variety of models, including discrete objects and length-based models (e.g., cubes connected to form lengths), to model “put together/take apart,” “add to,” “take from,” and “compare” situations to develop meaning for the operations of addition and subtraction, and to develop strategies to solve arithmetic problems with these operations. Students understand connections between counting and addition and subtraction (i.e., adding two is the same as counting on two). They use properties of addition (commutativity and associativity) to add whole numbers and to create and use increasingly sophisticated strategies based on these properties (e.g., “making tens”) to solve addition and subtraction problems within 20. By comparing a variety of solution strategies, children build their understanding of the inverse relationship between addition and subtraction.

(2) Students compare and order whole numbers (at least to 100), to develop understanding of and solve problems involving their relative sizes. They think of whole numbers between 10 and 100 in terms of tens and ones (especially recognizing the numbers 11 to 19 as composed of a ten and some ones). They understand the sequential order of the counting numbers and their relative magnitudes through activities such as representing numbers on paths of numbered things.

(3) Students develop an understanding of the meaning and processes of measurement, including underlying concepts such as partitioning (the mental activity of decomposing the length of an object into equal-sized units) and transitivity (e.g., in terms of length, if object A is longer than object B and object B is longer than object C, then object A is longer than object C). They understand linear measure as an iteration of units, and use rulers and other measurement tools with that understanding.

(4) Students compose and decompose plane and solid figures (e.g., put two congruent isosceles triangles together to make a rhombus), building understanding of part-whole relationships as well as the properties of the original and composite shapes. As they combine solid and plane figures, they recognize them from different perspectives and orientations, describe their geometric attributes, and determine how they are alike and different, to develop the background for measurement and for initial understandings of properties such as congruence and symmetry.

Addition and subtraction

1. * Understand the properties of addition.
 - a. Addition is commutative. For example, if 3 cups are added to a stack of 8 cups, then the total number of cups is the same as when 8 cups are added to a stack of 3 cups; that is, $8 + 3 = 3 + 8$.
 - b. Addition is associative. For example, $4 + 3 + 2$ can be found by first adding $4 + 3 = 7$ then adding $7 + 2 = 9$, or by first adding $3 + 2 = 5$ then adding $4 + 5 = 9$.
 - c. 0 is the additive identity.
2. * Explain and justify properties of addition and subtraction, e.g., by using representations such as objects, drawings, and story contexts. Explain what happens when:
 - a. The order of addends in a sum is changed in a sum with two addends.
 - b. 0 is added to a number.
 - c. A number is subtracted from itself.
 - d. One addend in a sum is increased by 1 and the other addend is decreased by 1. *Limit to two addends.*
3. * Understand that addition and subtraction have an inverse relationship. For example, if $8 + 2 = 10$ is known, then $10 - 2 = 8$ and $10 - 8 = 2$ are also known.
4. * Understand that when all but one of three numbers in an addition or subtraction equation are known, the unknown number can be found. *Limit to cases where the unknown number is a whole number.*
5. Understand that addition can be recorded by an expression (e.g., $6 + 3$), or by an equation that shows the sum (e.g., $6 + 3 = 9$). Likewise, subtraction can be recorded by an expression (e.g., $9 - 5$), or by an equation that shows the difference (e.g., $9 - 5 = 4$).

Describing situations and solving problems with addition and subtraction

6. Understand that addition and subtraction apply to situations of adding-to, taking-from, putting together, taking apart, and comparing. See *Glossary, Table 1*.
7. * Solve word problems involving addition and subtraction within 20, e.g., by using objects, drawings and equations to represent the problem. *Students should work with all of the addition and subtraction situations shown in the Glossary, Table 1, solving problems with unknowns in all positions, and representing these situations with equations that use a symbol for the unknown (e.g., a question mark or a small square). Grade 1 students need not master the more difficult problem types.*
8. Solve word problems involving addition of three whole numbers whose sum is less than or equal to 20.

Number—Base Ten**Numbers up to 100**

1. Read and write numbers to 100.
2. Starting at any number, count to 100 or beyond.
3. Understand that when comparing two-digit numbers, if one number has more tens, it is greater; if the amount of tens is the same in each number, then the number with more ones is greater.
4. Compare and order two-digit numbers based on meanings of the tens and ones digits, using $>$ and $<$ symbols to record the results of comparisons.

Adding and subtracting in base ten

5. Calculate mentally, additions and subtractions within 20.
 - a. Use strategies that include counting on; making ten (for example, $7 + 6 = 7 + 3 + 3 = 10 + 3 = 13$); and decomposing a number (for example, $17 - 9 = 17 - 7 - 2 = 10 - 2 = 8$).
6. Demonstrate fluency in addition and subtraction within 10.
7. Understand that in adding or subtracting two-digit numbers, one adds or subtracts like units (tens and tens, ones and ones) and sometimes it is necessary to compose or decompose a higher value unit.
8. Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count.
9. Add one-digit numbers to two-digit numbers, and add multiples of 10 to one-digit and two-digit numbers.
10. Explain addition of two-digit numbers using concrete models or drawings to show composition of a ten or a hundred.
11. * Add two-digit numbers to two-digit numbers using strategies based on place value, properties of operations, and/or the inverse relationship between addition and subtraction; explain the reasoning used.

Length measurement

1. Order three objects by length; compare the length of two objects indirectly by using a third object.
2. Understand that the length of an object can be expressed numerically by using another object as a length unit (such as a paper-clip, yardstick, or inch length on a ruler). The object to be measured is partitioned into as many equal parts as possible with the same length as the length unit. The length measurement of the object is the number of length units that span it with no gaps or overlaps. *For example, "I can put four paperclips end to end along the pencil, so the pencil is four paperclips long."*
3. Measure the length of an object by using another object as a length unit.

Time measurement

4. Tell time from analog clocks in hours and half- or quarter-hours.

Representing and interpreting data

5. Organize, represent, and interpret data with several categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.

Geometry**Shapes, their attributes, and spatial reasoning**

1. Distinguish between defining attributes (e.g., triangles are closed and three-sided) versus non-defining attributes (e.g., color, orientation, overall size) for a wide variety of shapes.
2. Understand that shapes can be joined together (composed) to form a larger shape or taken apart (decomposed) into a collection of smaller shapes. Composing multiple copies of some shapes creates tilings. *In this grade, "circles," "rectangles," and other shapes include their interiors as well as their boundaries.*
3. Compose two-dimensional shapes to create a unit, using cutouts of rectangles, squares, triangles, half-circles, and quarter-circles. Form new shapes by repeating the unit.
4. Compose three-dimensional shapes to create a unit, using concrete models of cubes, right rectangular prisms, right circular cones, and right circular cylinders. Form new shapes by repeating the unit. *Students do not need to learn formal names such as "right rectangular prism."*
5. Decompose circles and rectangles into two and four equal parts. Describe the parts using the words *halves*, *fourths*, and *quarters*, and using the phrases *half of*, *fourth of*, and *quarter of*. Describe the whole as two of, or four of the parts. Understand that decomposing into more equal shares creates smaller shares.
6. Decompose two-dimensional shapes into rectangles, squares, triangles, half-circles, and quarter-circles, including decompositions into equal shares.

Mathematics | Grade 2

In Grade 2, instructional time should focus on three critical areas: (1) developing understanding of base-ten notation; (2) developing fluency with additions and subtractions within 20 and fluency with multi-digit addition and subtraction; and (3) describing and analyzing shapes.

(1) Students develop an understanding of the base-ten system (at least to 1000). Their understanding of the base-ten system includes ideas of counting in units (twos, fives, and tens) and multiples of hundreds, tens, and ones, as well as number relationships, including comparing and ordering. They understand multi-digit numbers (up to 1000) written in base-ten notation, recognizing that the digits in each place represent thousands, hundreds, tens, or ones (e.g., 853 is 8 hundreds + 5 tens + 3 ones).

(2) Students use their understanding of addition to develop fluency with additions and subtractions within 20. They solve arithmetic problems by applying their understanding of models for addition and subtraction (such as combining or separating sets or using number lines that begin with zero), relationships and properties of numbers, and properties of addition. They develop, discuss, and use efficient, accurate, and generalizable methods to compute sums and differences of two-digit whole numbers. They select and accurately apply methods that are appropriate for the context and the numbers involved to mentally calculate sums and differences. They develop fluency with efficient procedures, including standard algorithms, for adding and subtracting whole numbers; understand and explain why the procedures work based on their understanding of base-ten notation and properties of operations; and use them to solve problems.

(3) Students describe and analyze shapes by examining their sides and angles. Students investigate, describe, and reason about decomposing and combining shapes to make other shapes. Through building, drawing, and analyzing two- and three-dimensional shapes, students develop a foundation for understanding attributes of two- and three-dimensional space such as area and volume, and properties such as congruence and symmetry that they will learn about in later grades.

Addition and subtraction

1. * Explain and justify properties of addition and subtraction, e.g., by using representations such as objects, drawings, and story contexts. Include properties such as:
 - a. Changing the order of addends does not change their sum.
 - b. Subtracting one addend from a sum of two numbers results in the other addend.
 - c. If more is subtracted from a number, the difference is decreased, and if less is subtracted the difference is increased.
 - d. In an addition equation, each addend can be decomposed and the parts can be recombined in any order without changing the sum. *For example, $5 + 3 = 8$. Because 5 decomposes as $4 + 1$, the first addend can be replaced by $4 + 1$, yielding $(4 + 1) + 3 = 8$. Recombining in two different orders: $4 + 4 = 8$, also $7 + 1 = 8$.*

Describing situations and solving problems with addition and subtraction

2. * Solve word problems involving addition and subtraction within 100, e.g., by using drawings or equations to represent the problem. *Students should work with all of the addition and subtraction situations shown in the Glossary, Table 1, solving problems with unknown sums, addends, differences, minuends, and subtrahends, and representing these situations with equations that use a symbol for the unknown (e.g., a question mark or a small square). Focus on the more difficult problem types.*
3. Solve two-step word problems involving addition and subtraction within 100, e.g., by using drawings or equations to represent the problem.

Number—Base Ten**Numbers up to 1000**

1. Understand that 100 can be thought of as a bundle of tens—a unit called a “hundred.”
2. Read and write numbers to 1000 using base-ten notation, number names, and expanded form.
3. Count within 1000; skip count by 2s, 5s, 10s, and 100s.
4. Understand that when comparing three-digit numbers, if one number has more hundreds, it is greater; if the amount of hundreds is the same in each number, then the number with more tens is greater. If the amount of tens and hundreds is the same in each number, then the number with more ones is greater.
5. Compare and order three-digit numbers based on meanings of the hundreds, tens, and ones digits.

Adding and subtracting in base ten

6. Fluently add and subtract within 20. By end of Grade 2, know from memory sums of one-digit numbers.
7. Mentally compute sums and differences of multiples of 10. *For example, mentally calculate $130 - 80$.*
8. Understand that in adding or subtracting three-digit numbers, one adds or subtracts like units (hundreds and hundreds, tens and tens, ones and ones) and sometimes it is necessary to compose or decompose a higher value unit.
9. Given a number from 100 to 900, mentally find 10 more or 10 less than the number, and mentally find 100 more or 100 less than the number, without counting.
10. Understand that algorithms are predefined steps that give the correct result in every case, while strategies are purposeful manipulations that may be chosen for specific problems, may not have a fixed order, and may be aimed at converting one problem into another. *For example, one might mentally compute $503 - 398$ as follows: $398 + 2 = 400$, $400 + 100 = 500$, $500 + 3 = 503$, so the answer is $2 + 100 + 3$, or 105.*
11. * Compute sums and differences of one-, two-, and three-digit numbers using strategies based on place value, properties of operations, and/or the inverse relationship between addition and subtraction; explain the reasoning used.
12. * Explain why addition and subtraction strategies and algorithms work, using place value and the properties of operations. *Include explanations supported by drawings or objects. A range of reasonably efficient algorithms may be covered, not only the standard algorithm.*
13. Compute sums of two three-digit numbers, and compute sums of three or four two-digit numbers, using the standard algorithm; compute differences of two three-digit numbers using the standard algorithm.

Measurement and Data**Length measurement**

1. Understand that 1 inch, 1 foot, 1 centimeter, and 1 meter are conventionally defined lengths used as standard units.
2. Measure lengths using measurement tools such as rulers, yardsticks and measuring tapes; understand that these tools are used to find out how many standard length units span an object with no gaps or overlaps, when the 0 mark of the tool is aligned with an end of the object.

3. Understand that when measuring a length, if a smaller unit is used, more copies of that unit are needed to measure the length than would be necessary if a larger unit were used.
4. Understand that units can be decomposed into smaller units, e.g., 1 foot can be decomposed into 12 inches and 1 meter can be decomposed into 100 centimeters. A small number of long units might compose a greater length than a large number of small units.
5. Understand that lengths can be compared by placing objects side by side, with one end lined up. The difference in lengths is how far the longer extends beyond the end of the shorter.
6. Understand that a sum of two whole numbers can represent a combination of two lengths; a difference of two whole numbers can represent a difference in length; find total lengths and differences in lengths using addition and subtraction.

Time and money

7. Find time intervals between hours in one day.
8. Solve word problems involving dollar bills, quarters, dimes, nickels and pennies. *Do not include dollars and cents in the same problem.*

Representing and interpreting data

9. Generate measurement data by measuring whole-unit lengths of several objects, or by making repeated measurements of the same object. Show the measurements by making a dot plot, where the horizontal scale is marked off in whole-number units.
10. Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with several categories. Connect representations on bar graph scales, rulers, and number lines that begin with zero. Solve simple Put Together/Take Apart and Compare problems using information presented in a bar graph. *See Glossary, Table 1.*

Geometry

2-G

Shapes, their attributes, and spatial reasoning

1. Understand that different categories of shapes (e.g., rhombuses, trapezoids, rectangles, and others) can be united into a larger category (e.g., quadrilaterals) on the basis of shared attributes (e.g., having four straight sides).
2. Identify and name polygons of up to six sides by the number of their sides or angles.
3. Recognize rectangles, rhombuses, squares and trapezoids as examples of quadrilaterals; draw examples of quadrilaterals that do not belong to any of these subcategories.
4. Draw and identify shapes that have specific attributes, such as number of equal sides or number of equal angles. *Sizes of lengths and angles are compared directly or visually, not compared by measuring.*
5. Recognize objects as resembling spheres, right circular cylinders, and right rectangular prisms. *Students do not need to learn formal names such as "right rectangular prism."*
6. Decompose circular and rectangular objects into two, three, or four equal parts. Describe the parts using the words *halves, thirds, half of, a third of*, etc.; describe the wholes as two halves, three thirds, four fourths. Recognize that a half, a third, or a fourth of a circular or rectangular object—a graham cracker, for example—is the same size regardless of its shape.

Mathematics | Grade 3

In Grade 3, instructional time should focus on four critical areas: (1) developing understanding of multiplication and division and strategies for multiplication and division within 100; (2) developing understanding of fractions, starting with unit fractions; (3) developing understanding of the structure of rectangular arrays and of area; and (4) describing and analyzing two-dimensional shapes. Multiplication, division, and fractions are the most important developments in Grade 3.

(1) Students develop an understanding of the meanings of multiplication and division of whole numbers through the use of representations such as equal-sized groups, arrays, area models, and equal jumps on number lines for multiplication; and successive subtraction, partitioning, and sharing for division. Through this process, numbers themselves take on new meaning and are no longer only counters for single objects. They represent groups, a number of groups (for example, 3 teams of 6 people), or a comparative factor (3 times as long).

Students use properties of operations to calculate products of whole numbers. They use increasingly sophisticated strategies based on these properties to solve multiplication and division problems involving single-digit factors. By comparing a variety of solution strategies, students learn the inverse relationship between multiplication and division.

(2) Students develop an understanding of a definition of a fraction, beginning with unit fractions. They use fractions to represent parts of a whole or distances on a number line that begins with zero. Students understand that the size of a fractional part is relative to the size of the whole (for example, $\frac{1}{4}$ of a mile is longer than $\frac{3}{4}$ of a foot, even though $\frac{1}{4} < \frac{3}{4}$), and they are able to use fractions to represent numbers equal to, less than, and greater than one. They solve problems that involve comparing and ordering fractions using by models or strategies based on noticing common numerators or denominators.

(3) Students recognize area as an attribute of two-dimensional regions. They understand that area can be quantified by finding the total number of same-size units of area required to cover the shape without gaps or overlaps. They understand that a 1-unit by 1-unit square is the standard unit for measuring area. Students understand that rectangular arrays can be decomposed into identical rows or into identical columns. By decomposing rectangles into rectangular arrays of squares, students connect area measure to the area model used to represent multiplication, and they use this connection to justify using multiplication to determine the area of a rectangle. Students contrast area with perimeter.

(4) Students describe, analyze, and compare properties of two-dimensional shapes. They compare and classify the shapes by their sides and angles, and connect these with definitions of shapes. Students investigate, describe, and reason about decomposing and combining polygons to make other polygons. Through building, drawing, and analyzing two-dimensional shapes, students deepen their understanding of attributes and properties of two-dimensional objects.

Multiplication and division

1. Understand that multiplication of whole numbers is repeated addition. *For example, 5×7 means 7 added to itself 5 times. Products can be represented by rectangular arrays, with one factor the number of rows and the other the number of columns.*
2. *Understand the properties of multiplication.
 - a. Multiplication is commutative. *For example, the total number in 3 groups with 6 things each is the same as the total number in 6 groups with 3 things each, that is, $3 \times 6 = 6 \times 3$.*
 - b. Multiplication is associative. *For example, $4 \times 3 \times 2$ can be calculated by first calculating $4 \times 3 = 12$ then calculating $12 \times 2 = 24$, or by first calculating $3 \times 2 = 6$ then calculating $4 \times 6 = 24$.*
 - c. 1 is the multiplicative identity.
 - d. Multiplication distributes over addition (the distributive property). *For example, $5 \times (3 + 4) = (5 \times 3) + (5 \times 4)$.*
3. *Explain and justify properties of multiplication and division, e.g., by using representations such as objects, drawings, and story contexts. Include properties such as:
 - a. Changing the order of two factors does not change their product.
 - b. The product of a number and 1 is the number.
 - c. Dividing a nonzero number by itself yields 1.
 - d. Multiplying a quantity by a nonzero number, then dividing by the same number, yields the original quantity.
 - e. When one factor in a product is multiplied by a number and another factor divided by the same number, the product is unchanged. *Limit to multiplying and dividing by numbers that result in whole-number quotients.*
 - f. Products where one factor is a one-digit number can be computed by decomposing one factor as the sum of two numbers, multiplying each number by the other factor, and adding the two products.
4. *Understand that multiplication and division have an inverse relationship. *For example, if $5 \times 7 = 35$ is known, then $35 \div 5 = 7$ and $35 \div 7 = 5$ are also known. The division $35 \div 5$ means the number which yields 35 when multiplied by 5; because $5 \times 7 = 35$, then $35 \div 5 = 7$.*
5. *Understand that when all but one of three numbers in a multiplication or division equation are known, the unknown number can be found. *Limit to cases where the unknown number is a whole number.*

Describing situations and solving problems with multiplication and division

6. Understand that multiplication and division apply to situations with equal groups, arrays or area, and comparing. *See Glossary, Table 2.*
7. *Solve word problems involving multiplication and division within 100, using an equation with a symbol for the unknown to represent the problem. *This standard is limited to problems with whole-number quantities and whole-number quotients. Focus on situations described in the Glossary, Table 2.*
8. *Solve one- or two-step word problems involving the four operations. *This standard is limited to problems with whole-number quantities and whole-number quotients.*
9. Understand that multiplication and division can be used to compare quantities (see Glossary, Table 2); solve multiplicative comparison problems with whole numbers (problems involving the notion of “times as much”).

Number—Base Ten**Numbers up to 10,000**

1. Understand that 1000 can be thought of as a bundle of hundreds—a unit called a “thousand.”
2. Read and write numbers to 10,000 using base-ten notation, number names, and expanded form.
3. Count within 10,000; skip count by 10s, 100s and 1000s.
4. Understand that when comparing four-digit numbers, if one number has more thousands, it is greater; if the amount of thousands is the same in each number, then the number with more hundreds is greater; and so on. Compare and order four-digit numbers based on meanings of the digits.

Adding and subtracting in base ten

5. Mentally calculate sums and differences of multiples of 10, 100, and 1000. *For example, mentally calculate $1300 - 800$*
6. Given a number from 1000 to 9000, mentally find 100 more or 100 less than the number, and mentally find 1000 more or 1000 less than the number, without counting.

Multiplying and dividing in base ten

7. * Understand that the distributive property is at the heart of strategies and algorithms for multiplication and division computations with numbers in base-ten notation; use the distributive property and other properties of operations to explain patterns in the multiplication table and to derive new multiplication and division equations from known ones. *For example, the distributive property makes it possible to multiply 4×7 by decomposing 7 as $5 + 2$ and using $4 \times 7 = 4 \times (5 + 2) = (4 \times 5) + (4 \times 2) = 20 + 8 = 28$.*
8. Fluently multiply one-digit numbers by 10.
9. Use a variety of strategies for multiplication and division within 100. By end of Grade 3, know from memory products of one-digit numbers where one of the factors is 2, 3, 4, or 5.

Number—Fractions

3-NF

Fractions as representations of numbers

1. Understand that a unit fraction corresponds to a point on a number line. *For example, $1/3$ represents the point obtained by decomposing the interval from 0 to 1 into three equal parts and taking the right-hand endpoint of the first part. In Grade 3, all number lines begin with zero.*
2. Understand that fractions are built from unit fractions. *For example, $5/4$ represents the point on a number line obtained by marking off five lengths of $1/4$ to the right of 0.*
3. Understand that two fractions are equivalent (represent the same number) when both fractions correspond to the same point on a number line. Recognize and generate equivalent fractions with denominators 2, 3, 4, and 6 (e.g., $1/2 = 2/4$, $4/6 = 2/3$), and explain the reasoning.
4. Understand that whole numbers can be expressed as fractions. *Three important cases are illustrated by the examples $1 = 4/4$, $6 = 6/1$, and $7 = (4 \times 7)/4$. Expressing whole numbers as fractions can be useful for solving problems or making calculations.*

Fractional quantities

5. Understand that fractions apply to situations where a whole is decomposed into equal parts; use fractions to describe parts of wholes. *For example, to show $1/3$ of a length, decompose the length into 3 equal parts and show one of the parts.*
6. Compare and order fractional quantities with equal numerators or equal denominators, using the fractions themselves, tape diagrams, number line representations, and area models. Use $>$ and $<$ symbols to record the results of comparisons.

Measurement and Data

3-MD

The number line and units of measure

1. Understand that a number line has an origin (0) and a unit (1), with whole numbers one unit distance apart. Use number lines to represent problems involving distances, elapsed time, amounts of money and other quantities. *In such problems, the interval from 0 to 1 may represent a unit of distance, time, money, etc.*
2. Understand that a unit of measure can be decomposed into equal-sized parts, whose sizes can be represented as fractions of the unit. Convert measurements in one unit to measurements in a smaller or a larger unit, and solve problems involving such mixed units (e.g., feet and inches, weeks and days).

Perimeter and area

3. Understand and use concepts of area measurement.
 - a. A square with side length 1 unit, called “a unit square,” is said to have “one square unit” of area, and can be used to measure area.
 - b. A plane figure which can be covered without gaps or overlaps by n unit squares has an area of n square units. Areas of some other figures can be measured by using fractions of unit squares or using figures whose areas have been found by decomposing other figures.
 - c. When measuring an area, if a smaller unit of measurement is used, more units must be iterated to measure the area in those units.
 - d. Determine and compare areas by counting square units. *Use cm^2 , m^2 , in^2 , ft^2 , and improvised units.*
4. Understand that multiplication of whole numbers can be represented by area models; a rectangular region that is a length units by b length units (where a and b are whole numbers) and tiled with unit squares illustrates why the rectangle encloses an area of $a \times b$ square units.
5. Solve problems involving perimeters of polygons.
 - a. Add given side lengths, and multiply for the case of equal side lengths.
 - b. * Find an unknown length of a side in a polygon given the perimeter and all other side lengths; represent these problems with equations involving a letter for the unknown quantity.
 - c. Exhibit rectangles with the same perimeter and different area, and with the same area and different perimeter.

Representing and interpreting data

6. Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step “how many more” and “how many less” problems using information presented in scaled bar graphs. *Include single-unit scales and multiple-unit scales; for example, each square in the bar graph might represent 1 pet, 5 pets, or 10 pets.*
7. Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a dot plot, where the horizontal scale is marked off in appropriate units—whole numbers, halves, or quarters.

Geometry

3-G

Properties of 2-dimensional shapes

1. Understand that a given category of plane figures (e.g., triangles) has subcategories (e.g., isosceles triangles) defined by special properties.
2. Describe, analyze, compare and classify two-dimensional shapes by their properties and connect these properties to the classification of shapes into categories and subcategories (e.g., squares are “special rectangles” as well as “special rhombuses”). *Focus on triangles and quadrilaterals.*

Structuring rectangular shapes

3. Understand that rectangular regions can be tiled with squares in rows and columns, or decomposed into such arrays.
4. Structure a rectangular region spatially by decomposing it into rows and columns of squares. Determine the number of squares in the region using that spatial structure (e.g., by multiplication or skip counting).
5. Understand that shapes can be decomposed into parts with equal areas; the area of each part is a unit fraction of the whole. *For example, when a shape is partitioned into 4 parts with equal area, the area of each part is $\frac{1}{4}$ of the area of the shape.*

Mathematics | Grade 4

In Grade 4, instructional time should focus on four critical areas: (1) continuing to develop understanding and fluency with whole number multiplication, and developing understanding of multi-digit whole number division; (2) developing an understanding of addition and subtraction of fractions with like denominators, multiplication of fractions by whole numbers, and division of whole numbers with fractional answers; (3) developing an understanding of area; and (4) understanding that geometric figures can be analyzed and classified using properties such as having parallel sides, perpendicular sides, particular angle measures, and symmetry.

(1) Students use understandings of multiplication to develop fluency with multiplication and division within 100. They apply their understanding of models for multiplication (equal-sized groups, arrays, area models, equal intervals on a number line), place value, and properties of operations, in particular the distributive property, as they develop, discuss, and use efficient, accurate, and generalizable methods to compute products of multi-digit whole numbers. Depending on the numbers and the context, they select and accurately apply appropriate methods to estimate products or mentally calculate products. They develop fluency with efficient procedures, including the standard algorithm, for multiplying whole numbers; understand and explain why the procedures work based on place value and properties of operations; and use them to solve problems. Students apply their understanding of models for division, place value, properties of operations, and the relationship of division to multiplication as they develop, discuss, and use efficient, accurate, and generalizable procedures to find quotients involving multi-digit dividends. They select and accurately apply appropriate methods to estimate quotients and mentally calculate quotients, depending upon the context and the numbers involved.

(2) Students develop understanding of operations with fractions. They apply their understandings of fractions as built from unit fractions, and use fraction models to represent the addition and subtraction of fractions with like denominators. Students use the meaning of fractions and the meaning of multiplication to understand and explain why the procedure for multiplying a fraction by a whole number makes sense. They understand and explain the connection between division and fractions.

(3) Students develop their understanding of area. They understand and apply the area formula for rectangles and also find areas of shapes that can be decomposed into rectangles. They select appropriate units, strategies (e.g., decomposing shapes), and tools for solving problems that involve estimating and measuring area.

(4) Students describe, analyze, compare, and classify two-dimensional shapes. Through building, drawing, and analyzing two-dimensional shapes, students deepen their understanding of properties of two-dimensional objects and the use of them to solve problems involving symmetry.

Multiplication and division

1. Find the factor pairs for a given whole number less than or equal to 100; recognize prime numbers as numbers greater than 1 with exactly one factor pair. *Example: The factor pairs of 42 are {42, 1}, {21, 2}, {14, 3}, {7, 6}.*

Problem solving with the four operations

2. ✧ Solve multistep word problems involving the four operations with whole numbers.
3. ✧ Solve problems posed with both whole numbers and fractions. Understand that while quantities in a problem might be described with whole numbers, fractions, or decimals, the operations used to solve the problem depend on the relationships between the quantities regardless of which number representations are involved.
4. Assess the reasonableness of answers using mental computation and estimation strategies including rounding to the nearest 10 or 100.

Number—Base Ten**Numbers up to 100,000**

1. Understand that a digit in one place represents ten times what it represents in the place to its right. *For example, 7 in the thousands place represents 10 times as many as 7 in the hundreds place.*
2. Read, write and compare numbers to 100,000 using base-ten notation, number names, and expanded form.

Multiplying and dividing in base ten

3. Understand how the distributive property and the expanded form of a multi-digit number can be used to calculate products of multi-digit numbers.
 - a. ✧ The product of a one-digit number times a multi-digit number is the sum of the products of the one-digit number with the summands in the expanded form of the multi-digit number. Illustrate this numerically and visually using equations, rectangular arrays, area models, and tape diagrams.
 - b. Algorithms for multi-digit multiplication can be derived and explained by writing multi-digit numbers in expanded form and applying the distributive property.
4. Fluently multiply and divide within 100. By end of Grade 4, know from memory products of one-digit numbers where one of the factors is 6, 7, 8, or 9.
5. Mentally calculate products of one-digit numbers and one-digit multiples of 10, 100, and 1000 (e.g., 7×6000). Mentally calculate whole number quotients with divisors of 10 and 100.
6. Compute products and whole number quotients of two-, three- or four-digit numbers and one-digit numbers, and compute products of two two-digit numbers, using strategies based on place value, the properties of operations, and/or the inverse relationship between multiplication and division; explain the reasoning used.
7. Explain why multiplication and division strategies and algorithms work, using place value and the properties of operations. *Include explanations supported by drawings, equations, or both. A range of reasonably efficient algorithms may be covered, not only the standard algorithms.*
8. Compute products of two-digit numbers using the standard algorithm, and check the result using estimation.
9. Given two whole numbers, find an equation displaying the largest multiple of one which is less than or equal to the other. *For example, given 325 and 7, the equation $325 = 46 \times 7 + 3$ shows the largest multiple of 7 less than or equal to 325.*

Number—Fractions**Operations on fractions**

1. Understand addition of fractions:
 - a. Adding or subtracting fractions with the same denominator means adding or subtracting copies of unit fractions. *For example, $2/3 + 4/3$ is 2 copies of $1/3$ plus 4 copies of $1/3$, or 6 copies of $1/3$ in all, that is $6/3$.*
 - b. Sums of related fractions can be computed by replacing one with an equivalent fraction that has the same denominator as the other. *For example, the sum of the related fractions $2/3$ and $1/6$ can be computed by rewriting $2/3$ as $4/6$ and computing $4/6 + 1/6 = 5/6$.*
2. Compute sums and differences of fractions with like denominators, add and subtract related fractions within 1 (e.g., $1/2 + 1/4$, $3/10 + 4/100$, $7/8 - 1/4$), and solve word problems involving these operations.
3. ✧ Understand that the meaning of multiplying a fraction by a whole number comes from interpreting multiplication by a whole number as repeated addition. *For example, $3 \times 2/5 = 6/5$ because $3 \times 2/5 = 2/5 + 2/5 + 2/5 = 6/5$.*

- Solve word problems that involve multiplication of fractions by whole numbers; represent multiplication of fractions by whole numbers using tape diagrams and area models that explain numerical results.
- ✧ Understand that fractions give meaning to the quotient of any whole number by any non-zero whole number. *For example, $3 \div 4 = 3/4$, because $3/4$ multiplied by 4 equals 3. (The division $3 \div 4$ means the number which yields 3 when multiplied by 4.)*
- Solve word problems that involve non-whole number quotients of whole numbers; represent quotients of whole numbers using tape diagrams and area models that explain numerical results.

Decimal concepts

- Understand that a two-digit decimal is a sum of fractions with denominators 10 and 100. *For example, 0.34 is $3/10 + 4/100$.*
- Use decimals to hundredths to describe parts of wholes; compare and order decimals to hundredths based on meanings of the digits; and write fractions of the form $a/10$ or $a/100$ in decimal notation. *Use $>$ and $<$ symbols to record the results of comparisons.*

Measurement and Data

4-MD

The number line and units of measure

- Understand that the unit length on a number line (interval from 0 to 1) can be divided into parts of equal fractional length. Draw number line representations of problem situations involving length, height, and distance including fractional or decimal units. *For example, show distances along a race course to tenths of a mile on a number line, by dividing the unit length into 10 equal parts to get parts of length $1/10$; the endpoint of the segment of $1/10$ length from 0 represents $1/10$ of a mile from the starting point of the race. In Grade 4, all numbers lines begin with zero.*

Perimeter and area

- Understand that if a region is decomposed into several disjoint pieces, then the area of the region can be found by adding the areas of the pieces (when these areas are expressed in the same units).
- ✧ Apply the formulas for area of squares and rectangles. Measure and compute whole-square-unit areas of objects and regions enclosed by geometric figures which can be decomposed into rectangles. *Limit to situations requiring products of one-or two-digit numbers.*
- ✧ Find one dimension of a rectangle, given the other dimension and the area or perimeter; find the length of one side of a square, given the area or perimeter. Represent these problems using equations involving a letter for the unknown quantity.

Angle measurement

- Understand what an angle is and how it is measured:
 - An angle is formed by two rays with a common endpoint.
 - An angle is measured by reference to a circle with its center at the common endpoint of the rays. The measure of an angle is based on the fraction of the circle between the points where the two rays intersect the circle.
 - A one-degree angle turns through $1/360$ of a circle, where the circle is centered at the common endpoint of its rays; the measure of a given angle is the number of one-degree angles turned with no gaps or overlaps.
- Measure angles in whole-number degrees using a protractor; sketch angles of specified measure; ✧ find the measure of a missing part of an angle, given the measure of the angle and the measure of a part of it, representing these problems with equations involving a letter for the unknown quantity.

Representing and interpreting data

- Make a dot plot to display a data set of measurements in fractions of a unit ($1/2$, $1/4$, $1/8$). Solve problems involving addition and subtraction of fractions by using information presented in dot plots. *For example, from a dot plot find and interpret the difference in length between the longest and shortest specimens in an insect collection.*

Geometry

4-G

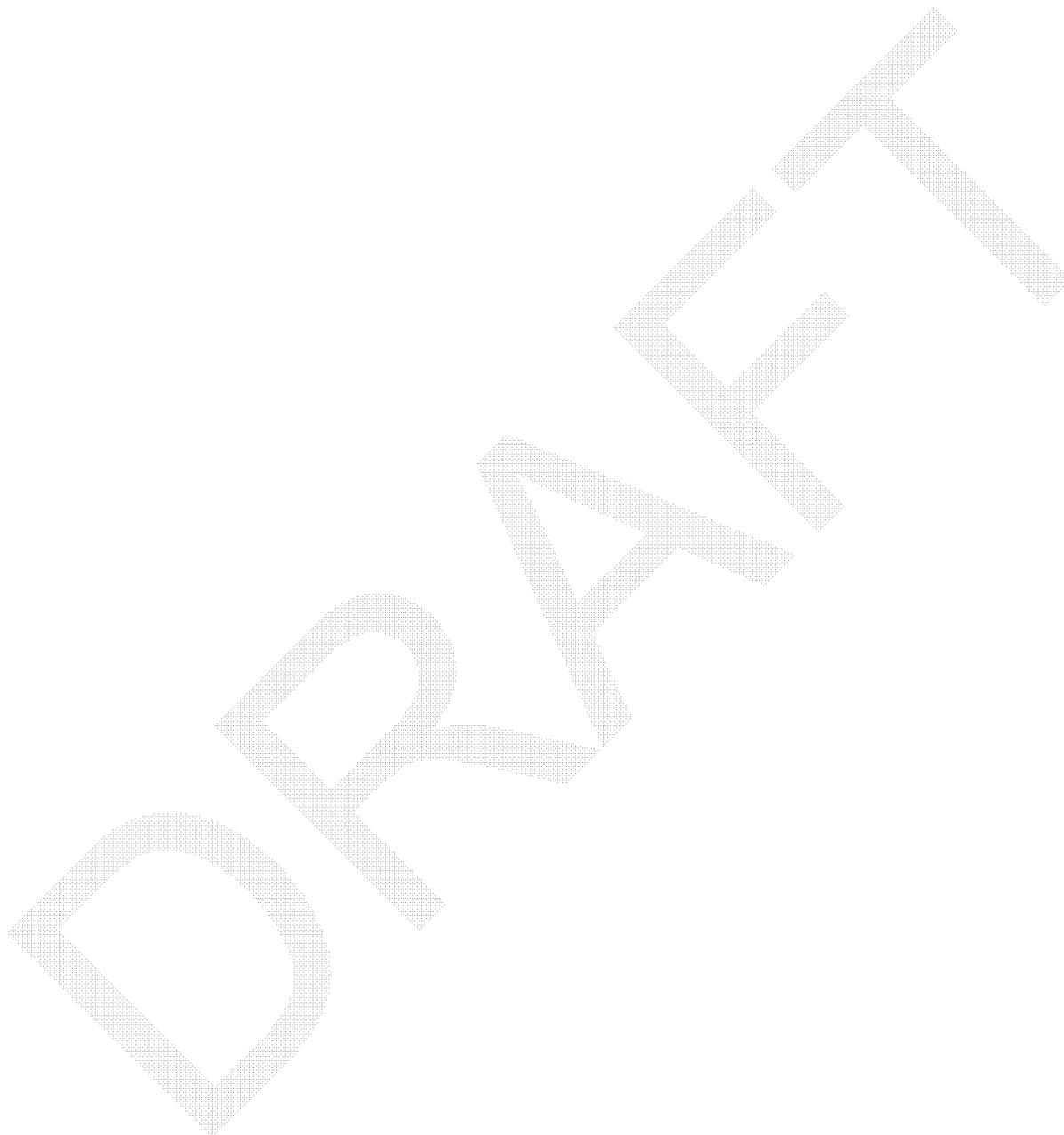
Lines and angles

- Draw points, lines, line segments, rays, angles, and perpendicular and parallel lines; identify these in plane figures.
- Identify right angles, and angles smaller than or greater than a right angle in geometric figures; recognize right triangles.
- Classify shapes based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of specified size.

Line symmetry

- Understand that a line of symmetry for a geometric figure is a line across the figure such that the figure can be folded along the line into matching parts

5. Identify line-symmetric figures; given a horizontal or vertical line and a drawing that is not a closed figure, complete the drawing to create a figure that is symmetric with respect to the given line.



Mathematics | Grade 5

In Grade 5, instructional time should focus on four critical areas: (1) developing fluency with addition and subtraction of fractions, developing understanding of the multiplication of fractions and of division of fractions in limited cases (fractions divided by whole numbers and whole numbers divided by unit fractions); (2) developing understanding of and fluency with division of multi-digit whole numbers; (3) developing understanding of and fluency with addition, subtraction, multiplication, and division of decimals; and (4) developing understanding of volume.

(1) Students apply their understanding of fractions and fraction models to represent the addition and subtraction of fractions with unlike denominators as equivalent calculations with like denominators. They develop fluency in calculating sums and differences of fractions, and make reasonable estimates of them. Students also use the meaning of fractions, of multiplication and division, and the inverse relationship between multiplication and division to understand and explain why the procedures for multiplying and dividing fractions make sense. (Note: this is limited to the case of dividing fractions by whole numbers and whole numbers by unit fractions.)

(2) Students develop fluency with division of whole numbers; understand why procedures work based on the meaning of base-ten notation and properties of operations; and use these procedures to solve problems. Based on the context of a problem situation, they select the most useful form of the quotient for the answer and interpret it appropriately.

(3) Students apply their understandings of models for decimals, decimal notation, and properties of operations to compute sums and differences of finite decimals. They develop fluency in these computations, and make reasonable estimates of their results. Students use the relationship between decimals and fractions, as well as the relationship between finite decimals and whole numbers (i.e., a finite decimal multiplied by an appropriate power of 10 is a whole number), to understand and explain why the procedures for multiplying and dividing finite decimals make sense. They compute products and quotients of finite decimals efficiently and accurately.

(4) Students recognize volume as an attribute of three-dimensional space. They understand that volume can be quantified by finding the total number of same-size units of volume required to fill the space without gaps or overlaps. They understand that a 1-unit by 1-unit by 1-unit cube is the standard unit for measuring volume. They select appropriate units, strategies, and tools for solving problems that involve estimating and measuring volume. They decompose three-dimensional shapes and find volumes of right rectangular prisms by viewing them as decomposed into layers of arrays of cubes. They measure necessary attributes of shapes in order to determine volumes to solve problems.

Whole numbers in base ten

1. Compute quotients of two-, three-, and four-digit whole numbers and two-digit whole numbers using strategies based on place value, the properties of operations, and/or the inverse relationship between multiplication and division; explain the reasoning used.
2. Explain why division strategies and algorithms work, using place value and the properties of operations. *Include explanations supported by drawings, equations, or both. A range of reasonably efficient algorithms may be covered, not only the standard algorithm.*
3. Use the standard algorithm to compute quotients of two-, three- and four-digit whole numbers and two-digit whole numbers, expressing the results as an equation (e.g., $145 = 11 \times 13 + 2$ or $120 \div 7 = 17 \frac{1}{7}$).
4. Fluently add, subtract and multiply whole numbers using the standard algorithm for each operation.

Decimal concepts

5. Read, write, and compare numbers expressed as decimals. Understand that a digit in one place represents ten times what it represents in the place to its right. *For example, 7 in the hundredths place represents 10 times as many as 7 in the thousandths place.*
6. Round decimals (to hundredths) to the nearest whole number.
7. Write fractions in decimal notation for fractions with denominators 2, 4, 5, 8, 10, and 100.

Operations on decimals

8. Understand that in adding or subtracting finite decimals, one adds or subtracts like units (tenths and tenths, hundredths and hundredths, etc.) and sometimes it is necessary to compose or decompose a higher value unit.
9. Fluently find 0.1 more than a number and less than a number; 0.01 more than a number and less than a number; and 0.001 more than a number and less than a number, for numbers expressed as finite decimals.
10. Compute sums and differences of finite decimals by expressing the decimals as fractions and adding the fractions. *For example, $0.05 + 0.91 = 5/100 + 91/100 = 96/100$ or 0.96.*
11. Compute sums, differences, products, and quotients of finite decimals using strategies based on place value, the properties of operations, and/or the inverse relationships between addition and subtraction and between multiplication and division; explain the reasoning used. *For example, transform $1.5 \div 0.3$ into $15 \div 3 = 5$.*
12. Explain why strategies and algorithms for computations with finite decimals work. *Include explanations supported by drawings, equations, or both. A range of reasonably efficient algorithms may be covered, not only the standard algorithm.*
13. Use the standard algorithm for each of the four operations on decimals (to hundredths).
14. Solve word problems involving operations on decimals.

Number—Fractions**Fraction equivalence**

1. ✧ Understand fraction equivalence:
 - a. Multiplying the numerator and denominator of a fraction by the same nonzero whole number produces an equivalent fraction. *For example, $2/3 = (2 \times 4)/(3 \times 4) = 8/12$. ($1/3$ is 4 copies of $1/12$, so $2/3$ is 8 copies of $1/12$.)*
 - b. Equivalent fractions correspond to the same point on a number line. *In Grade 5, all numbers lines begin with zero.*
 - c. When the numerators of equivalent fractions are divided by their denominators, the resulting quotients are the same.
2. Identify pairs of equivalent fractions; given two fractions with unlike denominators, find two fractions with the same denominator and equivalent to each.
3. Compare and order fractions with like or unlike denominators, e.g., by finding equivalent fractions with the same denominator, and describe the sizes of fractional quantities from a context with reference to the context. *Compare using the fractions themselves, tape diagrams or number line representations, and area models.*

Operations on fractions

4. Understand that sums and differences of fractions with unlike denominators can be computed by replacing each with an equivalent fraction so that the resulting fractions have the same denominator. *For example, $2/3 + 5/4 = 8/12 + 15/12 = 23/12$.*
5. Compute sums and differences of fractions with like or unlike denominators, and solve word problems involving addition and subtraction of fractions. Estimate fraction sums and differences to assess the reasonableness of results.
6. ✧ Understand that multiplying a fraction by a/b means taking a parts of a decomposition of the fraction into b equal parts. *For example, to multiply $2/3 \times 4/5 = 8/15$, one may decompose a whole of size $4/5$ into 3 equal parts; each part has size $4/15$. Two*

of these parts then make $8/15$, so $2/3 \times 4/5 = 8/15$. (In general, $a/b \times p/q = ap/bq$.) This standard includes multiplication of a whole number by a fraction, by writing the whole number as fraction with denominator 1.

7. Understand that the area of a rectangle with side lengths a/b and c/d is the product $a/b \times p/q$. This extends the area formula for rectangles to fractional side lengths, and also allows products of fractions to be represented visually as areas of rectangles.
8. *Explain and justify the properties of operations with fractions, e.g., by using equations, number line representations, area models, and story contexts.
9. Understand division of unit fractions by whole numbers and division of whole numbers by unit fractions:
 - a. Dividing a unit fraction $1/b$ by a whole number a results in a smaller unit fraction $1/a \times b$. For example, $1/3 \div 2 = 1/6$ because when $1/3$ is divided into 2 equal parts, the size of each part is $1/6$; a third of a pound of cheese shared between two people will give each person a sixth of a pound. (Using the inverse relationship between multiplication and division: $1/3 \div 2 = 1/6$ because $1/6 \times 2 = 1/3$.)
 - b. Dividing a whole number a by a unit fraction $1/b$ results in a greater whole number $a \times b$. For example, $2 \div 1/3 = 6$ because 6 is the number of $1/3$ s in 2; two pounds of cheese will make six portions of a third of a pound each. (Using the inverse relationship between multiplication and division: $2 \div 1/3 = 6$ because $6 \times 1/3 = 2$.)
10. Calculate products of fractions, and quotients of unit fractions and nonzero whole numbers (with either as divisor), and solve word problems involving these operations. Represent these operations using equations, area models and length models.
11. Understand that a mixed number such as $3 \frac{2}{5}$ represents the sum of a whole number and a fraction less than one. Because a whole number can be represented as a fraction ($3 = 3/1$), and the sum of two fractions is also a fraction, a mixed number also represents a fraction ($3 \frac{2}{5} = 3 + 2/5 = 15/5 + 2/5 = 17/5$). Write fractions as equivalent mixed numbers and vice versa.

Measurement and Data

5-MD

Units of measure

1. Understand that quantities expressed in like units can be added or subtracted giving a sum or difference with the same unit; different quantities may be multiplied to obtain a new kind of quantity (e.g., as when two lengths are multiplied to compute an area, or when an area and a length are multiplied to compute a volume).
2. Understand that when measuring a quantity, if a smaller unit is used, more units must be iterated to measure the quantity in those units.
3. Convert among different-sized standard measurement units within a given measurement system (e.g., feet to yards, centimeters to meters) and use conversion in solving multi-step word problems.

Volume

4. Understand concepts of volume measurement:
 - a. A cube with side length 1 unit (a unit cube) is said to have “one cubic unit” of volume, and can be used to measure volume.
 - b. The volume of a right rectangular prism with whole-unit side lengths can be found by packing it with unit cubes and using multiplication to count their number. For example, decomposing a right rectangular prism 3 length units wide by 5 units deep by 2 units tall shows that its volume is $3 \times 5 \times 2$ cubic units. The base of the prism has area 3×5 square units, so the volume can also be expressed as the height times the area of the base.
 - c. When measuring a volume, if a smaller unit is used, more units must be iterated to measure the volume in those units.
 - d. If a solid figure is decomposed into several disjoint pieces, then the volume enclosed by the figure can be found by adding the volumes of the pieces (when these volumes are expressed in the same units).
5. Decompose right rectangular prisms into layers of arrays of cubes; determine and compare volumes of right rectangular prisms, and objects well described as right rectangular prisms, by counting cubic units (using cm^3 , m^3 , in^3 , ft^3 , and improvised units).

Representing and interpreting data

6. Make a dot plot to display a data set of measurements in fractions of a unit ($1/2$, $1/4$, $1/8$). Use operations on fractions for this grade to solve problems involving information presented in dot plots. For example, given different measurements of liquid in identical beakers, find the amount of liquid each beaker would contain if the total amount in all the beakers were redistributed equally.

Geometry

5-G

Coordinates

1. Understand that a pair of perpendicular number lines, called axes, defines a coordinate system.
 - a. Their intersection is called the origin, usually arranged to coincide with the 0 on each line.
 - b. A given point in the plane can be located by using an ordered pair of numbers, called its coordinates. The first number indicates how far to travel from the origin in the direction of one axis, the second number indicates how far to travel in the direction of the second axis.
 - c. To avoid ambiguity, conventions dictate that the names of the two axes and the coordinates correspond (e.g., x -axis and x -coordinate, y -axis and y -coordinate).
2. Graph points in the first quadrant of the coordinate plane, and identify the coordinates of graphed points. Where ordered pairs arise in a problem situation, interpret the coordinate values in the context of the situation.

Plane figures

3. Understand that properties belonging to a category of plane figures also belong to all subcategories of that category. *For example, all rectangles have four right angles and squares are rectangles, so all squares have four right angles.*
4. Classify plane figures in a hierarchy based on properties.

Mathematics | Grade 6

In Grade 6, instructional time should focus on four critical areas: (1) connecting ratio and rate to whole number multiplication and division; (2) developing understanding of and fluency with division of fractions and developing fluency with multiplication of fractions; (3) developing understanding of and using formulas to determine areas of two-dimensional shapes and distinguishing between volume and surface area of three-dimensional shapes; and (4) writing, interpreting, and using expressions and equations.

(1) Students use reasoning about multiplication and division with quantities to solve ratio and rate problems. By viewing equivalent ratios and rates as deriving from, and extending, pairs of rows (or columns) in the multiplication table, and by analyzing simple drawings that indicate the relative size of quantities, students extend whole number multiplication and division to ratios and rates. Thus students expand their repertoires of problems in which multiplication and division can be used to solve problems, and they build on their understanding of fractions to understand ratios. Students solve a wide variety of problems involving ratios and rates.

(2) Students use the meaning of fractions, the meanings of multiplication and division, and the inverse relationship between multiplication and division to understand and explain why the procedures for dividing fractions make sense. Students are able to add, subtract, multiply, and divide fractions fluently, and use these operations to solve problems, including multi-step problems and problems involving measurement.

(3) Students reason about relationships among shapes to determine area and surface area. They find areas of right triangles, other triangles, and special quadrilaterals by decomposing these shapes, rearranging or removing pieces, and relating the shapes to rectangles. Using these methods, students discuss, develop, and justify formulas for areas of triangles and parallelograms. Students find areas of polygons and surface areas of prisms and pyramids by decomposition into pieces whose area they can determine.

(4) Students write mathematical expressions and equations that correspond to given situations, they evaluate expressions, and they use expressions and formulas to solve problems. Students understand that a variable is a letter standing for a number, where the number is unknown, or where, for the purpose at hand, it can be any number in the domain of interest. Students understand that expressions in different forms can be equivalent, and they use the laws of arithmetic to rewrite expressions to represent a total quantity in a different way (such as to represent it more compactly or to feature different information). Students know that the solutions of an equation are the values of the variables that make the equation true. Students use properties of operations and the idea of maintaining the equality of both sides of an equation to solve simple one-step equations. Students construct and analyze tables, such as tables of quantities that are in equivalent ratios, and they use equations (such as $3x = y$) to describe relationships in a table.

Having represented and analyzed data in Grades K–5, students in Grade 6 begin a serious engagement with statistics. The study of variability in data distinguishes statistics from mathematics. Students beginning their study of variability must first recognize statistical questions as those that anticipate variability in the answers. From this conceptual beginning, they learn to describe and summarize distributions of data—an activity that goes beyond merely computing summary statistics to include assessing the shape of a distribution and considering other issues as described in the standards.

Ratios

1. Understand the concept of a ratio: Two quantities are said to be in a ratio of a to b when for every a units of the first quantity there are b units of the second. *For example, in a flock of birds, the ratio of wings to beaks might be 2 to 1; this ratio is also written 2:1. In Grade 6, limit to ratios of whole numbers.*
2. Make tables of equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane.
3. Solve for an unknown quantity in a problem involving two equal ratios.
4. Describe categorical data sets using ratios (e.g., for every vote candidate A received, candidate C received nearly three votes; the ratio of type O blood donors to type B blood donors was 9:2).

Unit rates

5. Understand that for a ratio $a:b$, the corresponding unit rate is a/b . If there are a units of the first quantity for every b units of the second, where $b \neq 0$, then there are a/b units of the first quantity for 1 unit of the second. *For example, if a recipe has a ratio of 3 cups of flour to 4 cups of sugar, then there is $3/4$ cup of flour for each cup of sugar.*
6. ✦ Solve unit rate problems including unit pricing and constant speed, including reasoning with equations such as $d = r \times t$, $r = d/t$, $t = d \div r$.

The Number System**Operations**

1. Understand that the properties of operations apply to, and can be used with, addition and multiplication of fractions.
2. Understand that division of fractions is defined by viewing a quotient as the solution for an unknown-factor multiplication problem. *For example, $(2/3) \div (5/7) = 14/15$ because $(5/7) \times (14/15) = (2/3)$.*
3. Solve word problems requiring arithmetic with fractions, using the properties of operations and converting between forms as appropriate; estimate to check reasonableness of answers.
4. Fluently divide whole numbers using the standard algorithm.

The system of rational numbers

5. Understand that a number is a point on the number line.
6. Understand that some quantities have opposite directions, such as elevation above and below sea level or money received and spent. These quantities can be described using positive and negative numbers.
7. Understand that number lines familiar from previous grades can be extended to represent negative numbers to the left of zero. *Number lines can also be vertically oriented, as when a coordinate system is formed. Then the conventional terms “to the right of 0” and “to the left of 0” conventionally become “above 0” and “below 0.”*
 - a. Two different numbers, such as 7 and -7 , that are equidistant from zero on a number line are said to be opposites of one another. The opposite of the opposite of a number is the number itself, e.g., $-(-3) = 3$. The opposite of 0 is 0.
 - b. The absolute value of a number q , written $|q|$, is its distance from zero, and is always positive or zero.
 - c. Fractions and their opposites form a system of numbers called the rational numbers, represented by points on a number line. Whole numbers and their opposites form the integers, which are contained in the rational numbers.
 - d. Previous ways of comparing positive numbers can be extended to the rational numbers. The statement $p > q$ means that p is located to the right of q on a number line, while $p < q$ means that p is located to the left of q on a number line. Comparisons can also be made by reasoning appropriately about signed quantities (e.g., $-3 > -7$ makes sense because -3°C is a higher temperature than -7°C). The way two numbers compare does not always agree with the way their absolute values compare; for example, $-3 > -7$, but $|-3| < |-7|$.
8. Find and position rational numbers, including integers, on a number line.
9. Use rational numbers to describe quantities such as elevation, temperature, account balance and so on. Compare these quantities, recording the results of comparisons using $>$ and $<$ symbols.
10. Graph points and identify coordinates of points on the coordinate plane in all four quadrants. Where ordered pairs arise in a problem situation, interpret the coordinate values in the context of the situation.

Expressions

1. Understand that an expression records operations with numbers or with letters standing for numbers. *For example, the expression $2 \cdot (8 + 7)$ records adding 8 and 7 then multiplying by 2; the expression $5 - y$ records subtracting y from 5. Focus on the operations of addition, subtraction, multiplication and division, with some attention to square or cube roots.*
2. Understand the use of variables in expressions and algebraic conventions:
 - a. A letter is used to stand for a number in an expression in cases where the number is unknown, or where, for the purpose at hand, it can be any number in a domain of interest. Such a letter is called a variable.
 - b. If a variable appears in an expression more than once (e.g., as in $t + 3t$), that variable is understood to refer to the same number in each instance.
 - c. The multiplication symbol can be omitted when writing products of two or more variables or of a number and a variable. *For example, the expressions xy and $2a$ indicate $x \times y$ and $2 \times a$, respectively.*
3. Describe the structure and elements of simple expressions using correct terminology (sum, term, product, factor, quotient, coefficient); describe an expression by viewing one or more of its parts as a single entity. *For example, describe the expression $2 \cdot (8 + 7)$ as a product of two factors, by viewing $(8 + 7)$ as a single entity. The second factor is itself a sum of two terms.*
4. Understand and generate equivalent expressions:
 - a. Understand that two expressions are equivalent if they name the same number regardless of which numbers the variables in them stand for. *For example, the expressions $x + 3$ and $4x$ are not equivalent, even though they happen to name the same number in the case when x stands for 1.*
 - b. Understand that applying the laws of arithmetic to an expression results in an equivalent expression. *For example, applying the distributive law to the expression $3 \cdot (2 + x)$ leads to the equivalent expression $6 + 3x$. Applying the distributive law to $y + y + y$ leads to the equivalent expression $y \times (1 + 1 + 1)$, i.e., $y \times 3$ and then the commutative law of multiplication leads to the equivalent expression $3y$.*
 - c. Generate equivalent expressions to reinterpret the meaning of an expression. *For example, $2t + 3t$ records the addition of twice a quantity to three times itself; applying the distributive law leads to the equivalent expression $5t$, so that the original expression can be reinterpreted as recording five times the quantity.*

Quantitative relationships and the algebraic approach to problems

5. Understand that an equation is a statement that two expressions are equal, and a solution to an equation is a replacement value of the variable (or replacement values for all the variables if there is more than one) that makes the equation true.
6. Using the idea of maintaining equality between both sides of the equation, solve equations of the form $x + p = q$ and $px = q$ for cases in which p , q and x are all nonnegative rational numbers.
7. Choose variables to represent quantities in a word problem, and construct simple expressions or equations to solve the problem by reasoning about the quantities.
8. Understand that a variable can be used to represent a quantity that can change, often in relationship to another changing quantity, and an equation can express one quantity, thought of as the dependent variable, in terms of other quantities, thought of as the independent variables; represent a relationship between two quantities using equations, graphs, and tables; translate between any two of these representations. *For example, describe the terms in a sequence $t = 3, 6, 9, 12, \dots$ of multiples of 3 by writing the equation $t = 3n$ for $n = 1, 2, 3, 4, \dots$*

Geometry**Properties of area, surface area, and volume**

1. Understand that plane figures can be decomposed, reassembled, and completed into new figures; use this technique to derive area formulas.
2. Find the areas enclosed by right triangles, other triangles, special quadrilaterals, and polygons (by composing into rectangles or decomposing into triangles and other shapes).
3. Understand that three-dimensional figures can be formed by joining rectangles and triangles along their edges to enclose a solid region with no gaps or overlaps. The surface area is the sum of the areas of the enclosing rectangles and triangles.
4. Find the surface area of cubes, prisms and pyramids (include the use of nets to represent these figures).
5. Solve problems involving area, volume and surface area of objects.
6. Give examples of right rectangular prisms with the same surface area and different volumes, and with the same volume and different surface areas.

7. *Use exponents and symbols for square roots and cube roots to express the area of a square and volume of a cube in terms of their side lengths, and to express their side lengths in terms of their area or volume.

Statistics and Probability

6-SP

Variability and measures of center

1. Understand that a statistical question is one that anticipates variability in the data related to the question and accounts for it in the answers. *For example, “How old am I?” is not a statistical question, but “How old are the students in my school?” is a statistical question because one anticipates variability in students’ ages.*
2. Understand that a set of data generated by answers to a statistical question typically shows variability—not all of the values are the same—and yet often the values show an overall pattern, often with a tendency to cluster.
 - a. A measure of center for a numerical data set summarizes all of its values using a single number. The median is a measure of center in the sense that approximately half the data values are less than the median, while approximately half are greater. The mean is a measure of center in the sense that it is the value that each data point would take on if the total of the data values were redistributed fairly, and in the sense that it is the balance point of a data distribution shown on a dot plot.
 - b. A measure of variation for a numerical data set describes how its values vary using a single number. The interquartile range and the mean absolute deviation are both measures of variation.

Summarizing and describing distributions

3. Display numerical data in plots on a number line, including dot plots, histograms, and box plots.
4. Summarize numerical data sets, such as by:
 - a. Reporting the number of observations.
 - b. Describing the nature of the variable, including how it was measured and its units of measurement. *Data sets can include fractional values at this grade but not negative values.*
 - c. Describing center and variation, as well as describing any overall pattern and any striking deviations from the overall pattern.
5. Relate the choice of the median or mean as a measure of center to the shape of the data distribution being described and the context in which it is being used. Do the same for the choice of interquartile range or mean average deviation as a measure of variation. *For example, why are housing prices often summarized by reporting the median selling price, while students’ assigned grades are often based on mean homework scores?*

Mathematics | Grade 7

In Grade 7, instructional time should focus on four critical areas: (1) developing understanding of and applying proportional relationships; (2) developing understanding of operations with rational numbers and solving linear equations; (3) analyzing two- and three-dimensional space and figures using distance, angle, similarity, and congruence; and (4) drawing inferences about populations based on samples.

(1) Students extend their understanding of ratios and develop understanding of proportionality to solve single- and multi-step problems. Students use their understanding of ratios and proportionality to solve a wide variety of percent problems, including those involving discounts, interest, taxes, tips, and percent increase or decrease. Students solve problems about similar objects (including geometric figures) by using scale factors that relate corresponding lengths between the objects or by using the fact that relationships of lengths within an object are preserved in similar objects. Students graph proportional relationships and understand the unit rate informally as a measure of the steepness of the related line, called the slope. They distinguish proportional relationships from other relationships.

(2) Students develop a unified understanding of number, recognizing fractions, decimals, and percents as different representations of rational numbers. Students extend addition, subtraction, multiplication, and division and their properties to all rational numbers, including integers and numbers represented by complex fractions and negative fractions. By applying the laws of arithmetic, and by viewing negative numbers in terms of everyday contexts (e.g., amounts owed or temperatures below zero), students explain why the rules for adding, subtracting, multiplying, and dividing with negative numbers make sense. They use the arithmetic of rational numbers as they formulate and solve linear equations in one variable and use these equations to solve problems.

(3) Students use ideas about distance and angles, how they behave under dilations, translations, rotations and reflections, and ideas about congruence and similarity to describe and analyze figures and situations in two- and three-dimensional space and to solve problems, including multi-step problems. Students prove that various configurations of lines give rise to similar triangles because of the angles created when a transversal cuts parallel lines. Students apply this reasoning about similar triangles to solve problems, such as finding heights and distances. Students see the plausibility of the formulas for the circumference and area of a circle. For example, in the case of area, they may do so by reasoning about how lengths and areas scale in similar figures or by decomposing a circle or circular region and rearranging the pieces.

(4) Students build on their previous work with single data distributions to compare two data distributions and address questions about differences between populations. They begin informal work with random sampling to generate data sets and learn about the importance of representative samples for drawing inferences.

Analyzing proportional relationships

1. Form ratios of nonnegative rational numbers and compute corresponding unit rates. *For example, a person might walk $\frac{1}{2}$ mile in each $\frac{1}{4}$ hour; the unit rate for this ratio is $(\frac{1}{2})/(\frac{1}{4})$ miles per hour, equivalently 2 miles per hour. Include ratios of lengths, areas and other quantities, including when quantities being compared are measured in different units.*
2. Recognize situations in which two quantities covary and have a constant ratio. (The quantities are then said to be in a proportional relationship and the unit rate is called the constant of proportionality.) Decide whether two quantities that covary are in a proportional relationship, e.g., by testing for equivalent ratios or graphing on a coordinate plane.
3. Compute unit rates and solve proportional relationship problems in everyday contexts, such as shopping, cooking, carpentry, party planning, etc. Represent proportional relationships by equations that express how the quantities are related via the constant of proportionality or unit rate. *For example, total cost, t , is proportional to the number, n , purchased at a constant price, p ; this relationship can be expressed as $t = pn$.*
4. Plot proportional relationships on a coordinate plane where each axis represents one of the two quantities involved, observe that the graph is a straight line through the origin, and find unit rates from a graph. Explain what a point (x, y) means in terms of the situation, with special attention to the points $(0, 0)$ and $(1, r)$ where r is the unit rate.
5. Compare tables, graphs, formulas, diagrams, and verbal descriptions that represent or partially represent proportional relationships; explain correspondences among the representations including how the unit rate is shown in each.

Percent

6. Understand that percentages are rates per 100. For example, 30% of a quantity means $\frac{30}{100}$ times the quantity. A percentage can be a complex fraction, as in $3.75\% = \frac{3.75}{100}$.
7. Find a percentage of a quantity; solve problems involving finding the whole given a part and the percentage.
8. Solve multistep percent problems. *Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error, expressing monthly rent as a percentage of take-home pay.*

The Number System**The system of rational numbers**

1. Understand that the rules for manipulating fractions extend to complex fractions.
2. Understand and perform addition and subtraction with rational numbers:
 - a. Understand that on a number line, the sum $p + q$ is the number located a distance $|q|$ from p , to the right of p if q is positive and to the left of p if q is negative. A number and its opposite are additive inverses (i.e., their sum is zero).
 - b. Compute sums of signed numbers using the laws of arithmetic. *For example, $7 + (-3) = 4$ because $7 + (-3) = (4 + 3) + (-3) = 4 + [3 + (-3)] = 4 + [0] = 4$.*
 - c. Understand that subtraction of rational numbers is defined by viewing a difference as the solution of an unknown-addend addition problem. Subtraction of a rational number gives the same answer as adding its additive inverse.
 - d. Explain and justify rules for adding and subtracting rational numbers, using a number line and practical contexts. *For example, relate $r + (-s) = r - s$ to a bank transaction; explain why $p - (q + r) = p - q - r$.*
 - e. Understand that the additive inverse of a sum is the sum of the additive inverses, that is $-(p + q) = -p + -q$. *For example, $-(6 + -2) = (-6) + 2$ because $[6 + (-2)] + [(-6) + 2] = [6 + (-6)] + [(-2) + 2] = [0] + [0] = 0$.*
3. Understand and perform multiplication and division with rational numbers:
 - a. Understand that the extension of multiplication from fractions to rational numbers is determined by the requirement that multiplication and addition satisfy the laws of arithmetic, particularly the distributive law, leading to products such as $(-1)(-1) = 1$ and the rules for multiplying signed numbers.
 - b. Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with non-zero divisor) is a rational number. If p/q is a rational number, then $-(p/q) = (-p)/q = p/(-q)$.
 - c. Calculate products and quotients of rational numbers, and use multiplication and division to solve word problems. *Include signed quantities.*

The system of real numbers

4. Understand that there are numbers that are not rational numbers, called irrational numbers, e.g., π and $\sqrt{2}$. Together the rational and irrational numbers form the real number system. In school mathematics, the real numbers are assumed to satisfy the laws of arithmetic.

Expressions and Equations

Expressions

1. Interpret numerical expressions at a level necessary to calculate their value using a calculator or spreadsheet. For expressions with variables, use and interpret conventions of algebraic notation, such as $y/2$ is $y \div 2$ or $1/2 \times y$; $(3 \pm y)/5$ is $(3 \pm y) \div 5$ or $1/5 \times (3 \pm y)$; a^2 is $a \times a$, a^3 is $a \times a \times a$, a^2b is $a \times a \times b$.
2. Generate equivalent expressions from a given expression using the laws of arithmetic and conventions of algebraic notation. Include:
 - a. Adding and subtracting linear expressions, as in $(2x + 3) + x + (2 - x) = 2x + 5$.
 - b. Factoring, as in $4x + 4y = 4(x + y)$ or $5x + 7x + 10y + 14y = 12x + 24y = 12(x + 2y)$.
 - c. Simplifying, as in $-2(3x - 5) + 4x = 10 - 2x$ or $x/3 + (x - 2)/4 = 7x/12 - 1/2$.

Quantitative relationships and the algebraic approach to problems

3. Choose variables to represent quantities in a word problem, and construct simple equations to solve the problem by reasoning about the quantities.
 - a. Solve word problems leading to equations of the form $px + q = r$ and $p(x + q) = r$, where p , q , and r are nonnegative rational numbers and the solution is a nonnegative rational number. Fluently solve equations of these forms, e.g., by undoing the operations involved in producing the expression on the left.
 - b. Solve the same word problem arithmetically and algebraically. *For example, "J. has 4 packages of balloons and 5 single balloons. In all, he has 21 balloons. How many balloons are in a package?" Solve this problem arithmetically (using a sequence of operations on the given numbers), and also solve it by using a variable to stand for the number of balloons in a package, constructing an equation such as $4b + 5 = 21$ to describe the situation then solving the equation.*
 - c. Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related. *For example, $P + 0.05P = 1.05P$ means that "increase by 5%" is the same as "multiply by 1.05."*

Geometry

7-G

Congruence and similarity

1. Verify experimentally the fact that a rigid motion (a sequence of rotations, reflections, and translations) preserves distance and angle, e.g., by using physical models, transparencies, or dynamic geometry software:
 - a. Lines are taken to lines, and line segments to line segments of the same length.
 - b. Angles are taken to angles of the same measure.
 - c. Parallel lines are taken to parallel lines.
2. Understand the meaning of congruence: a plane figure is congruent to another if the second can be obtained from the first by a rigid motion.
3. Verify experimentally that a dilation with scale factor k preserves lines and angle measure, but takes a line segment of length L to a line segment of length kL .
4. Understand the meaning of similarity: a plane figure is similar to another if the second can be obtained from the first by a similarity transformation (a rigid motion followed by a dilation).
5. Solve problems involving similar figures and scale drawings. *Include computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.*
6. Use informal arguments involving approximation by lines, squares, and cubes to see that a similarity transformation with a scale factor of k leaves angle measures unchanged, changes lengths by a factor of k , changes areas by a factor of k^2 , and changes volumes by a factor of k^3 .
7. Know the formulas relating the area, radius and circumference of a circle and solve problems requiring the use of these formulas; give an informal derivation of the relationship between the circumference and area of a circle.

Angles

8. Justify facts about the angle sum of triangles, exterior angles, and alternate interior angles created when parallel lines are cut by a transversal, e.g., by using physical models, transparencies, or dynamic geometry software to make rigid motions and give informal arguments. *For example, arrange three copies of the same triangle so that the three angles appear to form a line, and give an argument in terms of transversals why this is so.*
9. Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.

Situations involving randomness

1. Simulate situations involving randomness using random numbers generated by a calculator or a spreadsheet or taken from a table. *For example, if you guess at all ten true/false questions on a quiz, how likely are you to get at least seven answers correct?*
2. Use proportional reasoning to predict relative frequencies of outcomes for situations involving randomness, but for which a theoretical answer can be determined. *For example, when rolling a number cube 600 times, one would predict that a 3 or 6 would be rolled roughly 200 times, but probably not exactly 200 times. How far off might your prediction be? Use technology to generate multiple samples to approximate a distribution of sample proportions. Repeat the process for smaller sample sizes.*

Random sampling to draw inferences about a population

3. Understand that statistics can be used to gain information about a population by examining a sample of the population; generalizations about a population from a sample are valid only if the sample is representative of that population. Understand that random sampling tends to produce representative samples and support valid inferences.
4. Understand the importance of measures of variation in sample quantities (like means or proportions) in reasoning about how well a sample quantity estimates or predicts the corresponding population quantity.
5. Use data from a random sample to draw inferences about a population with an unknown characteristic of interest. Generate multiple samples (or simulated samples) of the same size to gauge the variation in estimates or predictions. *For example, estimate the mean word length in a book by randomly sampling words from the book; predict the winner of a school election based on randomly sampled survey data. Gauge how far off the estimate or prediction might be.*

Comparative inferences about two populations

6. Informally assess the degree of visual overlap of two numerical data distributions with similar variabilities, measuring the difference between the centers by expressing it as a multiple of a measure of variability. *For example, the mean height of players on the basketball team is 10 cm greater than the mean height of players on the soccer team, about twice the variability (mean average deviation) on either team; on a dot plot, the separation between the two distributions of heights is noticeable.*
7. Use measures of center and measures of variability for numerical data from uniform random samples to draw informal comparative inferences about two populations. *For example, decide whether the words in a chapter of a seventh-grade book are generally longer than the words in a chapter of a sixth-grade book.*

Mathematics | Grade 8

In Grade 8, instructional time should focus on three critical areas: (1) solving linear equations and systems of linear equations; (2) grasping the concept of a function and using functions to describe quantitative relationships; (3) understanding and applying the Pythagorean Theorem.

(1) Students use linear equations, and systems of linear equations to represent, analyze, and solve a variety of problems. Students recognize proportions ($y/x = m$ or $y = mx$) as a special case of linear equations, $y = mx + b$, understanding that the constant of proportionality (m) is the slope and the graphs are lines through the origin. They understand that the slope (m) of a line is a constant rate of change, so that if the input or x -coordinate changes by an amount A , the output or y -coordinate changes by the amount mA . Students also formulate and solve linear equations in one variable and use these equations to solve problems. Students also use a linear equation to describe the association between two quantities in a data set (such as arm span vs. height for students in a classroom). At this grade, fitting the model, and assessing its fit to the data are done informally. Interpreting the model in the context of the data requires students to express a relationship between the two quantities in question.

Students strategically choose and efficiently implement procedures to solve linear equations in one variable, understanding that when they use the properties of equality and the concept of logical equivalence, they maintain the solutions of the original equation. Students solve systems of two linear equations in two variables and relate the systems to pairs of lines in the plane; these intersect, are parallel, or are the same line. Students use linear equations, systems of linear equations, linear functions, and their understanding of slope of a line to analyze situations and solve problems.

(2) Students grasp the concept of a function as a rule that assigns to each element of its domain exactly one element of its range. They use function notation and understand that functions describe situations where one quantity determines another. They can translate among verbal, tabular, graphical, and algebraic representations of functions (noting that tabular and graphical representations are usually only partial representations), and they describe how aspects of the function are reflected in the different representations.

(3) Students understand the statement of the Pythagorean Theorem and its converse, and can explain why the Pythagorean Theorem is valid, for example, by decomposing a square in two different ways. They apply the Pythagorean Theorem to find distances between points on the coordinate plane, to find lengths, and to analyze polygons.

The system of real numbers

1. Understand informally that every number on a number line has a decimal expansion, which can be found for rational numbers using long division. Rational numbers are those with repeating decimal expansions (this includes finite decimals which have an expansion that ends in a sequence of zeros).
2. Informally explain why $\sqrt{2}$ is irrational.
3. Use rational approximations (including those obtained from truncating decimal expansions) to compare the size of irrational numbers, locate them approximately on a number line, and estimate the value of expressions (e.g., π^2). *For example, show that the square root of 2 is between 1 and 2, then between 1.4 and 1.5, and explain how to continue on to get better approximations.*

Expressions and Equations**Linear equations in one variable**

1. Understand that a linear equation in one variable might have one solution, infinitely many solutions, or no solutions. Which of these possibilities is the case can be determined by successively transforming the given equation into simpler forms, until an equivalent equation of the form $x = a$, $a = a$, or $a = b$ results (where a and b are different numbers).
2. Solve linear equations with rational number coefficients, including equations that require expanding expressions using the distributive law and collecting like terms.

Linear equations in two variables

3. Understand that the slope of a non-vertical line in the coordinate plane has the same value for any two distinct points used to compute it. This can be seen using similar triangles.
4. Understand that two lines with well-defined slopes are parallel if and only if their slopes are equal.
5. Understand that the graph of a linear equation in two variables is a line, the set of pairs of numbers satisfying the equation. If the equation is in the form $y = mx + b$, the graph can be obtained by shifting the graph of $y = mx$ by b units (upwards if b is positive, downwards if b is negative). The slope of the line is m .
6. Understand that a proportional relationship between two variable quantities y and x can be represented by the equation $y = mx$. The constant m is the unit rate, and tells how much of y per unit of x .
7. Graph proportional relationships and relationships defined by a linear equation; find the slope and interpret the slope in context.
8. Compare two different proportional relationships represented in different ways. *For example, compare a distance-time graph to a distance-time equation to determine which of two moving objects has greater speed.*

Systems of linear equations

9. Understand that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs, because points of intersection satisfy both equations simultaneously.
10. Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection. *For example, $3x + 2y = 5$ and $3x + 2y = 6$ have no solution because the quantity $3x + 2y$ cannot simultaneously be 5 and 6.*
11. Solve and explain word problems leading to two linear equations in two variables.
12. Solve problems involving lines and their equations. *For example, decide whether a point with given coordinates lies on the line with a given equation; construct an equation for a line given two points on the line or one point and the slope; given coordinates for two pairs of points, determine whether the line through the first pair of points intersects the line through the second pair.*

Functions**Function concepts**

1. Understand that a function from one set (called the domain) to another set (called the range) is a rule that assigns to each element of the domain (an input) exactly one element of the range (the corresponding output). The graph of a function is the set of ordered pairs consisting of an input and the corresponding output. *Function notation is not required in Grade 8.*
2. Evaluate expressions that define functions, and solve equations to find the input(s) that correspond to a given output.
3. Compare properties of two functions represented in different ways (algebraically, graphically, numerically in tables, or by verbal descriptions). *For example, given a linear function represented by a table of values and a linear function represented by an algebraic expression, determine which function has the greater rate of change.*

- Understand that a function is linear if it can be expressed in the form $y = mx + b$ or if its graph is a straight line. *For example, the function $y = x^2$ is not a linear function because its graph contains the points $(1, 1)$, $(-1, 1)$ and $(0, 0)$, which are not on a straight line.*

Functional relationships between quantities

- Understand that functions can describe situations where one quantity determines another.
- Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship; from two (x, y) values, including reading these from a table; or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.
- Describe qualitatively the functional relationship between two quantities by reading a graph (e.g., where the function is increasing or decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described verbally.

Geometry

8-G

Congruence and similarity

- Use coordinate grids to transform figures and to predict the effect of dilations, translations, rotations and reflections.
- Explain using rigid motions the meaning of congruence for triangles as the equality of all pair of sides and all pairs of angles.
- Give an informal explanation using rigid motions of the SAS and ASA criteria for triangle congruence, and use them to prove simple theorems.
- Explain using similarity transformations the meaning of similarity for triangles as the equality of all pairs of angles and the proportionality of all pairs of sides.
- Give an informal explanation using similarity transformations of the AA and SAS criteria for triangle similarity, and use them to prove simple theorems.

The Pythagorean Theorem

- The side lengths of a right triangle are related by the Pythagorean Theorem. Conversely, if the side lengths of a triangle satisfy the Pythagorean Theorem, it is a right triangle.
- Explain a proof of the Pythagorean Theorem and its converse.
- Use the Pythagorean Theorem to determine unknown side lengths in right triangles and to solve problems in two and three dimensions.
- Use the Pythagorean Theorem to find the distance between two points in a coordinate system.

Plane and solid geometry

- Draw (freehand, with ruler and protractor, and with technology) geometric shapes from given conditions. Focus on constructing triangles from three measures of angles or sides, noticing when the triangle is uniquely defined, ambiguously defined or nonexistent.
- Understand that slicing a three-dimensional figure with a plane produces a two-dimensional figure. Describe plane sections of right rectangular prisms and right rectangular pyramids.
- Use hands-on activities to demonstrate and describe properties of: parallel lines in space, the line perpendicular to a given line through a given point, lines perpendicular to a given plane, lines parallel to a given plane, the plane or planes passing through three given points, and the plane perpendicular to a given line at a given point.

Statistics and Probability

8-SP

Patterns of association in bivariate data

- Understand that scatter plots for bivariate measurement data may reveal patterns of association between two quantities.
- Construct and interpret scatter plots for bivariate measurement data. Describe patterns such as clustering, outliers, positive or negative association, linear association, nonlinear association.
- Understand that a straight line is a widely used model for exploring relationships between two quantitative variables. For scatter plots that suggest a linear association, informally fit a straight line, and informally assess the model fit by judging the closeness of the data points to the line.
- Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept. *For example, in a linear model for a biology experiment, an additional hour of sunlight each day is associated with an additional 1.5 cm in mature plant height.*
- Understand that patterns of association can also be seen in bivariate categorical data by displaying frequencies and relative frequencies in a two-way table. Construct and interpret a two-way table summarizing data on two categorical variables

collected from the same subjects. Use relative frequencies calculated for rows or columns to describe possible association between the two variables. *For example, collect data from students in your class on whether or not they have a curfew on school nights and whether or not they have assigned chores at home. Is there evidence that those who have a curfew also tend to have chores?*

DRAFT

Mathematics Standards for High School

Where is the College-and-Career-Readiness line drawn?

The high school standards specify the mathematics that all students should learn in order to be college and career ready. The high school standards also describe additional mathematics that students should learn to pursue careers and majors in science, technology, engineering and mathematics (STEM) fields. Other forms of advanced work are possible (for example in discrete mathematics or advanced statistics) and can be eventually added to the standards.

Standards beyond the college and career readiness level that are necessary for STEM careers are prefixed with a symbol STEM, as in this example:

^{STEM} Graph complex numbers in polar form and interpret arithmetic operations on complex numbers geometrically.

Any standard without this tag is understood to be in the common core mathematics curriculum for all students.

How are the high school standards organized?

The high school standards are listed in conceptual categories, as shown in the Table below. **Appendix A (online) contains drafts of model course descriptions based on these standards.** Conceptual categories portray a coherent view of core high school mathematics; a student's work with Functions, for example, crosses a number of traditional course boundaries, potentially up through and including Calculus.

CCRS Draft September 17 th	High School Standards Draft March 10
Number	Number and Quantity
Quantity	
Expressions	Algebra
Equations	
Coordinates	
Functions	Functions
Geometry	Geometry
Statistics	Statistics and Probability
Probability	
Modeling	Modeling**

* Standards formerly appearing under Coordinates now appear under other headings.

** Making mathematical models is now a Standard for Mathematical Practice. Standards formerly appearing under Modeling are now distributed under other major headings. High school standards with relevance to modeling are flagged with a (★) symbol. A narrative description of modeling remains in the high school standards, but there are no specific standard statements in that narrative description.

Mathematics | High School—Number and Quantity

Numbers and Number Systems. During the years from kindergarten to eighth grade, students must repeatedly extend their conception of number. At first, “number” means “counting number”: 1, 2, 3, ... Soon after that, 0 is used to represent “none” and the whole numbers are formed by the counting numbers together with zero. The next extension is fractions. At first, fractions are barely numbers and tied strongly to pictorial representations. Yet by the time students understand division of fractions, they have a strong concept of fractions as numbers and have connected them, via their decimal representations, with the base-ten system used to represent the whole numbers. During middle school, fractions are augmented by negative fractions to form the rational numbers. In Grade 7, students extend this system once more, augmenting the rational numbers with the irrational numbers to form the real numbers. In high school, students will be exposed to yet another extension of number, when the real numbers are augmented by the imaginary numbers to form the complex numbers.

Students sometimes have difficulty accepting new kinds of numbers when these differ in appearance and properties from those of a familiar system. For example, students might decide that complex numbers are not numbers because they are not written with numerical digits, or because they do not describe positive or negative quantities. Indeed, this ascent through number systems makes it fair to ask: what does the word *number* mean that it can mean all of these things? One possible answer is that a number is something that can be used to do mathematics: calculate, solve equations, or represent measurements. Historically, number systems have been extended when there is an intellectual or practical benefit in using the new numbers to solve previously insoluble problems.¹

Although the referent of “number” changes, the four operations stay the same in important ways. The commutative, associative, and distributive laws extend the properties of operations to the integers, rational numbers, real numbers, and complex numbers. The inverse relationships between addition and subtraction, and multiplication and division are maintained in these larger systems.

Calculators are useful in this strand to generate data for numerical experiments, to help understand the workings of matrix, vector, and complex number algebra, and to experiment with non-integer exponents.

Quantities. In their work in measurement up through Grade 8, students primarily measure commonly used attributes such as length, area, volume, and so forth. In high school, students encounter novel situations in which they themselves must conceive the attributes of interest. Such a conceptual process might be called quantification. Quantification is important for science, as when surface area suddenly “stands out” as an important variable in evaporation. Quantification is also important for companies, who must conceptualize relevant attributes and create or choose suitable metrics by which to measure them.

Content Outline

The Real Number System

Quantities

The Complex Number System

Vector Quantities and Matrices

¹ See Harel, G., “A Standpoint of Research on Middle/Higher Number and Quantity,” a research review provided for the Common Core State Standards Initiative.

1. Understand that the laws of exponents for positive integer exponents follow from an understanding of exponents as indicating repeated multiplication, and from the associative law for multiplication.
2. Understand that the definition of the meaning of zero, positive rational, and negative exponents follows from extending the laws of exponents to those values, allowing for a notation for radicals in terms of rational exponents. *For example, since $(5^{1/3})^3 = 5^{(1/3) \cdot 3} = 5^1 = 5$, $5^{1/3}$ is a cube root of 5.*
3. Understand that sums and products of rational numbers are rational.
4. Understand that the sum of a rational number and an irrational number is irrational, and that the product of a nonzero rational number and an irrational number is irrational.
5. Rewrite expressions using the laws of exponents. *For example, $(5^{1/2})^3 = 5^{3/2}$ and $1/5 = 5^{-1}$.*

Quantities*

1. Understand that the magnitude of a quantity is independent of the unit used to measure it. *For example, the density of a liquid does not change when it is measured in another unit. Rather, its measure changes. The chosen unit “measures” the quantity by giving it a numerical value (“the density of lead is 11.3 times that of water”).*
2. Use units as a way to understand problems and to guide the solution of multi-step problems, involving, e.g., acceleration, currency conversions, derived quantities such as person-hours and heating degree days, social science rates such as per-capita income, and rates in everyday life such as points scored per game.
3. Define metrics for the purpose of descriptive modeling. *For example, find a good measure of overall highway safety; propose and debate measures such as fatalities per year, fatalities per year per driver, or fatalities per vehicle-mile traveled.*
4. Add, subtract, multiply, and divide numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities (e.g., use millimeters per year for seafloor spreading). Interpret scientific notation that has been generated by technology.
5. Use and interpret quantities and units correctly in algebraic formulas.
6. Use and interpret quantities and units correctly in graphs and data displays (function graphs, data tables, scatter plots, and other visual displays of quantitative information). Generate graphs and data displays using technology.

The Complex Number System

1. Understand that the relation $i^2 = -1$ and the commutative, associative, and distributive laws can be used to calculate with complex numbers.
2. STEM Understand that polynomials can be factored over the complex numbers, e.g., as in $x^2 + 4 = (x + 2i)(x - 2i)$.
3. STEM Understand that complex numbers can be visualized on the complex plane. Real numbers correspond to points on the horizontal (real) axis, and imaginary numbers to points on the vertical axis.
4. STEM Understand that on the complex plane, arithmetic of complex numbers can be interpreted geometrically: addition is analogous to vector addition, and multiplication can be understood as rotation and dilation about the origin. Complex conjugation is reflection across the real axis.
5. STEM Understand that on the complex plane, as on the real line, the distance between numbers is the absolute value of the difference, and the midpoint of a segment is the average of the numbers at its endpoints.
6. Add, subtract, and multiply complex numbers.
7. STEM Find the conjugate of a complex number; use conjugates to find absolute values and quotients of complex numbers.
8. STEM Solve quadratic equations with real coefficients that have complex solutions using a variety of methods.
9. STEM Graph complex numbers in rectangular form.
10. STEM Graph complex numbers in polar form and interpret arithmetic operations on complex numbers geometrically.
11. STEM Explain why the rectangular and polar forms of a complex number represent the same number.

* Standard with close connection to modeling.

1. STEM Understand that vector quantities have both magnitude and direction. Vector quantities are typically represented by directed line segments. The magnitude of a vector \mathbf{v} is commonly denoted $|\mathbf{v}|$ or $||\mathbf{v}||$.
2. STEM Understand that vectors are determined by the coordinates of their initial and terminal points, or by their components.
3. STEM Understand that vectors can be added end-to-end, component-wise, or by the parallelogram rule. The magnitude of a sum of two vectors is typically not the sum of the magnitudes.
4. STEM Understand that a vector \mathbf{v} can be multiplied by a real number c (called a scalar in this context) to form a new vector $c\mathbf{v}$ with magnitude $|c|v$. When $|c|v \neq 0$, the direction of $c\mathbf{v}$ is either along \mathbf{v} (for $c > 0$) or against \mathbf{v} (for $c < 0$). Scalar multiplication can be shown graphically by scaling vectors and possibly reflecting them in the origin; scalar multiplication can also be performed component-wise, e.g., as $c(v_x, v_y) = (cv_x, cv_y)$.
5. STEM Understand that vector subtraction $\mathbf{v} - \mathbf{w}$ is defined as $\mathbf{v} + (-\mathbf{w})$. Two vectors can be subtracted graphically by connecting the tips in the appropriate order.
6. STEM Understand that matrices can be multiplied by scalars to produce new matrices, e.g., as when all of the payoffs in a game are doubled. Matrices of the same dimensions can be added or subtracted. Matrices with compatible dimensions can be multiplied. Unlike multiplication of numbers, matrix multiplication is not a commutative operation, but still satisfies the associative and distributive laws.
7. STEM Understand that a vector, when regarded as a matrix with one column, can be multiplied by a matrix of suitable dimensions to produce another vector. A 2×2 matrix can be viewed as a transformation of the plane.
8. STEM Understand that a system of linear equations can be represented as a single matrix equation in a vector variable.
9. STEM Understand that the zero and identity matrices play a role in matrix addition and multiplication similar to the role of 0 and 1 in the real numbers. The determinant of a square matrix is nonzero if and only if the matrix has a multiplicative inverse.
10. STEM Perform basic vector operations (addition, subtraction, scalar multiplication) both graphically and algebraically.
11. STEM Given two vectors in magnitude and direction form, determine the magnitude and direction of their sum.
12. STEM Solve problems involving velocity and quantities that can be represented by vectors. *
13. STEM Add, subtract, and multiply matrices of appropriate dimensions.
14. STEM Use matrices to store and manipulate data, e.g., to represent payoffs or incidence relationships in a network.
15. STEM Represent systems of linear equations as matrix equations.
16. STEM Find the inverse of a matrix if it exists and use it to solve systems of linear equations (using technology for matrices of dimension greater than 3×3).

* Standard with close connection to modeling.

Mathematics | High School—Algebra

Expressions. An expression is a description of a computation on numbers and symbols that represent numbers, using arithmetic operations and the operation of raising a number to rational exponents. Conventions about the use of parentheses and the order of operations assure that each expression is unambiguous. Creating an expression that describes a computation involving a general quantity requires the ability to express the computation in general terms, abstracting from specific instances.

Reading an expression with comprehension involves analysis of its underlying structure. This may suggest a different but equivalent way of writing the expression that exhibits some different aspect of its meaning. For example, $p + 0.05p$ can be interpreted as the addition of a 5% tax to a price p . Rewriting $p + 0.05p$ as $1.05p$ shows that adding a tax is the same as multiplying the price by a constant factor.

Algebraic manipulations are governed by deductions from the commutative, associative, and distributive laws and the inverse relationships between the four operations, and the conventions of algebraic notation. These extend what students have learned about arithmetic expressions in K–8 to expressions that involve exponents, radicals, and representations of real numbers, and, for STEM-intending students, complex numbers.

At times, an expression is the result of applying operations to simpler expressions. Viewing such an expression by singling out these simpler expressions can sometimes clarify its underlying structure.

A spreadsheet or a CAS environment can be used to experiment with algebraic expressions, perform complex algebraic manipulations, and understand how algebraic manipulations behave.

Equations and inequalities. An equation is a statement that two expressions are equal. Solutions to an equation are numbers that make the equation true when assigned to the variables in it. If the equation is true for all numbers, then it is called an identity; identities are often discovered by using the laws of arithmetic or the laws of exponents to transform one expression into another.

The solutions of an equation in one variable form a set of numbers; the solutions of an equation in two variables form a set of ordered pairs of numbers, which can be graphed in the coordinate plane. Two or more equations and/or inequalities form a system. A solution for such a system must satisfy every equation and inequality in the system.

An equation can often be solved by successively transforming it into one or more simpler equations. The process is governed by deductions based on the properties of equality. For example, one can add the same constant to both sides without changing the solutions, but squaring both sides might lead to extraneous solutions. Strategic competence in solving includes looking ahead for productive manipulations and anticipating the nature and number of solutions.

Some equations have no solutions in a given number system, stimulating the extension of that system. For example, the solution of $x + 1 = 0$ is an integer, not a whole number; the solution of $2x + 1 = 0$ is a rational number, not an integer; the solutions of $x^2 - 2 = 0$ are real numbers, not rational numbers; and the solutions of $x^2 + 2 = 0$ are complex numbers, not real numbers.

The same solution techniques used to solve equations can be used to rearrange formulas. For example, the formula for the area of a trapezoid, $A = ((b_1 + b_2)/2)h$, can be solved for h using the same deductive process.

Inequalities can be solved by reasoning about the properties of inequality. Many, but not all, of the properties of equality continue to hold for inequalities and can be useful in solving them.

Connections to Functions and Modeling. Expressions can define functions, and equivalent expressions define the same function. Equations in two variables may also define functions. Asking when two functions have the same value leads to an equation; graphing the two functions allows for the approximate solution of the equation. Converting a verbal description to an equation, inequality, or system of these is an essential skill in modeling.

Content Outline

Seeing Structure in Expressions

Arithmetic with Polynomials and Rational Expressions

Creating Equations that Describe Numbers or Relationships

Reasoning with Equations and Inequalities

- Understand that different forms of an expression may reveal different properties of the quantity in question; a purpose in transforming expressions is to find those properties. *Examples: factoring a quadratic expression reveals the zeros of the function it defines, and putting the expression in vertex form reveals its maximum or minimum value; the expression 1.15^t can be rewritten as $(1.15^{1/12})^{12t} \approx 1.012^{12t}$ to reveal the approximate equivalent monthly interest rate if the annual rate is 15%.*
- Understand that complicated expressions can be interpreted by viewing one or more of their parts as single entities.
- Interpret an expression that represents a quantity in terms of the context. *Include interpreting parts of an expression, such as terms, factors and coefficients.* *
- Factor, expand, and complete the square in quadratic expressions.
- See expressions in different ways that suggest ways of transforming them. *For example, see $x^4 - y^4$ as $(x^2)^2 - (y^2)^2$, thus recognizing it as a difference of squares that can be factored as $(x^2 - y^2)(x^2 + y^2)$.*
- Rewrite expressions using the laws of exponents. *For example, $(x^{1/2})^3 = x^{3/2}$ and $1/x = x^{-1}$.*
- Use the laws of exponents to interpret expressions for exponential functions, recognizing positive rational exponents as indicating roots of the base and negative exponents as indicating the reciprocal of a power. *For example, identify the per unit percentage change in functions such as $y = (1.02)^t$, $y = (0.97)^t$, $y = (1.01)^{12t}$, $y = (1.2)^{t/10}$, and conclude whether it represents exponential growth or decay. Recognize that any nonzero number raised to the zero power is 1, for example, $12(1.05)^0 = 12$. Avoid common errors such as confusing $6(1.05)^t$ with $(6 \cdot 1.05)^t$ and $5(0.03)^t$ with $5(1.03)^t$.*
- STEM Prove the formula for the sum of a geometric series, and use the formula to solve problems.

Arithmetic with Polynomials and Rational Expressions

- Understand that polynomials form a system analogous to the integers, namely, they are closed under the operations of addition, subtraction, and multiplication.
- Understand that polynomial identities become true statements no matter which real numbers are substituted. *For example, the polynomial identity $(x^2 + y^2)^2 = (x^2 - y^2)^2 + (2xy)^2$ can be used to generate Pythagorean triples.*
- Understand the Remainder Theorem: For a polynomial $p(x)$ and a number a , the remainder on division by $x - a$ is $p(a)$, so $p(a) = 0$ if and only if $(x - a)$ is a factor of $p(x)$.
- STEM Understand that the Binomial Theorem gives the expansion of $(x + a)^n$ in powers of x for a positive integer n and a real number a , with coefficients determined for example by Pascal's Triangle. The Binomial Theorem can be proved by mathematical induction or by a combinatorial argument.
- STEM Understand that rational expressions are quotients of polynomials. They form a system analogous to the rational numbers, closed under division by a nonzero rational function.
- Add, subtract and multiply polynomials.
- Identify zeros of polynomials when suitable factorizations are available, and use the zeros to construct a rough graph of the polynomial.
- Transform simple rational expressions using the commutative, associative, and distributive laws, and the inverse relationship between multiplication and division.
- Divide a polynomial $p(x)$ by a divisor of the form $x - a$ using long division.
- STEM Identify zeros and asymptotes of rational functions, when suitable factorizations are available, and use the zeros and asymptotes to construct a rough graph of the function.
- STEM Divide polynomials, using long division for linear divisors and long division or a computer algebra system for higher degree divisors.

Creating Equations That Describe Numbers or Relationships

- Understand that equations in one variable are often created to describe properties of a specific but unknown number.
- Understand that equations in two or more variables that represent a relationship between quantities can be built by experimenting with specific numbers in the relationship.
- Write equations and inequalities that specify an unknown quantity or to express a relationship between two or more quantities. Use the equations and inequalities to solve problems. *Include equations arising from linear and quadratic functions, and simple rational and exponential functions.*

* Standard with close connection to modeling.

4. Rearrange formulas to highlight a quantity of interest. *For example, transform Ohm's law $V = IR$ to highlight resistance R ; in motion with constant acceleration, transform $v_{fx}^2 - v_{ix}^2 = 2a_x(x_f - x_i)$ to highlight the change in position along the x -axis, $x_f - x_i$.*

Reasoning with Equations and Inequalities

A-REI

1. Understand that to solve an equation algebraically, one makes logical deductions from the equality asserted by the equation, often in steps that replace it with a simpler equation whose solutions include the solutions of the original one.
2. Understand that the method of completing the square can transform any quadratic equation in x into an equivalent equation of the form $(x - p)^2 = q$. This leads to the quadratic formula.
3. Understand that given a system of two linear equations in two variables, adding a multiple of one equation to another produces a system with the same solutions. This principle, combined with principles already encountered with equations in one variable, allows for the simplification of systems.
4. Understand that the graph of an equation in two variables is the set of its solutions plotted in the coordinate plane, often forming a curve or a line.
5. Understand that solutions to two equations in two variables correspond to points of intersection of their graphs, because points of intersection satisfy both equations simultaneously.
6. Understand that the solutions to a linear inequality in two variables can be graphed as a half-plane (excluding the boundary in the case of a strict inequality).
7. Understand that solutions to several linear inequalities in two variables correspond to points in the intersection of the regions in the plane defined by the solutions to the inequalities.
8. Understand that equations and inequalities can be viewed as constraints in a problem situation, e.g., inequalities describing nutritional and cost constraints on combinations of different foods. *
9. STEM Understand that the relationship between an invertible function f and its inverse function can be used to solve equations of the form $f(x) = c$.
10. Solve simple rational and radical equations in one variable, noting and explaining extraneous solutions.
11. Solve linear equations in one variable, including equations with coefficients represented by letters.
12. Solve quadratic equations in one variable. *Include methods such as inspection (e.g. for $x^2 = 49$), square roots, completing the square, the quadratic formula and factoring. Recognize when the quadratic formula gives complex solutions and write them as $a \pm bi$ for real numbers a and b .*
13. Solve equations $f(x) = g(x)$ approximately by finding the intersections of the graphs of $f(x)$ and $g(x)$, e.g. using technology to graph the functions. *Include cases where $f(x)$ and/or $g(x)$ are linear, polynomial, rational, exponential, and logarithmic functions.*
14. Solve linear inequalities in one variable and graph the solution set on a number line.
15. Solve systems of linear equations algebraically and graphically, focusing on pairs of linear equations in two variables.
16. Solve algebraically a simple system consisting of one linear equation and one quadratic equation in two variables; for example, find points of intersection between the line $y = -3x$ and the circle $x^2 + y^2 = 3$.
17. Graph the solution set of a system of linear inequalities in two variables.
18. In modeling situations, represent constraints by systems of equations and/or inequalities, and interpret solutions of these systems as viable or non-viable options in the modeling context. *
19. In the context of exponential models, solve equations of the form $ab^c = d$ where a , c , and d are specific numbers and the base b is 2, 10, or e . *
20. STEM Relate the properties of logarithms to the laws of exponents and solve equations involving exponential functions.
21. STEM Use inverse functions to solve equations of the form $a \sin(bx + c) = d$, $a \cos(bx + c) = d$, and $a \tan(bx + c) = d$.

* Standard with close connection to modeling.

Mathematics | High School—Functions

Functions describe situations where one quantity determines another. For example, the return on \$10,000 invested at an annualized percentage rate of 4.25% is a function of the length of time the money is invested. Because nature and society are full of dependencies between quantities, functions are important tools in the construction of mathematical models.

In school mathematics, functions usually have numerical inputs and outputs and are often defined by an algebraic expression. For example, the time in hours it takes for a car to drive 100 miles is a function of the car’s speed in miles per hour, v ; the rule $T(v) = 100/v$ expresses this relationship algebraically and defines a function whose name is T .

The set of inputs to a function is called its domain. We often infer the domain to be all inputs for which the expression defining a function has a value, or for which the function makes sense in a given context.

A function can be described in various ways, such as by a graph (e.g., the trace of a seismograph); by a verbal rule, as in, “I’ll give you a state, you give me the capital city”; or by an algebraic expression like $f(x) = a + bx$. The graph of a function is often a useful way of visualizing the relationship the function models, and manipulating a mathematical expression for a function can throw light on the function’s properties. Graphing technology and spreadsheets are also useful tools in the study of functions.

Functions presented as expressions can model many important phenomena. Two important families of functions characterized by laws of growth are linear functions, which grow at a constant rate, and exponential functions, which grow at a constant percent rate. Linear functions with a constant term of zero describe proportional relationships.

A graphing utility or a CAS can be used to experiment with properties of the functions and their graphs and to build computational models of functions, including recursively defined functions.

Connections to Expressions, Equations, Modeling and Coordinates. Determining an output value for a particular input involves evaluating an expression; finding inputs that yield a given output involves solving an equation. Questions about when two functions have the same value lead to equations, whose solutions can be visualized from the intersection of their graphs. Because functions describe relationships between quantities, they are frequently used in modeling. Sometimes functions are defined by a recursive process, which can be displayed effectively using a spreadsheet or other technology.

Content Outline

Interpreting Functions

Building Functions

Linear, Quadratic, and Exponential Models

Trigonometric Functions

Limits and Continuity†

Differential Calculus†

Applications of Derivatives†

Integral Calculus†

Applications of Integration†

Infinite Series†

† Specific standards for calculus domains are not listed.

1. Understand that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range. If f is a function and x is an element of its domain, then $f(x)$ denotes the output of f corresponding to the input x .
2. Understand that functions of a single variable have key characteristics, including: zeros; extreme values; average rates of change (over intervals); intervals of increasing, decreasing and/or constant behavior; and end behavior.
3. Understand that a function defined by an expression may be written in different but equivalent forms, which can reveal different properties of the function.
4. Use function notation and evaluate functions for inputs in their domains.
5. Describe qualitatively the functional relationship between two quantities by reading a graph (e.g., where the function is increasing or decreasing, what its long-run behavior appears to be, and whether it appears to be periodic).*
6. Sketch a graph that exhibits the qualitative features of a function that models a relationship between two quantities.*
7. Compare properties of two functions represented in different ways (algebraically, graphically, numerically in tables, or by verbal descriptions). *For example, draw conclusions about the graph of a quadratic function from its algebraic expression.*
8. Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes. *For example, if the function $h(n)$ gives the number of person-hours it takes to assemble n engines in a factory, then the positive integers would be an appropriate domain for the function.**
9. Describe the qualitative behavior of functions presented in graphs and tables. *Identify: intercepts; intervals where the function is increasing, decreasing, positive or negative; relative maximums and minimums; symmetries; end behavior; and periodicity.**
10. Use technology to exhibit the effects of parameter changes on the graphs of linear, power, quadratic, square root, cube root, and polynomial functions, and simple rational, exponential, logarithmic, sine, cosine, absolute value, and step functions.*
11. Transform quadratic polynomials algebraically to reveal different features of the function they define, such as zeros, extreme values, and symmetry of the graph.

Building Functions

1. Understand that functions can be described by specifying an explicit expression, a recursive process or steps for calculation.
2. Understand that sequences are functions whose domain is a subset of the nonnegative integers.
3. STEM Understand that composing a function f with a function g creates a new function called the composite function—for an input number x , the output of the composite function is $f(g(x))$.
4. STEM Understand that the inverse of an invertible function “undoes” what the function does; that is, composing the function with its inverse in either order returns the original input. One can sometimes produce an invertible function from a non-invertible function by restricting the domain (e.g., squaring is not an invertible function on the real numbers, but squaring is invertible on the nonnegative real numbers).
5. Write a function that describes a relationship between two quantities, for example by varying parameters in and combining standard function types (such as linear, quadratic or exponential functions). Use technology to experiment with parameters and to illustrate an explanation of the behavior of the function when parameters vary.*
6. Solve problems involving linear, quadratic, and exponential functions.*
7. Identify the effect on the graph of replacing $f(x)$ by $f(x) + k$, $kf(x)$, $f(kx)$, and $f(x + k)$ for specific values of k (both positive and negative); find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology.
8. Generate an arithmetic or geometric sequence given a recursive rule for the sequence.*
9. As a way to describe routine modeling situations, write arithmetic and geometric sequences both recursively and in closed form, and translate between the two forms.*
10. STEM Evaluate composite functions and compose functions symbolically.
11. STEM Read values of an inverse function from a graph or a table, given that the function has an inverse.
12. STEM For linear or simple exponential functions, find a formula for an inverse function by solving an equation.
13. STEM Verify symbolically by composition that one function is the inverse of another.

Linear, Quadratic, and Exponential Models

1. Understand that a linear function, defined by $f(x) = mx + b$ for some constants m and b , models a situation in which a quantity changes at a constant rate, m , relative to another. *
2. Understand that quadratic functions have maximum or minimum values and can be used to model problems with optimum solutions. *
3. Understand that an exponential function, defined by $f(x) = ab^x$ or by $f(x) = a(1 + r)^x$ for some constants a , $b > 0$ and $r > -1$, models a situation where a quantity grows or decays by a constant factor or a constant percentage change over each unit interval. *
4. Understand that linear functions grow by equal differences over equal intervals; exponential functions grow by equal factors over equal intervals. *
5. Understand that in an arithmetic sequence, differences between consecutive terms form a constant sequence, and second differences are zero. Conversely, if the second differences are zero, the sequence is arithmetic. Arithmetic sequences can be seen as linear functions. *
6. Understand that in a sequence that increases quadratically (e.g., $a_n = 3n^2 + 2n + 1$), differences between consecutive terms form an arithmetic sequence, and second differences form a constant sequence. Conversely, if the second differences form a constant sequence with nonzero value, the sequence increases quadratically. *
7. Understand that in a geometric sequence, ratios of consecutive terms are all the same. *
8. Understand that a quantity increasing exponentially eventually exceeds a quantity increasing linearly, quadratically, or (more generally) as a polynomial function. *
9. Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph. *
10. Construct a function to describe a linear relationship between two quantities. Determine the rate of change and constant term of a linear function from a graph, a description of a relationship, or from two (x, y) values (include reading these from a table). *
11. Use quadratic functions to model problems, e.g., in situations with optimum solutions. *
12. Construct an exponential function in the form $f(x) = a(1 + r)^x$ or $f(x) = ab^x$ to describe a relationship in which one quantity grows with respect to another at a constant percent growth rate or a with a constant growth factor. *
13. Interpret the rate of change and constant term of a linear function or sequence in terms of the situation it models, and in terms of its graph or a table of values. *
14. Calculate and interpret the growth factor for an exponential function (presented symbolically or as a table) given a fixed interval. Estimate the growth factor from a graph. *
15. Recognize a quantitative relationship as linear, exponential, or neither from description of a situation. *
16. Compare quantities increasing exponentially to quantities increasing linearly or as a polynomial function. *

Trigonometric Functions

F-TF

1. STEM Understand that the unit circle in the coordinate plane enables one to define the sine, cosine, and tangent functions for real numbers.
2. STEM Understand that trigonometric functions are periodic by definition, and sums and products of functions with the same period are periodic.
3. STEM Understand that restricting trigonometric functions to a domain on which they are always increasing or always decreasing allows for the construction of an inverse function.
4. STEM Revisit trigonometric functions and their graphs in terms of radians.
5. STEM Use the unit circle to determine geometrically the values of sine, cosine, tangent for integer multiples of $\pi/4$ and $\pi/6$.
6. STEM Use the unit circle to explain symmetry (odd and even) and periodicity of trigonometric functions.
7. STEM Solve simple trigonometric equations formally using inverse trigonometric functions and evaluate the solutions numerically using technology. *Solving trigonometric equations by means of the quadratic formula is optional.*

Limits and Continuity†

F-LC

* Standard with close connection to modeling.

† Specific standards for calculus domains are not listed.

Differential Calculus[†] F-DC

Applications of Derivatives[†] F-AD

Integral Calculus[†] F-IC

Applications of Integration[†] F-AI

Infinite Series[†] F-IS

[†] Specific standards for calculus domains are not listed.

Mathematics | High School—Modeling

Modeling links classroom mathematics and statistics to everyday life, work, and decision-making. Modeling is the process of choosing and using appropriate mathematics and statistics to analyze empirical situations, to understand them better, and to improve decisions. Quantities and their relationships in physical, economic, public policy, social and everyday situations can be modeled using mathematical and statistical methods. When making mathematical models, technology is valuable for varying assumptions, exploring consequences, and comparing predictions with data.

A model can be very simple, such as writing total cost as a product of unit price and number bought, or using a geometric shape to describe a physical object like a coin. Even such simple models involve making choices. It is up to us whether to model a coin as a three-dimensional cylinder, or whether a two-dimensional disk works well enough for our purposes. Other situations—modeling a delivery route, a production schedule, or a comparison of loan amortizations—need more elaborate models that use other tools from the mathematical sciences. Real-world situations are not organized and labeled for analysis; formulating tractable models, representing such models, and analyzing them is appropriately a creative process. Like every such process, this depends on acquired expertise as well as creativity.

Some examples of such situations might include:

- Estimating how much water and food is needed for emergency relief in a devastated city of 3 million people, and how it might be distributed.
- Planning a table tennis tournament for 7 players at a club with 4 tables, where each player plays against each other player.
- Designing the layout of the stalls in a school fair so as to raise as much money as possible.
- Analyzing stopping distance for a car.
- Modeling savings account balance, bacterial colony growth, or investment growth.
- Critical path analysis, e.g., applied to turnaround of an aircraft at an airport.
- Risk situations, like extreme sports, pandemics and terrorism.
- Relating population statistics to individual predictions.

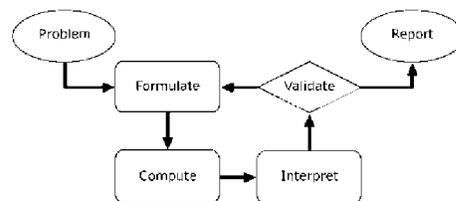
In situations like these, the models devised depend on a number of factors: How precise an answer do we want or need? What aspects of the situation do we most need to understand, control, or optimize? What resources of time and tools do we have? The range of models that we can create and analyze is also constrained by the limitations of our mathematical, statistical, and technical skills, and our ability to recognize significant variables and relationships among them. Diagrams of various kinds, spreadsheets and other technology, and algebra are powerful tools for understanding and solving problems drawn from different types of real-world situations.

One of the insights provided by mathematical modeling is that essentially the same mathematical or statistical structure can model seemingly different situations. Models can also shed light on the mathematical structures themselves, for example as when a model of bacterial growth makes more vivid the explosive growth of the exponential function.

The basic modeling cycle is summarized in the diagram. It involves (1) identifying variables in the situation and selecting those that represent essential features, (2) formulating a model by creating and selecting geometric, graphical, tabular, algebraic, or statistical representations that describe relationships between the variables, (3) analyzing and performing operations on these relationships to draw conclusions, (4) interpreting the results of the mathematics in terms of the original situation, (5) validating the conclusions by comparing them with the situation, and then, either improving the model or, if it is acceptable, (6) reporting on the conclusions and the reasoning behind them. Choices, assumptions and approximations are present throughout this cycle.

In descriptive modeling, a model simply describes the phenomena or summarizes them in a compact form. Graphs of observations are a familiar descriptive model—for example, graphs of global temperature and atmospheric CO₂ over time.

Analytic modeling seeks to explain data on the basis of deeper theoretical ideas, albeit with parameters that are empirically based; for example, exponential growth of bacterial colonies (until cut-off mechanisms such as pollution or starvation intervene) follows from a constant reproduction rate. Functions are an important tool for analyzing such



problems.

Graphing utilities, spreadsheets, CAS environments, and dynamic geometry software are powerful tools that can be used to model purely mathematical phenomena (e.g., the behavior of polynomials) as well as physical phenomena.

Modeling Standards

Modeling is best interpreted not as a collection of isolated topics but rather in relation to other standards. Making mathematical models is a Standard for Mathematical Practice, and specific modeling standards appear throughout the high school standards indicated by a star symbol (★).

Mathematics | High School—Statistics and Probability*

Decisions or predictions are often based on data—numbers in context. These decisions or predictions would be easy if the data always sent a clear message, but the message is often obscured by variability. Statistics provides tools for describing variability in data and for making informed decisions that take it into account.

Data are gathered, displayed, summarized, examined, and interpreted to discover patterns and deviations from patterns. Quantitative data can be described in terms of key characteristics: measures of shape, center, and spread. The shape of a data distribution might be described as symmetric, skewed, flat, or bell shaped, and it might be summarized by a statistic measuring center (such as mean or median) and a statistic measuring spread (such as standard deviation or interquartile range). Different distributions can be compared numerically using these statistics or compared visually using plots. Knowledge of center and spread are not enough to describe a distribution. Which statistics to compare, which plots to use, and what the results of a comparison might mean, depend on the question to be investigated and the real-life actions to be taken.

Randomization has two important uses in drawing statistical conclusions. First, collecting data from a random sample of a population makes it possible to draw valid conclusions about the whole population, taking variability into account. Second, randomly assigning individuals to different treatments allows a fair comparison of the effectiveness of those treatments. A statistically significant outcome is one that is unlikely to be due to chance alone, and this can be evaluated only under the condition of randomness. The conditions under which data are collected are important in drawing conclusions from the data; in critically reviewing uses of statistics in public media and other reports it is important to consider the study design, how the data were gathered, and the analyses employed as well as the data summaries and the conclusions drawn.

Random processes can be described mathematically by using a probability model. One begins to make a probability model by listing or describing the possible outcomes (the sample space) and assigning probabilities. In situations such as flipping a coin, rolling a number cube, or drawing a card, it might be reasonable to assume various outcomes are equally likely. In a probability model, sample points represent outcomes and combine to make up events; probabilities of events can be computed by applying the additive and multiplicative laws of probability. Interpreting these probabilities relies on an understanding of independence and conditional probability, which can be approached through the analysis of two-way tables.

Technology plays an important role in statistics and probability by making it possible to generate plots, functional models, and correlation coefficients, and to simulate many possible outcomes in a short amount of time.

Connections to Functions and Modeling. Functional models may be used to approximate data; if the data are approximately linear, the relationship may be modeled with a regression line and the strength and direction of such a relationship may be expressed through a correlation coefficient.

Content Outline

Summarizing Categorical and Measurement Data

Probability Models

Independently Combined Probability Models

Making Inferences and Justifying Conclusions Drawn from Data

Conditional Probability and the Laws of Probability

Experimenting and Simulating to Model Probabilities

Using Probability to Make Decisions

* Most or all of the standards in Statistics and Probability have a close connection to modeling.

1. Understand that statistical methods take variability into account to support making informed decisions based on data collected to answer specific questions.
2. Understand that visual displays and summary statistics condense the information in data sets into usable knowledge.
3. Understand that patterns of association or relationships between variables may emerge through careful analysis of multi-variable data.
4. Summarize comparative or bivariate categorical data in two-way frequency tables. Interpret joint, marginal and conditional relative frequencies in the context of the data, recognizing possible associations and trends in bivariate categorical data.
5. Compare data on two or more count or measurement variables by using plots on the real number line (dot plots, histograms, and box plots). Use statistics appropriate to the shape of the data distribution to summarize center (median, mean) and spread (interquartile range, standard deviation) of the data sets. Interpret changes in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers).
6. Represent bivariate quantitative data on a scatter plot and describe how the variables are related.
7. Fit a linear function for scatter plots that suggest a linear association. Informally assess the fit of the model function by plotting and analyzing residuals.
8. Use a model function fitted to the data to solve problems in the context of the data, interpreting the slope (rate of change) and the intercept (constant term).
9. Compute (using technology) and interpret the correlation coefficient for a linear relationship between variables.
10. Distinguish between correlation and causation.

Probability Models

S-PM

1. Understand that in a probability model, individual outcomes have probabilities that sum to 1. When outcomes are categorized, the probability of a given type of outcome is the sum of the probabilities of all the individual outcomes of that type.
2. Understand that uniform probability models are useful models for processes such as (i) the selection of a person from a population; (ii) the selection of a number in a lottery; (iii) any physical situation in which symmetry suggests that different individual outcomes are equally likely.
3. Understand that two different empirical probability models for the same process will rarely assign exactly the same probability to a given type of outcome. But if the data sets are large and the methods used to collect the data for the two data sets are consistent, the agreement between the models is likely to be reasonably good.
4. Understand that a (theoretical) uniform probability model may be judged by comparing it to an empirical probability model for the same process. If the theoretical assumptions are appropriate and the data set is large, then the two models should agree approximately. If the agreement is not good, then it may be necessary to modify the assumptions underlying the theoretical model or look for factors that might have affected the data used to create the empirical model.
5. Use a uniform probability model to compute probabilities for a process involving uncertainty, including the random selection of a person from a population and physical situations where symmetry suggests that different individual outcomes are equally likely.
 - a. List the individual outcomes to create a sample space.
 - b. Label the individual outcomes in the sample space to reflect important characteristics or quantities associated with them.
 - c. Determine probabilities of individual outcomes, and determine the probability of a type or category of outcome as the fraction of individual outcomes it includes.
6. Generate data by sampling, repeated experimental trials, and simulations. Record and appropriately label such data, and use them to construct an empirical probability model. Compute probabilities in such models.
7. Compare probabilities from a theoretical model to probabilities from a corresponding empirical model for the same situation. If the agreement is not good, explain possible sources of the discrepancies.

Independently Combined Probability Models

S-IPM

1. Understand that to describe a pair of random processes (such as tossing a coin and rolling a number cube), or one random process repeated twice (such as randomly selecting a student in the class on two different days), two probability models can be combined into a single model.

- a. The sample space for the combined model is formed by listing all possible ordered pairs that combine an individual outcome from the first model with an individual outcome from the second. Each ordered pair is an individual outcome in the combined model.
 - b. The total number of individual outcomes (ordered pairs) in the combined model is the product of the number of individual outcomes in each of the two original models.
2. Understand that when two probability models are combined independently, the probability that one type of outcome in the first model occurs together with another type of outcome in the second model is the product of the two corresponding probabilities in the original models (the Multiplication Rule).
 3. Combine two uniform models independently to compute probabilities for a pair of random processes (e.g., flipping a coin twice, selecting one person from each of two classes).
 - a. Use organized lists, tables and tree diagrams to represent the combined sample space.
 - b. Determine probabilities of ordered pairs in the combined model, and determine the probability of a particular type or category of outcomes in the combined model, as the fraction of ordered pairs corresponding to it.
 4. For two independently combined uniform models, use the Multiplication Rule to determine probabilities.

Making Inferences and Justifying Conclusions

S-IC

1. Understand that statistics is a process for making inferences about population parameters based on a sample from that population; randomness is the foundation for statistical inference.
2. Understand that the design of an experiment or sample survey is of critical importance to analyzing the data and drawing conclusions.
3. Understand that simulation-based techniques are powerful tools for making inferences and justifying conclusions from data.
4. Use probabilistic reasoning to decide if a specified model is consistent with results from a given data-generating process. (For example, a model says a spinning coin falls heads up with probability 0.5. Would a result of 5 tails in a row cause you to question the model?)
5. Recognize the purposes of and differences among sample surveys, experiments and observational studies; explain how randomization relates to each.
6. Use data from a sample survey to estimate a population mean or proportion; develop a margin of error through the use of simulation models for random sampling.
7. Use data from a randomized experiment to compare two treatments; justify significant differences between parameters through the use of simulation models for random assignment.
8. Evaluate reports based on data.

Conditional Probability and the Laws of Probability

S-CP

1. Understand that events are subsets of a sample space; often, events of interest are defined by using characteristics (or categories) of the sample points, or as unions, intersections, or complements thereof (“and,” “or,” “not”). A sample point may belong to several events (categories).
2. Understand that if A and B are two events, then in a uniform model the conditional probability of A given B, denoted by $P(A | B)$, is the fraction of B’s sample points that also lie in A.
3. Understand that the laws of probability allow one to use known probabilities to determine other probabilities of interest.
4. Compute probabilities by constructing and analyzing sample spaces, representing them by tree diagrams, systematic lists, and Venn diagrams.
5. Use the laws of probability to compute probabilities.
6. Apply concepts such as intersections, unions and complements of events, and conditional probability and independence to define or analyze events, calculate probabilities and solve problems.
7. Construct and interpret two-way tables to show probabilities when two characteristics (or categories) are associated with each sample point. Use a two-way table to determine conditional probabilities. *
8. Recognize and explain the concepts of conditional probability and independence in everyday language and everyday situations. *
9. Use permutations and combinations to compute probabilities of compound events and solve problems.

* Standard with close connection to modeling.

1. Understand that sets of data obtained from surveys, simulations or other means can be used as probability models, by treating the data set itself as a sample space, in which the sample points are the individual pieces of data.
2. Understand that the probability of an outcome can be interpreted as an assertion about the long-run proportion of the outcome's occurrence if the random experiment is repeated a large number of times.
3. Calculate experimental probabilities by performing simulations or experiments involving a probability model and using relative frequencies of outcomes.
4. Compare the results of simulations with predicted probabilities. When there are substantial discrepancies between predicted and observed probabilities, explain them.
5. Use the mean and standard deviation of a data set to fit it to a normal distribution and to estimate population percentages. Recognize that there are data sets for which such a procedure is not appropriate. Use calculators, spreadsheets and tables to estimate areas under the normal curve.

Using Probability to Make Decisions

1. Understand that the expected value of a random variable is the weighted average of its possible values, with weights given by their respective probabilities.
2. Understand that when the possible outcomes of a decision can be assigned probabilities and payoff values, the decision can be analyzed as a random variable with an expected value, e.g., of an investment.
3. Calculate expected value, e.g. to determine the fair price of an investment.
4. Use probabilities to make fair decisions (e.g., drawing by lots, using a random number generator).
5. Evaluate and compare two investments or strategies with the same expected value, where one investment or strategy is safer than the other.
6. Evaluate and compare two investments or strategies, where one investment or strategy is safer but has lower expected value. Include large and small investments, and situations with serious consequences.
7. Analyze decisions and strategies using probability concepts (e.g. product testing, medical testing, pulling a hockey goalie at the end of a game).

Mathematics | High School—Geometry

An understanding of the attributes and relationships of geometric objects can be applied in diverse contexts—interpreting a schematic drawing, estimating the amount of wood needed to frame a sloping roof, rendering computer graphics, or designing a sewing pattern for the most efficient use of material.

Understanding the attributes of geometric objects often relies on measurement: a circle is a set of points in a plane at a fixed distance from a point; a cube is bounded by six squares of equal area; when two parallel lines are crossed by a transversal, pairs of corresponding angles are congruent.

The concepts of congruence, similarity and symmetry can be united under the concept of geometric transformation. Reflections and rotations each explain a particular type of symmetry, and the symmetries of an object offer insight into its attributes—as when the reflective symmetry of an isosceles triangle assures that its base angles are congruent. Applying a scale transformation to a geometric figure yields a similar figure. The transformation preserves angle measure, and lengths are related by a constant of proportionality.

The definitions of sine, cosine and tangent for acute angles are founded on right triangle similarity, and, with the Pythagorean theorem, are fundamental in many real-world and theoretical situations.

Coordinate geometry is a rich field for exploration. How does a geometric transformation such as a translation or reflection affect the coordinates of points? How is the geometric definition of a circle reflected in its equation? Coordinates can describe locations in three dimensions and extend the use of algebraic techniques to problems involving the three-dimensional world we live in.

Dynamic geometry environments provide students with experimental and modeling tools that allow them to investigate geometric phenomena in much the same way as CAS environments allow them to experiment with algebraic phenomena.

Connections to Equations and Inequalities. The correspondence between numerical coordinates and geometric points allows methods from algebra to be applied to geometry and vice versa. The solution set of an equation becomes a geometric curve, making visualization a tool for doing and understanding algebra. Geometric shapes can be described by equations, making algebraic manipulation into a tool for geometric understanding, modeling and proof.

Content Outline

Congruence

Similarity, Right Triangles, and Trigonometry

Circles

Expressing Geometric Properties with Equations

Trigonometry of General Triangles

Geometric Measurement and Dimension

Modeling with Geometry

- Understand that two geometric figures are congruent if there is a sequence of rigid motions (rotations, reflections, translations) that carries one onto the other. This is the principle of superposition.
- Understand that criteria for triangle congruence are ways to specify enough measures in a triangle to ensure that all triangles drawn with those measures are congruent.
- Understand that criteria for triangle congruence (ASA, SAS, and SSS) can be established using rigid motions.
- Understand that geometric diagrams can be used to test conjectures and identify logical errors in fallacious proofs.
- Know and use (in reasoning and problem solving) definitions of angles, polygons, parallel, and perpendicular lines, rigid motions, parallelograms and rectangles.
- Prove theorems about lines and angles. *Theorems include: vertical angles are congruent; when a transversal crosses parallel lines, alternate interior angles are congruent and corresponding angles are congruent; two lines parallel to a third are parallel to each other; points on a perpendicular bisector of a segment are exactly those equidistant from the segment's endpoints.*
- Prove theorems about triangles. *Theorems include: measures of interior angles of a triangle sum to 180° ; base angles of isosceles triangles are congruent, the triangle inequality, the longest side of a triangle faces the angle with the greatest measure and vice-versa, the exterior-angle inequality, and the segment joining midpoints of two sides of a triangle parallel to the third side and half the length.*
- Use and prove properties of and relationships among special quadrilaterals: parallelogram, rectangle, rhombus, square, trapezoid and kite.
- Characterize parallelograms in terms of equality of opposite sides, in terms of equality of opposite angles, and in terms of bisection of diagonals; characterize rectangles as parallelograms with equal diagonals.
- Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc). *Copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines, including the perpendicular bisector of a line segment; and constructing a line parallel to a given line through a point not on the line.*
- Construct an equilateral triangle, a square and a regular hexagon inscribed in a circle.
- Use two-dimensional representations to transform figures and to predict the effect of translations, rotations, and reflections.
- Use two-dimensional representations to transform figures and to predict the effect of dilations.

Similarity, Right Triangles, and Trigonometry

- Understand that dilating a line produces a line parallel to the original. (In particular, lines passing through the center of the dilation remain unchanged.)
- Understand that the dilation of a given segment is parallel to the given segment and longer or shorter in the ratio given by the scale factor. A dilation leaves a segment unchanged if and only if the scale factor is 1.
- Understand that the assumed properties of dilations can be used to establish the AA, SAS, and SSS criteria for similarity of triangles.
- Understand that by similarity, side ratios in right triangles are properties of the angles in the triangle, leading to definitions of sine, cosine, and tangent.
- Understand that a line parallel to one side of a triangle divides the other two proportionally, and conversely.
- Use triangle similarity criteria to solve problems and to prove relationships in geometric figures. *Include a proof of the Pythagorean theorem using triangle similarity.*
- Use and explain the relationship between the sine and cosine of complementary angles.
- Use sine, cosine, tangent, and the Pythagorean Theorem to solve right triangles² in applied problems.
- STEM Give an informal explanation using successive approximation that a dilation of scale factor r changes the length of a curve by a factor of r and the area of a region by a factor of r^2 .

Circles

- Understand that dilations can be used to show that all circles are similar.
- Understand that there is a unique circle through three non-collinear points, and four circles tangent to three non-concurrent lines.

² A right triangle has five parameters, its three lengths and two acute angles. Given a length and any other parameter, "solving a right triangle" means finding the remaining three parameters.

3. Identify and define radius, diameter, chord, tangent, secant, and circumference.
4. Identify and describe relationships among angles, radii, and chords. *Include the relationship between central, inscribed and circumscribed angles; inscribed angles on a diameter are right angles; the radius of a circle is perpendicular to the tangent where the radius intersects the circle.*
5. Determine the arc lengths and the areas of sectors of circles, using proportions.
6. STEM Construct a tangent line from a point outside a given circle to the circle.
7. STEM Prove and use theorems about circles, and use these theorems to solve problems involving:
 - a. Symmetries of a circle
 - b. Similarity of a circle to any other
 - c. Tangent line, perpendicularity to a radius
 - d. Inscribed angles in a circle, relationship to central angles, and equality of inscribed angles
 - e. Properties of chords, tangents, and secants as an application of triangle similarity.

Expressing Geometric Properties with Equations

G-GPE

1. Understand that two lines with well-defined slopes are perpendicular if and only if the product of their slopes is equal to -1 .
2. Understand that the equation of a circle can be found using its definition and the Pythagorean Theorem.
3. Understand that transforming the graph of an equation by reflecting in the axes, translating parallel to the axes, or applying a dilation in one of the coordinate directions corresponds to substitutions in the equation.
4. STEM Understand that an ellipse is the set of all points whose distances from two fixed points (the foci) are a constant sum. The graph of $x^2/a^2 + y^2/b^2 = 1$ is an ellipse with foci on one of the axes.
5. STEM Understand that a parabola is the set of points equidistant from a fixed point (the focus) and a fixed line (the directrix). The graph of any quadratic function is a parabola, and all parabolas are similar.
6. STEM Understand that the formula $A = \pi ab$ for the area of an ellipse can be derived from the formula for the area of a circle. *
7. Use the slope criteria for parallel and perpendicular lines to solve geometric problems (e.g., find the equation of a line parallel or perpendicular to a given line that passes through a given point).
8. Find the point on the segment between two given points that divides the segment in a given ratio.
9. Use coordinates to compute perimeters of polygons and areas for triangles and rectangles, e.g. using the distance formula. *
10. Decide whether a point with given coordinates lies on a circle defined by a given equation.
11. Use coordinates to prove simple geometric theorems algebraically. For example, prove or disprove that a figure defined by four given points in the coordinate plane is a rectangle; prove or disprove that the point $(1, \sqrt{3})$ lies on the circle centered at the origin and containing the point $(0, 2)$.
12. Complete the square to find the center and radius of a circle given by an equation.
13. STEM Find an equation for an ellipse given in the coordinate plane with major and minor axes parallel to the coordinate axes.
14. STEM Calculate areas of ellipses to solve problems. *

Trigonometry of General Triangles

G-TGT

1. STEM Understand that the formula $A = \frac{1}{2} ab \sin(C)$ for the area of a triangle can be derived by drawing an auxiliary line from a vertex perpendicular to the opposite side. Applying this formula in three different ways leads to the Law of Sines.
2. STEM Understand that the Law of Cosines generalizes the Pythagorean Theorem.
3. STEM Understand that the sine, cosine and tangent of the sum or difference of two angles can be expressed in terms of sine, cosine, and tangent of the angles themselves using the addition formulas.
4. STEM Understand that the Laws of Sines and Cosines embody the triangle congruence criteria, in that three pieces of information are usually sufficient to completely solve a triangle. Furthermore, these laws yield two possible solutions in the ambiguous case, illustrating that “Side-Side-Angle” is not a congruence criterion.
5. STEM Explain proofs of the Law of Sines and the Law of Cosines.

* Standard with close connection to modeling.

6. STEM Use the Law of Sines and the Law of Cosines to find unknown measurements in right and non-right triangles (e.g., surveying problems, resultant forces).

Geometric Measurement and Dimension

G-GMD

1. Understand that the area of a decomposed figure is the sum of the areas of its components and is independent of the choice of dissection.
2. STEM Understand that lengths of curves and areas of curved regions can be defined using the informal notion of limit.
3. STEM Understand that Cavalieri's principle allows one to understand volume formulas informally by visualizing volumes as stacks of thin slices.
4. Find areas of polygons by dissecting them into triangles.
5. Explain why the volume of a cylinder is the area of the base times the height, using informal arguments.
6. For a pyramid or a cone, give a heuristic argument to show why its volume is one-third of its height times the area of its base.
7. Apply formulas and solve problems involving volume and surface area of right prisms, right circular cylinders, right pyramids, cones, spheres and composite figures.
8. STEM Identify cross-sectional shapes of slices of three-dimensional objects, and identify three-dimensional objects generated by rotations of two-dimensional objects.
9. STEM Use the behavior of length and area under dilations to show that the circumference of a circle is proportional to the radius and the area of a circle is proportional to the square of the radius. Identify the relation between the constants of proportionality with an informal argument involving dissection and recomposition of a circle into an approximate rectangle.

Modeling with Geometry

G-MG

1. Understand that models of objects and structures can be built from a library of standard shapes; a single kind of shape can model seemingly different objects.*
2. Use geometric shapes, their measures and their properties to describe objects (e.g., modeling a tree trunk or a human torso or as a cylinder).*
3. Apply concepts of density based on area and volume in modeling situations (e.g., persons per square mile, BTUs per cubic foot).*
4. Apply geometric methods to solve design problems (e.g., designing an object or structure to satisfy constraints or minimize cost; working with typographic grid systems based on ratios).*

* Standard with close connection to modeling.

Glossary

Addition and subtraction within 10, 20, or 100. Addition or subtraction of whole numbers with whole number answers, and with sum or minuend at most 10, 20, or 100. Example: $8 + 2 = 10$ is an addition within 10, $14 - 5 = 9$ is a subtraction within 20, and $55 - 18 = 37$ is a subtraction within 100.

Additive inverses. Two numbers whose sum is 0 are additive inverses of one another. Example: $\frac{3}{4}$ and $-\frac{3}{4}$ are additive inverses of one another because $\frac{3}{4} + (-\frac{3}{4}) = (-\frac{3}{4}) + \frac{3}{4} = 0$.

Box plot. A method of visually displaying a distribution of data values by using the median, quartiles, and extremes of the data set. A box shows the middle 50% of the data.³

Complex fraction. A fraction $\frac{A}{B}$ where A and/or B are fractions.

Congruent. Two plane or solid figures are congruent if one can be obtained from the other by a sequence of rigid motions (rotations, reflections, and translations).

Counting on. A strategy for finding the number of objects in a group without having to count every member of the group. For example, if a stack of books is known to have 8 books and 3 more books are added to the top, it is not necessary to count the stack all over again; one can find the total by *counting on*—pointing to the top book and saying “eight,” following this with “nine, ten, eleven. There are eleven books now.”

Decade word. A word referring to a single-digit multiple of ten, as in *twenty, thirty, forty*, etc.

Dot plot. A method of visually displaying a distribution of data values where each data value is shown as a dot or mark above a number line. Also known as a line plot.⁴

Dilation. A transformation that moves each point along the ray through the point emanating from a fixed center, and multiplies distances from the center by a common scale factor.

Empirical probability model. A probability model based on a data set for a random process in which the probability of a particular type or category of outcome equals the percentage of data points included in the category. Example: If a coin is tossed 10 times and 4 of the tosses are Heads, then the empirical probability of Heads in the empirical probability model is $\frac{4}{10}$ (equivalently 0.4 or 40%).

Equivalent fractions. Two fractions $\frac{a}{b}$ and $\frac{c}{d}$ that represent the same number.

Expanded form. A multidigit number is expressed in expanded form when it is written as a sum of single-digit multiples of powers of ten. For example, $643 = 600 + 40 + 3$.

First quartile. For a data set with median M , the first quartile is the median of the data values less than M . Example: For the data set $\{1, 3, 6, 7, 10, 12, 14, 15, 22, 120\}$, the first quartile is 6.⁵ See also [median](#), [third quartile](#), [interquartile range](#).

Fraction. A number expressible in the form $\frac{a}{b}$ where a is a whole number and b is a positive whole number. (The word *fraction* in these standards always refers to a nonnegative number.) See also [rational number](#).

Independently combined probability models. Two probability models are said to be combined independently if the probability of each ordered pair in the combined model equals the product of the original probabilities of the two individual outcomes in the ordered pair.

Integer. A number expressible in the form a or $-a$ for some whole number a .

Interquartile Range. A measure of variation in a set of numerical data, the interquartile range is the distance between the first and third quartiles of the data set. Example: For the data set $\{1, 3, 6, 7, 10, 12, 14, 15, 22, 120\}$, the interquartile range is $15 - 6 = 9$. See also [first quartile](#), [third quartile](#).

Laws of arithmetic. See Table 3 in this Glossary.

Line plot. See [dot plot](#).

Mean. A measure of center in a set of numerical data, computed by adding the values in a list and then dividing by the number of values in the list.⁶ Example: For the data set $\{1, 3, 6, 7, 10, 12, 14, 15, 22, 120\}$, the mean is 21.

Mean absolute deviation. A measure of variation in a set of numerical data, computed by adding the distances between each data value and the mean, then dividing by the number of data values. Example: For the data set $\{2, 3, 6, 7, 10, 12, 14, 15, 22, 120\}$, the mean absolute deviation is 20.

Median. A measure of center in a set of numerical data. The median of a list of values is the value appearing at the center of a sorted version of the list—or the mean of the two central values, if the list contains an even number of values. Example: For the data set $\{2, 3, 6, 7, 10, 12, 14, 15, 22, 90\}$, the median is 11.

³ Adapted from Wisconsin Department of Public Instruction, <http://dpi.wi.gov/standards/mathglos.html>, accessed March 2, 2010.

⁴ Adapted from Wisconsin Department of Public Instruction, *op. cit.*

⁵ Many different methods for computing quartiles are in use. The method defined here is sometimes called the Moore and McCabe method. See Langford, E., “Quartiles in Elementary Statistics,” *Journal of Statistics Education* Volume 14, Number 3 (2006),

⁶ To be more precise, this defines the *arithmetic mean*.

Multiplication and division within 100. Multiplication or division of whole numbers with whole number answers, and with product or dividend at most 100. Example: $72 \div 8 = 9$.

Multiplicative inverses. Two numbers whose product is 1 are multiplicative inverses of one another. Example: $\frac{3}{4}$ and $\frac{4}{3}$ are multiplicative inverses of one another because $\frac{3}{4} \times \frac{4}{3} = \frac{4}{3} \times \frac{3}{4} = 1$.

Properties of equality. See Table 4 in this Glossary.

Properties of inequality. See Table 5 in this Glossary.

Properties of operations. Associativity and commutativity of addition and multiplication, distributivity of multiplication over addition, the additive identity property of 0, and the multiplicative identity property of 1. See Table 3 in this Glossary.

Probability. A number between 0 and 1 used to quantify likelihood for processes that have uncertain outcomes (such as tossing a coin, selecting a person at random from a group of people, tossing a ball at a target, testing for a medical condition).

Rational number. A number expressible in the form $\frac{a}{b}$ or $-\frac{a}{b}$ for some fraction $\frac{a}{b}$. The rational numbers include the integers.

Related fractions. Two fractions are said to be related if one denominator is a factor of the other.⁷

Rigid motion. A transformation of points in space consisting of one or more translations, reflections, and/or rotations. Rigid motions are here assumed to preserve distances and angle measures.

Sample space. In a probability model for a random process, a list of the individual outcomes that are to be considered.

Scatter plot. A graph in the coordinate plane representing a set of bivariate data. For example, the heights and weights of a group of people could be displayed on a scatter plot.⁸

Similarity transformation. A rigid motion followed by a dilation.

Tape diagrams. Drawings that look like a segment of tape, used to illustrate number relationships. Also known as strip diagrams, bar models or graphs, fraction strips, or length models.

Teen number. A whole number that is greater than or equal to 11 and less than or equal to 19.

Third quartile. For a data set with median M , the third quartile is the median of the data values greater than M . Example: For the data set $\{2, 3, 6, 7, 10, 12, 14, 15, 22, 120\}$, the third quartile is 15. See also [median](#), [first quartile](#), [interquartile range](#).

Uniform probability model. A probability model in which the individual outcomes all have the same probability ($\frac{1}{N}$ if there are N individual outcomes in the sample space). If a given type of outcome consists of M individual outcomes, then the probability of that type of outcome is $\frac{M}{N}$. Example: if a uniform probability model is used to model the process of randomly selecting a person from a class of 32 students, and if 8 of the students are left-handed, then the probability of randomly selecting a left-handed student is $\frac{8}{32}$ (equivalently $\frac{1}{4}$, 0.25 or 25%).

Whole numbers. The numbers 0, 1, 2, 3,

⁷ See Ginsburg, Leinwand and Decker (2009), *Informing Grades 1-6 Mathematics Standards Development: What Can Be Learned from High-Performing Hong Kong, Korea, and Singapore?*, Table A1, p. A-5, grades 3 and 4.

⁸ Adapted from Wisconsin Department of Public Instruction, *op. cit.*.

TABLE 1. Common addition and subtraction situations.⁹

	Result Unknown	Change Unknown	Start Unknown
Add to	Two bunnies sat on the grass. Three more bunnies hopped there. How many bunnies are on the grass now? $2 + 3 = ?$	Two bunnies were sitting on the grass. Some more bunnies hopped there. Then there were five bunnies. How many bunnies hopped over to the first two? $2 + ? = 5$	Some bunnies were sitting on the grass. Three more bunnies hopped there. Then there were five bunnies. How many bunnies were on the grass before? $? + 3 = 5$
Take from	Five apples were on the table. I ate two apples. How many apples are on the table now? $5 - 2 = ?$	Five apples were on the table. I ate some apples. Then there were three apples. How many apples did I eat? $5 - ? = 3$	Some apples were on the table. I ate two apples. Then there were three apples. How many apples were on the table before? $? - 2 = 3$
	Total Unknown	Addend Unknown	Both Addends Unknown ¹⁰
Put Together/ Take Apart¹¹	Three red apples and two green apples are on the table. How many apples are on the table? $3 + 2 = ?$	Five apples are on the table. Three are red and the rest are green. How many apples are green? $3 + ? = 5, 5 - 3 = ?$	Grandma has five flowers. How many can she put in her red vase and how many in her blue vase? $5 = 0 + 5, 5 = 5 + 0$ $5 = 1 + 4, 5 = 4 + 1$ $5 = 2 + 3, 5 = 3 + 2$
	Difference Unknown	Bigger Unknown	Smaller Unknown
Compare¹²	(“How many more?” version): Lucy has two apples. Julie has five apples. How many more apples does Julie have than Lucy? (“How many fewer?” version): Lucy has two apples. Julie has five apples. How many fewer apples does Lucy have than Julie? $2 + ? = 5, 5 - 2 = ?$	(Version with “more”): Julie has three more apples than Lucy. Lucy has two apples. How many apples does Julie have? (Version with “fewer”): Lucy has 3 fewer apples than Julie. Lucy has two apples. How many apples does Julie have? $2 + 3 = ?, 3 + 2 = ?$	(Version with “more”): Julie has three more apples than Lucy. Julie has five apples. How many apples does Lucy have? (Version with “fewer”): Lucy has 3 fewer apples than Julie. Julie has five apples. How many apples does Lucy have? $5 - 3 = ?, ? + 3 = 5$

⁹ Adapted from Box 2-4 of National Research Council (2009, op. cit., pp. 32, 33).

¹⁰ These *take apart* situations can be used to show all the decompositions of a given number. The associated equations, which have the total on the left of the equal sign, help children understand that the = sign does not always mean *makes or results in* but always does mean *is the same number as*.

¹¹ Either addend can be unknown, so there are three variations of these problem situations. Both Addends Unknown is a productive extension of this basic situation especially for small numbers less than or equal to 10.

¹² For the Bigger Unknown or Smaller Unknown situations, one version directs the correct operation (the version using *more* for the bigger unknown and using *less* for the smaller unknown). The other versions are more difficult.

TABLE 2. Common multiplication and division situations.¹³

	Unknown Product	Group Size Unknown (“How many in each group?” Division)	Number of Groups Unknown (“How many groups?” Division)
	$3 \times 6 = ?$	$3 \times ? = 18$ and $18 \div 3 = ?$	$? \times 6 = 18$ and $18 \div 6 = ?$
Equal Groups	There are 3 bags with 6 plums in each bag. How many plums are there in all? <i>Measurement example.</i> You need 3 lengths of string, each 6 inches long. How much string will you need altogether?	If 18 plums are shared equally into 3 bags, then how many plums will be in each bag? <i>Measurement example.</i> You have 18 inches of string, which you will cut into 3 equal pieces. How long will each piece of string be?	If 18 plums are to be packed 6 to a bag, then how many bags are needed? <i>Measurement example.</i> You have 18 inches of string, which you will cut into pieces that are 6 inches long. How many pieces of string will you have?
Arrays,¹⁴ Area¹⁵	There are 3 rows of apples with 6 apples in each row. How many apples are there? <i>Area example.</i> What is the area of a 3 cm by 6 cm rectangle?	If 18 apples are arranged into 3 equal rows, how many apples will be in each row? <i>Area example.</i> A rectangle has area 18 square centimeters. If one side is 3 cm long, how long is a side next to it?	If 18 apples are arranged into equal rows of 6 apples, how many rows will there be? <i>Area example.</i> A rectangle has area 18 square centimeters. If one side is 6 cm long, how long is a side next to it?
Compare	A blue hat costs \$6. A red hat costs 3 times as much as the blue hat. How much does the red hat cost? <i>Measurement example.</i> A rubber band is 6 cm long. How long will the rubber band be when it is stretched to be 3 times as long?	A red hat costs \$18 and that is 3 times as much as a blue hat costs. How much does a blue hat cost? <i>Measurement example.</i> A rubber band is stretched to be 18 cm long and that is 3 times as long as it was at first. How long was the rubber band at first?	A red hat costs \$18 and a blue hat costs \$6. How many times as much does the red hat cost as the blue hat? <i>Measurement example.</i> A rubber band was 6 cm long at first. Now it is stretched to be 18 cm long. How many times as long is the rubber band now as it was at first?
General	$a \times b = ?$	$a \times ? = p$ and $p \div a = ?$	$? \times b = p$ and $p \div b = ?$

¹³ The first examples in each cell are examples of discrete things. These are easier for students and should be given before the measurement examples.

¹⁴ The language in the array examples shows the easiest form of array problems. A harder form is to use the terms rows and columns: The apples in the grocery window are in 3 rows and 6 columns. How many apples are in there? Both forms are valuable.

¹⁵ Area involves arrays of squares that have been pushed together so that there are no gaps or overlaps, so array problems include these especially important measurement situations.

TABLE 3. The laws of arithmetic, including the properties of operations (identified with \circ). Here a , b and c stand for arbitrary numbers in a given number system. The laws of arithmetic apply to the rational number system, the real number system, and the complex number system.

\circ Associative law of addition	$(a + b) + c = a + (b + c)$
\circ Commutative law of addition	$a + b = b + a$
\circ Additive identity property of 0	$a + 0 = 0 + a = a$
Existence of additive inverses	For every a there exists $-a$ so that $a + (-a) = (-a) + a = 0$.
\circ Associative law of multiplication	$(a \times b) \times c = a \times (b \times c)$
\circ Commutative law of multiplication	$a \times b = b \times a$
\circ Multiplicative identity property of 1	$a \times 1 = 1 \times a = a$
Existence of multiplicative inverses	For every $a \neq 0$ there exists $1/a$ so that $a \times 1/a = 1/a \times a = 1$.
\circ Distributive law of multiplication over addition	$a \times (b + c) = a \times b + a \times c$

TABLE 4. The properties of equality. Here a , b and c stand for arbitrary numbers in the rational, real, or complex number systems.

Reflexive property of equality	$a = a$
Symmetric property of equality	If $a = b$, then $b = a$.
Transitive property of equality	If $a = b$ and $b = c$, then $a = c$.
Addition property of equality	If $a = b$, then $a + c = b + c$.
Subtraction property of equality	If $a = b$, then $a - c = b - c$.
Multiplication property of equality	If $a = b$, then $a \times c = b \times c$.
Division property of equality	If $a = b$ and $c \neq 0$, then $a \div c = b \div c$.
Substitution property of equality	If $a = b$, then b may be substituted for a in any expression containing a .

TABLE 5. The properties of inequality. Here a , b and c stand for arbitrary numbers in the rational or real number systems.

<p>Exactly one of the following is true: $a < b$, $a = b$, $a > b$.</p> <p>If $a > b$ and $b > c$ then $a > c$.</p> <p>If $a > b$, then $b < a$.</p> <p>If $a > b$, then $-a < -b$.</p> <p>If $a > b$, then $a \pm c > b \pm c$.</p> <p>If $a > b$ and $c > 0$, then $a \times c > b \times c$.</p> <p>If $a > b$ and $c < 0$, then $a \times c < b \times c$.</p> <p>If $a > b$ and $c > 0$, then $a \div c > b \div c$.</p> <p>If $a > b$ and $c < 0$, then $a \div c < b \div c$.</p>

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COMMON CORE STATE STANDARDS FOR

English Language Arts and
Literacy in History/Social Studies & Science

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Introduction

The *Common Core State Standards for English Language Arts and Literacy in History/Social Studies and Science* are the culmination of an extended, broad-based effort to fulfill the charge issued by the states to create the next generation of K–12 standards that help ensure that all students are college and career ready in literacy by no later than the end of high school. The *Standards* set requirements for English language arts (ELA) but also for reading, writing, speaking, listening, and language in the social and natural sciences. Just as students must learn to communicate effectively in a variety of content areas, so too must the *Standards* specify the literacy skills and understandings required for eventual college and career readiness in history, social studies, and science as well as ELA. By their structure, the *Standards* encourage curriculum makers to take a comprehensive approach that coordinates ELA courses with courses in other subject areas in order to help students acquire a wide range of ever more sophisticated knowledge and skills through reading, writing, speaking, and listening.

The present work, led by the Council of Chief State School Officers (CCSSO) and the National Governors Association (NGA), builds on the foundation laid by states in their decades-long work on crafting high-quality education standards, including their work on the American Diploma Project with Achieve. The *Standards* also draw on the most important international models as well as research and input from numerous sources, including scholars, assessment developers, professional organizations, and educators from kindergarten through college. In their design and content, the *Standards* represent a synthesis of the best elements of standards-related work to date and an important advance over that previous work.

As specified by CCSSO and NGA, the *Standards* are (1) research and evidence based, (2) aligned with college and work expectations, (3) rigorous, and (4) internationally benchmarked. A particular standard was included in the document only when the best available evidence indicated that its mastery was essential for students to be college and career ready in a twenty-first-century, globally competitive society. As new and better evidence emerges, the *Standards* will be revised accordingly.

The *Standards* are an extension of a prior initiative led by CCSSO and NGA to develop College and Career Readiness (CCR) standards in reading,

writing, speaking, listening, and language as well as in mathematics. The CCR Reading, Writing, and Speaking and Listening Standards, released in draft form in September 2009, served, in revised form, as the backbone of the present document. Consistent across grades and disciplines, the CCR Standards create an essential unity within the document and a consistent point of reference for educators. Whether guiding third graders through a science unit or high school sophomores through a classic work of literature, teachers can look to the same CCR Standards—included in each section of this document—to help judge whether students are on course for being college and career ready. Grade-specific K–12 standards in reading, writing, speaking, listening, and language translate the broad (and, for the earliest grades, seemingly distant) aims of the CCR Standards into age- and attainment-appropriate terms.

While college and career readiness is the end point of the *Standards*—an ambitious goal in its own right—some students will reach that point before the end of high school. For those students who do complete the *Standards'* requirements before graduation, advanced work in such areas as literature, composition, language, and journalism should be available. It is beyond the scope of the *Standards* to describe what such advanced work should consist of, but it should provide the next logical step up from the college and career readiness baseline established here.

As a natural outgrowth of meeting the charge to define college and career readiness, the *Standards* also lay out a vision of what it means to be a literate person in the twenty-first century. Indeed, the skills and understandings students are expected to demonstrate have wide applicability outside the classroom or workplace. Students who meet the *Standards* readily undertake the close, attentive reading that is at the heart of understanding and enjoying complex works of literature. They habitually perform the critical reading necessary to pick carefully through the staggering amount of information available today in print and online. They actively seek the wide, deep, and thoughtful engagement with high-quality literary and informational texts that builds knowledge, enlarges experience, and broadens worldviews. They reflexively demonstrate the cogent reasoning and use of evidence that is essential to both private deliberation and responsible citizenship in a democratic republic. In short, students who master the *Standards* develop for skills in reading, writing, speaking, and listening that are the foundation for any creative and purposeful expression in language.

Key Design Considerations

A focus on results rather than means

By focusing on required achievements, the *Standards* leave room for teachers, curriculum developers, and states to determine how those goals should be reached and what additional topics should be addressed. Thus, the *Standards* do not mandate such things as a particular writing process or specify the full range of metacognitive strategies that students may need to use to monitor and direct their thinking and learning. Teachers are thus free to provide students with whatever tools and knowledge their professional judgment and experience identify as most helpful for meeting the goals set out in the *Standards*.

An integrated model of literacy

Although the *Standards* are divided into Reading, Writing, Speaking and Listening, and Language strands for conceptual clarity, the processes of communication are closely connected, as reflected throughout this document. For example, Writing Standard #9 requires that students be able to write about what they read. Likewise, Speaking and Listening Standard #4 sets the expectation that students will share findings from their research.

Language conventions and vocabulary are treated in detail in a separate strand not because those skills should be taught in isolation from other communication activities but because their importance extends beyond writing and reading, where standards documents often place such skills.

Many of the conventions must be observed in standard spoken as well as written English, and students, particularly the youngest ones, encounter and acquire new words through conversations as well as through texts. To signal the link between the Language skills and the rest of the standards even more strongly, some skills associated with language use are also found in other strands when appropriate. Reading Standard #4, for example, concerns determining word meanings, and Writing Standard #5 includes editing among the skills students must be able to use to strengthen writing.

Research and media skills integrated into the Standards as a whole

To be ready for college, workforce training, and life in a technological society, students need the ability to gather, comprehend, evaluate, synthesize, report on, and create a high volume and extensive range of print and nonprint texts in media forms old and new. The need to research and to consume and produce media is embedded into every element of today's

curriculum; in like fashion, the associated skills and understandings are embedded throughout the *Standards* rather than treated in a separate section.

Shared responsibility for students' literacy development

The *Standards* establish that instruction in reading, writing, speaking, listening, and language is a shared responsibility. The *Standards* present reading instruction in K–5 as fully integrative, including a rich blend of stories, drama, and poetry as well as informational texts from a range of content areas. ELA-specific standards for grade 6 and above include fiction, poetry, and drama but also literary nonfiction (e.g., speeches, essays, and historical documents with significant cultural importance and literary merit). Literacy standards specific to history/social studies and science for grade 6 and above are predicated on teachers in these areas using their unique disciplinary expertise to help students meet the particular challenges of reading, writing, speaking, listening, and language in their respective fields.

Part of the motivation behind the interdisciplinary approach to literacy promulgated by the *Standards* is extensive research establishing the need for college- and career-ready students to be proficient in reading complex informational text independently in a variety of content areas. Most of the required reading in college and workforce training programs is informational in structure and challenging in content; postsecondary education programs typically provide students with both a higher volume of such reading than is generally required in K–12 schools and comparatively little scaffolding.

The *Standards* are not alone in calling for a special emphasis on informational text. The 2009 reading framework of the National Assessment of Educational Progress (NAEP) requires a high and increasing proportion of informational text on its assessment as students advance through the grades.

Distribution of Literary and Informational Passages by Grade in the 2009 NAEP Reading Framework

Grade	Literary	Informational
4	50%	50%
8	45%	55%
12	30%	70%

The *Standards* aim to align instruction with this framework so that many more students can meet the demands of college and career readiness. In K–5, the *Standards* balance the teaching of literature with informational text, including texts in history/social studies and science. Fulfilling the standards for 6–12 ELA requires much greater attention to literary nonfiction than has been traditional. The NAEP framework also makes clear that significant reading of informational texts should take place outside of the ELA classroom in order for students to be ready for college and careers. The NAEP framework applies the sum of all the reading students do in a grade, not just their reading in the ELA context. The percentages do not imply, for example, that high school ELA teachers must teach 70 percent informational text; they demand instead that a great deal of reading should occur in other disciplines. To measure students’ growth toward college and career readiness, assessments aligned with the *Standards* should adhere to the distribution of texts across grades cited in the NAEP framework.

A progression of writing toward college and career readiness

NAEP likewise outlines a distribution across the grades of the core purposes and types of student writing. Similar to the *Standards*, the NAEP framework cultivates the development of three mutually reinforcing writing capacities: writing to persuade, to explain, and to convey real or imagined experience. Evidence concerning the demands of college and career readiness gathered during development of the *Standards* concurs with NAEP’s shifting emphases: in grades 9–12 in the *Standards*, students continue writing in all three forms but focus overwhelmingly on writing to argue and to inform or explain.

Distribution of Communicative Purposes by Grade in the 2011 NAEP Writing Framework

Grade	To Persuade	To Explain	To Convey Experience
4	30%	35%	35%
8	35%	35%	30%
12	40%	40%	20%

It follows that writing assessments aligned with the *Standards* should adhere to the distribution of writing purposes across grades outlined by NAEP.

Grade levels for K–8; grade bands for 9–10 and 11–12

The *Standards* use individual grade levels in kindergarten through grade 8 to provide useful specificity; the *Standards* use two-year bands in grades 9–12 to allow schools, districts, and states flexibility in high school course design.

What is not covered by the Standards

The *Standards* should be recognized for what they are *not* as well as what they are. Three of the most important intentional design limitations are as follows:

- 1) The *Standards* define what all students are expected to know and be able to do but not *how* teachers should teach. The *Standards* must be complemented by a well-developed, content-rich curriculum consistent with the expectations laid out in this document.
- 2) While the *Standards* do attempt to focus on what is most essential, they do not describe all that *can* or *should* be taught. A great deal is left to the discretion of teachers and curriculum developers. The aim of the *Standards* is to articulate the fundamentals, not to set out an exhaustive list nor a set of restrictions that limits what can be taught beyond what is specified herein.
- 3) The *Standards* set grade-level standards but do not define the intervention methods or materials necessary to support students who are well below or well above grade-level expectations. No set of grade-level standards can fully reflect the great variety in achievement levels of students in any given classroom. However, the *Standards* do provide clear signposts along the way to the goal of college and career readiness for all students.

The Student Who is College and Career Ready in Reading, Writing, Speaking, Listening, and Language

The descriptions that follow are not standards themselves, but instead offer a portrait of students who meet the standards set out in this document. As students advance through the grades and master the standards in reading, writing, speaking, listening, and language, they are able to exhibit with increasing fullness and regularity these capacities of the literate individual.

- **They demonstrate independence.**

Students can, without significant scaffolding or support, comprehend and evaluate complex texts across a range of types and disciplines, and they can construct effective arguments and clearly convey intricate or multifaceted information. Likewise, students are independently able to discern a speaker's key points and request clarification if something is not understood. They ask relevant questions, build on others' ideas, articulate their own ideas, and ask for confirmation that they have been understood. Without prompting, they observe language conventions, determine word meanings, attend to the connotations of words, and acquire new vocabulary.

- **They build strong content knowledge.**

Students establish a base of knowledge across a wide range of subject matter by engaging with works of quality and substance. They become proficient in new areas through research and study. They read purposefully and listen attentively to gain both general knowledge and discipline-specific expertise. They refine and share their knowledge through writing and speaking.

- **They respond to the varying demands of audience, task, purpose, and discipline.**

Students consider their communication in relation to audience, task, purpose, and discipline. They appreciate nuances, such as how the composition of an audience should affect tone when speaking and how the connotations of words affect meaning. They also know that different disciplines call for different types of evidence (e.g., documentary evidence in history, experimental evidence in the sciences).

- **They comprehend as well as critique.**

Students are engaged and open-minded—but discerning—readers and listeners. They work diligently to understand precisely what an author or

speaker is saying, but they also question an author's or speaker's assumptions and assess the veracity of claims.

- **They value evidence.**

Students cite specific evidence when offering an oral or written interpretation of a text. They use relevant evidence when supporting their own points in writing and speaking, making their reasoning clear to the reader or listener, and they constructively evaluate others' use of evidence.

- **They use technology and digital media strategically and capably.**

Students employ technology thoughtfully to enhance their reading, writing, speaking, listening, and language use. They tailor their searches online to acquire useful information efficiently, and they integrate what they learn using technology with what they learn offline. They are familiar with the strengths and limitations of various technological tools and mediums and can select and use those best suited to their communication goals.

- **They come to understand other perspectives and cultures.**

Students appreciate that the twenty-first-century classroom and workplace are settings in which people from often widely divergent cultures and who represent diverse experiences and perspectives must learn and work together. Students actively seek to understand other perspectives and cultures through reading and listening, and they are able to communicate effectively with people of varied backgrounds. They evaluate other points of view critically and constructively. Through reading great classic and contemporary works of literature representative of a variety of periods, cultures, and worldviews, students can vicariously inhabit worlds and have experiences much different than their own.

How to Read This Document

Overall Document Organization and Main Features

The *Standards* comprise three main sections: a comprehensive K–5 section and two content area-specific sections for grades 6–12, one in English language arts and one in history/social studies and science.

Each section is divided into Reading, Writing, Speaking and Listening, and Language *strands*. Each strand is headed by a set of *College and Career Readiness (CCR) Standards* that is identical across all grades and content areas. The uniformity of the CCR Standards provides a consistent point of reference for educators, facilitating schoolwide goal setting and professional development.

CCR Standards: The basis for the K–12 Standards

Standards for each grade within K–8 and for grades 9–10 and 11–12 follow the College and Career Readiness (CCR) Standards in each strand. Each *grade-specific standard* (as these standards will be collectively referred to) corresponds to a particular CCR Standard. Put another way, each CCR Standard has an accompanying grade-specific standard translating the broader CCR statement into grade-appropriate terms.

Who is responsible for which portion of the Standards

A single K–5 section sets CCR and grade-specific standards for reading, writing, speaking, listening, and language across the curriculum, reflecting the fact that most or all of the instruction students receive in these grades comes from one elementary school teacher. Grades 6–12 are covered in two content area-specific sections, the first for the English language arts teacher and the second for the history/social studies and the science teacher. Each of these sections uses the same CCR Standards but also includes discipline-specific standards tuned to the literacy requirements of these disciplines. It is important to note that the literacy standards in history/social studies and science are meant to complement rather than supplant content standards in those disciplines.

Key Features of the Strands

Reading: Text complexity and the growth of comprehension

To foster students' ability to comprehend literary and informational texts of steadily increasing complexity, the *Standards* (starting formally in grade 2) define what proportion of the texts students read each year should come from a particular text complexity grade band (2–3, 4–5, 6–8, 9–10, or 11–12). Whatever they are reading, students must also show a steadily increasing ability to discern more from and make fuller use of text, including making an increasing number of connections among ideas and between texts, considering a wider range of textual evidence, and becoming more sensitive to inconsistencies, ambiguities, and poor reasoning in texts.

Writing: Text types, responding to sources, and research

The *Standards* acknowledge the fact that whereas some writing skills, such as the ability to reflect purpose, task, and audience, are important for many types of writing, others are more properly part of writing narratives, informative and explanatory texts, or arguments. Beginning at grade 4, the *Standards* specify the sorts of writing over extended and shorter time frames that students in each grade are to produce in response to sources. Because of the centrality of writing to most forms of inquiry, research standards are primarily included in this strand.

Speaking and Listening: Flexible communication and interpersonal skills

Including but not limited to skills necessary for formal presentations, the Speaking and Listening standards require students to develop a range of broadly useful oral communication and interpersonal skills. Students must learn to sift through and evaluate multiple points of view, listen thoughtfully in order to build on and constructively question the ideas of others while contributing their own ideas, and, where appropriate, reach agreement and common goals through teamwork.

Language: Conventions and vocabulary

The Conventions standards in the Language strand include the essential “rules” of formal written and spoken English, but they also approach language as a matter of craft and informed choice among alternatives. The Vocabulary standards focus on both understanding words and their nuances and acquiring new words through conversation, reading, and being taught them directly.

Appendices

Appendix A contains supplementary material on reading text complexity, writing, speaking and listening, language conventions, and vocabulary. Appendix B consists of text exemplars illustrating the complexity, quality, and range of reading appropriate for various grade levels. Appendix C includes annotated writing samples demonstrating at least adequate performance at various grade levels.

**Standards for English Language Arts
and Literacy in History/Social Studies & Science**

K-5

DRAFT

College and Career Readiness Standards for Reading

The K–5 standards on the following pages define what students should understand and be able to do in each grade and build toward the ten College and Career Readiness Standards.

Key Ideas and Details

1. Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.
2. Determine central ideas or themes of a text and analyze their development; summarize the key supporting details and ideas.
3. Analyze in detail where, when, why, and how events, ideas, and characters develop and interact over the course of a text.

Craft and Structure

4. Interpret words and phrases as they are used in a text, including determining technical, connotative, and figurative meanings, and explain how specific word choices shape meaning or tone.
5. Analyze the structure of texts, including how specific sentences, paragraphs, and larger portions of the text (e.g., a section or chapter) relate to each other and the whole.
6. Assess how point of view or purpose shapes the content and style of a text.

Integration of Knowledge and Ideas

7. Synthesize and apply information presented in diverse ways (e.g., through words, images, graphs, and video) in print and digital sources in order to answer questions, solve problems, or compare modes of presentation.¹
8. Delineate and evaluate the reasoning and rhetoric within a text, including assessing whether the evidence provided is relevant and sufficient to support the text’s claims.
9. Analyze how two or more texts address similar themes or topics in order to build knowledge or to compare the approaches the authors take.

Range and Level of Text Complexity

10. Read complex texts independently, proficiently, and fluently, sustaining concentration, monitoring comprehension, and, when useful, rereading.²

¹Please see “Research to Build Knowledge” in Writing and “Comprehension and Collaboration” in Speaking and Listening for additional standards relevant to gathering, assessing, and applying information from print and digital sources.

²Proficiency in this standard is measured by students’ ability to read a range of appropriately complex texts in each grade as defined on page 14.

Note on range and content of student reading

To build a foundation for college and career readiness, students must read widely and deeply from among a broad range of high-quality, increasingly challenging literary and informational texts. Through extensive reading of stories, dramas, poems, and myths from diverse cultures and different time periods, students gain literary and cultural knowledge as well as familiarity with various text structures and elements. By reading texts in history/social studies, science, and other disciplines, students build a foundation of knowledge in these fields that will also give them the background to be better readers in all content areas. Students can only gain this foundation when the curriculum is intentionally and coherently structured to develop rich content knowledge within and across grades. Students also acquire the habits of reading independently and closely, which are essential to their future success.

Reading Standards for Literature K–5

Following are the standards for K–5, which relate to their College and Career Readiness counterparts by number. They offer a focus for instruction each year and help ensure that students gain adequate exposure to a range of texts and tasks. Rigor is also infused through the requirement that students read increasingly complex texts through the grades.

Kindergartners:

Key Ideas and Details

1. With prompting and support, ask and answer questions about details and events in a text.
2. Retell familiar stories.
3. Identify characters, settings, and key events in a story.

Craft and Structure

4. Ask questions about unknown words in a text.
5. Recognize common types of texts (e.g., storybooks, poems).
6. Name the author and illustrator of a text and define the role of each.

Integration of Knowledge and Ideas

7. Relate pictures and illustrations to the overall story in which they appear.
8. (Not applicable to literature)
9. Compare and contrast the adventures of characters in familiar stories.

Range and Level of Text Complexity

10. Read emergent-reader literature texts with purpose and understanding.

Grade 1 students:

Grade 2 students:

Key Ideas and Details

1. Ask and answer questions about key details and events in a text.
2. Retell stories, demonstrating understanding of the central message or lesson.
3. Describe characters, settings, and key events in a story.

Craft and Structure

4. Identify words and phrases in stories or poems that suggest feelings or appeal to the senses.
5. Distinguish major categories of writing from each other (e.g., stories and poems), drawing on a wide reading of a range of text types.
6. Identify who is speaking at various points in a story, myth, fable, or narrative poem.

Integration of Knowledge and Ideas

7. Use pictures, illustrations, and details in a story to describe characters, events, or settings.
8. (Not applicable to literature)
9. Compare and contrast two or more versions of the same story (e.g., Cinderella stories) by different authors or from different cultures.

Range and Level of Text Complexity

10. Read independently, proficiently, and fluently literature texts appropriately complex for grade 1.

Reading Standards for Literature K–5

Grade 3 students:

Key Ideas and Details

1. Ask and answer questions to demonstrate understanding of a text, explicitly using the text as the basis for the answers.
2. Use key supporting details in stories, fables, folktales, or myths from diverse cultures to determine the lessons or morals.
3. Describe the main characters in a story (e.g., their traits, motivations, or feelings) and explain how they contribute to the sequence of events.

Craft and Structure

4. Interpret key words and phrases in a text, distinguishing literal from figurative language.
5. Demonstrate understanding of common features of legends, myths, and folk- and fairytales (e.g., heroes and villains; quests or challenges) when writing or speaking about classic stories from around the world.
6. Distinguish their own point of view from those of characters in a story.

Integration of Knowledge and Ideas

7. Use information from illustrations and other visual elements in a text with the words to develop an understanding of the setting, characters, and plot.
8. (Not applicable to literature)
9. Compare and contrast the plots, settings, and themes of stories written by the same author about the same or similar characters (e.g., in books from a series).

Range and Level of Text Complexity

10. Read literature independently, proficiently, and fluently within the grades 2–3 text complexity band; read “stretch” texts in the grades 4–5 text complexity band with scaffolding as needed.

Grade 4 students:

1. Draw on details and examples from a text to support statements about the text.
2. Summarize a text and derive a theme of a story, drama, or poem from details in the text.
3. Describe in detail a character, event, or setting, drawing on specific details in the text (e.g., from a character’s thoughts, words, deeds, or interactions with others).

4. Understand words and phrases in a text that allude to significant characters found in mythology (e.g., *Herculean*), drawing on a wide reading of classic myths from a variety of cultures and periods.

5. Explain major differences between poems and prose, and refer to the structural elements of poems (e.g., stanza, verse, rhythm, meter) when writing or speaking about specific poems.

6. Compare the point of view from which different stories are narrated, including the difference between first- and third-person narrations.

7. Integrate information from several illustrations and other visual elements in a text with the words to develop an understanding of how the setting and characters change and the plot develops.

8. (Not applicable to literature)

9. Compare and contrast thematically similar tales, myths, and accounts of events from various cultures.

10. Read literature independently, proficiently, and fluently in the grades 4–5 text complexity band; read texts at the high end of the range with scaffolding as needed.

Grade 5 students:

1. Quote from a text to support statements about the text.
2. Determine a theme of a text, drawing on how characters in a story respond to challenges or how the speaker in a poem reflects upon a topic; summarize the text.
3. Compare and contrast two or more characters, events, or settings in a text, drawing on specific details.

4. Identify how metaphors and similes as well as rhymes and other repetitions of sounds (e.g., alliteration) supply meaning and rhythm in a specific verse or stanza of a poem.

5. Explain major differences between drama and prose stories, and refer to the structural elements of drama (e.g., casts of characters, setting descriptions, dialogue, stage directions, acts, scenes) when writing or speaking about specific works of dramatic literature.

6. Identify how a narrator’s perspective or point of view influences how events are described.

7. Explain how images, sounds, and movements contribute to an animated or live-action adaptation of a story, comparing that version to what they “see” or “hear” from reading the text.

8. (Not applicable to literature)

9. Compare the treatment of similar ideas and themes (e.g., opposition of good and evil) as well as character types and patterns of events in myths and other traditional literature from different cultures.

10. Read literature independently, proficiently, and fluently within the grades 4–5 text complexity band; read “stretch” texts in the grades 6–8 text complexity band with scaffolding as needed.

Reading Standards for Informational Text K-5

Kindergartners:

Key Ideas and Details

1. With prompting and support, ask and answer questions about information and events a text.
2. Identify the main topic and main ideas of a text.
3. With prompting and support, describe the connection between two events or ideas in a text.

Craft and Structure

4. Ask questions about unknown words in a text.
5. Locate basic information in a text.
6. Name the author and illustrator of a text and define the role of each.

Integration of Knowledge and Ideas

7. Relate pictures or illustrations to the overall text in which they appear.
8. With prompting and support, recognize cause-and-effect relationships in a text.
9. With prompting and support, recognize basic similarities in and differences between two texts on the same topic (e.g., in illustrations or descriptions).

Range and Level of Text Complexity

10. Read emergent-reader informational texts with purpose and understanding.

Grade 1 students:

1. Ask and answer questions about key information and events in a text.
2. Identify the main topic, main ideas, and key details of a text.
3. Describe the connection between two key events or ideas in a text.
4. Learn and determine the meanings of words and phrases encountered in text relevant to a *grade 1 topic or subject area*.
5. Describe how a text groups information into general categories (e.g., cows, pigs, and horses are *farm animals*).
6. Distinguish between information provided by pictures or illustrations and that provided by the words in a text.

7. Use pictures, illustrations, and details in a text to describe the key ideas.
8. Identify cause-and-effect relationships in a text.
9. Identify similarities in and differences between two texts on the same topic (e.g., in illustrations or descriptions).
10. Read independently, proficiently, and fluently informational texts appropriately complex for grade 1.

Grade 2 students:

1. Ask and answer such questions as *who, what, where, when, why,* and *how* to demonstrate understanding of key information and events in a text.
2. Identify the main focus of a multiparagraph text as well as that of specific paragraphs within the text.
3. Describe the connection between two or more historical events or scientific concepts in a text.
4. Learn and determine the meanings of words and phrases encountered in text relevant to a *grade 2 topic or subject area*.
5. Know and use various text features (e.g., captions, headings, tables of contents, glossaries, indexes, electronic menus, icons) to locate key facts or information.
6. Identify the main purpose of a text, including what question the author aims to answer or what the author aims to explain or describe.

7. Explain how images and illustrations contribute to and clarify a text.
8. Describe how specific causes link key events or ideas together in a text.
9. Describe similarities in and differences between two texts on the same topic.
10. Read informational texts independently, proficiently, and fluently within the grades 2-3 text complexity band; read texts at the high end of the range with scaffolding as needed.

Reading Standards for Informational Text K–5

Grade 3 students:

Key Ideas and Details

1. Ask and answer questions to demonstrate understanding of a text, explicitly using the text as the basis for the answers.
2. Determine the main idea of a text and explain how it is supported by the key details.
3. Describe the relationship between historical or scientific events or ideas in a text, using knowledge of connective devices that pertain to time, sequence, and cause and effect.

Craft and Structure

4. Learn and determine the meanings of general academic language and domain-specific words and phrases encountered in a text relevant to a *grade 3 topic or subject area*.
5. Use text features (e.g., bold print, key words, topic sentences, hyperlinks, electronic menus, icons) to locate information quickly and efficiently.
6. Compare what is presented in a text with relevant prior knowledge and beliefs, making explicit what is new or surprising.

Integration of Knowledge and Ideas

7. Integrate information from illustrations and other visual elements (e.g., maps, photographs) in print and digital texts as an aid to understanding where, when, why, and how key events occur.
8. Describe the logical connection between paragraphs and between sentences in a text (e.g., comparison, sequence, example).
9. Compare and contrast information drawn from two texts on the same subject.

Range and Level of Text Complexity

10. Read informational texts independently, proficiently, and fluently within the grades 2–3 text complexity band; read “stretch” texts in the grades 4–5 text complexity band with scaffolding as needed.

Grade 4 students:

1. Draw on details and examples from a text to support statements about the text.
2. Determine the main idea and supporting details of a text; summarize the text.
3. Describe the sequence of events in an historical or scientific account, including what happened and why, based on specific information in a text.

4. Learn and determine the meanings of general academic language and domain-specific words or phrases encountered in a text relevant to a *grade 4 topic or subject area*.

5. Use text features and search tools to locate and process information relevant to a given topic.
6. Compare an eyewitness account to a secondhand account of the same event or topic.

7. Interpret factual information presented graphically or visually (e.g., in charts, diagrams, time lines, animations, and interactive elements) and explain how the information contributes to understanding a print or digital text.

8. Explain how an author uses evidence to support his or her claims in a text.
9. Describe how two or more texts on the same subject build on one another; provide a coherent picture of the information they convey.

10. Read informational texts independently, proficiently, and fluently within the grades 4–5 text complexity band; read texts at the high end of the range with scaffolding as needed.

Grade 5 students:

1. Quote from a text to support statements about the text.
2. Determine two or more main ideas and how they are supported by details; summarize the text.
3. Explain the relationships between two or more historical events or scientific concepts by drawing on specific information from one or more texts.

4. Learn and determine the meanings of general academic language and domain-specific words and phrases encountered in a text relevant to a *grade 5 topic or subject area*.

5. Describe how events, ideas, or information are organized (e.g., chronology, comparison, cause and effect) in a whole text or in part of a text.
6. Analyze two accounts of the same event or topic and describe important similarities and differences in the details they provide.

7. Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently.

8. Explain how an author uses evidence to support his or her claims in a text, identifying what evidence supports which claim(s).
9. Integrate information from several texts on the same subject in order to write or speak about the subject knowledgeably.

10. Read informational texts independently, proficiently, and fluently within the grades 4–5 text complexity band; read “stretch” texts in the grades 6–8 text complexity band with scaffolding as needed.

Reading Standards: Foundational Skills (K–3)

These standards are directed toward fostering students' understanding and working knowledge of concepts of print, the alphabetic principle, and other basic conventions of the English writing system. These Foundational Skills are not an end in and of themselves; rather, they are necessary and important components of an effective, comprehensive reading program designed to develop proficient readers with the capacity to comprehend texts across a range of types and disciplines.

Kindergartners:

Print Concepts

1. Demonstrate understanding of the organization and basic features of print.
 - a. Identify the front cover, back cover, and title page of a book.
 - b. Follow words from left to right, top to bottom, and page by page.
 - c. Understand that words are separated by spaces in print.
 - d. Recognize and name all upper- and lowercase letters of the alphabet.

Phonological Awareness

2. Demonstrate understanding of spoken words, syllables, and phonemes.
 - a. Recite and produce rhyming words.
 - b. Count, pronounce, blend, and segment syllables in spoken words.
 - c. Count individual words in spoken phrases or simple sentences.
 - d. Blend and segment consonants and rimes of spoken words (/q/ - /oat/, /bl/ - /ack/).
 - e. Demonstrate phonemic awareness by isolating and pronouncing the initial, medial vowel, and final phonemes (sounds) in three-phoneme (CVC) words (e.g., /save/, /ham/).¹ (This does not include CVCs ending with /l/, /r/, or /s/.)
 - f. Add or substitute individual phonemes in simple, one-syllable words to make new words (e.g., /at/ → /sat/ → /mat/ → /map/).

Grade 1 students:

1. (Not applicable)
2. Demonstrate understanding of spoken words, syllables, and phonemes.
 - a. Aurally distinguish long from short vowel sounds in spoken single-syllable words (e.g., /tap/ vs. /tape/, /sock/ vs. /soak/, /sit/ vs. /sight/).
 - b. Orally produce single-syllable words by blending phonemes, including consonant blends (e.g., /cats/, /black/, /blast/).
 - c. Isolate and pronounce initial, medial vowel, and final phonemes (sounds) in spoken single-syllable words (e.g., /ast, /ast, /ast).
 - d. Segment spoken single-syllable words into their complete sequence of individual phonemes (e.g., lap: /l/-/a/-/p/ → /f/-/l/-/a/-/p/).

¹Words, syllables, or phonemes written in /slashes/ refer to their pronunciation or phonology. Thus, /CVC/ is a word with three phonemes regardless of the number of letters in the spelling of the word.

Reading Standards: Foundational Skills (K–3)

Kindergartners:

Phonics and Word Recognition

3. Know and apply grade-level phonics and word analysis skills in decoding words.
 - a. Demonstrate basic knowledge of letter-sound correspondences by producing the primary or most frequent sound for each consonant.
 - b. Associate the long and short sounds with the graphemes for the five major vowels.
 - c. Read at least twenty-five very-high-frequency words by sight (e.g., *the, of, to, you, she, my, is, are, do, does*).
 - d. Distinguish between similarly spelled words by identifying the sounds of the letters that differ (e.g., *bat* vs. *sat*, *cat* vs. *can*, *hit* vs. *hot*).

Grade 1 students:

3. Know and apply grade-level phonics and word analysis skills in decoding words.
 - a. Know the spelling-sound correspondences for common consonant digraphs (e.g., *-ll, -ck, wr-, sh*).
 - b. Decode regularly spelled one-syllable words (e.g., *lock, much, see, rain, slide, bake, bring*).
 - c. Know final *-e* (e.g., *take, side*) and common vowel team conventions (e.g., *rain, day, week, seat, road, show*) for representing long vowel sounds.
 - d. Use knowledge that every syllable must have a vowel sound to determine the number of syllables in a printed word.
 - e. Decode two-syllable words following basic patterns (e.g., *rabbit*) by breaking the words into syllables.
 - f. Read words with inflectional endings (e.g., *-s, -es, -ed, -ing, -er, -est*).
 - g. Recognize and read grade-appropriate irregularly spelled words (e.g., *said, were, could, would, their, there, through, none, both*).

Grade 2 students:

3. Know and apply grade-level phonics and word analysis skills in decoding words.
 - a. Distinguish long and short vowels when reading regularly spelled one-syllable words (e.g., *hop* vs. *hope, men* vs. *mean, fell* vs. *feel, bend* vs. *bead*).
 - b. Know spelling-sound correspondences for additional common vowel teams (e.g., *loud, cow, look, loop, boy, boil*).
 - c. Decode regularly spelled two-syllable words with long vowels (e.g., *surprise, remain, needle, baby, paper*).
 - d. Decode words with common prefixes and suffixes (e.g., *unhappy, carefully, goodness, unbutton*).
 - e. Identify words with inconsistent but common spelling-sound correspondences (e.g., *heat* vs. *head, roll* vs. *doll, hint* vs. *hind*).
 - f. Recognize and read grade-appropriate irregularly spelled words (e.g., *through, eyes, busy, ocean, island, people*).

Grade 3 students:

3. Know and apply grade-level phonics and word analysis skills in decoding words.
 - a. Identify and know the meaning of the most common prefixes and derivational suffixes (e.g., *un-, re-, mis-, -ful, -less, -able*).
 - b. Decode words with common Latin suffixes (e.g., *-tion/-sion, -ture, -tive/-sive, -ify, -ity, -ment*).
 - c. Decode multisyllable words (e.g., *supper, chimpanzee, refrigerator, terrible, frightening*).
 - d. Read grade-appropriate irregularly spelled words (e.g., *although, science, stomach, machine*).

Fluency

4. Read with sufficient accuracy and fluency to support comprehension.
 - a. Read emergent-reader texts with purpose and understanding.
 - b. Read on-level text orally with accuracy, appropriate rate, and expression on successive readings.
 - c. Use context to confirm or self-correct word recognition and understanding, rereading as necessary.
4. Read with sufficient accuracy and fluency to support comprehension.
 - a. Read on-level text with purpose and understanding.
 - b. Read on-level text orally with accuracy, appropriate rate, and expression on successive readings.
 - c. Use context to confirm or self-correct word recognition and understanding, rereading as necessary.
4. Read with sufficient accuracy and fluency to support comprehension.
 - a. Read on-level text with purpose and understanding.
 - b. Read on-level text orally with accuracy, appropriate rate, and expression on successive readings.
 - c. Use context to confirm or self-correct word recognition and understanding, rereading as necessary.
4. Read with sufficient accuracy and fluency to support comprehension.
 - a. Read on-level text with purpose and understanding.
 - b. Read on-level text orally with accuracy, appropriate rate, and expression on successive readings.
 - c. Use context to confirm or self-correct word recognition and understanding, rereading as necessary.

Range and Level of Text Complexity for Student Reading by Grade (Standard 10)

Students demonstrate proficiency in reading texts at the following ranges of text complexity to progress on a path to college and career readiness.

Grade	Text Complexity Level	Percentage of Texts
K	2-3 Level Text	100%
	4-5 Level Text	0%
1	2-3 Level Text	70%
	4-5 Level Text	30%
2	2-3 Level Text	100%
	4-5 Level Text	0%
3	2-3 Level Text	70%
	4-5 Level Text	30%
4	2-3 Level Text	100%
	4-5 Level Text	0%
5	2-3 Level Text	70%
	4-5 Level Text	30%

(See specific exemplars.)

In grade 2, students focus on reading texts independently in the grades 2–3 text complexity band, with scaffolding likely required for texts at the high end of the range.

In grade 3, students focus on reading texts independently in the grades 2–3 text complexity band (70 percent) and are introduced to texts in the grades 4–5 text complexity band as “stretch” texts (30 percent), which will likely require scaffolding.

In grade 4, students focus on reading texts independently in the grades 4–5 text complexity band, with scaffolding likely required for texts at the high end of the range.

In grade 5, students focus on reading independently in the grades 4–5 text complexity band (70 percent) and are introduced to texts in the grades 6–8 text complexity band as “stretch” texts (30 percent), which will likely require scaffolding.

Note: In any given classroom, the actual range of students’ reading ability could be greater than the proposed range. Some students will require extra time and intense support and scaffolding to enable them to read grade-level material, whereas other students will be ready for—and should be encouraged to read—more advanced texts.

Measuring Text Complexity: Three Factors

Qualitative evaluation of the text: Levels of meaning, structure, language conventionality and clarity, and knowledge demands

Quantitative evaluation of the text: Readability measures and other scores of text complexity

Matching reader to text and task: Reader knowledge, motivation, and interests as well as the complexity generated by the tasks to be assigned and the questions to be posed

Note: More detailed information on text complexity and how it is measured is contained in Appendix A.

Range of Text Types for K–5

Students in K–5 apply the Reading standards to the following range of text types, with texts selected from a broad range of cultures and periods.

Literature		Informational Text	
Stories	Drama	Poetry	Literary Nonfiction, History/Social Studies, and Science and Technical Texts
Includes children’s adventure stories, folktales, legends, fables, fantasy, realistic fiction, and myth	Includes staged dialogue and brief familiar scenes	Includes nursery rhymes and the subgenres of the narrative poem, limerick, and free verse poem	Includes biographies and autobiographies; books about history, social studies, science, and the arts; and digital media sources on a range of topics

College and Career Readiness Standards for Writing

The K–5 standards on the following pages define what students should understand and be able to do in each grade and build toward the ten College and Career Readiness Standards.

*Text Types and Purposes*¹

1. Write arguments to support a substantive claim with clear reasons and relevant and sufficient evidence.
2. Write informative/explanatory texts to convey complex information clearly and accurately through purposeful selection and organization of content.
3. Write narratives to convey real or imagined experiences, individuals, or events and how they develop over time.

Production and Distribution of Writing

4. Produce writing in which the organization, development, substance, and style are appropriate to task, purpose, and audience.
5. Strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach.²
6. Use technology, including the Internet, to produce, publish, and interact with others about writing.

Research to Build Knowledge

7. Perform short, focused research projects as well as more sustained research in response to a focused research question, demonstrating understanding of the material under investigation.
8. Gather relevant information from multiple print and digital sources, assess the credibility and accuracy of each source, and integrate and cite the information while avoiding plagiarism.
9. Write in response to literary or informational sources, drawing evidence from the text to support analysis and reflection as well as to describe what they have learned.

Range of Writing

10. Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.³

¹These broad categories of writing include many subgenres. See Appendix A for definitions of key writing types.

²See “Conventions” in Language, pages 22–26, for specific editing expectations.

³This standard is measured by the proficiency of student writing products.

Note on range and content of student writing

To build a foundation for college and career readiness, students need to learn to use writing as a way of offering and supporting opinions, demonstrating understanding of the subjects they are studying, and conveying thoughts, feelings, and real and imaginary experiences. They learn to appreciate that a key purpose of writing is to communicate clearly to an external, sometimes unfamiliar audience, and they begin to adapt the form, content, and style of their writing to accomplish a particular purpose and task. They develop the capacity to build knowledge on a subject through research projects and to respond analytically to literary and informational sources. To meet these goals, students must devote significant time and effort to writing, producing numerous pieces over short and long time frames throughout the year.

Writing Standards K–5

Following are the standards for K–5, which relate to their College and Career Readiness counterparts by number. They offer a focus for instruction in each year to help ensure that students gain adequate exposure to a range of skills and applications. Growth in writing ability is characterized by an increasing sophistication in all aspects of language use, from vocabulary and syntax to the development and organization of ideas. At the same time, the content and sources that students address in their writing grow in demand every year.

Kindergartners:

Text Types and Purposes

1. Use a combination of drawing, dictating, and writing to compose opinions in which they tell a reader the name of a book or the topic they are “writing” about and give an opinion about the topic (e.g., *My favorite book is . . .*).
2. Use a combination of drawing, dictating, and writing to compose informative and explanatory texts in which they name what they are “writing” about and share some information about it.
3. Use a combination of drawing, dictating, and writing to narrate a single event or several loosely linked events, tell about the events in the order that they occurred, and provide a reaction to what happened.

Production and Distribution of Writing

4. (Begins in grade 3)
5. With guidance and support from adults, add details to strengthen writing as needed through revision.
6. (Begins in grade 2)

Research to Build Knowledge

7. (Begins in grade 1)
8. Gather information from experiences or provided text sources to answer a specific question.
9. (Begins in grade 4)

Range of Writing

10. (Begins in grade 4)

Grade 1 students:

1. Write opinions in which they introduce the topic or the name of the book they are writing about, state an opinion, and provide a reason for their opinion.
2. Write informative and explanatory texts in which they name a topic, supply some facts relevant to the topic, and provide some sense of closure.

3. Write narratives in which they include at least two or more appropriately sequenced events, use time cue words to signal event order, and provide some details and a sense of closure.

4. (Begins in grade 3)

5. With guidance and support from adults, add details to strengthen writing as needed through revision.

6. (Begins in grade 2)

7. Participate in shared research and writing projects (e.g., exploring a number of books on a given topic).

8. Gather information from experiences or provided text sources to answer a specific question.

9. (Begins in grade 4)

10. (Begins in grade 4)

Grade 2 students:

1. Write opinions in which they introduce the topic or book(s) directly, state an opinion, provide reasons and details to support opinions, use words to link opinions and reason(s) (e.g., *because, and, also*), and provide a sense of closure.

2. Write informative and explanatory texts in which they introduce a topic, use facts and definitions to develop points, present similar information together using headers to signal groupings when appropriate, and provide a concluding sentence or section.

3. Write narratives in which they recount a well-elaborated event or series of events, use temporal words and phrases to signal event order, include details to tell what the narrator did, thought, and felt, and provide closure.

4. (Begins in grade 3)

5. With guidance from adults, strengthen writing as needed by revising and editing.

6. With guidance from adults, use technology to produce writing.

7. Participate in shared research and writing projects (e.g., exploring a number of books on a given topic).

8. Gather information from experiences or provided text sources to answer a specific question.

9. (Begins in grade 4)

10. (Begins in grade 4)

Writing Standards K-5

Grade 3 students:

Text Types and Purposes

1. Write opinions in which they:
 - a. Introduce the topic or book(s) directly, state an opinion relative to the topic, and create an organizing structure that lists reasons.
 - b. Provide reasons that support the opinion.
 - c. Use appropriate words to link opinions and reason(s) (e.g., *because, therefore, in order to, since, for example*).
 - d. Provide a sense of closure.

Grade 4 students:

1. Write opinions in which they:
 - a. Introduce an opinion about a concrete issue or topic and create an organizing structure where related ideas are grouped to support the writer's purpose.
 - b. Provide reasons that are supported by facts and details.
 - c. Link reasons and details together using words and phrases (e.g., *so, then, for instance, in addition*).
 - d. Adopt an appropriate style for sharing and defending an opinion.
 - e. Provide a concluding statement or section.

Grade 5 students:

1. Write opinions in which they:
 - a. Introduce an opinion about a concrete issue or topic and create an organizing structure where ideas are logically grouped to support the writer's purpose.
 - b. Provide logically ordered reasons that are supported by facts and details.
 - c. Link reasons and details together using words, phrases, and clauses (e.g., *consequently, generally, specifically*).
 - d. Adopt an appropriate style for sharing and defending an opinion.
 - e. Provide a concluding statement or section.
2. Write informative/explanatory pieces in which they:
 - a. State the topic clearly and group related information in paragraphs and sections.
 - b. Develop the topic using facts, concrete details, quotations, or other information and examples.
 - c. Use appropriate links to join ideas within categories of information.
 - d. Employ domain-specific vocabulary when appropriate.
 - e. Provide a conclusion related to the information or explanation offered.

2. Write informative/explanatory pieces in which they:
 - a. State the topic clearly, provide a general observation and focus, and group related information logically.
 - b. Develop the topic using relevant facts, concrete details, quotations, or other information and examples.
 - c. Use appropriate links to join ideas within and across categories of information.
 - d. Employ domain-specific vocabulary and some technical terms when appropriate.
 - e. Provide a conclusion related to the information or explanation offered.

3. Write narratives in which they:
 - a. Establish a situation, introduce a narrator and/or characters, and organize an event sequence that unfolds naturally.
 - b. Employ dialogue and descriptions of characters' actions, thoughts, and feelings.
 - c. Use temporal words and phrases to signal event sequence.
 - d. Provide a sense of closure.

3. Write narratives in which they:
 - a. Orient the reader by establishing a situation, introduce a narrator and/or characters, and organize an event sequence that unfolds naturally.
 - b. Use narrative techniques such as dialogue and description to develop events and show the characters' external behaviors and internal responses to events.
 - c. Use a variety of temporal words and phrases to manage the sequence of events.
 - d. Use concrete and sensory words and phrases to convey events and experiences precisely.
 - e. Provide a satisfying conclusion that follows from the narrative's events.

3. Write narratives in which they:
 - a. Engage and orient the reader by establishing a situation, introduce a narrator and/or characters, and create an organization that sequences events naturally and logically.
 - b. Use narrative techniques such as dialogue, pacing, and description to develop events and show characters' external behaviors and internal responses.
 - c. Use a variety of temporal words, phrases, and clauses to manage the sequence of events.
 - d. Use well-chosen words and phrases to convey events and experiences precisely.
 - e. Provide a satisfying conclusion that follows from the narrative's events.

Writing Standards K–5

Grade 3 students:

Production and Distribution of Writing

4. (Begins in grade 4).
5. With guidance and support from peers and adults, strengthen writing as needed by revising and editing.
6. With guidance and support from adults, use technology to produce and publish writing.

Research to Build Knowledge

7. Perform short, focused research tasks that build knowledge about a topic.
8. Gather information from experience as well as print and digital resources, take simple notes on sources, and sort evidence into provided categories.

9. (Begins in grade 4)

Grade 4 students:

4. Produce coherent and clear writing in which the organization, development, substance, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in Standards 1–3 above.)
5. With guidance and support from peers and adults, strengthen writing as needed by planning, revising, and editing.
6. With guidance and support from adults, use technology to produce, publish, and interact with others about writing.

7. Perform short, focused research tasks that build knowledge through investigation of different aspects of a single topic.
8. Gather relevant information from experience as well as print and digital sources, take notes and categorize evidence, restate information in written text, and provide basic bibliographic information.

9. Write in response to literary or informational sources, drawing evidence from the text to support analysis and reflection as well as to describe what they have learned:
 - a. Apply *grade 4 reading standards* to informational texts (e.g., “Explain how an author uses evidence to support his or her claims in a text”).
 - b. Apply *grade 4 reading standards* to literature (e.g., “Describe in detail a character, event, or setting, drawing on specific details in the text (e.g., from a character’s thoughts, words, deeds, and interactions with others”).

10. (Begins in grade 4)

Range of Writing

10. Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.

Grade 5 students:

4. Produce coherent and clear writing in which the organization, development, substance, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in Standards 1–3 above.)
5. With guidance and support from peers and adults, strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach.
6. With guidance and support from adults, use technology, including the Internet, to produce, publish, and interact with others about writing.

7. Perform short, focused research tasks that build knowledge through investigation of different aspects of a topic using several sources.
8. Gather relevant information from experience as well as print and digital sources; summarize or paraphrase information in notes and finished work, and provide basic bibliographic information.

9. Write in response to literary or informational sources, drawing evidence from the text to support analysis and reflection as well as to describe what they have learned:
 - a. Apply *grade 5 reading standards* to informational texts (e.g., “Explain how an author uses evidence to support his or her claims in a text, identifying what evidence supports which claim(s)”).
 - b. Apply *grade 5 reading standards* to literature (e.g., “Compare and contrast two or more characters, events, or settings in a text, drawing on specific details”).

10. Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.

College and Career Readiness Standards for Speaking and Listening

The K–5 standards on the following pages define what students should understand and be able to do in each grade and build toward the six College and Career Readiness Standards.

Comprehension and Collaboration

1. Participate effectively in a range of interactions (one-on-one and in groups), exchanging information to advance a discussion and to build on the input of others.
2. Integrate and evaluate information from multiple oral, visual, or multimodal sources in order to answer questions, solve problems, or build knowledge.
3. Evaluate the speaker’s point of view, reasoning, and use of evidence and rhetoric.

Presentation of Knowledge and Ideas

4. Present information, evidence, and reasoning in a clear and well-structured way appropriate to purpose and audience.
5. Make strategic use of digital media and visual displays of data to express information and enhance understanding.
6. Adapt speech to a variety of contexts and communicative tasks, demonstrating a command of formal English when indicated or appropriate.

Note on range and content of student speaking and listening

To build a foundation for college and career readiness, students must have ample opportunities to take part in a variety of rich, structured conversations—whole class, small group, and with a partner. Being productive members of these conversations requires that students contribute accurate, relevant information; respond to and develop what others have said; make comparisons and contrasts; and analyze and synthesize a multitude of ideas in various domains.

New technologies have broadened and expanded the role that speaking and listening play in acquiring and sharing knowledge and have tightened their link to other forms of communication. Digital texts confront students with the potential for continually updated content and dynamically changing combinations of words, graphics, images, hyperlinks, and embedded video and audio.

Speaking and Listening Standards K–5

Following are the standards for K–5, which relate to their College and Career Readiness counterparts by number. They offer a focus for instruction in each year to help ensure that students gain adequate exposure to a range of skills and applications.

Kindergartners:

Comprehension and Collaboration

1. Participate in conversations with peers and adults about *kindergarten topics and texts* being studied in class.
 - a. Listen to others and take turns speaking.
 - b. Continue a conversation through several exchanges.

Grade 1 students:

1. Initiate and participate in conversations with peers and adults about *grade 1 topics and texts* being studied in class.
 - a. Follow agreed-upon rules for discussions, such as listening to others, speaking one at a time, and gaining the floor in respectful ways.
 - b. Respond to the comments of others through multiple exchanges.
 - c. Ask questions to clear up confusion about a topic.

Grade 2 students:

1. Engage in group discussions on *grade 2 topics and texts* being studied in class.
 - a. Follow agreed-upon rules for discussions, such as listening to others, speaking one at a time, and gaining the floor in respectful ways.
 - b. Stay on topic by linking their own additions to the conversation to the previous remarks of others.
 - c. Ask for clarification and further explanation as needed.
 - d. Extend their ideas and understanding in light of the discussions.
2. Confirm understanding of information presented orally or through media by asking and answering questions about key details.
3. Ask questions to get information, seek help, or clarify something that is not understood.
2. Confirm understanding of information presented orally or through media by restating key elements and asking and answering questions about key details.
3. Ask questions to get information, clarify something that is not understood, or gather additional information.
4. Describe familiar people, places, things, and events and, with prompting and support, provide additional detail.
5. (Begins in grade 4)
6. (Begins in grade 1)
2. Retell key details or ideas presented orally or through media.
3. Ask and answer questions about information presented orally or visually in order to deepen their understanding or clarify comprehension.
4. Recount stories or experiences with appropriate facts and descriptive details.
5. (Begins in grade 4)
6. Produce complete sentences when appropriate to task and situation to provide requested detail or clarification, ensuring subject-verb agreement and correct use of irregular plural nouns. (See “Conventions” in Language, pages 22–26, for specific demands.)

Presentation of Knowledge and Ideas

4. Describe familiar people, places, things, and events and, with prompting and support, provide additional detail.
5. (Begins in grade 4)
6. (Begins in grade 1)
4. Recount stories or experiences with appropriate facts and descriptive details.
5. (Begins in grade 4)
6. Produce complete sentences when appropriate to task and situation to provide requested detail or clarification, ensuring subject-verb agreement and correct use of irregular plural nouns. (See “Conventions” in Language, pages 22–26, for specific demands.)

Speaking and Listening Standards K–5

Grade 3 students:

Comprehension and Collaboration

1. Initiate and engage in group discussions on *grade 3 topics and texts* being studied in class.
 - a. Follow agreed-upon rules for discussions and carry out assigned roles in small-group discussions.
 - b. Pose relevant questions and link their own additions to the conversation to the previous remarks of others.
 - c. Extend their ideas and understanding in light of the discussions.

Grade 4 students:

1. Initiate and engage in group discussions on *grade 4 topics and texts* being studied in class.
 - a. Come to discussions prepared, having read required material; in discussions, explicitly draw on that material and other information known about the topic.
 - b. Pose and respond to questions as well as build on the ideas of previous speakers.
 - c. Acknowledge new information provided by others and incorporate it into their own thinking as appropriate.

Grade 5 students:

1. Initiate and engage in group discussions on *grade 5 topics and texts* being studied in class.
 - a. Come to discussions prepared, having read the required material; in discussions, explicitly draw on that material and other information known about the topic.
 - b. Respond to questions with elaboration, make comments that contribute to the topic, and build on the ideas of previous speakers.
 - c. Ask questions to clarify or follow up on ideas or information presented orally or through media.
 - d. Draw conclusions based on the ideas of others and incorporate them into their own thinking as appropriate.

2. Identify the main ideas and supporting details of information presented graphically, visually, orally, or multimodally.
3. Ask and answer questions about presentations, offering appropriate elaboration and detail.

Presentation of Knowledge and Ideas

4. Report on a topic or recount stories or experiences with appropriate facts and descriptive details.
5. (Begins in grade 4)
6. Speak coherently, employing a variety of tenses and ensuring subject-verb and pronoun-antecedent agreement. (See “Conventions” in Language, pages 22–26, for specific demands.)

2. Paraphrase the key information or ideas presented graphically, visually, orally, or multimodally.

3. Identify the claims and supporting evidence used by a speaker or a presenter.

3. Summarize the claims made by a speaker or presenter and explain how each claim is supported with evidence.

4. Report on events, topics, or texts in an organized manner, using appropriate, specific facts and descriptive details to support main ideas.

4. Report on events, topics, or texts in a focused, organized manner, sequencing ideas logically and using appropriate, specific facts, details, examples, or other information to develop main ideas.

5. Incorporate visual displays and digital media into presentations when appropriate.

5. Incorporate visual displays and digital media into presentations when appropriate.

6. Differentiate between contexts that call for formal English (e.g., presenting ideas) and situations where informal discourse is appropriate (e.g., small-group discussion); use formal English when appropriate to task and situation. (See “Conventions” in Language, pages 22–26, for specific demands.)

6. Adapt speech to a variety of contexts and communicative tasks, using formal English when appropriate to task and situation. (See “Conventions” in Language, pages 22–26, for specific demands.)

College and Career Readiness Standards for Language

The K–5 standards on the following pages define what students should understand and be able to do in each grade and build toward the six College and Career Readiness Standards.

Conventions in Writing and Speaking

1. Demonstrate a command of the conventions of standard English grammar and usage.
2. Demonstrate a command of the conventions of capitalization, punctuation, and spelling.
3. Make effective choices about language, punctuation, and sentence structure for meaning and style.

Vocabulary Acquisition and Use

4. Determine the meaning of words and phrases encountered through conversations, reading, and media use.
5. Understand the nuances of and relationships among words.
6. Use grade-appropriate general academic vocabulary and domain-specific words and phrases purposefully acquired as well as gained through conversation and reading and responding to texts.

Note on range and content of student language use

To build a foundation for college and career readiness in language, students must gain control over many conventions of writing and speaking as well as acquire new words and understand those that they encounter through listening, reading, and media use. They must be able to determine the meaning of grade-appropriate words, come to appreciate that words have shadings of meaning and relationships to other words, and expand their vocabulary through conversation and (especially in later grades) through reading and by being taught words directly in the course of studying subject matter. The inclusion of Language standards in their own strand should not be taken as an indication that skills related to conventions and vocabulary are unimportant to reading, writing, speaking, and listening; indeed, they are

Language Standards K–5

Following are the standards for K–5, which relate to their College and Career Readiness counterparts by number. They offer a focus for instruction in each year to help ensure that students gain adequate exposure to a range of skills and applications.

Kindergartners:

Grade 1 students:

Grade 2 students:

Conventions in Writing and Speaking

1. Observe conventions of grammar and usage.
 - a. Print most upper- and lowercase letters.
 - b. Write a letter or letters for most consonant and short-vowel sounds (phonemes).
 - c. Form regular plural nouns orally by adding /s/ or /es/ (e.g., *dog, dogs; wish, wishes*) when speaking.
 - d. Understand and use the most frequently occurring prepositions in English (e.g., *to/from, in/out, on/off, for, of, by, with*) when speaking.
 - e. Produce and expand complete sentences in shared language and writing activities.
 - f. Understand and use question words (e.g., *who, what, where, when, why, how*) in discussions.
1. Observe conventions of grammar and usage.
 - a. Print all upper- and lowercase letters.
 - b. Use singular and plural nouns with matching verbs in simple sentences (e.g., *He hops; We hop*).
 - c. Use subject, object, and possessive pronouns in speaking and writing (e.g., *I, me, my; they, them, their*).
 - d. Use verbs to convey a sense of past, present, and future in writing and speaking (e.g., *Yesterday I walked home; Today I walk home; Tomorrow I will walk home*).
 - e. Understand and use frequently occurring prepositions in English (e.g., *during, beyond, toward*).
 - f. Produce and expand complete declarative, interrogative, imperative, and exclamatory sentences in response to questions and prompts.
 - g. Understand that, minimally, every sentence must be about something (the subject) and tell something (the predicate) about its subject.
1. Observe conventions of grammar and usage.
 - a. Form common irregular plural nouns (e.g., *feet, children, teeth, mice, fish*).
 - b. Form the past tense of common irregular verbs (e.g., *sat, hid, told*).
 - c. Produce and expand complete declarative, interrogative, imperative, and exclamatory sentences.
 - d. Produce and expand complete sentences to provide requested detail or clarification.
2. Observe conventions of capitalization, punctuation, and spelling.
 - a. Capitalize the first word in a sentence and the pronoun *I*.
 - b. Name and identify end punctuation, including periods, question marks, and exclamation points.
 - c. Spell simple words phonetically using knowledge of sound-letter relationships.
2. Observe conventions of capitalization, punctuation, and spelling.
 - a. Capitalize names, places, and dates.
 - b. Use end punctuation for sentences, including periods, question marks, and exclamation points.
 - c. Use commas in dates and to separate single words in a series.
 - d. Use conventional spelling for words with common spelling patterns and for common irregular words.
 - e. Use phonetic spellings for untaught words, drawing on phonemic awareness and spelling conventions.
 - f. Form new words through addition, deletion, and substitution of sound and letters (e.g., *an → man → mat → mast → must → rust → crust*).
2. Observe conventions of capitalization, punctuation, and spelling.
 - a. Capitalize holidays, product names, geographic names, and important words in titles.
 - b. Use commas in greetings and closings of letters.
 - c. Use apostrophes to form contractions and common possessives.
 - d. Generalize learned spelling patterns when writing words (e.g., *cage → badge; boy → boil; paper → copper*).
 - e. Consult reference materials, including beginning dictionaries, as needed to check and correct spellings.
3. (Begins in grade 3)
3. (Begins in grade 3)
3. (Begins in grade 3)

Language Standards K-5

Kindergartners:

Vocabulary Acquisition and Use

- Determine word meanings (based on kindergarten reading).
 - Sort common objects into categories (e.g., shapes, foods) to gain a sense of the concepts the categories represent.
 - Identify new meanings for familiar words and apply them accurately (e.g., knowing *duck* as a bird and learning the verb *to duck*).
 - Use the most common affixes in English (e.g., *-ed*, *-s*, *re-*, *un-*, *pre-*, *-ful*, *-less*) as a clue to the meaning of an unknown word.

Grade 1 students:

- Determine word meanings (based on grade 1 reading).
 - Sort words into categories (e.g., colors, clothing) to gain a sense of the concepts the categories represent.
 - Use sentence-level context as a clue to the meaning of an unknown word.
 - Use common affixes in English as a clue to the meaning of an unknown word.
 - Define words by category and by one or more key attributes (e.g., a *duck* is a bird that swims; a *tiger* is a large cat with stripes).
 - Demonstrate understanding of the concept of multiple-meaning words (e.g., *match*, *kind*, *play*) by identifying meanings of some grade-appropriate examples of such words.

Grade 2 students:

- Determine word meanings (based on grade 2 reading).
 - Determine or clarify the meaning of unknown or multiple-meaning words through the use of one or more strategies, such as understanding how the word is used in a sentence; analyzing the word's sounds, spelling, and meaningful parts; and consulting glossaries or beginning dictionaries, both print and digital.
 - Explain the meaning of grade-appropriate compound words (e.g., *birdhouse*, *lighthouse*, *housely*; *bookshelf*, *notebook*, *bookmark*).
 - Use a known root word as a clue to the meaning of an unknown word with the same root (e.g., *addition*, *additional*).
 - Determine the meaning of the new word formed when a known prefix is added to a known word (e.g., *happy* / *unhappy*, *tell* / *retell*).
- Understand word relationships.
 - Build real-life connections between words and their use (e.g., note places at school that are *colorful*).
 - Distinguish shades of meaning among verbs describing the same general action (e.g., *walk*, *march*, *strut*, *prance*) by acting out the meanings.
 - Use common adjectives to distinguish objects (e.g., the *small blue* square; the *shy white* rabbit).
 - Demonstrate understanding of common verbs and adjectives by relating them to their opposites (antonyms).
- Use newly learned words acquired through conversations, reading, and responding to texts.
- Understand word relationships.
 - Build real-life connections between words and their use (e.g., describe foods that are *spicy* or *juicy*).
 - Distinguish shades of meaning among related verbs (e.g., *toss*, *throw*, *hurt*) and related adjectives (e.g., *thin*, *slender*, *skinny*, *scrawny*).
- Use newly learned words acquired through conversations, reading, and responding to texts.
- Use newly learned words acquired through conversations, reading, and responding to texts.

Language Standards K–5

Grade 3 students:

Conventions in Writing and Speaking

1. Observe conventions of grammar and usage.
 - a. Explain the function of nouns, pronouns, verbs, adjectives, and adverbs in general and their functions in specific sentences.
 - b. Form and use the simple (e.g., *I walked, I walk, I will walk*) verb tenses.
 - c. Ensure subject-verb and pronoun-antecedent agreement.*
 - d. Produce simple, compound, and complex sentences.
2. Observe conventions of capitalization, punctuation, and spelling.
 - a. Use correct capitalization.
 - b. Use quotation marks in dialogue.
 - c. Use conventional spelling for high-frequency and other studied words and for adding suffixes to base words (e.g., *sitting, smiled, cries, happiness*).
 - d. Use spelling patterns and generalizations (e.g., word families, position-based spellings, syllable patterns, ending rules, meaningful word parts) in writing words.
 - e. Consult reference materials, including dictionaries, as needed to check and correct spellings.

Grade 4 students:

1. Observe conventions of grammar and usage.
 - a. Form and use the progressive (e.g., *I was walking, I am walking, I will be walking*) verb aspects.
 - b. Form and use adjectives and adverbs (including comparative and superlative forms), placing them appropriately within sentences.*
 - c. Produce complete sentences, avoiding rhetorically poor fragments and run-ons.*
 - d. Correctly use frequently confused words (e.g., *to, too, two; there, their*).*

Grade 5 students:

1. Observe conventions of grammar and usage.
 - a. Form and use the perfect (e.g., *I had walked, I have walked, I will have walked*) verb aspects.
 - b. Recognize and correct inappropriate shifts in verb tense and aspect.*
2. Observe conventions of capitalization, punctuation, and spelling.
 - a. Use quotation marks to mark direct speech and quotations from a text.
 - b. Spell grade-appropriate words correctly, consulting references as needed.
3. Make effective language choices.
 - a. Use punctuation for effect.*
 - b. Maintain consistency in style and tone.*
 - c. Choose words and phrases to convey ideas precisely.*
3. Observe conventions of capitalization, punctuation, and spelling.
 - a. Use punctuation to separate items in a series.*
 - b. Use a comma to separate an introductory element from the rest of the sentence.
 - c. Use underlining, quotation marks, or italics to indicate titles of works.
 - d. Spell grade-appropriate words correctly, consulting references as needed.
3. Make effective language choices.
 - a. Expand, combine, and reduce sentences for meaning, reader/listener interest, and style.*

* Conventions standards noted with an asterisk (*) need to be revisited by students in subsequent grades as their writing and speaking grows in sophistication. See chart on page 27 for a complete listing.

Language Standards K-5

Grade 3 students:

Vocabulary Acquisition and Use

4. Determine word meanings (*based on grade 3 reading*).
- Determine or clarify the meaning of unknown or multiple-meaning words through the use of one or more strategies, such as understanding how the word is used in a sentence; analyzing the word's sounds, spelling, and meaningful parts; and consulting glossaries or beginning dictionaries, both print and digital.
 - Use a known root word as a clue to the meaning of an unknown word with the same root (e.g., *company, companion*).
 - Determine the meaning of the new word formed when a known affix is added to a known word (e.g., *agreeable/disagreeable, comfortable/uncomfortable, care/careless, heat/preheat*).
 - Distinguish the literal and nonliteral meanings of words and phrases in context (e.g., *take steps*).

5. Understand word relationships.
- Build real-life connections between words and their use (e.g., describe people who are *friendly* or *helpful*).
 - Distinguish among related words that describe states of mind or degrees of certainty (e.g., *knew, believed, suspected, heard, wondered*).

6. Use words that are in common, conversational vocabulary as well as grade-appropriate academic vocabulary and domain-specific words (in English language arts, history/social studies, and science) taught directly and acquired through reading and responding to texts.

Grade 4 students:

4. Determine word meanings (*based on grade 4 reading*).
- Determine or clarify the meaning of unknown or multiple-meaning words through the use of one or more strategies, such as using semantic clues (e.g., definitions, examples, or restatements in text); using syntactic clues (e.g., the word's position or function in the sentence); analyzing the word's sounds, spelling, and meaningful parts; and consulting reference materials, both print and digital.
 - Use a known root word as a clue to the meaning of an unknown word with the same root (e.g., *telegraph, photograph, autograph*).
 - Explain the meaning of simple similes and metaphors (e.g., *as pretty as a picture*).
 - Paraphrase common idioms, adages, and proverbs.

5. Understand word relationships.
- Build real-life connections between words and their various uses and meanings.
 - Define relationships between words (e.g., how *ask* is like and unlike *demand*; what items are likely to be *enormous*).
 - Distinguish a word from other words with similar but not identical meanings (synonyms).

6. Use grade-appropriate general academic vocabulary and domain-specific words and phrases (in English language arts, history/social studies, and science) taught directly and acquired through reading and responding to texts.

Grade 5 students:

4. Determine word meanings (*based on grade 5 reading*).
- Determine or clarify the meaning of unknown or multiple-meaning words through the use of one or more strategies, such as using semantic clues (e.g., definitions, examples, or restatements in text); using syntactic clues (e.g., the word's position or function in the sentence); analyzing the word's sounds, spelling, and meaningful parts; and consulting reference materials, both print and digital.
 - Use a known root word as a clue to the meaning of an unknown word with the same root (e.g., *photograph, photosynthesis*).
 - Interpret figurative language, including similes and metaphors.
 - Explain the meaning of common idioms, adages, and proverbs.

5. Understand word relationships.
- Build real-life connections between words and their various uses and meanings.
 - Define relationships between words (e.g., how *smirk* is like and unlike *smile*; what items are likely to be *vast*).
 - Distinguish a word from other words with similar but not identical meanings (synonyms).

6. Use grade-appropriate general academic vocabulary and domain-specific words and phrases (in English language arts, history/social studies, and science) taught directly and acquired through reading and responding to texts.

English Language Arts Conventions Progressive Skills, By Standard

The following, marked with an asterisk (*) in the Conventions standards, are skills and understandings that require continued attention in higher grades (after their introduction in the grade listed below) as they are applied to increasingly sophisticated writing and speaking.

Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8	Grades 9–10	
<p>1c. Ensure subject-verb and pronoun-antecedent agreement.</p> <p>3a. Choose words for effect.</p>							
	<p>1b. Form and use adjectives and adverbs (including comparative and superlative forms), placing them appropriately within sentences.</p> <p>1c. Produce complete sentences, avoiding rhetorically poor fragments and run-ons.</p> <p>1d. Correctly use frequently confused words (e.g., <i>effect/affect</i>, <i>to/too/two</i>).</p> <p>3a. Use punctuation for effect.</p> <p>3b. Maintain consistency in style and tone.</p> <p>3c. Choose words and phrases to convey ideas precisely.</p>						
				<p>1b. Recognize and correct inappropriate shifts in verb tense and aspect.</p> <p>2a. Use punctuation to separate items in a series.</p> <p>3a. Expand, combine, and reduce sentences for meaning, reader/listener interest, and style.</p>			
					<p>1b. Recognize and correct inappropriate shifts in pronoun number and person.</p> <p>1c. Recognize and correct vague pronouns (i.e., ones with unclear or ambiguous antecedents).</p> <p>2a. Use commas, parentheses, or dashes to set off nonrestrictive/parenthetical elements.</p> <p>3a. Vary sentence patterns for meaning, reader/listener interest, and style.</p>		
					<p>1c. Place phrases and clauses within a sentence, avoiding misplaced and dangling modifiers.</p> <p>3b. Choose words and phrases that express ideas concisely, eliminating wordiness and redundancy.</p>		
					<p>1c. Recognize and correct inappropriate shifts in verb voice and mood.</p>		
					<p>1a. Use parallel structure in writing.</p>		

* Read-aloud
 ** Read-along

Texts Illustrating the Complexity, Quality, and Range of Student Reading K-5

Literature: Stories, Drama, Poetry

- *Over in the Meadow* by John Langstaff (traditional) (c1800)*
- *A Boy, a Dog, and a Frog* by Mercer Mayer (1967)
- *Pancakes for Breakfast* by Tomie DePaola (1978)
- *A Story A Story* by Gail E. Haley (1970)*
- *Kitten's First Full Moon* by Kevin Henkes (2004)*

- "Mix a Pancake" by Christina G. Rossetti (1893)**
- *Mr. Popper's Penguins* by Richard Atwater (1938)*
- *Little Bear* by Else Holmelund Minarik, illustrated by Maurice Sendak (1957)**
- *Frog and Toad Together* by Arnold Lobel (1971)**
- *Hi! Fly Guy* by Tedd Arnold (2006)

- "Who Has Seen the Wind?" by Christina G. Rossetti (1893)
- *Charlotte's Web* by E. B. White (1952)*
- *Sarah, Plain and Tall* by Patricia MacLachlan (1985)
- *Tops and Bottoms* by Janet Stevens (1995)
- *Poppleton in Winter* by Cynthia Rylant, illustrated by Mark Teague (2001)

- *Alice's Adventures in Wonderland* by Lewis Carroll (1865)
- "Casey at the Bat" by Ernest Lawrence Thayer (1888)
- *The Black Stallion* by Walter Farley (1941)
- "Zlatch the Goat" by Isaac Bashevis Singer (1984)
- *Bud, Not Buddy* by Christopher Paul Curtis (1999)
- *The Birchbark House* by Louise Erdrich (1999)
- *Where the Mountain Meets the Moon* by Grace Lin (2009)

Informational Texts: Literary Nonfiction, History/Social Studies, Science/Technical Texts

- *My Five Senses* by Ailiki (1962)*
- *Truck* by Donald Crews (1980)
- *I Read Signs* by Tana Hoban (1987)
- *What Do You Do With a Tail Like This?* by Steve Jenkins & Robin Page (2003)*
- *Amazing Whales!* by Sarah L. Thomson (2005)*
- *A Tree Is a Plant* by Clyde Robert Bulla, illustrated by Stacey Schuett (1960)**
- *My Five Senses* by Ailiki (1962)**
- *Follow the Water from Brook to Ocean* by Arthur Dorros (1991)**
- *From Seed to Pumpkin* by Wendy Pfeffer, illustrated by James Graham Hale (2004)*
- *How People Learned to Fly* by Fran Hodgkins and True Kelley (2007)*

- *A Medieval Feast* by Ailiki (1983)
- *From Seed to Plant* by Gail Gibbons (1991)
- *The Story of Ruby Bridges* by Robert Coles (1995)*
- *A Drop of Water: A Book of Science and Wonder* by Walter Wick (1997)
- *Moonshot: The Flight of Apollo 11* by Brian Floca (2009)

- *Discovering Mars* by Melvin Berger (1992)
- *Hurricanes: Earth's Mightiest Storms* by Patricia Lauber (1996)
- *A History of US* by Joy Hakim (2005)
- *Horses* by Seymour Simon (2006)
- *Quest for the Tree Kangaroo: An Expedition to the Cloud Forest of New Guinea* by Seymour Simon (2006)

Note:

Given space limitations, the illustrative texts listed above are meant only to show individual titles that are representative of a wide range of topics and genres. (See Appendix B for excerpts of these and other texts illustrative of K-5 text complexity.) At a curricular or instructional level, within and across grade levels, texts need to be selected around topics or themes that generate knowledge and allow students to study that topic in depth. On the next page is an example of progressions of texts building knowledge across grade levels.

*Children at the kindergarten and grade 1 levels should be expected to read texts independently that have been specifically written to correlate to their reading level and their word knowledge. Many of the titles listed above are meant to supplement carefully structured independent reading with books to read along with a teacher or that are read aloud to students to build knowledge and cultivate a joy in reading.

Staying on Topic Within a Grade and Across Grades: How to Build Knowledge Systematically in English Language Arts K–5

Building knowledge systematically in English language arts is like giving children various pieces of a puzzle in each grade that, over time, will form one big picture. At a curricular or instructional level, texts—within and across grade levels—need to be selected around topics or themes that systematically develop the knowledge base of students. Within a grade level, there should be an adequate number of titles on a single topic that would allow children to study that topic for a sustained period. The knowledge children have learned about particular topics in early grade levels should then be expanded and developed in subsequent grade levels to ensure an increasingly deeper understanding of these topics. Children in the upper elementary grades will generally be expected to read these texts independently and reflect on them in writing. However, children in the early grades (particularly K–2) should participate in rich, structured conversations with an adult in response to the written texts that are read aloud, *orally* comparing and contrasting as well as analyzing and synthesizing, in the manner called for by the *Standards*.

Preparation for reading complex informational texts should begin at the very earliest elementary school grades. What follows is one example that uses domain-specific nonfiction titles across grade levels to illustrate how curriculum designers and classroom teachers can infuse the English language arts block with rich, age-appropriate content knowledge and vocabulary in history/social studies, science, and the arts. Having students listen to informational read-alouds in the early grades helps lay the necessary foundation for students' reading and understanding of increasingly complex texts on their own in subsequent grades.

Exemplar Texts on a Topic Across Grades

K

2–3

4–5

The Human Body

Students can begin learning about the human body starting in kindergarten and then review and extend their learning during each subsequent grade.

<p>The five senses and associated body parts</p> <ul style="list-style-type: none"> ▪ <i>My Five Senses</i> by Alikli (1989) ▪ <i>Hearing</i> by Maria Rius (1985) ▪ <i>Sight</i> by Maria Rius (1985) ▪ <i>Smell</i> by Maria Rius (1985) ▪ <i>Taste</i> by Maria Rius (1985) ▪ <i>Touch</i> by Maria Rius (1985) <p>Taking care of your body:</p> <p>Overview (hygiene, diet, exercise, rest)</p> <ul style="list-style-type: none"> ▪ <i>My Amazing Body: A First Look at Health & Fitness</i> by Pat Thomas (2001) ▪ <i>Get Up and Go!</i> by Nancy Carlson (2008) ▪ <i>Go Wash Up</i> by Doering Tourville (2008) ▪ <i>Sleep</i> by Paul Showers (1997) ▪ <i>Fuel the Body</i> by Doering Tourville (2008) 	<p>Introduction to the systems of the human body and associated body parts</p> <ul style="list-style-type: none"> ▪ <i>Under Your Skin: Your Amazing Body</i> by Mick Manning (2007) ▪ <i>Me and My Amazing Body</i> by Joan Sweeney (1999) ▪ <i>The Human Body</i> by Gallimard Jeunesse (2007) ▪ <i>The Busy Body Book</i> by Lizzy Rockwell (2008) ▪ <i>First Encyclopedia of the Human Body</i> by Fiona Chandler (2004) <p>Taking care of your body: germs, diseases, and preventing illness</p> <ul style="list-style-type: none"> ▪ <i>Germs Make Me Sick</i> by Marilyn Berger (1995) ▪ <i>Tiny Life on Your Body</i> by Christine Taylor-Butler (2005) ▪ <i> germ Stories</i> by Arthur Kornberg (2007) ▪ <i>All About Scabs</i> by Genichiro Yagu (1998) 	<p>Digestive and excretory systems</p> <ul style="list-style-type: none"> ▪ <i>What Happens to a Hamburger</i> by Paul Showers (1985) ▪ <i>The Digestive System</i> by Christine Taylor-Butler (2008) ▪ <i>The Digestive System</i> by Rebecca L. Johnson (2006) ▪ <i>The Digestive System</i> by Kristin Petrie (2007) <p>Taking care of your body: healthy eating and nutrition</p> <ul style="list-style-type: none"> ▪ <i>Good Enough to Eat</i> by Lizzy Rockwell (1999) ▪ <i>Showdown at the Food Pyramid</i> by Rex Barron (2004) <p>Muscular, skeletal, and nervous systems</p> <ul style="list-style-type: none"> ▪ <i>The Mighty Muscular and Skeletal Systems</i> Crabtree Publishing (2009) ▪ <i>Muscles</i> by Seymour Simon (1998) ▪ <i>Bones</i> by Seymour Simon (1998) ▪ <i>The Astonishing Nervous System</i> Crabtree Publishing (2009) ▪ <i>The Nervous System</i> by Joelle Riley (2004) 	<p>Circulatory system</p> <ul style="list-style-type: none"> ▪ <i>The Heart</i> by Seymour Simon (2006) ▪ <i>The Heart and Circulation</i> by Carol Ballard (2005) ▪ <i>The Circulatory System</i> by Kristin Petrie (2007) ▪ <i>The Amazing Circulatory System</i> by John Burstein (2009) <p>Respiratory system</p> <ul style="list-style-type: none"> ▪ <i>The Lungs</i> by Seymour Simon (2007) ▪ <i>The Respiratory System</i> by Susan Glass (2004) ▪ <i>The Respiratory System</i> by Kristin Petrie (2007) ▪ <i>The Remarkable Respiratory System</i> by John Burstein (2009) <p>Endocrine system</p> <ul style="list-style-type: none"> ▪ <i>The Endocrine System</i> by Rebecca Olien (2006) ▪ <i>The Exciting Endocrine System</i> by John Burstein (2009)
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Standards for English Language Arts

6-12

PRO

College and Career Readiness Standards for Reading

The grades 6–12 standards on the following pages define what students should understand and be able to do in each grade and build toward the ten College and Career Readiness Standards.

Key Ideas and Details

1. Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.
2. Determine central ideas or themes of a text and analyze their development; summarize the key supporting details and ideas.
3. Analyze in detail where, when, why, and how events, ideas, and characters develop and interact over the course of a text.

Craft and Structure

4. Interpret words and phrases as they are used in a text, including determining technical, connotative, and figurative meanings, and explain how specific word choices shape meaning or tone.
5. Analyze the structure of texts, including how specific sentences, paragraphs, and larger portions of the text (e.g., a section or chapter) relate to each other and the whole.
6. Assess how point of view or purpose shapes the content and style of a text.

Integration of Knowledge and Ideas

7. Synthesize and apply information presented in diverse ways (e.g., through words, images, graphs, and video) in print and digital sources in order to answer questions, solve problems, or compare modes of presentation.¹
8. Delinate and evaluate the reasoning and rhetoric within a text, including assessing whether the evidence provided is relevant and sufficient to support the text’s claims.
9. Analyze how two or more texts address similar themes or topics in order to build knowledge or to compare the approaches the authors take.

Range and Level of Text Complexity

10. Read complex texts independently, proficiently, and fluently, sustaining concentration, monitoring comprehension, and, when useful, rereading.²

¹Please see “Research to Build Knowledge” in Writing and “Comprehension and Collaboration” in Speaking and Listening for additional standards relevant to gathering, assessing, and applying information from print and digital sources.

²Proficiency in this standard is measured by students’ ability to read a range of appropriately complex text in each grade as defined on page 36.

Note on range and content of student reading

To become college and career ready, students must grapple with works of exceptional craft and thought whose range extends across genres, cultures, and centuries. Such works offer profound insights into the human condition and serve as models for students’ own thinking and writing. Along with high-quality contemporary works, these texts should be chosen from among the founding U.S. documents, the classics of American literature, and the timeless dramas of Shakespeare. Through wide and deep reading of literature and literary nonfiction of steadily increasing sophistication, students gain a reservoir of literary and cultural knowledge, references, and images; the ability to evaluate intricate arguments; and the capacity to surmount the challenges posed by complex texts.

Reading Standards for Literature 6–12

Following are the standards for grades 6–12, which relate to their College and Career Readiness counterparts by number. They offer a focus for instruction each year and help ensure that students gain adequate exposure to a range of texts and tasks. Rigor is also infused through the requirement that students read increasingly complex texts through the grades.

Grade 6 students:

Key Ideas and Details

1. Cite specific textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.
2. Analyze how a theme or central idea develops over the course of a text, drawing on key details.
3. Describe how a story's plot unfolds (in a series of episodes or as a problem to be solved) as well as how characters adapt or change as they move toward a resolution.

Craft and Structure

4. Interpret the figurative and connotative meanings of words and phrases as they are used in a text.
5. Explain the effect of such devices as flashbacks and foreshadowing on the development of the plot and meaning of a text.
6. Describe how an author establishes the point of view of the speaker or a character in a poem, drama, or story.

Integration of Knowledge and Ideas

7. Analyze how illustrations, diagrams, multimedia elements, and words contribute to the meaning and tone of a print or digital text (e.g., graphic novel, multimedia presentation of fiction).
8. (Not applicable to literature)
9. Analyze stories in the same genre (e.g., mysteries, adventure stories), comparing and contrasting their approaches to similar themes and topics.

Range and Level of Text Complexity

10. Read literature independently, proficiently, and fluently in the grades 6–8 text complexity band; read texts at the high end of the range with scaffolding as needed.

Grade 7 students:

1. Cite several sources of textual evidence when useful to support analysis of what the text says explicitly as well as inferences drawn from the text.
2. Analyze how two or more themes or central ideas in a text relate to one another, drawing on key details.
3. Analyze how particular lines of dialogue or specific incidents in a story or drama propel the action, reveal aspects of a character, or provoke a decision.
4. Interpret the figurative and connotative meanings of words and phrases as they are used in a text and describe in detail a specific word choice and its impact on meaning and tone.
5. Describe how any given sentence, chapter, scene, or stanza fits into the overall structure of a text and contributes to the development of the plot or themes.
6. Analyze how an author presents the points of view of different characters in a story or drama, including their different reactions to the same person or event(s).

7. Compare and contrast a text to its filmed, staged, or multimedia version, including examining some techniques unique to each medium (e.g., lighting, sound, color, camera focus and angles).

8. (Not applicable to literature)

9. Analyze a specific case in which a modern work of fiction draws on patterns of events or character types found in traditional literature (e.g., the hero, the quest).

10. Read literature independently, proficiently, and fluently in the grades 6–8 text complexity band; read “stretch” texts in the grades 9–10 text complexity band with scaffolding as needed.

Grade 8 students:

1. Cite a wide range of evidence throughout the text when useful to support analysis of what the text says explicitly as well as inferences drawn from the text.
2. Analyze how recurring images or events contribute to the development of a theme or central idea in a text.
3. Analyze how elements of a story or drama interact (e.g., how plot and setting are integral to one another; how the setting affects characters).
4. Explain the comparisons an author makes through metaphors, allusions, or analogies in a text and analyze how those comparisons contribute to meaning.
5. Compare a poem with a conventional structure, such as a sonnet, to a poem without a proscribed structure, such as a free verse poem.
6. Explain how a difference in the perspective or knowledge of characters and the audience (e.g., created through the device of dramatic irony) produces suspense or humor.

7. Analyze to what degree a filmed or live production of a drama or story stays faithful to or departs from the script or text.

8. (Not applicable to literature)

9. Compare a fictional portrayal of a time, place, or character to historical sources from the same period as a means of understanding how authors use or alter history.

10. Read literature independently, proficiently, and fluently in the grades 6–8 text complexity band; engage in sustained practice with “stretch” texts in the grades 9–10 text complexity band with scaffolding as needed.

Reading Standards for Literature 6–12

Grades 9–10 students:

Key Ideas and Details

1. Cite the evidence in the text that most strongly supports a specific analysis of what the text says explicitly as well as inferences drawn from the text.
2. Analyze in detail the development and refinement of a theme or central idea in a text, including how it emerges and how it is shaped and refined by specific details.
3. Analyze how complex characters, including those with conflicting motivations or divided loyalties, develop over the course of a text, interact with other characters, and advance the plot or develop the theme.

Craft and Structure

4. Evaluate how an author's use of language, including formality of diction, shapes meaning and tone in a text (e.g., how the language evokes a sense of time and place, how it sets a formal or informal tone).
5. Analyze how an author structures a text, orders events within it (e.g., parallel plots), and manipulates time (e.g., pacing) to create mystery, tension, or surprise.
6. Analyze a case in which the author's work takes a position or stance on a social issue or other topic and describe how the author carries out that purpose.

Integration of Knowledge and Ideas

7. Compare and contrast the representation of a subject or a key scene in two different artistic mediums (e.g., Auden's "Musée de Beaux Arts" and Breughel's *Landscape with the Fall of Icarus*).
8. (Not applicable to literature)
9. Analyze a wide range of nineteenth- and early-twentieth-century foundational works of American literature, comparing and contrasting approaches to similar ideas or themes in two or more texts from the same period.

Range and Level of Text Complexity

10. **In grade 9**, read literature independently, proficiently, and fluently in the grades 9–10 text complexity band; read texts at the high end of the range with scaffolding as needed.
In grade 10, read literature independently, proficiently, and fluently in the grades 9–10 text complexity band; read "stretch" texts in the grades 11–CCR text complexity band with scaffolding as needed.

Grades 11–12 students:

1. Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text, including determining where the text leaves things uncertain.
2. Analyze how multiple themes or central ideas in a text interact, build on, and, in some cases, conflict with one another.
3. Analyze the impact of the author's choices regarding how to develop and relate elements of a story or drama (e.g., where a story is set, how the action is ordered, how the characters are introduced and developed).
4. Analyze in detail the condensed language of poems (or particularly rich language use in a narrative or drama), determining how specific word choices and multiple meanings shape the impact and tone.
5. Analyze how an author's choices concerning how to structure a text (e.g., electing at what point to begin or end a story) shape the meaning of the text.
6. Analyze an author's use of satire, sarcasm, irony, understatement, or other means that requires a reader to understand various layers of meaning in a text.

7. Compare and contrast multiple interpretations of a drama or story (e.g., recorded or live productions), distinguishing how each version interprets the source text. (This includes at least one play by Shakespeare as well as one play by an American dramatist.)
8. (Not applicable to literature)
9. Analyze how an author draws on and transforms fictional source material in a specific work (e.g., how Shakespeare draws on a story from Ovid or how a later author draws on a play by Shakespeare).

10. **In grade 11**, read literature independently, proficiently, and fluently in the grades 11–CCR text complexity band; read texts at the high end of the range with scaffolding as needed.
In grade 12, read literature independently, proficiently, and fluently in the grades 11–CCR text complexity band; read "stretch" texts in the Beyond CCR text complexity band with scaffolding as needed.

Reading Standards for Informational Text 6–12

Grade 6 students:

Key Ideas and Details

1. Cite specific textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.
2. Analyze how a central idea develops over the course of a text, drawing on key details.
3. Determine the causes or reasons that link different events, ideas, or information in a text, drawing on key details.

Craft and Structure

4. Interpret words and phrases as they are used in a text, including technical, figurative, and connotative meanings, and analyze how an author's choice of specific words in a text contributes to understanding the ideas or concepts.
5. Describe the structure an author uses to organize a specific text, including how the major sections contribute to the whole.
6. Compare and contrast one author's point of view on events with that of another (e.g., a memoir written by and a biography on the same person).

Integration of Knowledge and Ideas

7. Compare and contrast the accounts of a subject in different mediums (e.g., a person's life story told in print, video, or multimedia), analyzing which details are emphasized and how the account unfolds in each version.
8. Distinguish among fact, opinion, and reasoned judgment presented in a text.
9. Assess the similarities and differences between two or more texts on the same subject and apply the knowledge gained to inform reading of additional texts.

Range and Level of Text Complexity

10. Read informational text independently, proficiently, and fluently in the grades 6–8 text complexity band; read texts at the high end of the range with scaffolding as needed.

Grade 7 students:

1. Cite several sources of textual evidence when useful to support analysis of what the text says explicitly as well as inferences drawn from the text.
2. Analyze how two or more central ideas in a text relate to one another, drawing on key details.
3. Describe in detail how an author introduces, illustrates, and elaborates a key idea in a text (e.g., through examples or anecdotes).
4. Interpret words and phrases as they are used in a text, including technical, figurative, and connotative meanings, and describe in detail how an author's choice of specific words affects meaning and tone.
5. Describe how any given sentence, paragraph, chapter, or section fits into the overall structure of a text and contributes to the development of the ideas.
6. Describe an author's point of view or purpose in a text and analyze how the author distinguishes his or her point of view from that of others.

7. Compare and contrast the impression conveyed by a printed text to that conveyed when listening to or viewing a video or multimedia presentation of it (e.g., analyzing how the delivery of a speech affects its impact).
8. Identify the stated and unstated premises of an argument and explain how they contribute to the conclusions reached.
9. Analyze where two or more texts provide conflicting information on the same subject and determine whether the texts disagree on matters of fact or on matters of interpretation.

10. Read informational text independently, proficiently, and fluently in the grades 6–8 text complexity band; read “stretch” texts in the grades 9–10 text complexity band with scaffolding as needed.

Grade 8 students:

1. Cite a wide range of evidence throughout the text when useful to support analysis of what the text says explicitly as well as inferences drawn from the text.
2. Provide an objective summary of a text, accurately conveying an author's view and specific points.
3. Analyze how an author introduces, illustrates, and elaborates two or more significant ideas in a text, including how the relationship between the ideas is expressed.
4. Explain the comparisons an author makes through metaphors, allusions, and analogies in a text and analyze how those comparisons contribute to meaning.
5. Analyze in detail the structure of a specific paragraph in a text, including the role of particular sentences in developing and refining a key concept.
6. Compare and contrast the points of view and purposes of two authors writing about the same topic.

7. Evaluate the advantages and disadvantages of using different mediums (e.g., text, video, multimedia) to present a particular topic or idea.
8. Evaluate an argument's claims and reasoning as well as the degree to which evidence supports each claim.
9. Compare and contrast how two or more authors writing about the same topic shape their presentations of key information by emphasizing different evidence or advancing different interpretations of facts.

10. Read informational text independently, proficiently, and fluently in the grades 6–8 text complexity band; engage in sustained practice with “stretch” texts in the grades 9–10 text complexity band with scaffolding as needed.

Reading Standards for Informational Text 6–12

Grades 9–10 students:

Key Ideas and Details

1. Cite evidence in the text that most strongly supports a specific analysis of what the text says explicitly as well as inferences drawn from the text.
2. Analyze in detail the development and refinement of a central idea in a text, including how it emerges and is shaped and refined by specific details.
3. Analyze the interactions between and among ideas and events, including how ideas and events influence one another.

Craft and Structure

4. Evaluate how an author's use of language, including formality and type of diction, shapes meaning and tone in a text (e.g., the formality of a court opinion or a newspaper).
5. Evaluate the effectiveness of the structure an author uses in his or her exposition or argument, including whether the structure makes points clear, convincing, and engaging.
6. Analyze documents of historical and literary significance, including foundational U.S. documents (e.g., the Declaration of Independence, the Preamble to the Constitution, the Bill of Rights) for their premises, purposes, and structure.

Integration of Knowledge and Ideas

7. Synthesize information presented in different formats (e.g., text, video, multimedia) to generate a coherent understanding of an issue.
8. Assess the truth of an argument's explicit and implicit premises by determining whether the evidence presented in the text justifies the conclusions.
9. Analyze how authors argue with or otherwise respond to one another's ideas or accounts of key events, evaluating the strength of each author's interpretation.

Range and Level of Text Complexity

10. **In grade 9**, read informational text independently, proficiently, and fluently in the grades 9–10 text complexity band; read texts at the high end of the range with scaffolding as needed.
In grade 10, read informational text independently, proficiently, and fluently in the grades 9–10 text complexity band; read “stretch” texts in the grades 11–CCR text complexity band with scaffolding as needed.

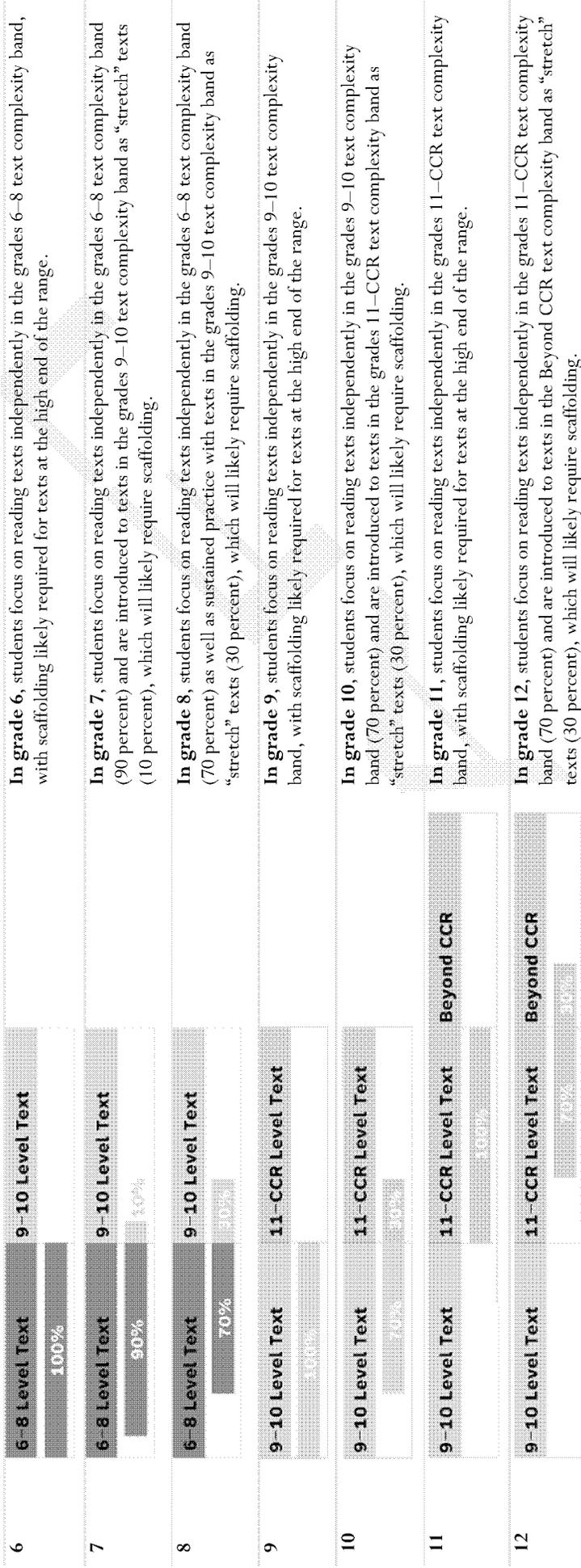
Grades 11–12 students:

1. Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text, including determining where the text leaves things uncertain.
2. Analyze how multiple ideas in a text interact, build on, and, in some cases, conflict with one another.
3. Analyze in detail an author's ideas by describing how the ideas are developed and refined by specific sentences, paragraphs, and larger portions of a text.
4. Interpret how an author uses and refines the meaning of a key term or terms over the course of a text (e.g., how Madison defines *faction* in *Federalist* No. 10 and No. 51).
5. Analyze how an author's choices concerning how to structure a text (e.g., how reasons, evidence, and information are organized and emphasized) shape the meaning of the text.
6. Analyze how various authors express different points of view on similar events or issues, assessing the authors' assumptions, use of evidence, and reasoning, including analyzing seminal U.S. documents (e.g., *The Federalist*, landmark U.S. Supreme Court majority opinions and dissents).

7. Synthesize and apply multiple sources of information presented in different formats in order to address a question or solve a problem, including resolving conflicting information.
8. Evaluate the reasoning and rhetoric that support an argument or explanation, including assessing the relevance and sufficiency of evidence and identifying false statements or fallacious reasoning.
9. Synthesize explanations and arguments from diverse sources to provide a coherent account of events or ideas, including resolving conflicting information.
10. **In grade 11**, read informational text independently, proficiently, and fluently in the grades 11–CCR text complexity band; read texts at the high end of the range with scaffolding as needed.
In grade 12, read informational text independently, proficiently, and fluently in the grades 11–CCR text complexity band; read “stretch” texts in the Beyond CCR text complexity band with scaffolding as needed.

Range and Level of Text Complexity for Student Reading by Grade (Standard 10)

Students demonstrate proficiency in reading texts at the following ranges of text complexity to progress on a path to college and career readiness.



Note: In any given classroom, the actual range of students' reading ability could be greater than the proposed range. Some students will require extra time and intense support and scaffolding to enable them to read grade-level material, whereas other students will be ready for—and should be encouraged to read—more advanced texts.

Measuring Text Complexity: Three Factors

Qualitative evaluation of the text: Levels of meaning, structure, language conventionality and clarity, and knowledge demands

Quantitative evaluation of the text: Readability measures and other scores of text complexity

Matching reader to text and task: Reader knowledge, motivation, and interests as well as the complexity generated by the tasks to be assigned and the questions to be posed

Note: More detailed information on text complexity and how it is measured is contained in Appendix A.

College and Career Readiness Standards for Writing

The grades 6–12 standards on the following pages define what students should understand and be able to do in each grade and build toward the ten College and Career Readiness Standards.

*Text Types and Purposes*¹

1. Write arguments to support a substantive claim with clear reasons and relevant and sufficient evidence.
2. Write informative/explanatory texts to convey complex information clearly and accurately through purposeful selection and organization of content.
3. Write narratives to convey real or imagined experiences, individuals, or events and how they develop over time.

Production and Distribution of Writing

4. Produce writing in which the organization, development, substance, and style are appropriate to task, purpose, and audience.
5. Strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach.²
6. Use technology, including the Internet, to produce, publish, and interact with others about writing.

Research to Build Knowledge

7. Perform short, focused research projects as well as more sustained research in response to a focused research question, demonstrating understanding of the material under investigation.
8. Gather relevant information from multiple print and digital sources, assess the credibility and accuracy of each source, and integrate and cite the information while avoiding plagiarism.
9. Write in response to literary or informational sources, drawing evidence from the text to support analysis and reflection as well as to describe what they have learned.

Range of Writing

10. Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.³

¹These broad categories of writing include many subgenres. See Appendix A for definitions of key writing types.

²See “Conventions” in Language, pages 47–50, for specific editing expectations.

³This standard is measured by the proficiency of student writing products.

Note on range and content of student writing

For students, writing is a key means of asserting and defending claims, showing what they know about a subject, and conveying what they have experienced, imagined, thought, and felt. To be college- and career-ready writers, students must take task, purpose, and audience into careful consideration, choosing words, information, structures, and formats deliberately. They need to be able to use technology strategically when creating, refining, and collaborating on writing. They have to become adept at gathering information, evaluating sources, and citing material accurately, reporting findings from their research and analysis of sources in a clear and cogent manner. They must have the flexibility, concentration, and fluency to produce high-quality first-draft text under a tight deadline as well as the capacity to revisit and make improvements to a piece of writing over multiple drafts when circumstances encourage or require it. To meet these goals, students must devote significant time and effort to writing, producing numerous pieces over short and long time frames throughout the year.

Writing Standards 6–12

Following are the standards for grades 6–12, which relate to their College and Career Readiness counterparts by number. They offer a focus for instruction in each year to help ensure that students gain adequate exposure to a range of skills and applications. Growth in writing ability is characterized by an increasing sophistication in all aspects of language use, from vocabulary and syntax to the development and organization of ideas. At the same time, the content and sources that students address in their writing grow in demand every year.

Grade 6 students:

- 1.** Write arguments in which they:
- Introduce a claim about a topic or issue and organize the reasons and evidence to support the claim.
 - Support the claim with clear reasons and relevant evidence.
 - Use words, phrases, and clauses to convey the relationships among claims and reasons.
 - Sustain an objective style and tone.
 - Provide a concluding statement or section that follows from the argument.

Grade 7 students:

- 1.** Write arguments in which they:
- Introduce a claim about a topic or issue, acknowledge alternate or opposing claims, and organize the reasons and evidence logically to support the claim.
 - Support the claim with logical reasoning and detailed, relevant evidence that demonstrate a comprehensive understanding of the topic.
 - Use words, phrases, and clauses to convey the relationships among the claims, reasons, and evidence.
 - Sustain an objective style and tone.
 - Provide a concluding statement or section that follows logically from the argument.

Grade 8 students:

- 1.** Write arguments in which they:
- Introduce a claim about a topic or issue, distinguish it from alternate or opposing claims, and organize the reasons and evidence logically to support the claim.
 - Support the claim with logical reasoning and detailed and relevant evidence from credible sources to demonstrate a comprehensive understanding of the topic.
 - Use words, phrases, and clauses to make clear the relationships among claims, reasons, counterclaims, and evidence.
 - Sustain an objective style and tone.
 - Provide a concluding statement or section that follows logically from the argument.
- 2.** Write informative/explanatory texts in which they:
- Introduce a topic and organize information appropriate to the purpose, using strategies such as definition, classification, comparison/contrast, and cause/effect.
 - Develop the topic with relevant facts, definitions, concrete details, quotations, or other information and examples.
 - Use appropriate links and varied sentence structures to join and clarify ideas.
 - Use straightforward language to create an objective style appropriate for a reader seeking information.
 - Provide a conclusion that follows logically from the information or explanation presented.
- 1.** Write informative/explanatory texts in which they:
- Introduce and establish a topic and organize information under broader concepts or categories.
 - Develop the topic with well-chosen, relevant, and accurate facts, concrete details, quotations, or other information and examples.
 - Use varied links and sentence structures to create cohesion and clarify information and ideas.
 - Use precise language and domain-specific and technical wording (when appropriate) and sustain a formal, objective style appropriate for a reader seeking information.
 - Provide a conclusion that follows logically from the information or explanation presented.

Writing Standards 6–12

Grade 6 students:

Text Types and Purposes (continued)

3. Write narratives in which they:
- Engage and orient the reader by establishing a context and point of view, and organize a sequence of events or experiences.
 - Develop narrative elements (e.g., setting, event sequence, characters) using relevant sensory details.
 - Use a variety of transition words, phrases, and clauses to convey sequence, shift from one time frame or setting to another, and/or show the relationships among events and experiences.
 - Choose words and phrases to develop the events, experiences, and ideas precisely.
 - Provide a satisfying conclusion that follows from the events, experiences, or ideas.

Grade 7 students:

3. Write narratives in which they:
- Engage and orient the reader by establishing a context and point of view, and purposefully organize a sequence of events or experiences.
 - Develop narrative elements (e.g., setting, conflict, complex characters) with relevant and specific sensory details.
 - Use a variety of techniques to convey sequence, shift from one time frame or setting to another, and/or show the relationships among events or experiences.
 - Choose words and phrases to develop the events, experiences, and ideas precisely and to create mood.
 - Provide a satisfying conclusion that follows from the events, experiences, or ideas.

Grade 8 students:

3. Write narratives in which they:
- Engage and orient the reader by establishing a context and point of view, and purposefully organize a progression of events or experiences.
 - Develop narrative elements (e.g., setting, plot, event sequence, complex characters) with well-chosen, relevant, and specific sensory details.
 - Use a variety of techniques to convey sequence in multiple storylines, shift from one time frame or setting to another, and/or show the relationships among events or experiences.
 - Choose words and phrases to effectively develop the events, experiences, and ideas precisely and to create mood.
 - Provide a satisfying conclusion that follows from the events, experiences, or ideas.

Production and Distribution of Writing

- Produce writing in which the organization, development, substance, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in Standards 1–3 above.)
- With some guidance and support from peers and adults, strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach.
- Use technology, including the Internet, to produce, publish, and interact with others about writing, including linking to and citing online sources.
- Produce writing in which the organization, development, substance, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in Standards 1–3 above.)
- With some guidance and support from peers and adults, strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach after rethinking how well questions of purpose have been addressed.
- Use technology, including the Internet, to present and cite information effectively in a digital format, including when publishing and responding to writing.

Writing Standards 6–12

Grade 6 students:

Research to Build Knowledge

7. Perform short, focused research projects in response to a question and refocus the inquiry in response to further research and investigation.
8. Gather relevant information from multiple print and digital sources, assess the credibility of each source, and quote or paraphrase the data and conclusions of others while avoiding plagiarism and documenting sources.
9. Write in response to literary or informational sources, drawing evidence from the text to support analysis and reflection as well as to describe what they have learned.
 - a. Apply *grade 6 reading standards to literature* (e.g., “Analyze stories in the same genre (e.g., mysteries, adventure stories), comparing and contrasting their approaches to similar themes and topics.”).
 - b. Apply *grade 6 reading standards to literary nonfiction* (e.g., “Distinguish among fact, opinion, and reasoned judgment presented in a text”).

Range of Writing

10. Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.

Grade 7 students:

7. Perform short, focused research projects in response to a question and generate additional related and focused questions for further research and investigation.
8. Gather relevant information from multiple print and digital sources using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others, avoiding plagiarism and following a standard format for citation.
9. Write in response to literary or informational sources, drawing evidence from the text to support analysis and reflection as well as to describe what they have learned.
 - a. Apply *grade 7 reading standards to literature* (e.g., “Analyze a specific case in which a modern work of fiction draws on patterns of events or character types found in traditional literature (e.g., the hero, the quest).”)
 - b. Apply *grade 7 reading standards to literary nonfiction* (e.g., “Identify the stated and unstated premises of an argument and explain how they contribute to the conclusions reached”).

10. Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.

Grade 8 students:

7. Perform short, focused research projects in response to a question and generate additional related questions that allow for multiple avenues of exploration.
8. Gather relevant information from multiple print and digital sources using advanced search features; assess the credibility and accuracy of each source; and quote or paraphrase the evidence, avoiding plagiarism and following a standard format for citation.
9. Write in response to literary or informational sources, drawing evidence from the text to support analysis and reflection as well as to describe what they have learned:
 - a. Apply *grade 8 reading standards to literature* (e.g., “Compare a fictional portrayal of a time, place, or character to historical sources from the same period as a means of understanding how authors use or alter history”).
 - b. Apply *grade 8 reading standards to literary nonfiction* (e.g., “Evaluate an argument’s claims and reasoning as well as the degree to which evidence supports each claim”).

10. Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.

Writing Standards 6–12

Grades 9–10 students:

Text Types and Purposes

1. Write arguments which they:
 - a. Introduce a precise claim, distinguish it from alternate or opposing claims, and provide an organization that establishes clear relationships among the claim, reasons, and evidence.
 - b. Develop a claim and counterclaim fairly, supplying evidence for each, while pointing out the strengths of their own claim and the weaknesses of the counterclaim.
 - c. Use precise words, phrases, and clauses to make clear the relationships between claims and reasons, between reasons and evidence, and between claims and counterclaims.
 - d. Sustain an objective style and tone while attending to the norms and conventions of the specific discipline as well as to the audience's knowledge of the issue.
 - e. Provide a concluding statement or section that follows logically from the argument and offers a reflection or recommendation.
2. Write informative/explanatory texts in which they:
 - a. Introduce a topic and organize information under broader concepts and categories to make clear the connections and distinctions between key ideas appropriate to the purpose; include formatting (e.g., headings) and graphics (e.g., figures, tables) when useful to clarify ideas.
 - b. Develop a complex topic through well-chosen, relevant, and sufficient facts, concrete details, quotations, extended definitions, or other information and examples.
 - c. Use varied transitions and sentence structures to create cohesion, clarify information and ideas, and link major sections in the text.
 - d. Use precise language and domain-specific and technical wording (when appropriate) to manage the complexity of the topic in a style that responds to the specific discipline and context as well as to the expertise of likely readers.
 - e. Provide a conclusion that follows logically from the information or explanation provided and articulates the implications or significance of the topic.

Grades 11–12 students:

1. Write arguments in which they:
 - a. Introduce a substantive claim, establish its significance, distinguish it from alternate or opposing claims, and create an organization so that claims, reasons, and evidence are purposefully and logically sequenced.
 - b. Develop a claim and counterclaim thoroughly and fairly, supplying the most relevant evidence, while pointing out the strengths of their own claim and the weaknesses of the counterclaim.
 - c. Use precise words, phrases, and complex syntax to make explicit the relationships between claims and reasons, between reasons and evidence, and between claims and counterclaims.
 - d. Sustain an objective style and tone while attending to the norms and conventions of the specific discipline as well as to the audience's knowledge, values, and possible biases.
 - e. Provide a concluding statement or section that follows logically from the argument and offers a reflection or recommendation.
2. Write informative/explanatory texts in which they:
 - a. Introduce a complex topic and organize the information at multiple levels of the text so that each new piece of information builds on that which precedes it to create a unified whole; include formatting (e.g., headings) and graphics (e.g., figures, tables) when useful to clarify ideas.
 - b. Thoroughly develop aspects of a complex topic through the purposeful selection of the most significant and relevant facts, concrete details, quotations, extended definitions, or other information and examples.
 - c. Use varied transitional devices and sentence structures to create cohesion, clarify complex ideas, and link the major sections of the text.
 - d. Use precise language, domain-specific and technical wording (when appropriate), and techniques such as metaphor, simile, and analogy to manage the complexity of the topic in a style that responds to the specific discipline and context as well as to the expertise of likely readers.
 - e. Provide a well-developed conclusion that follows logically from the information or explanation provided and articulates the implications or significance of the topic.

Writing Standards 6–12

Grades 9–10 students:

Text Types and Purposes (continued)

3. Write narratives in which they:
- Engage the reader by establishing a problem, situation, or observation and purposefully organize a progression of events or experiences.
 - Develop narrative elements (e.g., setting, event sequence, complex characters) with well-chosen, revealing details.
 - Use a variety of techniques to sequence events so that they build on one another to create a coherent whole.
 - Use precise language to develop a picture of how the events, experiences, and ideas emerge and unfold.
 - Provide a satisfying conclusion that follows from what is experienced, observed, or resolved over the course of the narrative.

Production and Distribution of Writing

- Produce writing in which the organization, development, substance, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for this standard are defined in Standards 1–3 above.)
- Strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific task and context.
- Use technology, including the Internet, to produce, publish, and collaborate on a shared writing product, incorporating diverse and sometimes conflicting feedback.

Research to Build Knowledge

- Perform short, focused research projects and more sustained research; synthesize multiple sources on a subject to answer a question or solve a problem.
- Assemble evidence gathered from authoritative print and digital sources; assess the credibility and accuracy of the information and its strengths and limitations in terms of answering the research question; and integrate selected information into the text, avoiding overreliance on any one source and following a standard format for citation.

Grades 11–12 students:

3. Write narratives in which they:
- Engage the reader by establishing the significance of a problem, situation, or observation and purposefully organize events or experiences.
 - Develop narrative elements (e.g., setting, stance, event sequence, complex characters) with purposefully selected details that call readers' attention to what is most distinctive or worth noticing.
 - Use a variety of techniques to build toward a particular impact (e.g., a sense of mystery, suspense, growth, or resolution).
 - Use precise language to develop the events, experiences, and ideas clearly and to reinforce the style.
 - Provide a satisfying conclusion that follows from what is experienced, observed, or resolved over the course of the narrative.

- Produce writing in which the organization, development, substance, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for this standard are defined in Standards 1–3 above.)
- Strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.
- Demonstrate command of technology, including the Internet, to produce, publish, and update work in response to ongoing feedback, including fresh arguments or new information.

- Perform short, focused research projects and more sustained research; synthesize multiple authoritative sources on a subject to answer a question or solve a problem.
- Analyze evidence gathered from multiple authoritative print and digital sources; assess the credibility and accuracy of the information and its usefulness and relevance for the specific task, purpose, and audience; and integrate selected information into the text, following a standard format for citation.

Writing Standards 6–12

Grades 9–10 students:

Research to Build Knowledge (continued)

9. Write in response to literary or informational sources, drawing evidence from the text to support analysis and reflection as well as to describe what they have learned.
- Apply *grades 9–10 reading standards to literature* (e.g., “Analyze a wide range of nineteenth- and early-twentieth-century foundational works of American literature, comparing and contrasting approaches to similar ideas or themes in two or more texts from the same period.”).
 - Apply *grades 9–10 reading standards to literary nonfiction* (e.g., “Assess the truth of an argument’s explicit and implicit premises by determining whether the evidence presented in the text justifies the conclusions”).

Range of Writing

10. Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.

Grades 11–12 students:

9. Write in response to literary or informational sources, drawing evidence from the text to support analysis and reflection as well as to describe what they have learned.
- Apply *grades 11–12 reading standards to literature* (e.g., “Analyze how an author draws on and transforms fictional source material, such as how Shakespeare draws on a story from Ovid, or a later author draws on Shakespeare”).
 - Apply *grades 11–12 reading standards to literary nonfiction* (e.g., “Evaluate the reasoning and rhetoric that support an argument or explanation, including assessing the relevance and sufficiency of evidence and identifying false statements or fallacious reasoning”).
10. Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.

College and Career Readiness Standards for Speaking and Listening

The grades 6–12 standards on the following pages define what students should understand and be able to do in each grade and build toward the six College and Career Readiness Standards.

Comprehension and Collaboration

1. Participate effectively in a range of interactions (one-on-one and in groups), exchanging information to advance a discussion and to build on the input of others.
2. Integrate and evaluate information from multiple oral, visual, or multimodal sources in order to answer questions, solve problems, or build knowledge.
3. Evaluate the speaker's point of view, reasoning, and use of evidence and rhetoric.

Presentation of Knowledge and Ideas

4. Present information, evidence, and reasoning in a clear and well-structured way appropriate to purpose and audience.
5. Make strategic use of digital media and visual displays of data to express information and enhance understanding.
6. Adapt speech to a variety of contexts and communicative tasks, demonstrating a command of formal English when indicated or appropriate.

Note on range and content of student speaking and listening

To become college and career ready, students must have ample opportunities to take part in a variety of rich, structured conversations—whole class, small group, and with a partner—built around important content in various domains. They must be able to contribute appropriately to these conversations, to make comparisons and contrasts, and to analyze and synthesize a multitude of ideas in accordance with the standards of evidence appropriate to a particular discipline.

Whatever their intended major or profession, high school graduates will depend heavily on their ability to listen attentively to others so that they are able to build on others' meritorious ideas while expressing their own clearly and persuasively.

New technologies have broadened and expanded the role that speaking and listening play in acquiring and sharing knowledge and have tightened their link to other forms of communication. The Internet has accelerated the speed at which connections between speaking, listening, reading, and writing can be made, requiring that students be ready to use these modalities nearly simultaneously.

Technology itself is changing quickly, creating a new urgency for students to be adaptable in response to change.

Speaking and Listening Standards 6–12

Following are the standards for grades 6–12, which relate to their College and Career Readiness counterparts by number. They offer a focus for instruction in each year to help ensure that students gain adequate exposure to a range of skills and applications.

Grade 6 students:

Comprehension and Collaboration

1. Initiate and engage actively in group discussions on *grade 6 topics, texts, and issues* being studied in class.
 - a. Prepare for discussions by completing reading or conducting research and explicitly draw on that material in discussions.
 - b. Cooperate with peers to set clear goals and deadlines.
 - c. Build on the ideas of others by asking relevant questions and contributing appropriate and essential information.
 - d. Review the key ideas expressed and extend their own thinking in light of new information learned.

Grade 7 students:

1. Initiate and engage actively in group discussions on *grade 7 topics, texts, and issues* being studied in class.
 - a. Prepare for discussions by completing reading or conducting research and explicitly draw on that material in discussions.
 - b. Cooperate with peers to set clear goals and deadlines.
 - c. Advance a discussion by asking questions, responding precisely, and sharing factual knowledge and observations.
 - d. Ensure a hearing for the range of positions on an issue.
 - e. Take the views of others into account and, when warranted, modify their own views in light of the evidence presented.

Grade 8 students:

1. Initiate and engage actively in group discussions on *grade 8 topics, texts, and issues* being studied in class.
 - a. Prepare for discussions by completing reading or conducting research and explicitly draw on that material in discussions.
 - b. Cooperate with peers to set clear goals and deadlines.
 - c. Advance a discussion by asking questions, responding precisely, and sharing factual knowledge and observations supported by credible evidence.
 - d. Ensure a hearing for the range of positions on an issue.
 - e. Qualify or justify, when warranted, their own thinking after listening to others' questions or accounts of the evidence.
2. Determine the purpose of and perspectives represented in oral, visual, or multimodal formats and evaluate whether the information is laden with social, commercial, or political motives.
3. Assess the truth of a speaker's or presenter's premises and the validity of his or her conclusions.

Presentation of Knowledge and Ideas

4. Present information, emphasizing salient points with pertinent descriptions and details and using appropriate eye contact, adequate volume, and clear pronunciation.
5. Incorporate digital media and visual displays of data when helpful and in a manner that strengthens the presentation.
6. Adapt speech to a variety of contexts and communicative tasks, demonstrating a command of formal English when indicated or appropriate. (See "Conventions" in Language, on pages 47–50, for specific demands.)

4. Present claims and findings with relevant and specific descriptions, facts, and examples, and use appropriate eye contact, adequate volume, and clear pronunciation.
5. Incorporate digital media and visual displays of data when helpful and in a manner that strengthens the presentation.
6. Adapt speech to a variety of contexts and communicative tasks, demonstrating a command of formal English when indicated or appropriate. (See "Conventions" in Language, pages 47–50, for specific demands.)

4. Present claims and findings with relevant evidence that is accessible and verifiable to listeners, and use appropriate eye contact, adequate volume, and clear pronunciation.
5. Incorporate digital media and visual displays of data when helpful and in a manner that strengthens the presentation.
6. Adapt speech to a variety of contexts and communicative tasks, demonstrating a command of formal English when indicated or appropriate. (See "Conventions" in Language, pages 47–50, for specific demands.)

Speaking and Listening Standards 6–12

Grades 9–10 students:

Comprehension and Collaboration

1. Initiate and participate effectively in group discussions on *grades 9–10 topics, texts, and issues* being studied in class.
 - a. Prepare for discussions by reading and researching material under study and explicitly draw on that preparation in discussions.
 - b. Cooperate with peers to set clear goals and deadlines and to establish roles.
 - c. Build on essential information from others' input by asking questions and sharing comments that enrich discussions.
 - d. Acknowledge the ideas and contributions of others in the group, reach decisions about the information and ideas under discussion, and complete the task.
 - e. Evaluate whether the team has met its goals.

Grades 11–12 students:

Comprehension and Collaboration

1. Initiate and participate effectively in group discussions on *grades 11–12 topics, texts, and issues* being studied in class.
 - a. Prepare for discussions by distilling the evidence or information about the material under study and explicitly draw on that preparation in discussions.
 - b. Cooperate with peers to set clear goals and deadlines, establish roles, and determine ground rules for decision making (e.g., informal consensus, taking votes on key issues, presentation of alternate views).
 - c. Propel conversations forward by asking questions that test the evidence and by sharing findings that clarify, verify, or challenge ideas and conclusions.
 - d. Summarize accurately the comments and claims made on all sides of an issue and determine what additional information, research, and tasks are required for the team to complete the task.
 - e. Evaluate whether the team has met its goals.

2. Synthesize information presented visually or multimodally with other information presented orally, noting any discrepancies between the data that emerge as a result.

3. Determine a speaker's or presenter's position or point of view by assessing the evidence, word choice, points of emphasis, and tone used.

Presentation of Knowledge and Ideas

4. Plan and deliver relevant and sufficient evidence in support of findings and claims such that listeners can follow the reasoning, adjusting presentation to particular audiences and purposes.
5. Make strategic use of digital media elements and visual displays of data to enhance understanding.

6. Adapt speech to a variety of contexts and communicative tasks, demonstrating a command of formal English when indicated or appropriate. (See "Conventions" in Language, pages 47–50, for specific demands.)

2. Integrate multiple streams of data presented through various mediums, evaluating the reliability and credibility of each source of information in order to answer questions, solve problems, or build knowledge.

3. Evaluate the information conveyed and rhetoric used by a speaker or presenter, identifying logical errors in reasoning and exaggerated or distorted evidence.

4. Plan and deliver focused and coherent presentations that convey clear and distinct perspectives such that the line of reasoning and sources of support are clear and alternative perspectives are addressed, adjusting presentation to particular audiences and purposes.

5. Make strategic use of digital media elements and visual displays of data to enhance understanding.

6. Adapt speech to a variety of contexts and communicative tasks, demonstrating a command of formal English when indicated or appropriate. (See "Conventions" in Language, pages 47–50, for specific demands.)

College and Career Readiness Standards for Language

The grades 6–12 standards on the following pages define what students should understand and be able to do in each grade and build toward the six College and Career Readiness Standards.

Conventions in Writing and Speaking

1. Demonstrate a command of the conventions of standard English grammar and usage.
2. Demonstrate a command of the conventions of capitalization, punctuation, and spelling.
3. Make effective choices about language, punctuation, and sentence structure for meaning and style.

Vocabulary Acquisition and Use

4. Determine the meaning of words and phrases encountered through conversations, reading, and media use.
5. Understand the nuances of and relationships among words.
6. Use grade-appropriate general academic vocabulary and domain-specific words and phrases purposefully acquired as well as gained through conversation and reading and responding to texts.

Note on range and content of student language use

To be college- and career ready in language, students must have firm control over the conventions of writing and speaking and have extensive vocabularies built through reading and study. They must have a well-developed understanding of standard written and spoken English, demonstrating command of the conventions of grammar, usage, and mechanics. They also must come to appreciate that language is as much a matter of craft as of rules and be able to use punctuation, words, phrases, clauses, and sentences to achieve particular rhetorical effects and to convey ideas precisely and concisely. They need to become highly skilled in determining the meanings of words they encounter, choosing flexibly from an array of strategies to aid them. They must learn to see an individual word as part of a network of other words—words, for example, that have similar denotations but different connotations. The inclusion of Language standards in their own strand should not be taken as an indication that skills related to conventions and vocabulary are unimportant to reading, writing, speaking, and listening; indeed, they are inseparable from such contexts.

Language Standards 6–12

Following are the standards for grades 6–12, which relate to their College and Career Readiness counterparts by number. They offer a focus for instruction in each year to help ensure that students gain adequate exposure to a range of skills and applications.

Grade 6 students:

1. Observe conventions of grammar and usage.
 - a. Ensure that pronouns are in the proper case (subjective, objective, possessive).
 - b. Recognize and correct inappropriate shifts in pronoun number and person.*
 - c. Recognize and correct vague pronouns (i.e., ones with unclear or ambiguous antecedents).*

Grade 7 students:

1. Observe conventions of grammar and usage.
 - a. Explain the function of phrases and clauses in general and their functions in specific sentences.
 - b. Choose among simple, compound, complex, and compound-complex sentences to signal differing relationships among ideas.
 - c. Place phrases and clauses within a sentence, avoiding misplaced and dangling modifiers.*

Grade 8 students:

1. Observe conventions of grammar and usage.
 - a. Form and use verbs in the active and passive voice.
 - b. Form and use verbs in the indicative, imperative, interrogative, conditional, and subjunctive moods.
 - c. Recognize and correct inappropriate shifts in verb voice and mood.*
2. Observe conventions of capitalization, punctuation, and spelling.
 - a. Use commas, parentheses, or dashes to set off nonrestrictive/parenthetical elements.*
 - b. Spell correctly.
3. Make effective language choices.
 - a. Vary sentence patterns for meaning, reader/listener interest, and style.*
2. Observe conventions of capitalization, punctuation, and spelling.
 - a. Use a comma before a coordinating conjunction in a compound sentence.
 - b. Spell correctly.
3. Make effective language choices.
 - a. Choose words and phrases that express ideas concisely, eliminating wordiness and redundancy.*
3. Make effective language choices.
 - a. Use verbs in the active and passive voice and in the conditional and subjunctive moods to achieve particular effects (e.g., emphasizing the actor or the action; expressing uncertainty or describing a state contrary to fact).

* Conventions standards noted with an asterisk need to be revisited by students in subsequent grades. See page 51 for a complete listing.

looked to the standards of a number of countries to inform the structure and language of the CCSS. In the process of developing the writing of the standards: Bill Walsh (former U.S. ambassador to Hong Kong, India, Ireland, Japan, Korea, and Taiwan) and I looked closely at ten sets of standards (British Columbia, and Ontario), England

marks used to inform the development

marking in the common core state standards. The standards are as rigorous as comparable standards

in either TIMSS, PISA or both: Belgium, Singapore. England and Ireland, which were selected because of their cultural links to the United Kingdom and their high level of educational competitiveness.

The impact on the teaching and learning of mathematics in English-speaking countries. All were high-performing countries, which as in mathematics was selected

NAC 389.663 Units and grade point average required to receive advanced diploma. (NRS 385.080, 385.110, 388.360, 389.018)

1. To receive an advanced diploma evidencing graduation from high school, a pupil must, in addition to having passed the high school proficiency examination required by NRS 389.015, have:

(a) Earned a minimum of 18 units of credit for required courses and 6 units of credit for elective courses for a total of at least 24 units of credit; and

(b) Maintained at least a 3.25 grade point average on a 4.0 grading scale, weighted or unweighted, for all units of credit applicable toward graduation.

2. The units for the required courses must be earned in accordance with the following table:

Required Course	Minimum Number of Units
American government.....	1
American history.....	1
Arts and humanities, or career and technical education.....	1
Social studies.....	1
English, including reading, composition and writing.....	4
Health education.....	1/2
Mathematics.....	4
Physical education.....	2
Use of computers.....	1/2
Science.....	3
TOTAL:	18

(Added to NAC by Bd. of Education by R091-99, eff. 1-14-2000; A by R025-01, 11-1-2001; R061-02, 9-6-2002; A by Bd. for Career & Tech. Educ. by R172-05, 2-23-2006; A by Bd. of Education by R059-07, 10-31-2007, eff. 10-15-2008)

NRS 389.520 Council to Establish Academic Standards: Establishment of standards; periodic review of standards; adoption of standards by State Board. [Effective through June 30, 2010.]

1. The Council shall:

(a) Establish standards of content and performance, including, without limitation, a prescription of the resulting level of achievement, for the grade levels set forth in subsection 2, based upon the content of each course, that is expected of pupils for the following courses of study:

(1) English, including reading, composition and writing;

(2) Mathematics;

(3) Science;

(4) Social studies, which includes only the subjects of history, geography, economics and government;

(5) The arts;

(6) Computer education and technology;

(7) Health; and

(8) Physical education.

(b) Establish a schedule for the periodic review and, if necessary, revision of the standards of content and performance. The review must include, without limitation, the review required pursuant to NRS 389.570 of the results of pupils on the examinations administered pursuant to NRS 389.550.

(c) Assign priorities to the standards of content and performance relative to importance and degree of emphasis and revise the standards, if necessary, based upon the priorities.

2. The Council shall establish standards of content and performance for each grade level in kindergarten and grades 1 to 8, inclusive, for English and mathematics. The Council shall establish standards of content and performance for the grade levels selected by the Council for the other courses of study prescribed in subsection 1.

3. The Council shall forward to the State Board the standards of content and performance established by the Council for each course of study. The State Board shall:

(a) Adopt the standards for each course of study, as submitted by the Council; or

(b) If the State Board objects to the standards for a course of study or a particular grade level for a course of study, return those standards to the Council with a written explanation setting forth the reason for the objection.

4. If the State Board returns to the Council the standards of content and performance for a course of study or a grade level, the Council shall:

(a) Consider the objection provided by the State Board and determine whether to revise the standards based upon the objection; and

(b) Return the standards or the revised standards, as applicable, to the State Board.

➔ The State Board shall adopt the standards of content and performance or the revised standards, as applicable.

5. The Council shall work in cooperation with the State Board to prescribe the examinations required by NRS 389.550.

(Added to NRS by 1999, 3385; A 2007, 1963)

NRS 389.520 Council to Establish Academic Standards: Establishment of standards; periodic review of standards; adoption of standards by State Board; establishment of policy for ethical, safe and secure use of computers. [Effective July 1, 2010.]

1. The Council shall:

(a) Establish standards of content and performance, including, without limitation, a prescription of the resulting level of achievement, for the grade levels set forth in subsection 3, based upon the content of each course, that is expected of pupils for the following courses of study:

(1) English, including reading, composition and writing;

(2) Mathematics;

(3) Science;

(4) Social studies, which includes only the subjects of history, geography, economics and government;

(5) The arts;

(6) Computer education and technology;

(7) Health; and

(8) Physical education.

(b) Establish a schedule for the periodic review and, if necessary, revision of the standards of content and performance. The review must include, without limitation, the review required pursuant to NRS 389.570 of the results of pupils on the examinations administered pursuant to NRS 389.550.

(c) Assign priorities to the standards of content and performance relative to importance and degree of emphasis and revise the standards, if necessary, based upon the priorities.

2. The standards for computer education and technology must include a policy for the ethical, safe and secure use of computers and other electronic devices. The policy must include, without limitation:

(a) The ethical use of computers and other electronic devices, including, without limitation:

(1) Rules of conduct for the acceptable use of the Internet and other electronic devices;
and

(2) Methods to ensure the prevention of:

(I) Cyber-bullying;

(II) Plagiarism; and

(III) The theft of information or data in an electronic form;

(b) The safe use of computers and other electronic devices, including, without limitation, methods to:

(1) Avoid harassment, cyber-bullying and other unwanted electronic communication, including, without limitation, communication with on-line predators;

(2) Recognize when an on-line electronic communication is dangerous or potentially dangerous; and

(3) Report a dangerous or potentially dangerous on-line electronic communication to the appropriate school personnel;

(c) The secure use of computers and other electronic devices, including, without limitation:

(1) Methods to maintain the security of personal identifying information and financial information, including, without limitation, identifying unsolicited electronic communication which is sent for the purpose of obtaining such personal and financial information for an unlawful purpose;

- (2) The necessity for secure passwords or other unique identifiers;
- (3) The effects of a computer contaminant;
- (4) Methods to identify unsolicited commercial material; and
- (5) The dangers associated with social networking Internet sites; and

(d) A designation of the level of detail of instruction as appropriate for the grade level of pupils who receive the instruction.

3. The Council shall establish standards of content and performance for each grade level in kindergarten and grades 1 to 8, inclusive, for English and mathematics. The Council shall establish standards of content and performance for the grade levels selected by the Council for the other courses of study prescribed in subsection 1.

4. The Council shall forward to the State Board the standards of content and performance established by the Council for each course of study. The State Board shall:

(a) Adopt the standards for each course of study, as submitted by the Council; or

(b) If the State Board objects to the standards for a course of study or a particular grade level for a course of study, return those standards to the Council with a written explanation setting forth the reason for the objection.

5. If the State Board returns to the Council the standards of content and performance for a course of study or a grade level, the Council shall:

(a) Consider the objection provided by the State Board and determine whether to revise the standards based upon the objection; and

(b) Return the standards or the revised standards, as applicable, to the State Board.

➔ The State Board shall adopt the standards of content and performance or the revised standards, as applicable.

6. The Council shall work in cooperation with the State Board to prescribe the examinations required by NRS 389.550.

7. As used in this section:

(a) “Computer contaminant” has the meaning ascribed to it in NRS 205.4737.

(b) “Cyber-bullying” has the meaning ascribed to it in NRS 388.123.

(c) “Electronic communication” has the meaning ascribed to it in NRS 388.124.

(Added to NRS by 1999, 3385; A 2007, 1963; 2009, 689, effective July 1, 2010)

Smarter Balance Assessment Consortium Document of Commitment

Please sign and return by April 15, 2010 to
Tony Alpert, Director of Assessment, Oregon Department of Education

Email as PDF attachment to: Tony.Alpert@ode.state.or.us , or
Fax: 503-378-5156

The Document of Commitment may be returned after April 15, allowing a state to begin to participate as a voting Member State from the date of commitment. Signature on this document indicates support of decisions made prior to Consortia receipt of this document.

Complete descriptions of the responsibilities and time commitments of various levels of consortium governance are provided in the Governance Structure document. This initial governance structure refers to the *proposal process only*. Governance structure will be revised after proposal acceptance to reflect long-term needs during the grant implementation period.

State Name: NEVADA

Please indicate which governance levels are of interest to your state at this time.

- Member State** – May also sign as member state for other consortia, may participate in setting general direction, may vote on selected issues.
- Governing State** – May only sign with one consortia per competition category; has an active role in policy decisions, is committed to using the assessment system or program developed.

- Please consider my state for representation on the **steering committee**. (10 hr/wk)
- Please consider my state for representation on the **proposal design team** (20 hr/wk)
- We are interested in participating in the following **work groups** (variable hr/wk)
 - Item Specs/Quality Control, Writing/Constructed Response Scoring/Validity
 - Psychometrics, Reliability, Standard Setting, Reporting
 - Universal Design, Test Administration, Accommodations, Special Populations
 - Technical Specifications/Requirements
 - Communications and Documentation
 - External Validation, Research and Innovations
 - Professional Development and Capacity Building (IT and Human)
 - Formative and Benchmark Assessment
 - Performance-Based, Curriculum-Embedded Assessments
 - High School and Higher Education



Chief State School Officer Signature

4/15/10

Date

**States Participating in the SMARTER Balanced Consortium
(as of 5/12/10)**

State	Date	Member/Governing State
Colorado	May 12	Member
Connecticut	April 13	Member
Delaware	April 14	Member
Georgia	April 28	Member
Hawaii	April 15	Member
Idaho	April 15	Governing
Illinois	April 15	Member
Iowa	April 14	Member
Kansas	April 15	Governing
Kentucky	April 15	Member
Maine	April 14	Governing
Michigan	April 16	Governing
Minnesota	April 27	Governing
Missouri	April 14	Governing
Montana	April 14	Member
Nebraska	April 13	Member
Nevada	April 19	Member
New Hampshire	April 19	Member
New Jersey	April 15	Member
New Mexico	April 13	Member
North Carolina	April 15	Governing
North Dakota	April 15	Member
Ohio	April 20	Member
Oregon	April 15	Governing
Pennsylvania	April 27	Member
South Carolina	April 20	Member
South Dakota	April 15	Member
Utah	April 14	Governing
Vermont	April 15	Governing
Washington	April 14	Governing
West Virginia	April 13	Governing
Wisconsin	April 14	Governing
Wyoming	April 14	Member
Total		Member 33 Governing 13

THE SMARTER BALANCED ASSESSMENT CONSORTIUM

The “Smarter Balanced Assessment Consortium” was formed from a merger of three Consortia that emerged in January 2010 in response to the Race to the Top competition: the Balanced Assessment, MOSAIC, and SMARTER Consortia, comprising a total of 45 states.

The Consortium’s priorities for a new generation assessment system are rooted in a concern for the valid, reliable, and fair assessment of the deep disciplinary understanding and higher-order thinking skills that are increasingly demanded by a knowledge-based economy. These priorities are also rooted in a belief that assessment must support ongoing improvements in instruction and learning, and must be useful for all members of the educational enterprise: students, parents, teachers, school administrators, members of the public, and policymakers.

The Consortium recognizes the need for a system of formative and summative assessments, organized around Common Core standards, that support high-quality learning and the demands of accountability, and that balance concerns for innovative assessment with the need for a fiscally sustainable system that is feasible to implement. The efforts of the Consortium will be organized to accomplish these goals.

Priorities for Assessment

As described below, the Consortium members have agreed to a set of principles that are consistent with those used by educational systems of high-achieving nations and states. These include the following:

- 1) **Assessments are grounded in a thoughtfully integrated learning system** of standards, curriculum, assessment, instruction, and teacher development. Teachers and other instructional experts are involved in the process of developing formative and summative assessments grounded in the learning standards. These guide professional learning about curriculum, teaching, and assessment. Instructional supports are provided to enable thoughtful teaching. Thus, assessments are provided to schools as part of a well-aligned system that guides and supports a coherent approach to students’ and teachers’ learning.
- 2) **Assessments include evidence of actual student performance** on challenging tasks that evaluate standards of 21st Century learning. The assessments will be strategically used to evaluate a broad array of skills and competencies and inform progress toward and acquisition of readiness for higher education and multiple work domains. They emphasize deep knowledge of core concepts within and across the disciplines, problem solving, analysis, synthesis, and critical thinking.
- 3) **Teachers are integrally involved in the design, development and scoring of assessment items and tasks**. Teachers will participate in the alignment and unpacking of the Common Core Standards and the identification of the standards in the local curriculum. The Consortium will involve teachers in formative and summative assessment development and support moderation of scoring processes to ensure consistency and to enable teachers to deeply understand the standards and to develop stronger curriculum, instruction, and classroom assessment. Assessment literate teachers 1) who have gotten “inside” the Common Core standards, 2) who have taught to the standards, 3) who have learned how to appropriately measure the standards, and 4) who have learned strategies to intervene if students have not measured the standards, will be teachers whose students are learning. Teachers’ roles include the construction and review of items/tasks, the definition of scoring guides, selection of student work exemplars, and scoring.
- 4) **Technology is designed to support assessment and learning systems**. Technology is used to enhance these assessments in a number of ways, by: delivering the assessments; enabling adaptive technologies to better measure student abilities across the full spectrum of student performance and evaluate growth in learning; supporting on-line simulation tasks that test higher-order abilities, allowing

students to search for information or manipulate variables and tracking information about the students' problem-solving processes; and, in some cases, scoring the results or delivering the responses to trained scorers / teachers to access from an electronic platform. Such a platform can support training and calibration of scorers and moderation of scores, as well as the efficient aggregation of results in ways that support reporting and research about the responses.

5) Assessments are structured to continuously **improve teaching and learning**.

Assessment *as, of, and for* learning is designed to develop understanding of what learning standards are, what high-quality work looks like, and what is needed for student learning. It is also designed to foster instruction that supports transferable knowledge and skills. These outcomes are enabled by several features of the assessment system:

- The use of school-based, curriculum-embedded assessments provides teachers with models of good curriculum and assessment practice, enhances curriculum equity within and across schools, and allows teachers to see and evaluate student learning in ways that can feed back into instructional and curriculum decisions.
- Close examination of student work and moderated teacher scoring are sources of ongoing professional development that improve teaching.
- Developing both on-demand and curriculum-embedded assessments around learning progressions allows teachers to see where students are on multiple dimensions of learning and to strategically support their progress.

Goals for the Assessment System

The *SMARTER BALANCED* Consortium intends to build a system of assessment upon the Common Core Standards in English language arts and mathematics with the intent that all students across this consortium of states will know their progress toward college and career readiness. These states believe that the connection between the student, the teacher, and the curriculum, instruction and assessment is the foundation for success for the Common Core Standards, and that working together collaboratively to accomplish these tasks is critical.

The consortium is committed to the development of a system that is state led and will provide:

- **Common summative tests in English language arts and Mathematics** that assess student progress and mastery of core concepts and critical transferable skills using a range of formats: selected-response and constructed-response items, and performance tasks, designed together to assess the full range of standards.
- **Formative assessment tools and supports**, that are shaped around curriculum guidance which includes learning progressions, and that link evidence of student competencies to the summative system.
- Focused **professional development** around curriculum and lesson development as well as scoring and examination of student work
- **Reporting systems** that provide first-hand evidence of student performances, as well as aggregated scores by dimensions of learning, student characteristics, classrooms, schools, and districts.

- A governance structure that ensures a strong voice for state administrators, policy makers, school practitioners, and technical advisors to ensure an optimum balance of assessment quality, efficiency, costs, and time.

Principles

This system and its development will incorporate:

- A variety of item types to measure the full range of Common Core Standards, including those that address higher-order cognitive skills and abilities;
- A plan to scale up over time to incorporate curriculum-embedded performance and complex computer based simulations;
- Online adaptive solutions for summative and interim assessments to provide assessments that meet the needs of all students;
- Support for structured transitions from paper/pencil to online adaptive assessments, with a backup paper version available for those states who need it when the assessment initially scales up;
- A systematic solution to informed decision-making by including formative strategies, benchmark/interim assessments, and summative assessments;
- High quality curriculum and instructional supports for teachers;
- Inclusion of teachers in design, development and implementation of the system;
- Adherence to professional standards for assessment;
- Principles of universal design in the design and development process for **all** students; and
- Optional components that states can use based on their needs.

Design Agreements

The Consortium will develop a common summative assessment that will provide comparable results across all of the participating states. This comparability will be achieved by applying psychometrically sound scaling and equating procedures to items and a modest number of performance tasks of limited scope (e.g. no more than a few days to complete) that will be used in common across consortium states. Consortium states will use commonly determined performance standards that are internationally benchmarked.

In addition, some states will work on pushing the edge of the envelope with respect to more ambitious performance assessments – which may be used in common by one or more sub-consortia of states – and, in the same way, others will undertake more ambitious work with respect to computer adaptive testing and simulations. This design allows the Consortium to create at one time, a new summative assessment used by a large number of states within the five-year horizon of the federal grant, and to create even more leading-edge assessment components used by sub-consortia of states who decide to offer augmented assessments. Common use of these augmented assessments across subsets of states would result in comparable results for those components across those states, without disrupting the existence of a leaner, common summative assessment across all the states in the Consortium.

Current understandings about the nature of the assessment items, tasks, and strategies are noted below:

Objective machine-scored items

- Movement toward more analytic types of selected-response and constructed-response items that are easily scored, including computer simulations.

Open-Ended Constructed response

Artificial intelligence (AI) scored items.

- Work to establish efficient means of developing items and reliable scoring processes for complex responses scored by computer.
- Build and maintain the confidence teachers have in the system by incorporating a systematic read-behind by teachers.

Human scored constructed response

- Develop training and moderated scoring processes for teacher scoring of items that cannot be scored by AI and for additional scoring of AI items.
- A strategic mix of teacher and machine scoring should be created to take advantage of efficiencies and reduce burden, while also ensuring teacher participation and learning.

Curriculum-embedded performance assessments

- The common summative assessment would incorporate performance events of modest scope (1-5 days) to evaluate the standards more fully.
- Some states will form a workgroup to go further with rich performance tasks that can make advances in performance assessments on behalf of the consortium
- These more ambitious performance assessments could be included for individual state accountability systems (and for comparisons across a subset of states, if desired) until a greater proportion of states has capacity for implementation.

Advanced Computer based simulations

- Some states will form a workgroup to make advances in computer based simulations on behalf of the consortium
- These simulations could be included in individual state accountability systems until a greater proportion of states have capacity for implementation.

7 A newly formed star is composed **mostly** of which of these two elements?

- A iron and uranium
- B sodium and neon
- C carbon and oxygen
- D hydrogen and helium

8 How would a disease that damages the mitochondria **most** directly affect the functioning of cells?

- A Protein synthesis would be stopped.
- B Waste materials would remain trapped in the cell.
- C Hereditary information in the cell would be destroyed.
- D Energy obtained from food molecules would be reduced.

9 When traveling in Nevada, a student and her family drove throughout the basin and range bioregion. Which of these are native organisms typically found in this bioregion?

- A the cottonwood tree and the iguana
- B the Joshua tree and the black-tailed jackrabbit
- C the redwood tree and the bald eagle
- D the palm tree and the ring-necked pheasant

10 Argon, atomic number 18, has an atomic weight of 39.9. Potassium, atomic number 19, has an atomic weight of 39.1. Which of these statements **best** explains why potassium has a lower atomic weight than argon?

- A Potassium is reactive, while argon is typically inert.
- B Potassium atoms lose electrons more easily than argon atoms.
- C Potassium is typically a solid, while argon is typically a gas.
- D Potassium atoms usually have fewer neutrons than argon atoms.

11 Sickle-cell anemia is a disease that affects the shape of red blood cells and impairs their ability to transport oxygen. Which of these statements **best** explains why sickle-cell anemia is classified as a hereditary disease?

- A Both males and females can be carriers of the disease.
- B A gene controls the protein synthesis for the components of red blood cells.
- C The disease is highly contagious from a carrier to another person.
- D Red blood cells are transmitted between mother and offspring during pregnancy.

12 At which point did greenhouse gases **first** begin to affect temperatures on Earth?

- A when the first land plants appeared on Earth
- B when the atmosphere first formed on Earth
- C after the hole formed in the ozone layer
- D after humans started using fossil fuels



Testing in Nevada: An Overview

A GreatSchools guide to standardized tests

By GreatSchools Staff

Although test results are only one measure of student achievement, they have become increasingly important in assessing student learning. Nevada's assessment program, the Nevada Proficiency Examination Program (NPEP), combines a variety of tests to measure student learning. In 2007-2008 Nevada used the Criterion-Referenced Test (CRT) to test students in grades 3 through 8 in reading and math, and in grades 5 and 8 in science. Students in grades 5 and 8 were also tested in writing using the Nevada Analytic Writing Examination (NAWE). High school students took the Nevada High School Proficiency Exam (HSPE) in reading, math, science and writing. Students must pass the HSPE in order to graduate. The CRT, NAWE and HSPE are standards-based tests that measure specific skills defined for each grade by the state of Nevada.

Nevada also used the Iowa Test of Basic Skills (ITBS) for elementary schools and the Iowa Tests of Educational Development (ITED) for high schools in 2007-2008. The ITBS and ITED are norm-referenced tests that measure how students are performing compared with their peers nationwide.

How are the tests scored?

The CRT, NAWE and HSPE results show the level of proficiency a student demonstrates in each of the subject areas tested. Students are rated on one of four levels: emergent/developing, approaches standard, meets standard or exceeds standard. The goal is for all students to score at or above the state standard.

The ITBS and ITED measure performance through a percentile based on the scores of all students of the same grade level in the nation. All students receive a percentile rank, which indicates how well they performed in comparison with peers in other states. If the number is 45, for example, students scored as well or better than 45% of students who took the test across the country. The national average for all schools is 50. The goal is for all students to score at or above the national average.

Which results are included on GreatSchools profiles?

For the CRT, NAWE and HSPE, the combined percentage of students meeting and exceeding the state standard is displayed. HSPE results represent the combined results of students who took the test in grade 10, and students who retaken the test in grade 11. ITBS and ITED results are not displayed on GreatSchools profiles.

GreatSchools also displays subgroup results to show how different groups of students are scoring in comparison to the overall student population in a given grade and subject. These subgroups are identified by the Nevada Department of Education; if there are fewer than 10 students in a particular group in a school, data is not reported for that group.

Why do the tests matter?

The CRT, NAWE and HSPE test results provide an indication of whether students are making progress toward mastery of state content standards. Test results are especially important for high school students, who must pass the Nevada HSPE to receive a high school diploma. Students are given several opportunities to pass the test, and receive remediation prior to their third and subsequent attempts. Test results are also used to determine, in part, if schools are meeting Adequate Yearly Progress for No Child Left Behind.

It is important to be aware of both your child's score on the assessments and the overall score for her school. If your child scores below the standards, contact the teacher to discuss getting additional assistance, and to find out how you can support your child's learning at home.

If the school's overall scores are low, ask what steps the school is taking to raise achievement levels for all students, and what you can do to help. If your child is in a failing school, ask what your options are for transferring and obtaining supplemental services.

A few parting words

Although test results can be an indicator of what's happening in the classroom, they don't tell you everything about the quality of a particular school. Always look at more than one measure when judging school performance and visit in person before making any final assessment.

Search for Nevada Schools.

NEVADA GROWTH MODEL OF ACHIEVEMENT

In the past several years, stakeholders across the state have agreed that a measure of student growth was needed. In 2009, the State Legislature responded to this need through the passage of legislation requiring Nevada to establish clear approaches to measuring student growth as a whole and for each individual student, and plans were created.

In response, the NDE, together with district representatives from Clark, Washoe, Lander, Carson, and Douglas Counties, joined forces and the Nevada Growth Model of Achievement (NGMA) was born. The NDE piloted the NGMA in 2009/10 to support its thorough evaluation before statewide adoption on July 1, 2010. The first school-level NGMA results will be reported by December 31, 2010. The NGMA provides a growth measure that is valid, defensible, evidence-based, and comparable across the state. It provides descriptive data on student achievement that is normed across the state. The model's purpose is "to measure the achievement of pupils" so that the "progress of pupils enrolled in a public school may be tracked from year to year to determine whether the school has made progress in the achievement of pupils" (Nevada Assembly Bill 14, 2009). The NDE used five criteria to determine which growth model would become the basis for the NGMA, to ensure that the model would:

- be valid, reliable, communicable, and technically-sound;
- provide information on the growth of individual students;
- be supported by the state's longitudinal data system;
- be compatible with the test scales used by the Nevada Proficiency Examination Program (NPEP); and
- define legitimate criteria by which to judge how much growth is expected of schools.

To meet these expectations, the NDE selected the Student Growth Percentile (SGP) methodology pioneered by Damian Betebenner (2008a) and currently in use in Colorado (Wennig, 2009) and Massachusetts (Massachusetts Department of Elementary and Secondary Education, 2009). The SGP measures growth by establishing percentiles that reflect how students compare to their academic peers (i.e., those students with the identical past achievement patterns). The NGMA uses data from four consecutive school years from SAIN. The current model reports all students in grades 4-8 who take the Nevada statewide criterion-referenced test

(CRT) in reading or mathematics one or more of these years. Demographic data for these students is collected through SAIN, and assessment data are collected through the Nevada Proficiency Examination Program (NDE, 2007, 2008, 2009) and stored in SAIN.

The NGMA provides growth data for students in grade 4-8 in reading and mathematics that are comparable across the state. These growth data are linked to teachers and principals through SAIN. The NGMA will expand to encompass more academic content areas, such as science, as well as to include students at either end of the preK-20 continuum by the fall of 2011.

The NDE determined that the NGMA's SGP approach provided a stronger basis for reporting individual student growth than the traditional value-added models (VAM). VAMs are another class of techniques currently being used to examine longitudinal student data (McCaffrey, Lockwood, Koretz, & Hamilton, 2004). VAMs—such as the model used by Tennessee and Louisiana—use student background, demographic variables, or prior achievement to control for the effects of particular schools or programs. However, recent research has questioned whether VAM approaches can be validly used as measurements of teacher or school effectiveness, particularly in situations where stakes are attached to the outcomes (Ballou, Sanders, & Wright, 2004; McCaffrey, et al., 2004; Raudenbush, 2004). In particular, researchers have questioned whether VAMs fully account for student background characteristics and whether these estimates are not confounded with other influences (e.g., cohort effects) that are known to impact student achievement (McCaffrey, et al., 2004).

Betebenner's (2008) SGP approach avoids these limitations of the VAMs while still describing the "value added" of student growth over time. The SGP approach is primarily descriptive and can be used to measure both the growth of an individual child and the "value added" by schools or teachers. Furthermore, because it does not measure magnitude of growth but rather relational growth, vertical scaling is not required—a characteristic that makes it possible for use with Nevada's longitudinal data. Finally, the NGMA has communicable results: reporting percentiles of student growth in achievement makes intuitive sense, like reporting a child's growth in weight or height. The NDE saw the concept to be a powerful way to communicate changes in student achievement for over time.

Since the NGMA results will be reported annually using summative assessment data, NGMA cannot be the only source of student growth information. **Local measures of growth** taken more frequently are also critical to reform efforts that include the design and

implementation of rigorous, transparent, and fair evaluation systems for teachers and principals that differentiate effectiveness. Districts are committed to using local interim measures of growth. Currently, districts in Nevada use local measures of growth. Such assessments afford school districts an interim assessment of core content administered in the fall, winter, and spring. With normed scores across all districts, Nevada teachers use the assessment results to gain information about how their students' performance relates to other students who took the test. On-line resources provide support to teachers to guide their instruction based on their students' achievement. Leveraging current local interim assessments, the NR³ Collaborative will work to identify effective uses of interim assessments, to integrate data collection to store interim data in SAIN, and provide these data to COMPASS. The core strategies and activities described here explicate the ways in which the state will move this model forward.

Section C:

Data Systems to Support Instruction

System for Accountability Information in Nevada

- SAIN System for Accountability Information in Nevada
- System for Accountability Information in Nevada is a Statewide Longitudinal Data System
- Student Information System data is uploaded nightly into SAIN

Nevada Bighorn Portal

Welcome, askman

Nevada Department of Education



Bighorn

This Site: Bighorn

- Bighorn
- Assessment
- AYP
- Nutrition
- NDE
- Count Day
- Validation
- Monitor
- Bug Tracker
- Training
- Clicks
- Applications
- Data Governance
- Terms of Use

Getting started
Surveys
■ Nevada Symbiotic Technology Survey
User Maintenance
■ Change Password
■ Password Recovery
Assessment
AYP
Nutrition
Validation
NDE
Count Day
Training
Bug Tracker
Monitor

Welcome to the Bighorn site. The site for data and communication between all Nevada education bodies. Please provide any feedback to NDE IT staff.

Fiscal Count Day Reports

to add new document

Fiscal Count Day Reports

Fiscal Reports

Count Day Fiscal Worksheet
Run this report to create the fiscal count day worksheets.

Count Day Duplicate Enrolled Students

This report will give you the potential daily enrolled students, Memphis District Number and School Year.

Master Registrar Reports

Master Registrar Report

A report based on count day that the rollers require of schools to produce when auditing returns. Report is based off the parameters and business rules of count day. There may be multiple rows per student if they have exited and re-enrolled.

Master Registrar Report V2 - Not Associated With Count Day Data

This report lists all students who are enrolled or will form the beginning date to the end date.

Student Maintenance Reports

Student Maintenance by District and School

Use this report to verify the student enrollment date entered on count day.

State Count Day Reports

Count Day Report All District/Schools

Count Day Report - Blank District and Schools

Attendance Reports

Student Attendance Audit Report - All

This report will allow the user to enter a fiscal student ID, start date, and end date. The report will display all attendance data between these two dates.

Student Attendance by School and Count Day

This report will display the student attendance amount found for the entire school.

Count Day Reports

Duplicate Student Reports

Count Day Duplicate Enrolled Student List by District

Use this report to verify the number of students in your district/school list by using the second level of school (Step 2 below) and continuing to be run through year.

Count Day List (Remaining Step Below) All students that are listed should be associated to by October 30th.

District Count Day Reports

School Verification Report

Use this report to verify that all schools are in the list and the appropriate number of students are starting in.

Count Day Master Report

Use this report to verify the number of students in your district/school list by school, gender, and ethnicity.

Count Day Student List Report

Use this report to verify the students that are included in the district report.

Count Day Official Report

Use this report to print another report for your official report.

District Official Report

Use this report to run the District total report. This report will not list any schools and give you a new report for the whole district.

Charter School Count Day Reports

Count Day Master Report

Use this report to verify the number of students in your district/school list by school, gender, and ethnicity.

Count Day Student List Report

Use this report to verify the students that are included in the district report.

Count Day Master Report

Use this report to print another report for your official report.

Master Registrar Reports

Master Registrar Report

Use this report to verify the number of students in your district/school list by school, gender, and ethnicity.

Master Registrar Report V2

Use this report to verify the students that are included in the district report.

Official Count Day Report

NDE - NIDE REPORTS

Actions: 14 of 3 Find Next: 100%

Document Map

Return to: Nevada Department of Education
 Wendell Skibinski, Administrative & Fiscal Services
 700 East Fifth Street, Suite 104
 Carson City, Nevada 89701-5096

Official Count Day Enrollment/Ethnicity Report

School Name: District Name: Count-Day Date: 09/15/2009 Cut-off Date: 10/20/2009

	American Indian/Alaskan Native		Asian Pacific Islander		Hispanic or Latin		Black/African American		White		Total		Overall Total
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	
Grade 7	0	0	0	0	1	1	0	0	6	12	7	13	20
Grade 8	0	0	0	0	1	2	0	0	3	16	4	18	22
Grade 9	1	0	0	0	0	1	0	0	5	7	6	6	14
Grade 10	2	0	1	0	0	1	0	0	7	12	10	13	23
Grade 11	0	0	0	0	2	2	0	0	7	5	9	7	16
Grade 12	3	1	1	0	0	3	0	0	11	11	15	15	30
Totals	6	1	2	0	4	10	0	0	39	63	51	74	123

"DUE DATE: MAC 367.280" . . . submitted in the manner prescribed by the superintendent of public instruction to the department within 10 days after the last day of the first school month . . . Before submission of the reports, each school district shall review the reports to ensure the accuracy and completeness of the reports. A pupil must be in attendance at least 1 day of the school month to be counted as enrolled at a school.

I, the undersigned, hereby offer assurance that I have taken measures to verify the accuracy and authenticity of the information appearing above.

Signature: _____ Date: _____
 School Principal or School District Superintendent

Count Day Validation

- Count Day validation Process, each district / State Sponsored Charter School will validate Student enrollment numbers based on the District Count day, utilizing the Count Day Tab. The Count Day tab contains the following Count Day Reports Module:
 - **School Validation Report**-Use this report to validate that all schools are in the list and the approximate number of students are showing up
 - **Count Day Matrix Report**-Use this report to analyze the number of students in your district/school split by Grade, Gender, and Ethnicity.
 - **Count Day Student List Report**-Use this report to validate students that are included in the Matrix report
 - **Count day Official Report**-Use this report to print and/or export for you official report

Nevada Bighorn Portal

Nevada Department of Education



Count Day

This Site: Count Day

- Bighorn
- Assessment
- AYP
- Nutrition
- NDE
- Count Day
- Validation
- Monitor
- Bug Tracker
- Training
- Files
- Applications
- Data Governance

Bighorn > Count Day

Count Day Report

Count Day Documents

Type Name Modified By

There are no items to show in this view of the 'Count Day Documents' document library. To create a new item, click "Add new document" below.

Add new document

Count Day Reports

Duplicate Student Reports

Count Day Duplicate Student List by District

District Count Day Reports

School Validation Report

Step One: Please use this report to validate that all schools are in the list and the approximate number of students are showing up.

Count Day Matrix Report

Step Two: Use this report to analyze the number of students in your district/school split by Grade, Gender, and Ethnicity.

Count Day Student List Report

Step Three: Use this report to validate the students that are included in the Matrix report

Count Day Official Report

Step Four: Use this report to print and/or export for you official report.

District Official Report

Step Five: Use this report to run the District total report. This report will not list any schools and give you one report for the whole district.

Charter School Count Day Reports

Schools Validation Report

Step One: Please use this report to validate that all schools are in the list and approximate number of students are showing up.

Count Day Matrix Report

Step Two: Use this report to analyze the number of students in your district/s Grade, Gender, and Ethnicity.

Count Day Student List Report

Step Three: Use this report to validate the students that are included in the M

Count Day Official Report

Step Four: Use this report to print and/or export for you official report.

Master Register Reports

Master Register

Based on Count Day business rules. Used for auditing documentation

Count Day Enrollment Data

American Indian/Alaskan Native
 Asian/Pacific Islander
 Hispanic or Latino
 Black/African American
 White

Actions: of 1 100%

Student Enrollment Counts by School, Gender, Ethnicity, Grade
 School Year: 0809, District: 18, School: 18

NDE > NDER reports

Parameters:
 School Year: 2008-2009
 District: 18-State Charter/State Schools
 School: 18

Apply

Count Day Analysis Matrix

As-of Date: 09/19/2008, Cut-off Date: 10/29/2008

	<input type="checkbox"/> American Indian/Alaskan Native	<input type="checkbox"/> Asian/Pacific Islander	<input type="checkbox"/> Hispanic or Latino	<input type="checkbox"/> Black/African American	<input type="checkbox"/> White	Ethnicity Total
Kindergarten	2	1	5	1	23	32
Grade 1		1	7	6	26	40
Grade 2	1	1	4	3	16	25
Grade 3	2	4	7	30	43	63
Grade 4	1	14	10	53	91	116
Grade 5	2	20	14	81	125	148
Grade 6	2	15	16	87	148	228
Grade 7		2	21	93	116	138
Grade 8	2	5	25	93	116	141
Grade 9		1	6	25	32	44
School Total	12	16	123	104	471	726
School Total	12	16	123	104	471	726

Assessment Pre-ID

- **Assessment Pre-ID Validation**
- The Assessment tab / Assessment Docs- contains the 2009-2010 Nevada Testing Activity Calendar, the calendar provides timeline to validate Assessment Pre-Id files.
- Assessment tab will contain Pre-Id files open for validation: CRT, HSPE_RMS, 5th Grade Writing, HSPE_W, 8th Grade Writing, HSPE Writing, HSPE_Reading and Math Administration-Demographic under Pre-ID Validation Reports Module: Select PreID Population and Demographic Validation Report.
- Assessment Pre-Id Population files, during the Pre-Id Population validation file process the following fields must be validated during Population timelines- **Student ID, Student Full Name, Grade Level, School, etc.** Data inconsistencies are reported by Bug tracker.
- Assessment Pre-ID Demographic files, during Pre ID-Demographic file validation process the following fields must be validated during the Demographic PreID validation timelines: **IEP,Former_IEP,Former_IEP_Lte2,Former_IEP_Gt2, Section 504, LEP, Former_LEP_Lte1, Former_LEPLte2, Former_LEP_Gt2, Immigrant,FRL,Migrant,Title1,Gifted Talented, New in Country, Years_in_District, Years_in_School, Exp_of Grad.**

Assessment Pre-ID Report

PreID: Student Information Report

Test HSPE_RMS_1_0809(List ID = 63)

Parameter
 ListID: 63-HSPE
 District
 State Ch
 School

IEP	Former IEP	Former IEP Lte2	Former IEP Lte1	Former LEP Lte1	Former LEP Lte2	Former LEP Gt1 Lte2	Former LEP G12	Immigrant	FRL	Migrant	Title 1	Gifted Talented	New in Country	Years in District	Years in School	Exp Yr of Grad
N	N	N	N	N	N	N	N	N	N	N	N	N	N	1	1	2009
N	N	N	N	N	N	N	N	N	N	N	N	N	N	1	1	2009
H	N	N	N	N	N	N	N	N	N	N	N	N	N	1	1	2009
N	N	N	N	N	N	N	N	N	N	N	N	N	N	1	1	2009
N	N	N	N	N	N	N	N	N	N	N	N	N	N	1	1	2009
N	N	N	N	N	N	N	N	N	N	N	N	N	N	1	1	2009
N	Y	Y	N	N	N	N	N	N	N	N	N	N	N	1	1	2009
N	N	N	N	N	N	N	N	N	N	N	N	N	N	1	1	2009
N	N	N	N	N	N	N	N	N	N	N	N	N	N	1	1	2009
N	N	N	N	N	N	N	N	N	N	N	N	N	N	1	1	2009
N	N	N	N	N	N	N	N	N	N	N	N	N	N	1	1	2009

Districts Nightly Data Quality Control

NCE > NCE Reports

Action: [Print](#) | [PDF](#) | [Refresh](#) | [Find Next](#) | 100%

District Processing Status:

District	Date	Status	Route	Last Step	Details	StartTime	EndTime	Total Time
01	2010-05-02	Complete	Complete	Load Fct_Schedule	Success	4:20 AM	4:28 AM	0:0:40
04	2010-05-02	Complete	Complete	Load Int_Schedule	Success	0:42 AM	0:50 AM	0:0:11:1
05	2010-05-02	Complete	Complete	Load Fct_Schedule	Success	4:28 AM	4:38 AM	0:0:1:5
06	2010-05-02	Complete	Complete	Load Int_Schedule	Success	2:50 AM	3:04 AM	0:0:1:4
07	2010-05-02	Complete	Complete	Load Fct_Schedule	Success	4:37 AM	4:48 AM	0:0:1:2:4
08	2010-05-02	Complete	Complete	Load Int_Schedule	Success	3:22 AM	3:40 AM	0:0:1:7:4
09	2010-05-02	Complete	Complete	Load Fct_Schedule	Success	5:35 AM	5:41 AM	0:0:0:0
10	2010-05-02	Complete	Complete	Load Int_Schedule	Success	10:27 AM	10:40 AM	0:0:1:3
11	2010-05-02	Complete	Complete	Load Fct_Schedule	Success	5:02 AM	5:09 AM	0:0:7:1:1
12	2010-05-02	Complete	Complete	Load Int_Schedule	Success	4:37 AM	4:38 AM	0:0:1:7:38
13	2010-05-02	Complete	Complete	Load Fct_Schedule	Success	0:00 AM	0:15 AM	0:0:1:5:4
14	2010-05-01	Complete	Complete	Load Int_Schedule	Success	8:18 AM	8:27 AM	0:0:2:22
15	2010-05-02	Complete	Complete	Load Fct_Schedule	Success	4:00 AM	4:08 AM	0:0:8:2:4
17	2010-05-02	Complete	Complete	Load Int_Schedule	Success	4:03 AM	4:12 AM	0:0:0:4:0
76	2010-05-02	Complete	Complete	Load Fct_Schedule	Success	4:31 AM	4:37 AM	0:0:5:2:0
77	2010-05-02	Complete	Complete	Load Int_Schedule	Success	2:00 AM	2:05 AM	0:0:4:0:7
79	2010-05-02	Complete	Complete	Load Fct_Schedule	Success	4:30 AM	4:38 AM	0:0:5:2
81	2010-05-02	Complete	Complete	Load Int_Schedule	Success	3:01 AM	3:06 AM	0:0:5:4
83	2010-05-02	Complete	Complete	Load Fct_Schedule	Success	1:37 AM	1:48 AM	0:0:9:0
84	2010-05-02	Complete	Complete	Load Int_Schedule	Success	0:20 AM	0:24 AM	0:0:4:1:7
85	2010-05-02	Complete	Complete	Load Fct_Schedule	Success	2:01 AM	2:09 AM	0:0:0:8
88	2010-05-02	Complete	Complete	Load Int_Schedule	Success	2:31 AM	2:40 AM	0:0:7:8
87	2010-05-02	Complete	Complete	Load Fct_Schedule	Success	3:00 PM	3:05 PM	0:0:4:2:4
89	2010-05-02	Complete	Complete	Load Int_Schedule	Success	8:38 PM	8:44 PM	0:0:5:55
90	2010-05-02	Complete	Complete	Load Fct_Schedule	Success	2:31 AM	2:38 AM	0:0:6:52

Teacher Data Reports Link

Teacher Data

Licensure Reports

Teacher License.cdf

This report will allow you to build a license information by entering last name and selecting the first name.

Teacher License Assignment Report - SADR Contacts only

Contacts SSN. This report is only accessible to the SACU contacts. This report will report all teachers that are assigned to the district/school. This data comes directly out of the AOE Teacher License database.

Teacher License Assignment Report - No SSN

This report lists out the assignments as reported by the districts of their teachers.

Teacher Reports - Going to be public

Teacher Experience by district

This report will be going public. Please utilize the report for 0809 and 0910. Please use 10/31/2010 as the AsOf date.

Teacher Schedules and Endorsements

Teacher Course Schedules and Endorsement

This report uses the following logic: Publish teachers in the selected schools, matched their schedule and days schedules for only the records AsOf Oct list of the selected year.

Teacher Report

NDE > NDE Reports

Actions of 0 Refresh 100%

Microsoft SQL Server Reporting Services

Specify Parameter Values

Report parameter values must be specified before the report can be displayed. Choose parameter values in the parameters area and click the Apply button.

Parameters
LastName
Full Name
License Number

Teacher License Report

NDE > NDE Reports

Actions: 100%

Summary of a Public School Teacher's Credentials:

Teacher License Number :

Name: Employed Status: CURRENTLY EMPLOYED
County:

License Status: Licensed

Issue Date: Jan 3 2002 12:00AM

Renew Date: Apr 4 2007 12:00AM

License Information:

Lic Type	Lic Kind	Grade	Endorsement	Effective Date	Expire Date
NON-RENEWABLE	ELEMENTARY	K-8	MATHEMATICS	4/4/2007	3/30/2012
NON-RENEWABLE	ELEMENTARY	K-8	TEACHING	1/3/2002	3/30/2012
NON-RENEWABLE	SPECIAL	K-12 SUB	SUBSTITUTE	1/3/2002	3/30/2012
STANDARD	ELEMENTARY	K-8	MATHEMATICS	4/4/2007	3/30/2012
STANDARD	ELEMENTARY	K-8	TEACHING	1/3/2002	3/30/2012
STANDARD	SPECIAL	K-12 SUB	SUBSTITUTE	1/3/2002	3/30/2012

Provision Information:

Lic Lic	Code	Description	Required date	Removed date
	0001	NEVADA SCHOOL LAW	5/21/2001	1/9/2001
	0002	NEVADA CONSTITUTION	5/21/2001	11/28/2001
	0003	UNITED STATES CONSTITUTION	5/21/2001	11/28/2001
	0004	FINGERPRINT CLEARANCE	1/3/2003	2/22/2002
	0005	PRE PROFESSIONAL SKILLS TEST	5/21/2001	9/21/1998

Parameters

Last Name

Smith

Full Name

License Number

SAIN Meeting

- NDE will host the SAIN conference call every Thursday unless notified by e-mail of a cancellation.
 - A representative from each District and State Charter School will need to attend the SAIN conference call, topics may include: SIS Data loads, Validation reports, timelines, data inconsistency's or validation issues, NDE updates, etc.
 - SAIN Conference Call
- Occurs Every Thursday
Start Time: 9:00am – 10:00am
Call In Number 1 888-363-4735
Participant Code 4019643



Nevada Annual Reports of Accountability



Tuesday 16, May 2010
Home Profile Comparison Custom Search Contact Us Help Glossary

State District School

Report Card: 2008-2009 ▾

- State of Nevada
- Demographic Profile
- Fiscal Information
- Technology
- Students
- Career and Technical Education
- Personnel
- Assessment
- Adequate Yearly Progress
- National Assessment for Educational Progress
- Download

State of Nevada

State of Nevada

Dr. Keith Hazzard, Superintendent
 701 East 11th Street
 Carson City, NV 89701-5006
 Phone: 775-687-3226 Fax: 775-687-9161
 Website: www.doe.nv.gov

Board of Education

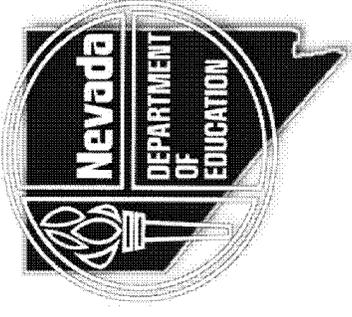
At-Large Member, District
 Superintendent, District

Mission Statement

The Nevada State Board of Education/Nevada State Board for Occupational Education is dedicated to fostering excellent educational opportunities provided to all learners by sustaining a coherent, aligned system of instruction and support in partnership with all educational communities.

Highlights

<http://www.nevadareportcard.com/>



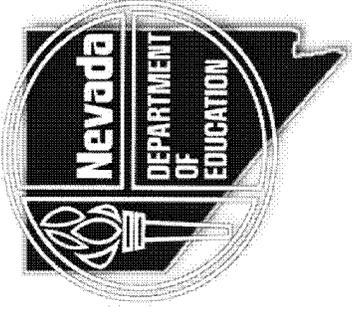
Nevada Department of Education Statewide Longitudinal Data System

Presented to the US Department of Education

March 9, 2010



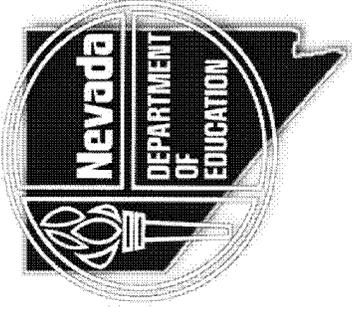
Agenda



- Overview of Nevada Department of Education and Schools
- Overview of eSAIN Operations
- Questions/Discussion



Nevada Department of Education

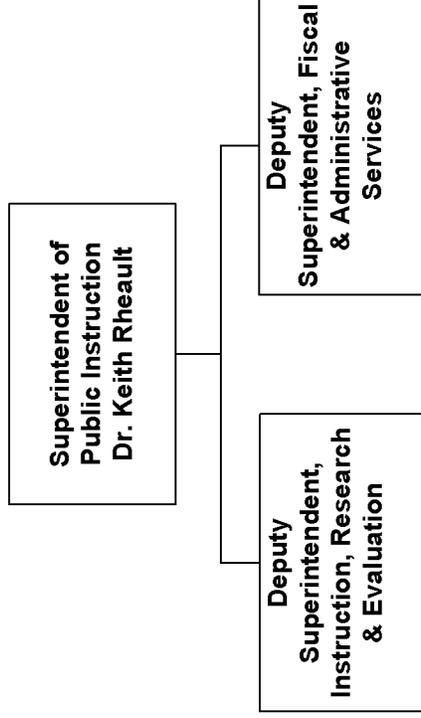
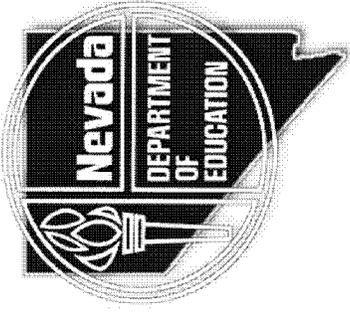


- Our Organization
 - Superintendent's Office
 - 2 Deputy Superintendents
 - 10 Directorates
 - 148 Staff Personnel

- Four Office Locations
 - 5th Street -- Main Office
 - Roop Street – Career and Technical Education
 - Stewart Street -- Carson City Satellite
 - Las Vegas – Southern Nevada Office

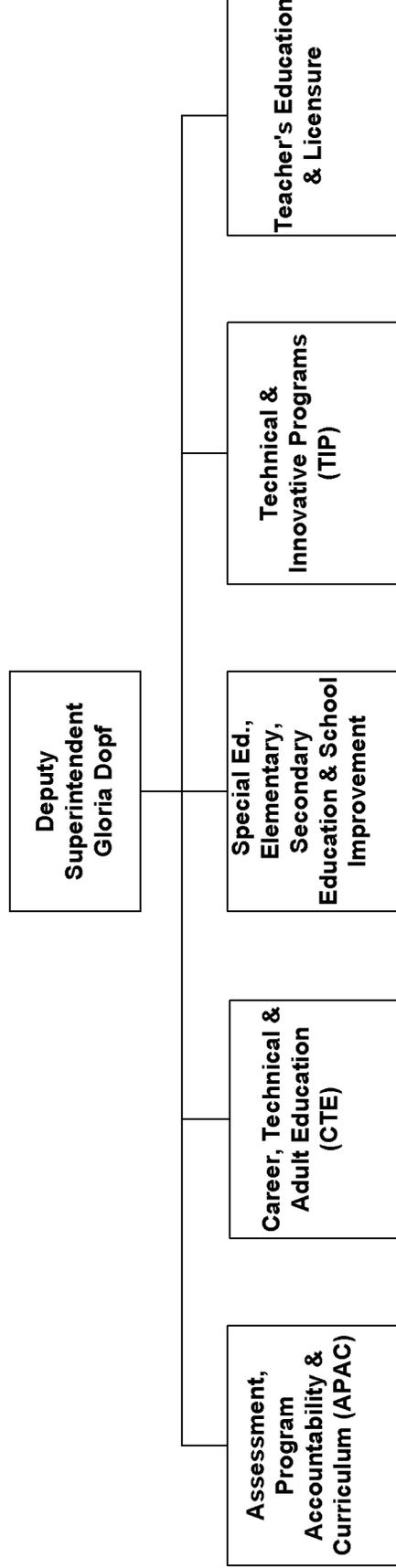
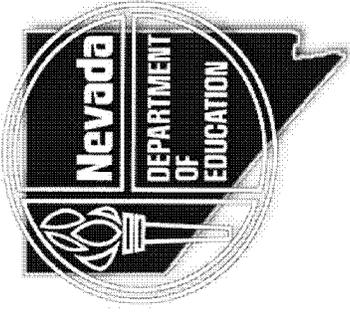


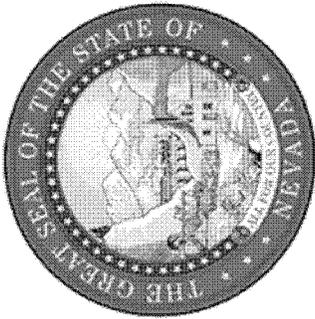
Superintendent of Public Instruction



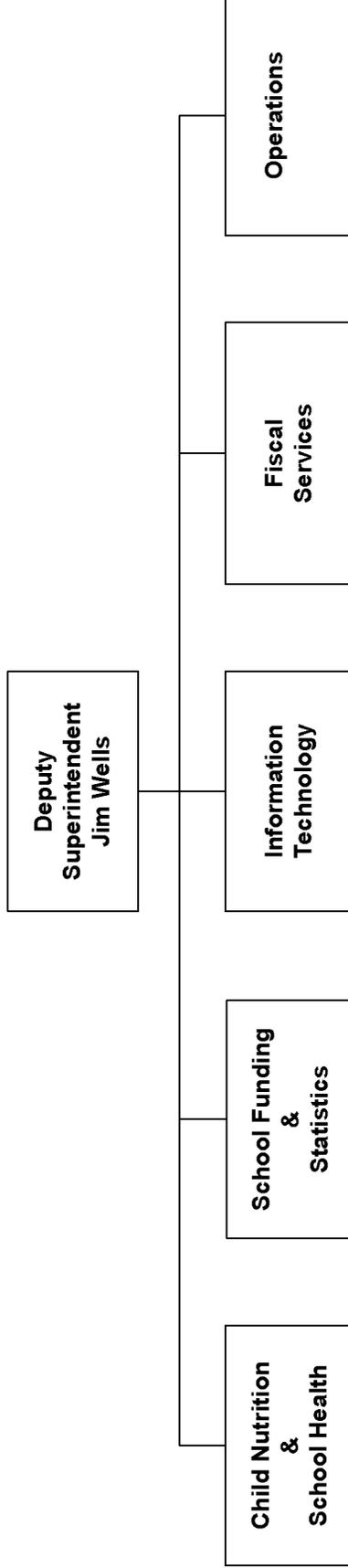
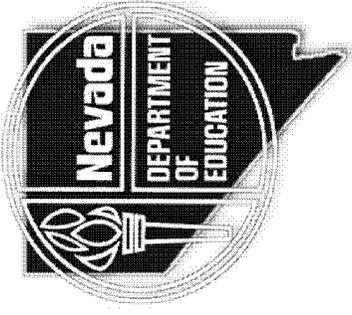


Instruction, Research, & Evaluation



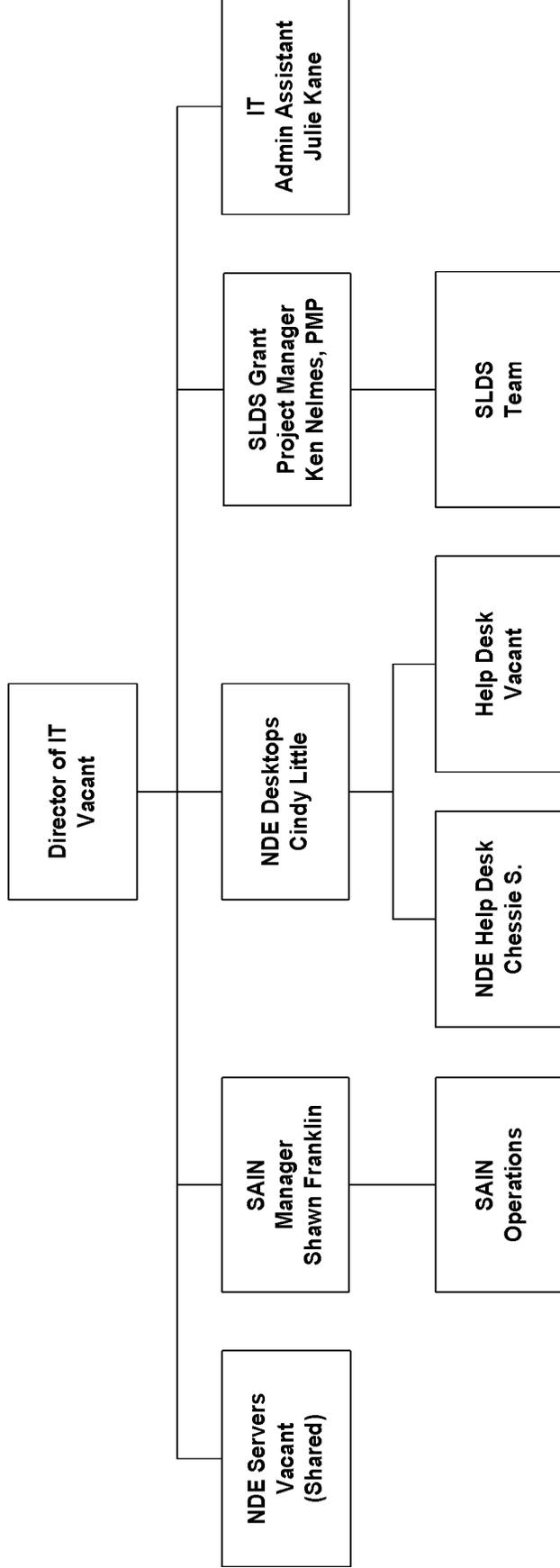
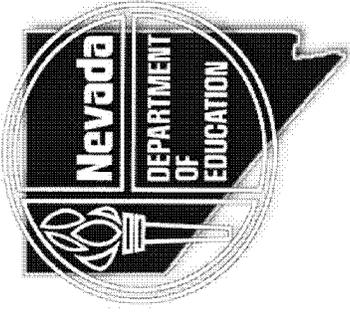


Fiscal & Administrative Services



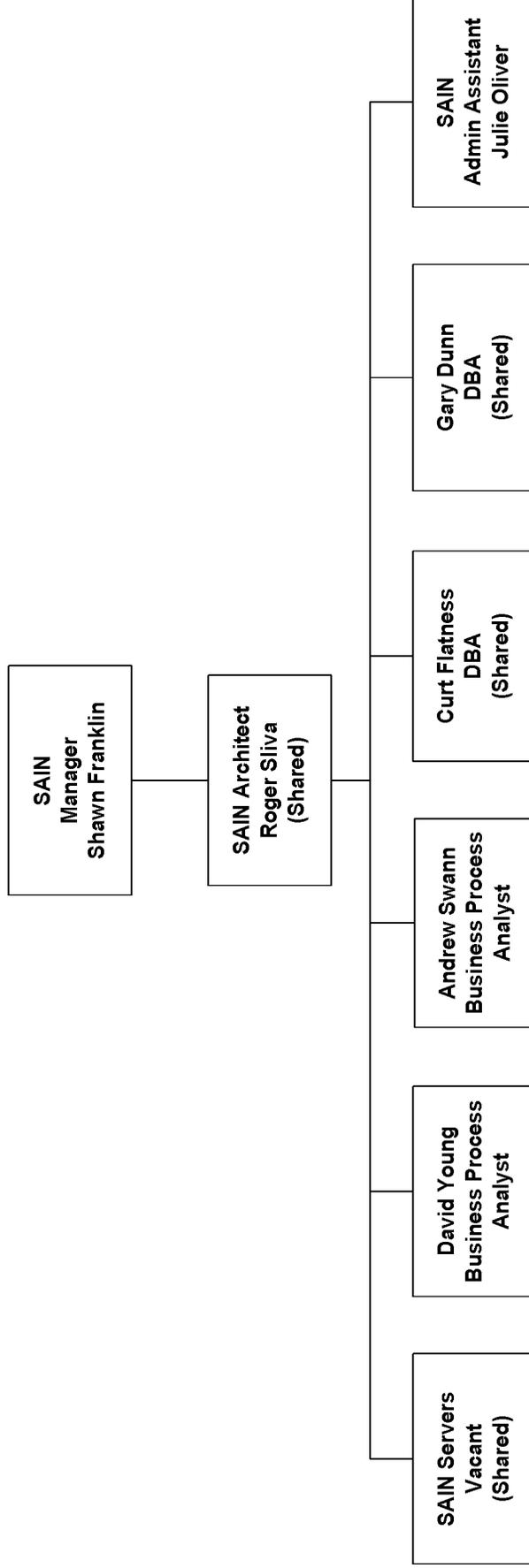


Information Technology



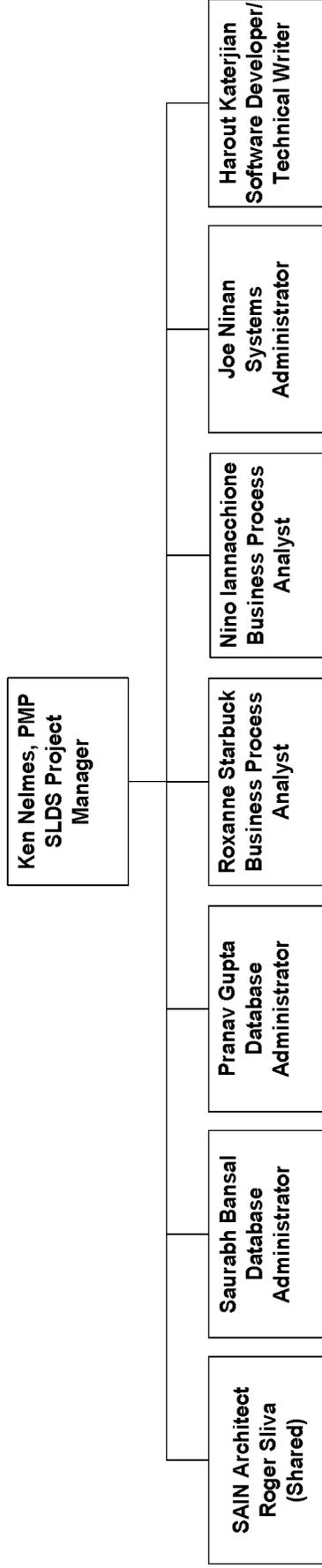


eSAIN Operations Staff



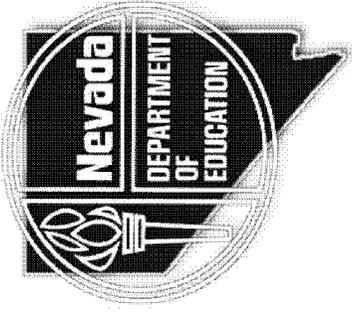


SLDS Grant Project Team

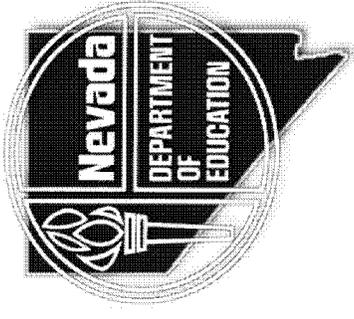




Nevada Schools



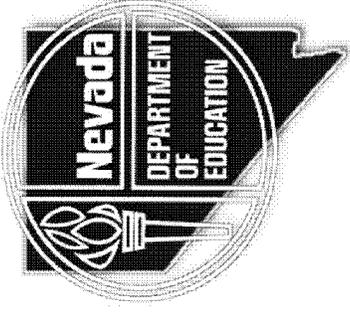
- 17 School Districts with 616 Schools
 - Smallest – Esmeralda
 - 3 Schools
 - 67 Students
 - Largest -- Clark
 - 337 Schools
 - 313,535 Students
- 22,886 Teachers
- 10 State-Sponsored Charter Schools
- Total Enrollment: 436,279 Students



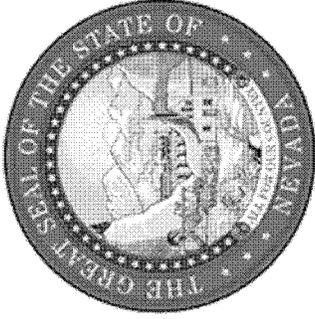
Overview of eSAIN Operations



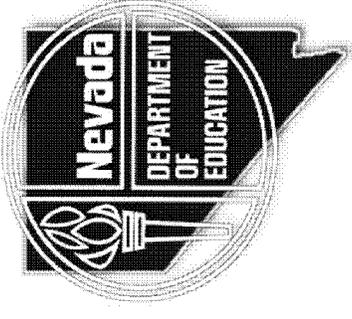
eSAIN Operations



- Upload data files from Districts and Charter Schools daily.
- Merge daily transactional records into our Operational Data Store (ODS) of all student-level transactional data.
- Run data validation rules against new data as it is loaded.
- Generate Data Validation Reports (DVR) to notify Districts and Charter Schools of data errors.
- Build iMART Data Warehouse weekly.
 - Determine 'latest status' for students for each school year
 - Merge 'latest status' student data for each school year into iMART
 - Daily updates may replace weekly updates.



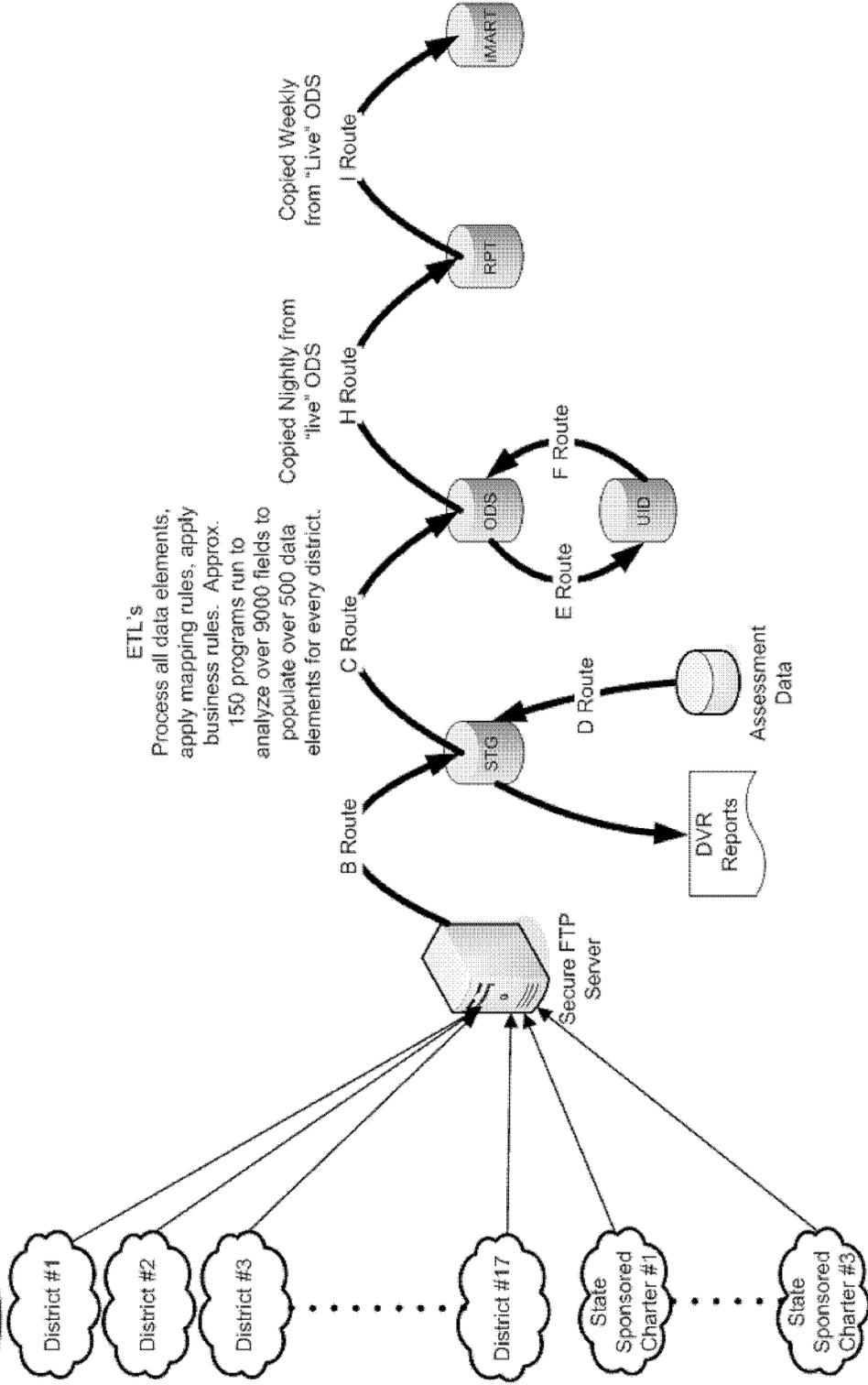
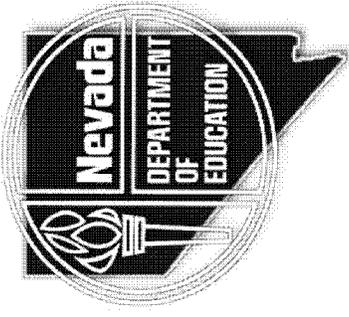
Ongoing Business Functions



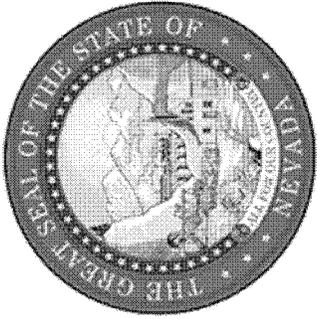
- Count Day support and reports
- Longitudinal data analysis
- Current program involvement
- NSHE data transfer (12th graders, data transfer at year end)
- Assessment Pre-ID
- Early Childhood data feed
- Secure transfer of student level data and files for program use
- ARC official data source
- EDEN official data source
- AYP data source



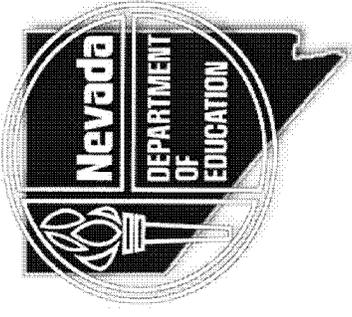
Data Load Process Overview



March 9, 2010



Questions / Discussion



What is Nevada Department of Education Data Request Management Process?

The Data Request Management process has allowed us to pool, track, document, and better understand the various data requests we get throughout the year.

Before;

Prior to the institution of the process, members of our department (APAC) responded without coordination to the requests that came in by email, phone, personal inquiry, etc. No formal documentation was in place, and no coherent record was kept on the completion or responses to requests.

After;

Since the start of this effort in March 2009, we have:

- * Established a standard process by which all requests are tracked consistently using a standard request form, the Data Request Tracker, and, by late 2009, each request was also tracked through the PMO for workflow
- * Established an assigned coordinator for all data requests
- * Closed out 54 data requests and have 4 outstanding
- * Of the 58 requests between 3/09 and 3/10, 17 came from within NDE and 41 were external to NDE
- * 0 requests have been left hanging without response from NDE
- * Request fulfillment time has ranged from approximately 1 – 10 hours
- * 14 APAC staff members responded to requests from across Assessment, Accountability and Curriculum groups
- * Requests have represented various topics, including highly-qualified teachers, student achievement, achievement gap, AYP, assessment system characteristics, special education, support services, graduation rates, enrollments, and research design recommendations.

Data Request Form

In order to request data from Nevada Department of Education, requestor should complete the form below and turn in NDE.

NEVADA DEPARTMENT OF EDUCATION
Data Services & Research (DSR) REQUEST FORM
4/1/2009

Instructions: Please complete all items and return the form to Esmeray Ozdemir, eozenir@doe.nv.gov (775) 687-9182 Assessment, Program Accountability and Curriculum (APAC) at the Nevada Department of Education.

Contact Information

Name:	
Title:	
Org/Dept.:	
Address:	
Phone number:	
E-mail address:	

Key Dates

Date of Request:	
Date Preferred for Requested Deliverable(s):	

Request Type

Type of request (see below):

Examples of types of requests

1) Data Table Only (link to examples)

2) Data Services (link to examples)

3) Research Study Design and/or Implementation (link to examples)

Key Questions

- 1) Are you under contract with the NDE already? If so, who is your NDE contact?
- 2) Does this data request contribute to a study that requires an Institutional Review Board (IRB) or similar institutional approval? *If so, please attach evidence of approval.*
- 3) Does your data exist from a publicly-available source, such as the Nevada Department of Education (<http://nde.doe.nv.gov/>) or the Nevada Report Card websites (<http://www.nevadareportcard.com/>)?
- 4) Have you requested the same data in previous years from NDE? *If so, please attach last year's request results or product.*
- 5) If you are asking for data specific to individual students, what is your plan for ensuring that confidential student information will be secure and FERPA-compliant?
- 6) Do you prefer data tables in Excel, SPSS, CSV, or flat file format?
- 7) If you are requesting support with a research study/evaluation, state your study question(s) here:

DSR Request Requirements:

Describe the information that you are requesting. Please describe in detail the data that you are requesting APAC to provide and the purpose for which the data will be used. Please be specific. Use additional pages as necessary to provide any additional information. Please attach any other documents (forms, instructions, or definitions of data) that you feel are necessary.

--

The Nevada Department of Education operates within the guidelines of the Nevada Public Records Act (NRS 239.001) and the Family Educational Rights and Privacy Act of 1974.

Signature	Date
------------------	-------------

For Departmental Use Only
Name of person taking request:
Staff assigned:
Expected completion date:
Date completed:

* The Family Educational Rights and Privacy Act (FERPA) (20 U.S.C. § 1232g; 34 CFR Part 99, 1974) is a Federal law that protects the privacy of student education records. The law applies to all local and state agencies that receive funds under an applicable program of the U.S. Department of Education. NDE is required to share student assessment information in a manner consistent with FERPA.

What is Data Request Tracker?

Data request Tracker is an excel sheet that holds all information about data incoming request and surveys. It includes tracking number, data request date, name of data requestor, type of request, the person's name who assigned to, and time spent, status, notes, and a column indicates whether the request is internal or external.

DATA REQUEST TRACKER									
Tracking #	Date Rec	Requestor	Type of Request	Assigned to	Time Spent	Status	Notes	Status	Internal/External
01-2009	3/30/2009	Leslie James	Annual HQT	Steve Canavero	6 hours	Recurring	data	Closed	Internal
02-2009	4/1/2009	Ted Marr	Open School National Report	Steve Canavero		Recurring	data	Closed	External
03-2009	4/7/2009	Karen Gray	AYP appeals and	Diane Mugford	6 hours	Recurring	appeals	Closed	External
06-2009	4/9/2009	Ma Anoshkevich	Open schools by designation	Diane Mugford	2 hrs	Recurring	research	Closed	Internal
13-2009	6/17/2009	Jessica Brauner	Research Study Design	Steve Canavero	6hrs	Recurring	Complete	Closed	External
15-2009	7/6/2009	Jani Lowe	2008-2009 CRT Data	Andrew Parr	3 hours	Recurring	Cayen file	Closed	Internal
17-2009	7/31/2009	Richard Vineyard	Data table	Andrew Parr	2 hours	Recurring	file sent	Closed	Internal
19-2009	7/29/2009	Lance	Student count/enrollment	Steve Canavero	1.5 hours	Recurring	data	Closed	External
21-2009	7/27/2009	Karen Stephens	Data Services	Annie Davidson	7 hrs	Recurring	nomine	Closed	Internal
23-2009	8/31/2009	Steven Ross	Data Table Title III	Andrew Parr		Recurring	Julian w	Closed	Internal

What is Research File?

The Nevada Department of Education developed this research file to expedite requests for student and subgroup assessment results. Developing a research file to serve a broad audience in their requests for data is something new to NDE. In response to the numerous data requests, APAC/IT/School

Improvement collaborated to develop specifications to produce a research file. The research file has been created for three levels of aggregations - State, District and School. NDE suppressed data with student counts of less than 10 students on all data requests. This is to ensure that student privacy is maintained. When making your request please keep this in mind.

Data Services and Research Request Committee

Role: Manager- Esmeray Ozdemir

The role of the Manager is to support the mission of the Data Services and Research Request Committee by facilitating the flow of data and information requests. Specifically, the Manager will be charged to:

- Receive incoming Request Forms for data, data services, and/or research proposals
- Initiate and track the movement of Request Forms through the staging process
 - Refer to *DSR Flow Chart (Attached)*
- Act as the liaison with the FERPA contact and divert requests with legal considerations - escalate as needed to appropriate Consultant
- Communicate with Consultants and members of the Committee on request related issues
- Post appropriate request to the DSR Tracker on the Bighorn portal for action
- Update the DSR Tracker
- Provide feedback to improve the flow of data and information requests
- Schedule and attend all Committee meetings (once bi-weekly for 15-30 minutes)

Role: Members- Responsible to evaluate and fulfill the requests.

Julian Montoya- Assistant Director-APAC, Evaluation Consultant

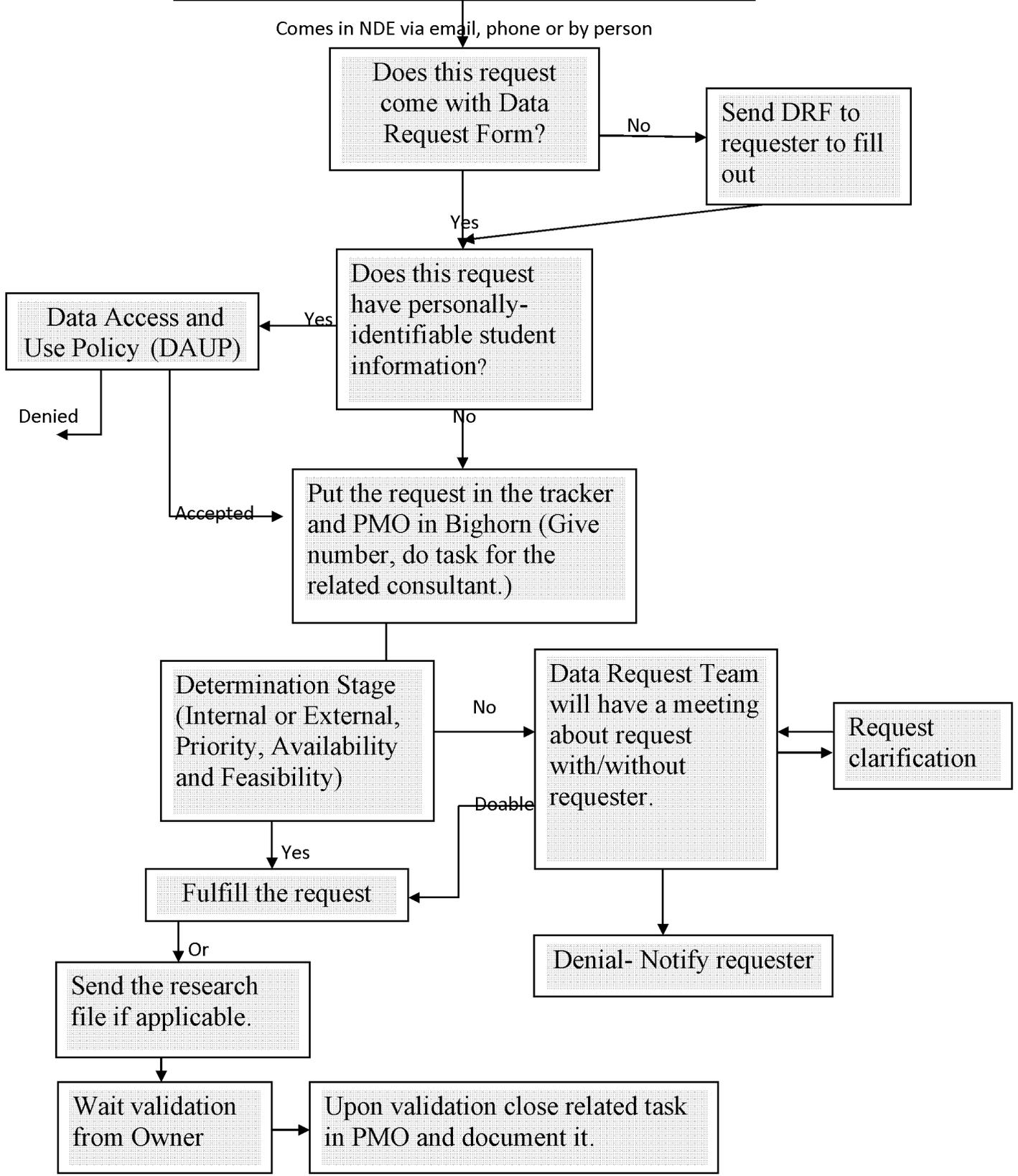
Anne Davidson- Assistant Director –APAC, Evaluation Consultant (Data Cleaning, Data Analysis, etc.)

Andrew Parr- CRT/HSPE Consultant

Steve Canavero- Accountability Consultant

Shawn Franklin- Assistant Director-IT

Nevada Department of Education Data Services & Research (DSR) Request Flow Chart



Section D:

Great Teachers and Leaders

NRS 391.019 Regulations prescribing qualifications for licensure; fields of specialization in teaching; endorsements; issuance of licenses pursuant to alternative routes. [Effective through June 30, 2011.]

1. Except as otherwise provided in NRS 391.027, the Commission:

(a) Shall adopt regulations:

(1) Prescribing the qualifications for licensing teachers and other educational personnel, including, without limitation, the qualifications for a license to teach middle school or junior high school education, and the procedures for the issuance and renewal of those licenses. The regulations must not prescribe qualifications which are more stringent than the qualifications set forth in NRS 391.0315 for a licensed teacher who applies for an additional license in accordance with that section.

(2) Identifying fields of specialization in teaching which require the specialized training of teachers.

(3) Except as otherwise provided in NRS 391.125, requiring teachers to obtain from the Department an endorsement in a field of specialization to be eligible to teach in that field of specialization.

(4) Setting forth the educational requirements a teacher must satisfy to qualify for an endorsement in each field of specialization.

(5) Setting forth the qualifications and requirements for obtaining a license or endorsement to teach American Sign Language, including, without limitation, being registered with the Aging and Disability Services Division of the Department of Health and Human Services pursuant to NRS 656A.100 to engage in the practice of interpreting in an educational setting.

(6) Requiring teachers and other educational personnel to be registered with the Aging and Disability Services Division pursuant to NRS 656A.100 to engage in the practice of interpreting in an educational setting if they:

(I) Provide instruction or other educational services; and

(II) Concurrently engage in the practice of interpreting, as defined in NRS 656A.060.

(7) Providing for the issuance and renewal of a special qualifications license to an applicant who holds a bachelor's degree, a master's degree or a doctoral degree from an accredited degree-granting postsecondary educational institution in a field for which the applicant will provide instruction in a classroom and who has:

(I) At least 2 years of experience teaching at an accredited degree-granting postsecondary educational institution in a field for which the applicant will provide instruction in a classroom and at least 3 years of experience working in that field; or

(II) At least 5 years of experience working in a field for which the applicant will provide instruction in a classroom.

↪ An applicant for licensure pursuant to this subparagraph who holds a bachelor's degree must submit proof of participation in a program of student teaching or mentoring or agree to participate in a program of mentoring or courses of pedagogy for the first 2 years of the applicant's employment as a teacher with a school district or charter school.

(8) Requiring an applicant for a special qualifications license to:

(I) Pass each examination required by NRS 391.021 for the specific subject or subjects in which the applicant will provide instruction; or

(II) Hold a valid license issued by a professional licensing board of any state that is directly related to the subject area of the bachelor's degree, master's degree or doctoral degree held by the applicant.

(9) Setting forth the subject areas that may be taught by a person who holds a special qualifications license, based upon the subject area of the bachelor's degree, master's degree or doctoral degree held by that person.

(10) Providing for the issuance and renewal of a special qualifications license to an applicant who:

(I) Holds a bachelor's degree or a graduate degree from an accredited college or university in the field for which the applicant will be providing instruction;

(II) Is not licensed to teach public school in another state;

(III) Has at least 5 years of experience teaching with satisfactory evaluations at a school that is accredited by a national or regional accrediting agency recognized by the United States Department of Education; and

(IV) Submits proof of participation in a program of student teaching or mentoring or agrees to participate in a program of mentoring for the first year of the applicant's employment as a teacher with a school district or charter school if the applicant holds a graduate degree or, if the applicant holds a bachelor's degree, submits proof of participation in a program of student teaching or mentoring or agrees to participate in a program of mentoring or courses of pedagogy for the first 2 years of his or her employment as a teacher with a school district or charter school.

↪ An applicant for licensure pursuant to this subparagraph is exempt from each examination required by NRS 391.021 if the applicant successfully passed the examination in another state.

(11) If the Commission approves the Passport to Teaching certification from the American Board for Certification of Teacher Excellence as an alternative route to licensure, providing for the issuance and renewal of a special qualifications license to an applicant who:

(I) Holds a Passport to Teaching certification from the American Board for Certification of Teacher Excellence;

(II) Passes each examination required by NRS 391.021 for the specific subject or subjects in which the applicant will provide instruction; and

(III) Agrees to participate in a program of mentoring prescribed by the Commission for the first year of the applicant's employment as a teacher with a school district or charter school.

(b) May adopt such other regulations as it deems necessary for its own government or to carry out its duties.

2. Any regulation which increases the amount of education, training or experience required for licensing:

(a) Must, in addition to the requirements for publication in chapter 233B of NRS, be publicized before its adoption in a manner reasonably calculated to inform those persons affected by the change.

(b) Must not become effective until at least 1 year after the date it is adopted by the Commission.

(c) Is not applicable to a license in effect on the date the regulation becomes effective.

3. A person who is licensed pursuant to subparagraph (7), (10) or (11) of paragraph (a) of subsection 1:

(a) Shall comply with all applicable statutes and regulations.

(b) Except as otherwise provided by specific statute, is entitled to all benefits, rights and privileges conferred by statutes and regulations on licensed teachers.

(c) Except as otherwise provided by specific statute, if the person is employed as a teacher by the board of trustees of a school district or the governing body of a charter school, is entitled to all benefits, rights and privileges conferred by statutes and regulations on the licensed employees of a school district or charter school, as applicable.

(Added to NRS by 1987, 995; A 1993, 441; 1995, 149; 2001, 1777; 2001 Special Session, 181, 188; 2003, 19th Special Session, 70, 71; 2005, 92, 1670, 2548; 2007, 172, 501; 2009, 470, 601, 2374)

NRS 391.019 Regulations prescribing qualifications for licensure; fields of specialization in teaching; endorsements; issuance of licenses pursuant to alternative routes. [Effective July 1, 2011.]

1. Except as otherwise provided in NRS 391.027, the Commission:

(a) Shall adopt regulations:

(1) Prescribing the qualifications for licensing teachers and other educational personnel, including, without limitation, the qualifications for a license to teach middle school or junior high school education, and the procedures for the issuance and renewal of those licenses. The regulations must not prescribe qualifications which are more stringent than the qualifications set forth in NRS 391.0315 for a licensed teacher who applies for an additional license in accordance with that section.

(2) Identifying fields of specialization in teaching which require the specialized training of teachers.

(3) Except as otherwise provided in NRS 391.125, requiring teachers to obtain from the Department an endorsement in a field of specialization to be eligible to teach in that field of specialization.

(4) Setting forth the educational requirements a teacher must satisfy to qualify for an endorsement in each field of specialization.

(5) Setting forth the qualifications and requirements for obtaining a license or endorsement to teach American Sign Language, including, without limitation, being registered with the Aging and Disability Services Division of the Department of Health and Human Services pursuant to NRS 656A.100 to engage in the practice of interpreting in an educational setting.

(6) Requiring teachers and other educational personnel to be registered with the Aging and Disability Services Division pursuant to NRS 656A.100 to engage in the practice of interpreting in an educational setting if they:

(I) Provide instruction or other educational services; and

(II) Concurrently engage in the practice of interpreting, as defined in NRS 656A.060.

(7) Providing for the issuance and renewal of a special qualifications license to an applicant who holds a bachelor's degree, a master's degree or a doctoral degree from an accredited degree-granting postsecondary educational institution in a field for which the applicant will provide instruction in a classroom and who has:

(I) At least 2 years of experience teaching at an accredited degree-granting postsecondary educational institution in a field for which the applicant will provide instruction in a classroom and at least 3 years of experience working in that field; or

(II) At least 5 years of experience working in a field for which the applicant will provide instruction in a classroom.

↪ An applicant for licensure pursuant to this subparagraph who holds a bachelor's degree must submit proof of participation in a program of student teaching or mentoring or agree to participate in a program of mentoring or courses of pedagogy for the first 2 years of the applicant's employment as a teacher with a school district or charter school.

(8) Requiring an applicant for a special qualifications license to:

(I) Pass each examination required by NRS 391.021 for the specific subject or subjects in which the applicant will provide instruction; or

(II) Hold a valid license issued by a professional licensing board of any state that is directly related to the subject area of the bachelor's degree, master's degree or doctoral degree held by the applicant.

(9) Setting forth the subject areas that may be taught by a person who holds a special qualifications license, based upon the subject area of the bachelor's degree, master's degree or doctoral degree held by that person.

(10) Providing for the issuance and renewal of a special qualifications license to an applicant who:

(I) Holds a bachelor's degree or a graduate degree from an accredited college or university in the field for which the applicant will be providing instruction;

(II) Is not licensed to teach public school in another state;

(III) Has at least 5 years of experience teaching with satisfactory evaluations at a school that is accredited by a national or regional accrediting agency recognized by the United States Department of Education; and

(IV) Submits proof of participation in a program of student teaching or mentoring or agrees to participate in a program of mentoring for the first year of the applicant's employment as a teacher with a school district or charter school if the applicant holds a graduate degree or, if the applicant holds a bachelor's degree, submits proof of participation in a program of student teaching or mentoring or agrees to participate in a program of mentoring or courses of pedagogy for the first 2 years of his or her employment as a teacher with a school district or charter school.

↪ An applicant for licensure pursuant to this subparagraph is exempt from each examination required by NRS 391.021 if the applicant successfully passed the examination in another state.

(b) May adopt such other regulations as it deems necessary for its own government or to carry out its duties.

2. Any regulation which increases the amount of education, training or experience required for licensing:

(a) Must, in addition to the requirements for publication in chapter 233B of NRS, be publicized before its adoption in a manner reasonably calculated to inform those persons affected by the change.

(b) Must not become effective until at least 1 year after the date it is adopted by the Commission.

(c) Is not applicable to a license in effect on the date the regulation becomes effective.

3. A person who is licensed pursuant to subparagraph (7) or (10) of paragraph (a) of subsection 1:

(a) Shall comply with all applicable statutes and regulations.

(b) Except as otherwise provided by specific statute, is entitled to all benefits, rights and privileges conferred by statutes and regulations on licensed teachers.

(c) Except as otherwise provided by specific statute, if the person is employed as a teacher by the board of trustees of a school district or the governing body of a charter school, is entitled to all benefits, rights and privileges conferred by statutes and regulations on the licensed employees of a school district or charter school, as applicable.

(Added to NRS by 1987, 995; A 1993, 441; 1995, 149; 2001, 1777; 2001 Special Session, 181, 188; 2003, 19th Special Session, 70, 71; 2005, 92, 1670, 2548; 2007, 172, 501; 2009, 470, 472, 601, 603, 1850, 2374, 2376, effective July 1, 2011)

NAC 391.0583 Special qualifications licensure; duties of employing school district or private school. (NRS 391.019)

1. The Superintendent of Public Instruction shall issue a special qualifications license to teach to a person who submits an application which is accompanied by proof satisfactory to the Superintendent that the applicant satisfies the requirements of subparagraph (7) of paragraph (a) of subsection 1 of NRS 391.019.

2. The Department shall develop and maintain a list of acceptable professional licensing boards for purposes of subparagraph (8) of paragraph (a) of subsection 1 of NRS 391.019.

3. A special qualifications license must contain an endorsement for the subject area and grade level for which the licensee may teach that is based upon:

(a) The field of study of the master's degree or doctoral degree held by the licensee; and

(b) The relevant work experience of the licensee.

↳ The endorsement placed on a special qualifications license authorizes the licensee to teach only at the grade level and in the subject area designated on the license.

4. The subject areas for which an endorsement to the special qualifications license may be issued are:

(a) English, including, without limitation, reading, composition and writing.

(b) Mathematics.

(c) Science.

(d) Social studies, including, without limitation, history, geography, economics and government.

(e) Arts and humanities, including, without limitation, music, theater and visual arts.

(f) Computer education and technology.

(g) Health.

(h) Physical education, including, without limitation, dance.

(i) Foreign language.

(j) Career and technical education.

5. If a school district or a private school that is licensed pursuant to chapter 394 of NRS employs a person who holds a special qualifications license, the school district or private school shall:

(a) Provide the holder of the special qualifications license at least 120 hours of training and orientation before he begins teaching.

(b) Assign a teacher who is unconditionally licensed to provide assistance, guidance and training to the holder of the special qualifications license during the initial 3 years of employment as a teacher with a special qualifications license.

(c) Assist the holder of the special qualifications license in the development of an individualized plan for professional development to be carried out during the initial 3 years of teaching with a special qualifications license.

6. A special qualifications license is valid for 3 years and may be renewed by showing evidence of professional growth in the area of endorsement during the term of the special qualifications license.

(Added to NAC by Comm'n on Prof. Standards in Education by R183-05, eff. 12-29-2005)

**PROPOSED REGULATION OF THE
COMMISSION ON PROFESSIONAL STANDARDS IN EDUCATION**

LCB File No. R066-10

NAC 391.0583 Special qualifications licensure; duties of employing school district or private school. (NRS 391.019)

1. The Superintendent of Public Instruction shall issue a special qualifications license to teach to a person who submits an application which is accompanied by proof satisfactory to the Superintendent that the applicant satisfies the requirement of subparagraphs (7), (8), (9), and (10) of paragraph (a) of subsection 1 of NRS 391.019.

2. The holder of a special qualifications licensee, who has only a bachelor's degree and has passed the required test, must complete 9 credits from a regionally accredited institution with an approved teacher education program within the first two years of the license period to be eligible for renewal. The 9 credits for all areas of endorsement except Career and Technical Education must include:

- (a) 3 credits of teaching methods in the subject area of endorsement; and*
- (b) 6 credits from two of the following areas;*
 - 1) Classroom management;*
 - 2) Instruction of students with special needs;*
 - 3) English as a second language;*
 - 4) Technology in the classroom;*
 - 5) Reading and/or writing in the content area; or*
 - 6) Instructional methods for urban/socially disadvantaged students.*

The holder of a special qualifications license with an endorsement in an area of Career and Technical Education must complete 9 credits as follows:

- (a) 3 credits of methods of teaching in Career and Technical Education; and*
- (b) 6 credits from two of the following:*
 - 1) Professional career and technical education;*
 - 2) Applied work-based learning; or*
 - 3) Organization and management of a career and technical education student organization.*

~~{2.}~~ 3. The Department shall develop and maintain a list of acceptable professional licensing boards for purposes of subparagraph (8) of paragraph (a) of subsection 1 of NRS 391.019.

~~{3-}~~ 4. A special qualifications license must contain an endorsement for the subject area and grade level for which the licensee may teach that is based upon:

- (a) The field of study of the master's degree or doctoral degree held by the licensee; and
- (b) The relevant work experience of the licensee.

The endorsement placed on a special qualifications license authorizes the licensee to teach only at the grade level and in the subject area designated on the license.

~~{4-}~~ 5. The subject areas for which an endorsement to the special qualifications license may be issued are:

- (a) English, including, without limitation, reading, composition and writing.
- (b) Mathematics.
- (c) Science.
- (d) Social studies, including, without limitation, history, geography, economics and government.
- (e) Art and humanities, including, without limitation, music, theater, and visual arts.
- (f) Computer education and technology.
- (g) Health.
- (h) Physical education, including, without limitation, dance.
- (i) Foreign language.
- (j) Career and technical education.

~~{5-}~~ 6. If a school district or a private school that is licensed pursuant to chapter 394 of NRS employs a person who holds a special qualification license, the school district or private school shall:

- (a) Provide the holder of the special qualifications license at least 120 hours of training and orientation before he begins teaching.
- (b) Assign a teacher who is unconditionally licensed to provide assistance, guidance and training to the holder of the special qualifications license ~~{during the initial 3}~~ **for the first 2** years of employment as a teacher with a special qualifications license.
- (c) Assist the holder of the special qualifications license in the development of an individualized plan for professional development to be carried out during the initial 3 years of teaching with a special qualifications license.

~~{6-}~~ 7. A special qualifications license is valid for 3 years and may be renewed by showing evidence of professional growth in the area of endorsement during the term of the special qualifications license.

**PROPOSED REGULATION OF THE COMMISSION ON
PROFESSIONAL STANDARDS IN EDUCATION**

LCB File No. R047-10

New Section NAC 391.xxx – Alternative Route for Licensure for Administrators

1. A school district, a charter school or a private school that is licensed pursuant to chapter 394 of NRS must apply to the Department before it employs a person who holds a conditional license as an administrator. The application must be in writing and include:

(a) Proof that the school district, charter school or private school has advertised in good faith its desire to fill a vacancy in the position of an unconditionally licensed administrator;

(b) Provide an affidavit stating that despite the required advertisement the school district, charter school or private school was not successful in hiring, an unconditionally licensed administrator in which there is a vacancy;

(c) A written assurance that the school district, charter school or private school will, if required by statute or regulation, continue its efforts to hire unconditionally licensed educational personnel.

2. The Superintendent of Public Instruction shall issue a conditional license to a person who submits an application for an administrator endorsement which is accompanied by proof satisfactory to the Superintendent of Public Instruction that the applicant:

(a) Holds a master's degree from a postsecondary institution that is regionally accredited;

(b) Hold a valid license to teach in elementary, middle, junior high secondary or special schools in Nevada; and

(c) Provides proof of 3 years of teaching experience in kindergarten or grades 1 through 12 in schools approved by the State.

3. A conditional license issued pursuant to this section:

(a) Authorizes the holder of the license to be employed as an administrator in a county school district, a charter school or a private school that is licensed pursuant to chapter 394 of NRS, if the school district, charter school or private school has received the approval of the Department to hire the holder of the license;

(b) Becomes valid on the date on which the holder of the license initially enters into a contract with a school district, charter school or private school;

(c) Is valid for 3 years;

(d) Is not renewable; and

(e) Cannot accept additional endorsement as an addition to the license.

4. A superintendent of a school district, an administrator of a charter school or an administrator of a private school shall, for the duration of the conditional license, assign at least one postprobationary administrator to provide assistance, guidance and training to the holder of the conditional license issued pursuant to this section and who is employed by the school district, charter school or private school.

5. *To qualify for an endorsement in administration, the holder of the conditional license must:*

(a). *Complete at least eighteen (18) semester hours of graduate courses in the administration of a school, including:*

- (1) *Administration and organization of a school;*
- (2) *Supervision and evaluation of instruction;*
- (3) *Development of personnel;*
- (4) *Finances of a school;*
- (5) *The law that applies to schools; and*
- (6) *Curriculum; and*

(b). *In addition, the holder of the conditional license pursuant to this section must:*

(1) *Complete eighteen (18) semester hours of graduate courses considered to be part of an administrative program for educators; or*

(2) *Complete twelve (12) semester hours of graduate courses considered to be part of an administrative program for educators and participate in a 90 contact hour administrative consortium that has been pre-approved by the Nevada Department of Education, Office of Teacher Licensure, prior to beginning administrative employment.*

6. *Prior to beginning employment as an administrator, the school district, charter school or private school is required to offer an 80 hour orientation and training session to the holder of the conditional license by an unconditionally licensed school district administrator who has been assigned to the applicant for the duration of the conditional license.*

7. *Within the first year of the administrative assignment, the holder of the conditional license is to;*

(a) *Receive an additional 40 hours of orientation and training as provided by the school district, charter school, or private school; and*

(b) *In consultation with a postsecondary institution which is regionally accredited and which offers courses of study and training for the education of educational administrators, develop a plan which includes:*

(a) *A description of the courses of study and training that the person is required to complete within the 3 years that his conditional license is valid; and*

(b) *A written assessment plan identifying the schedule for the completion of the course of study and training*

8. *Upon completion of the requirements for a conditional license, the school district, charter school or private school must submit to the Department:*

(a) *Evidence of at least five evaluations issued pursuant to NRS 391.3125 which indicate that holder of the conditional license performances have been satisfactory;*

(b) *Verification of 3 years of administrative experience under contract with the school district, charter school or private school in the appropriate area; and*

(c) *Verification of the 120 contact hour orientation and training requirement.*

9. *Completion of the requirements pursuant to this section will result in the addition of an administrative endorsement to the conditional license holder's renewable teaching license.*

10. Each school district, charter school or private school which employs a person pursuant to this section shall cooperate with the Commission and the Department in the evaluation of the effectiveness of this section.

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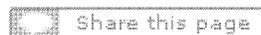
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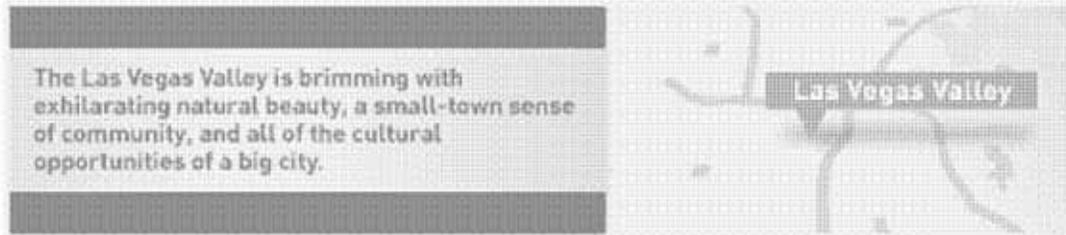
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Headlines



U.S. schools chief seeks big changes, has money to spend »

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Schools

The Clark County School District (CCSD) serves nearly 300,000 students who attend more than 337 schools. The academic achievement of students in the CCSD varies by school, but students in low-income communities continue to significantly lag behind their peers.

In the Las Vegas Valley, the achievement gap begins at the age of three. There is a high percentage of English language learners and families living in poverty, which demands an increased emphasis on competitive early childhood programs. Data show that children living in poverty are often less prepared to enter kindergarten than their more affluent peers, which is why we place teachers at Acelero (Head Start) sites to begin closing the achievement gap at the earliest point in a child's academic development.

- Children in Clark County have limited pre-K options with Head Start and only a handful of pre-K classrooms throughout the district.
- In 2008, only 29.6 percent of the district's 3rd-5th grade students met or exceeded proficiency goals on the writing assessment, compared to the district average of 49 percent.

- Fewer than half of high school seniors passed their math proficiency exams last year. Of all the freshmen that enter high school, less than 60 percent graduate.

While academic achievement isn't where we need to be, the district remains focused on improving the performance of all students. The 2010 corps will join the mighty 47 2009 corps members to assume a leading role in ensuring that all students have the opportunity to attain an excellent education.

[View a map of our placement areas. \(http://www.communitywalk.com/tfalvv\)](http://www.communitywalk.com/tfalvv)

At a Glance

Local School Districts:

[Clark County School District \(http://www.ccsd.net/\)](http://www.ccsd.net/)

[Andre Agassi College Preparatory Academy \(http://www.agassiprep.org\)](http://www.agassiprep.org)

[Acelero \(Pre-k\) \(http://www.accelero.net\)](http://www.accelero.net)

Ethnic Breakdown - Las Vegas Valley

13% African-American

60% Caucasian

10% Latino and Hispanic

5% Asian-American

11% Multi Racial

Ethnic Breakdown - Student Population

14 % African-American

35% Caucasian

41% Latino and Hispanic

10% Asian-American

1% Native American

<1% Other

Percentage of Students Qualifying for Free/Reduced-Price Lunch

100% Head Start, 43% CCSD, 20% AACPA

Placements

28% Pre-k/Kindergarden

44% elementary

2% math

8% science

7% ELA

10% special education

1% social studies

78% teach at a school with another corps member or alumnus

- **general subject elementary**
- **secondary math**
- **secondary science**
- **secondary English**
- **secondary history**
- **special education**

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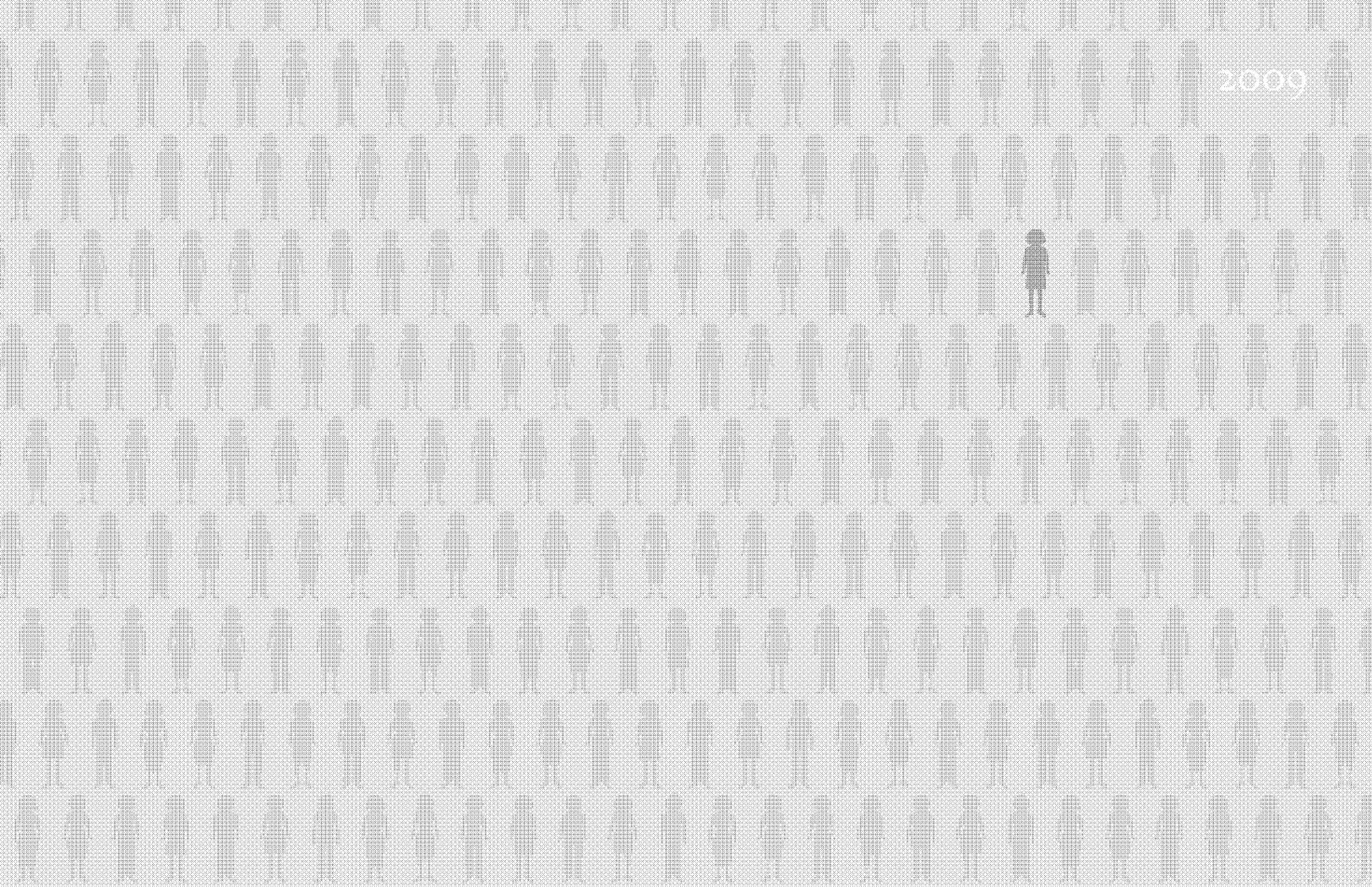
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2009

THE WIDGET EFFECT

Our National Failure to Acknowledge and Act on Differences in Teacher Effectiveness



The New Teacher Project • Daniel Weisberg • Susan Sexton • Jennifer Mulhern • David Keeling



THE WIDGET EFFECT

Our National Failure to Acknowledge and Act on Differences in Teacher Effectiveness

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We would also like to recognize the advisory panels in each of the four study states for helping us shape the study design, understand state policy and refine the report's recommendations.

We are indebted to each of the districts represented in our study and their staff members who provided invaluable assistance to us with data collection and interpretation. We are grateful for the commitment from district leadership and central office staff as well as leadership and staff at local teachers unions, all of whom invested many hours of their valuable time to provide us with data, information and local context.

Finally, we thank each of the approximately 15,000 teachers and 1,300 administrators who dedicated time to completing our surveys. Your opinions and thoughts continue to inspire us to work to ensure that each and every student has access to outstanding teachers.

Funding Support | Primary funding for this report was provided by the Robertson Foundation, the Bill & Melinda Gates Foundation and the Joyce Foundation. Additional funding was provided by the Carnegie Corporation of New York, the Arnold Family Foundation, the Charles and Helen Schwab Foundation and the Walton Family Foundation. We thank all of our funders for their generous support; however, we acknowledge that the findings and recommendations presented in this report are those of the The New Teacher Project alone and do not necessarily reflect our funders' opinions or positions.

“There are at least ‘several hundred’ incompetents now in the school system [says the superintendent]. Other observers think there are several thousands, while still others insist that ‘several’ would be nearer the mark. Whether these incompetents were unfit to teach at any time, or have been rendered unfit by the passing years, is a matter of opinion. The question is, why are they allowed to remain?”¹

So wrote The New York Times—in 1936.

In the 73 years since, we have made little progress toward answering the question of why poor instruction in our schools goes unaddressed. The question has been the subject of vigorous discussion, but most commentary has attempted to answer it by debating the failure of school districts to dismiss teachers who perform poorly.

The contours of this debate are well-known. One side claims that teacher tenure and due process protections render dismissal a practical impossibility, shielding ineffective teachers from removal in all but the most egregious instances. The other argues that the process provides only minimal protection against arbitrary or discriminatory dismissal, but that administrators fail to document poor performance adequately and refuse to provide struggling teachers with sufficient support. For decades these positions have remained largely unchanged.

The established arguments, however, fail to recognize that the challenge of addressing performance in the teaching profession goes far beyond the issue of dismissal. In fact, as this report illustrates, school districts fail to acknowledge or act on differences in teacher performance almost entirely. When it comes to officially appraising performance and supporting improvement, a culture of indifference about the quality of instruction in each classroom dominates.

Our research confirms what is by now common knowledge: tenured teachers are identified as ineffective and dismissed from employment with exceptional infrequency. While an important finding in its own right, we have come to understand that infrequent teacher dismissals are in fact just one symptom of a larger, more fundamental crisis—the inability of our schools to assess instructional performance accurately or to act on this information in meaningful ways.

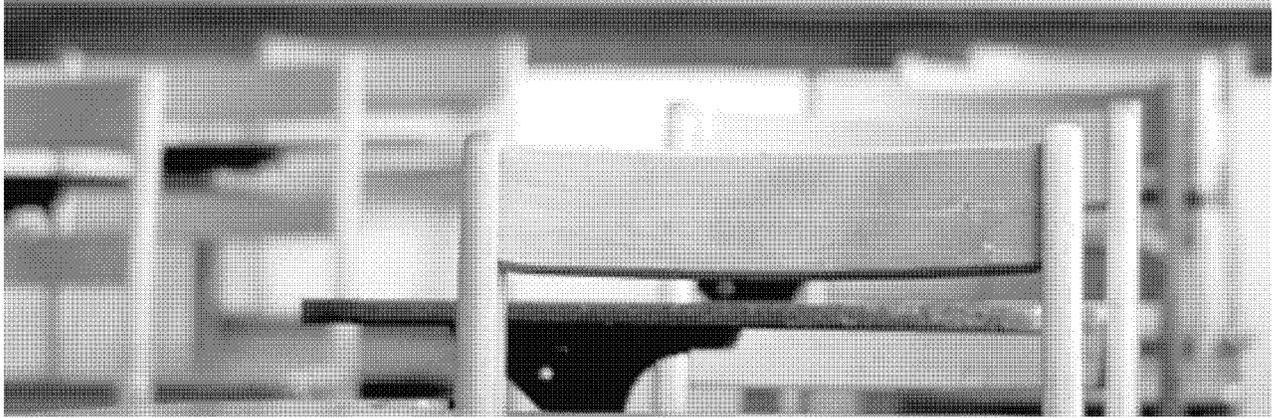
This inability not only keeps schools from dismissing consistently poor performers, but also prevents them from recognizing excellence among top-performers or supporting growth among the broad plurality of hard-working teachers who operate in the middle of the performance spectrum. Instead, school districts default to treating all teachers as essentially the same, both in terms of effectiveness and need for development.

Of course, as teachers themselves are acutely aware, they are not at all the same. Just like professionals in other fields, teachers vary. They boast individual skills, competencies and talents. They generate different responses and levels of growth from students.

In a knowledge-based economy that makes education more important than ever, teachers matter more than ever. This report is a call to action—to policymakers, district and school leaders and to teachers and their representatives—to address our national failure to acknowledge and act on differences in teacher effectiveness once and for all. To do this, school districts must begin to distinguish great from good, good from fair, and fair from poor. Effective teaching must be recognized; ineffective teaching must be addressed.

Recently, President Obama spoke in bold terms about improving teacher effectiveness in just this way, saying, “If a teacher is given a chance or two chances or three chances but still does not improve, there is no excuse for that person to continue teaching. I reject a system that rewards failure and protects a person from its consequences. The stakes are too high. We can afford nothing but the best when it comes to our children’s teachers and the schools where they teach.”² We could not agree more. It is our hope that the recommendations contained in this report will outline a path to a better future for the profession.

A teacher's effectiveness—the most important factor for schools in improving student achievement—is not measured, recorded, or used to inform decision-making in any meaningful way.



EXECUTIVE SUMMARY

Suppose you are a parent determined to make sure your child gets the best possible education. You understand intuitively what an ample body of research proves: that your child's education depends to a large extent on the quality of her teachers. Consequently, as you begin considering local public schools, you focus on a basic question: who are the best teachers, and where do they teach?

The question is simple enough. There's just one problem—except for word of mouth from other parents, no one can tell you the answers.

In fact, you would be dismayed to discover that not only can no one tell you which teachers are most effective, they also cannot say which are the least effective or which fall in between. Were you to examine the district's teacher evaluation records yourself, you would find that, on paper, *almost every* teacher is a great teacher, even at schools where the chance of a student succeeding academically amounts to a coin toss, at best.

In short, the school district would ask you to trust that it can provide your child a quality education, even though it cannot honestly tell you whether it is providing her a quality teacher.

This is the reality for our public school districts nationwide. Put simply, they fail to distinguish great teaching from good, good from fair, and fair from poor. A teacher's effectiveness—the most important factor for schools in improving student achievement—is not measured, recorded, or used to inform decision-making in any meaningful way.

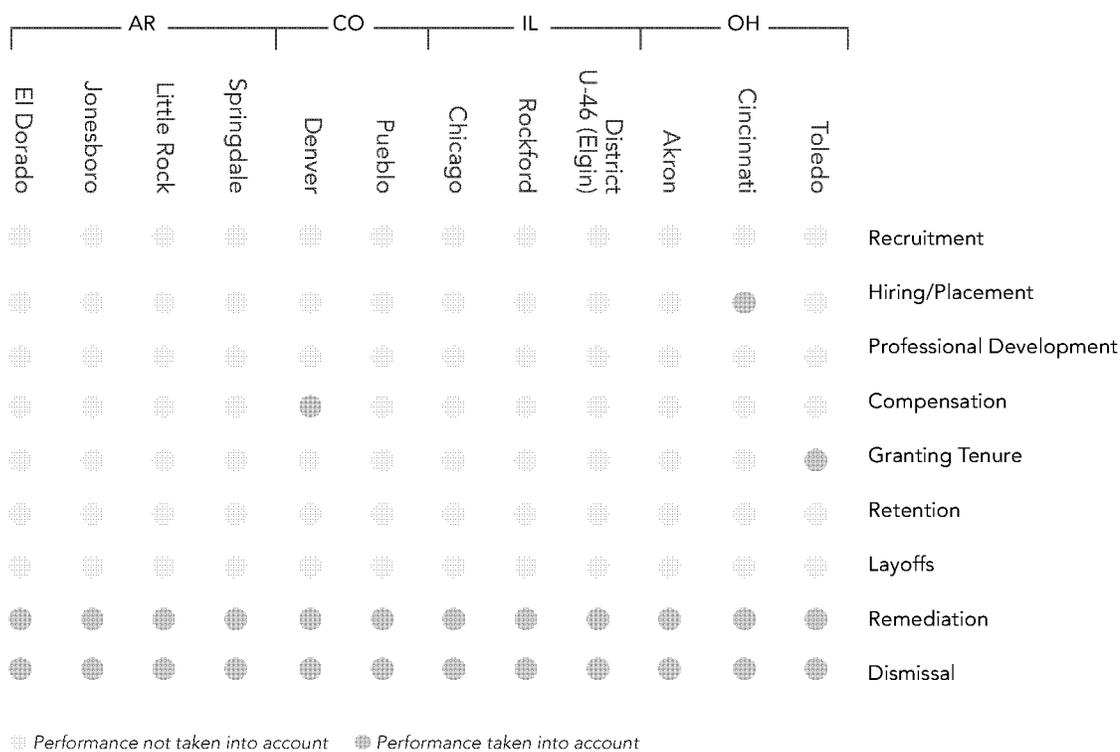
The Widget Effect

This report examines our pervasive and longstanding failure to recognize and respond to variations in the effectiveness of our teachers. At the heart of the matter are teacher evaluation systems, which in theory should serve as the primary mechanism for assessing such variations, but in practice tell us little about how one teacher differs from any other, except teachers whose performance is so egregiously poor as to warrant dismissal.

The failure of evaluation systems to provide accurate and credible information about individual teachers' instructional performance sustains and reinforces a phenomenon that we have come to call the **Widget Effect**. The **Widget Effect** describes the tendency of school districts to assume classroom effectiveness is the same from teacher to teacher. This decades-old fallacy fosters an environment in which teachers cease to be understood as individual professionals, but rather as interchangeable parts. In its denial of individual strengths and weaknesses, it is deeply disrespectful to teachers; in its indifference to instructional effectiveness, it gambles with the lives of students.

Today, the Widget Effect is codified in a policy framework that rarely considers teacher effectiveness for key decisions, as illustrated below.

Where Is Performance a Factor in Important Decisions About Teachers?*



The fact that information on teacher performance is almost exclusively used for decisions related to teacher remediation and dismissal paints a stark picture: In general, our schools are indifferent to instructional effectiveness — except when it comes time to remove a teacher.

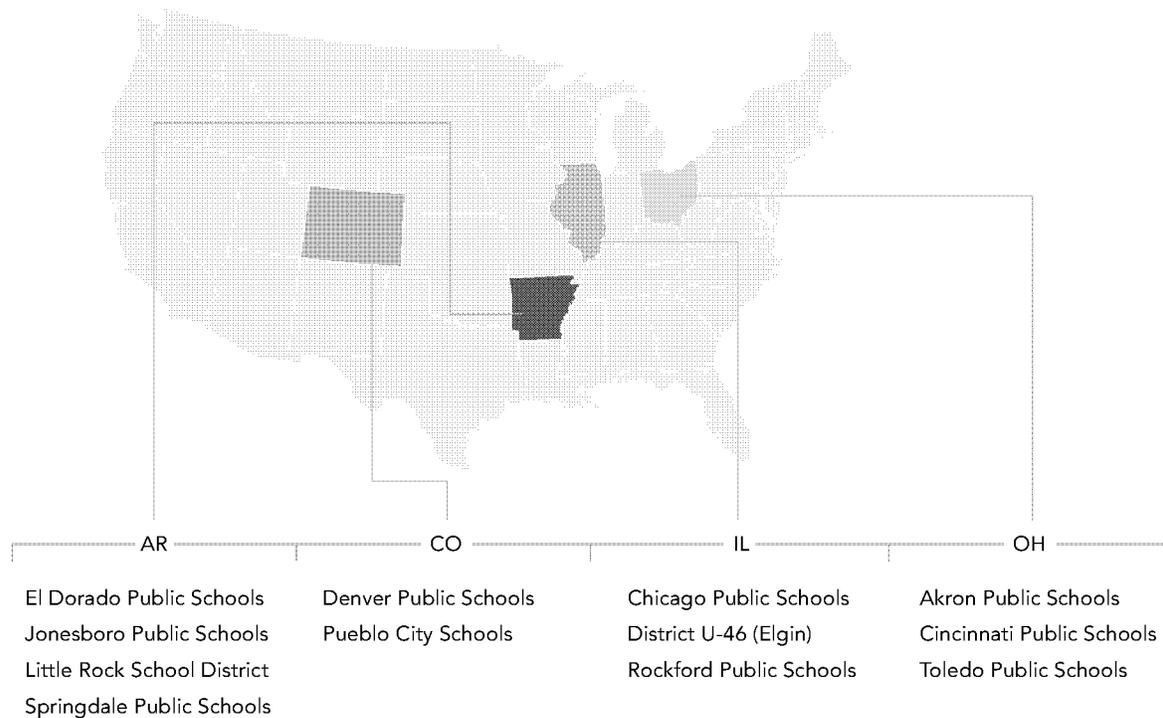
* See "Policy Implications of the Widget Effect" for additional information

Study Overview

This report is the product of an extensive research effort spanning 12 districts and four states. It reflects survey responses from approximately 15,000 teachers and 1,300 administrators, and it has benefited from the insight of more than 80 local and state education officials, teachers union leaders, policymakers and advocates who participated in advisory panels in each state, shaping the study design, data collection instruments, and findings and recommendations.

The four states included in the study, Arkansas, Colorado, Illinois and Ohio, employ diverse teacher performance management policies. The 12 districts studied range in size, geographic location, evaluation policies and practices and overall approach to teacher performance management. Jonesboro Public Schools, the smallest district studied, serves approximately 4,450 students; Chicago Public Schools, the largest, serves 413,700. All 12 districts employ some formal evaluation process for teachers, but the methods and frequency of evaluation differ. The outcomes, however, are strikingly similar.

Study Sites*



*For more information on the study sites, please see *Methodology*.

Characteristics of the Widget Effect in Teacher Evaluation

The Widget Effect is characterized by institutional indifference to variations in teacher performance.

Teacher evaluation systems reflect and reinforce this indifference in several ways.

All teachers are rated good or great

In districts that use binary evaluation ratings (generally “satisfactory” or “unsatisfactory”), more than 99 percent of teachers receive the satisfactory rating. Districts that use a broader range of rating options do little better; in these districts, 94 percent of teachers receive one of the top two ratings and less than 1 percent are rated unsatisfactory.

Excellence goes unrecognized

When all teachers are rated good or great, those who are truly exceptional cannot be formally identified. Fifty-nine percent of teachers and 63 percent of administrators say their district is not doing enough to identify, compensate, promote and retain the most effective teachers.

Inadequate professional development

The failure to assess variations in instructional effectiveness also precludes districts from identifying specific development needs in their teachers. In fact, 73 percent of teachers surveyed said their most recent evaluation did not identify any development areas, and only 45 percent of teachers who did have development areas identified said they received useful support to improve.

No special attention to novices

Inattention to teacher performance and development begins from a teacher’s first days in the classroom. Though it is widely recognized that teachers are least effective in their beginning years, 66 percent of novice teachers received a rating greater than “satisfactory” on their most recent performance evaluation. Low expectations characterize the tenure process as well, with 41 percent of administrators reporting that they have never denied tenure to a teacher or “non-renewed” a probationary teacher.

Poor performance goes unaddressed

Despite uniformly positive evaluation ratings, teachers and administrators both recognize ineffective teaching in their schools. In fact, 81 percent of administrators and 58 percent of teachers say there is a tenured teacher in their school who is performing poorly, and 43 percent of teachers say there is a tenured teacher who should be dismissed for poor performance. Troublingly, the percentages are higher in high-poverty schools. But district records confirm the scarcity of formal dismissals; at least half of the districts studied have not dismissed a single non-probationary teacher for poor performance in the past five years.

Flaws in Evaluation Practice and Implementation

The characteristics above are exacerbated and amplified by cursory evaluation practices and poor implementation. Evaluations are short and infrequent (most are based on two or fewer classroom observations totaling 60 minutes or less), conducted by untrained administrators, and influenced by powerful cultural forces—in particular, an expectation among teachers that they will be among the vast majority rated as top performers.

While it is impossible to know whether the system drives the culture or the culture the system, the result is clear: evaluation systems fail to differentiate performance among teachers. As a result, teacher effectiveness is largely ignored. Excellent teachers cannot be recognized or rewarded, chronically low-performing teachers languish, and the wide majority of teachers performing at moderate levels do not get the differentiated support and development they need to improve as professionals.

Reversing the Widget Effect

The Widget Effect is deeply ingrained in the fundamental systems and policies that govern the teachers in our public schools. Better evaluation systems may offer a partial solution, but they will not overcome a culture of indifference to classroom effectiveness. Reversing the Widget Effect depends on better information about instructional quality that can be used to inform other important decisions that dictate who teaches in our schools.

01 | Adopt a comprehensive performance evaluation system that fairly, accurately and credibly differentiates teachers based on their effectiveness in promoting student achievement. Teachers should be evaluated based on their ability to fulfill their core responsibility as professionals—delivering instruction that helps students learn and succeed. This demands clear performance standards, multiple rating options, regular monitoring of administrator judgments, and frequent feedback to teachers. Furthermore, it requires professional development that is tightly linked to performance standards and differentiated based on individual teacher needs. The core purpose of evaluation must be maximizing teacher growth and effectiveness, not just documenting poor performance as a prelude to dismissal.

02 | Train administrators and other evaluators in the teacher performance evaluation system and hold them accountable for using it effectively. The differentiation of teacher effectiveness should be a priority for school administrators and one for which they are held accountable. Administrators must receive rigorous training and ongoing support so that they can make fair and consistent assessments of performance against established standards and provide constructive feedback and differentiated support to teachers.



03 | Integrate the performance evaluation system with critical human capital policies and functions such as teacher assignment, professional development, compensation, retention and dismissal. Even the best evaluation system will fail if the information it produces is of no consequence. An effective evaluation system must be fully integrated with other district systems and policies and a primary factor in decisions such as which teachers receive tenure, how teachers are assigned and retained, how teachers are compensated and advanced, what professional development teachers receive, and when and how teachers are dismissed. Only by attaching stakes to evaluation outcomes will teachers and administrators invest in the hard work of creating a truly rigorous and credible evaluation system.

04 | Adopt dismissal policies that provide lower-stakes options for ineffective teachers to exit the district and a system of due process that is fair but efficient. If the evaluation system is implemented effectively, unsatisfactory ratings will not be anomalous, surprising or without clear justification. Likewise, the identification of development areas and the provision of support will be continual. As in other professions, teachers who see significant, credible evidence of their own failure to meet standards are likely to exit voluntarily. Districts can facilitate this process by providing low-stakes options that enable teachers to leave their positions without being exiled. For teachers who must be officially dismissed, an expedited, one-day hearing should be sufficient for an arbitrator to determine if the evaluation and development process was followed and judgments made in good faith.

Our recommendations outline a comprehensive approach to improving teacher effectiveness and maximizing student learning. If implemented thoroughly and faithfully, we believe they will enable districts to understand and manage instructional quality with far greater sophistication. Improved evaluation will not only benefit students by driving the systematic improvement and growth of their teachers, but teachers themselves, by at last treating them as professionals, not parts.



THE PROBLEM: TEACHERS AS INTERCHANGEABLE PARTS

Teaching is the essence of education, and there is almost universal agreement among researchers that teachers have an outsized impact on student performance. We know that improving teacher quality is one of the most powerful ways — if not *the* most powerful way — to create better schools. In fact, a student assigned to a very good teacher for a single school year may gain up to a full year’s worth of additional academic growth compared to a student assigned to a very poor teacher. Having a series of strong or weak teachers in consecutive years compounds the impact. Give high-need students three highly effective teachers in a row and they may outperform students taught by three ineffective teachers in a row by as much as 50 percentile points.³

The lesson from these decades of research is clear: teachers matter. Some teachers are capable of generating exceptional learning growth in students; others are not, and a small group actually hinders their students’ academic progress.

This simple premise — that teachers matter — has driven The New Teacher Project’s prior research and continues to drive our work today. Our 2003 report, *Missed Opportunities: How We Keep High-Quality Teachers Out of Urban Classrooms*, documented how vacancy notification policies, rigid staffing rules and late budget timelines caused urban districts to hire too late to capture the highest-quality teacher applicants. Our 2005 report, *Unintended Consequences: The Case for Reforming the Staffing Rules in Urban Teachers Union Contracts*, illustrated how contractual staffing rules, built around the assumption that any teacher could fill any vacancy, forced schools to hire teachers they did not want and teachers to take positions for which they might not be a good fit.

Each of these reports in its own way documented a flawed assumption that has pervaded American educational policy for decades — the assumption that teachers are interchangeable parts. We have come to call this phenomenon the **Widget Effect**. In the presence of the Widget Effect, school systems wrongly conflate educational access with educational *quality*; the only teacher quality goal that schools need to achieve is to fill all of their positions. It becomes a foregone conclusion that, so long as there is an accredited teacher — any teacher — in front of the classroom, students are being served adequately.

While the Widget Effect pervades many aspects of our education system, it is in teacher evaluation that both its architecture and its consequences are most immediately apparent. In this report, we examine the central role that the design and implementation of teacher evaluation systems play in creating and reinforcing the Widget Effect; how teacher and administrator beliefs about evaluation illustrate the Widget Effect at work; and how the Widget Effect fuels a policy framework that ignores both strong and weak teacher performance. In the absence of meaningful performance information, teacher effectiveness is treated as a constant, not a variable, and school districts must instead rely on other considerations — many of them unrelated to student academic success — to make critical workforce decisions.

In the presence of the Widget Effect, school systems wrongly conflate educational access with educational quality.

CHARACTERISTICS: THE WIDGET EFFECT IN TEACHER EVALUATION

The Widget Effect is rooted in the failure of teacher evaluation systems to produce meaningful information about teacher effectiveness. In theory, an evaluation system should identify and measure individual teachers' strengths and weaknesses accurately and consistently, so that teachers get the feedback they need to improve their practice and so that schools can determine how best to allocate resources and provide support. In practice, teacher evaluation systems devalue instructional effectiveness by generating performance information that reflects virtually no variation among teachers at all.

This fundamental failing has a deeply insidious effect on teachers and schools by institutionalizing indifference when it comes to performance. As a result, important variations between teachers vanish. Excellence goes unrecognized, development is neglected and poor performance goes unaddressed.

All Teachers Are Rated Good or Great

The disconnect between teacher evaluation systems and actual teacher performance is most strikingly illustrated by the wide gap between student outcomes and teacher ratings in many districts. Though thousands of teachers included in this report teach in schools where high percentages of students fail year after year to meet basic academic standards, less than one percent of surveyed teachers received a negative rating on their most recent evaluation.⁴

This is not to say that responsibility for a failing school rests on the shoulders of teachers alone, or that none of these teachers demonstrated truly high performance; however, there can be no doubt that these ratings dramatically overstate the number of exemplary teachers and understate the number with moderate and severe performance concerns. These data simultaneously obscure poor performance and overlook excellence, as the value of superlative teacher ratings is rendered meaningless by their overuse.

To a large degree, teacher evaluation systems codify this whitewashing of performance differences, beginning with the rating categories themselves. Five of the ten districts in this study with available teacher evaluation rating data use a binary rating system for assessing teacher performance; teachers are categorized as either “satisfactory” or

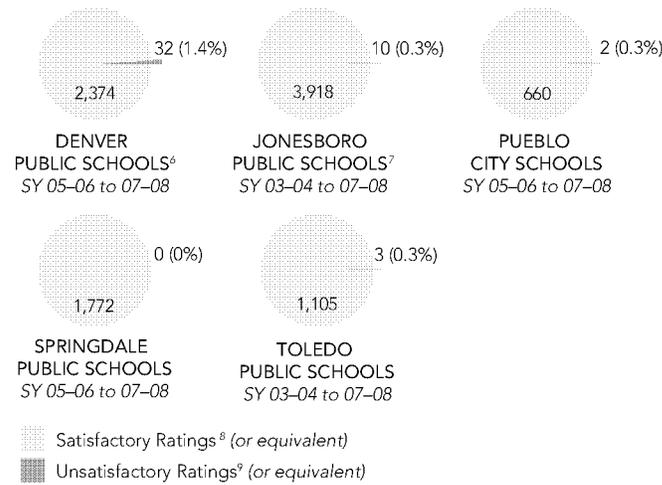
“Poorly performing teachers are rated at the same level as the rest of us. This infuriates those of us who do a good job.”

—Akron Public Schools Teacher

“unsatisfactory.”⁵ There are no shades of gray to describe nuances in performance.

As *Figure 01* illustrates, in districts that use binary ratings, virtually all tenured teachers (more than 99 percent) receive the satisfactory rating; the number receiving an unsatisfactory rating amounts to a fraction of a percentage. In these districts, it makes little difference that two ratings are available; in practice only one is ever used.

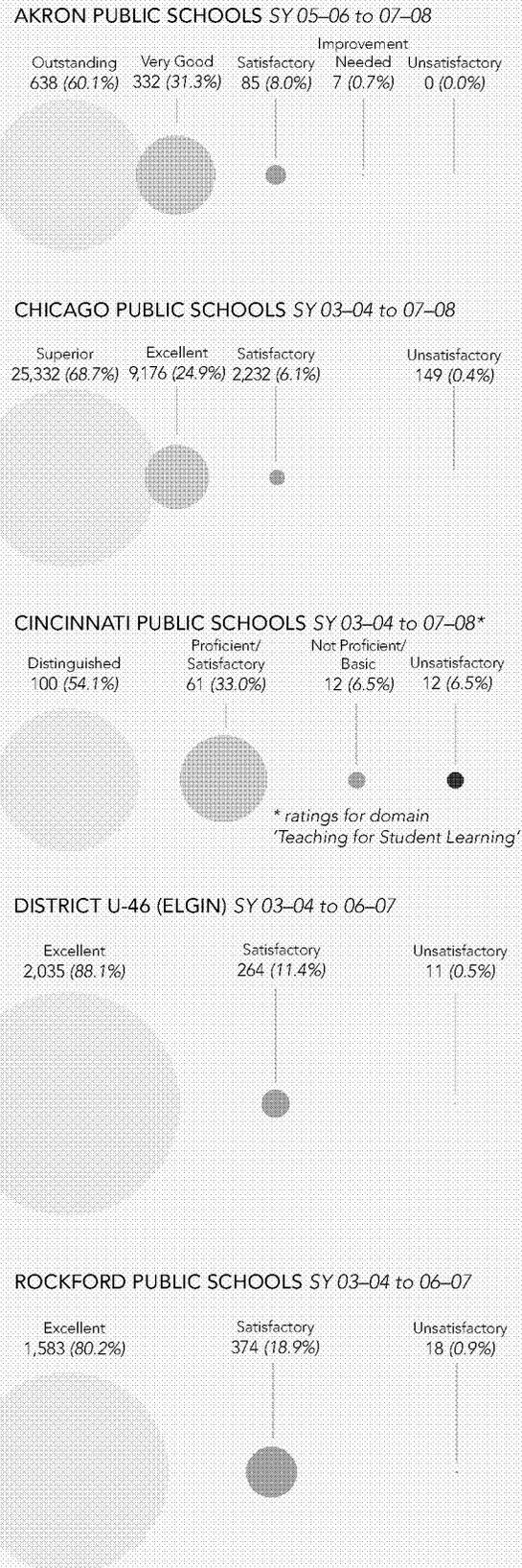
FIGURE 01 | Evaluation Ratings for Tenured Teachers in Districts with Binary Rating Systems*



One might hope that teacher evaluation systems that employ a broader range of rating options would more accurately reflect the performance differences among teachers. However, even when given multiple ratings from which to choose, evaluators in all districts studied rate the majority of teachers in the top category, rather than assigning the top rating to only those teachers who actually outperform the majority of their peers. As illustrated in *Figure 02*, in the five districts with multiple teacher evaluation ratings for which data were available¹⁰, more than 70 percent of tenured teachers still received the highest rating.¹¹ Another 24 percent received the second highest rating.

While districts using multiple rating systems do show some additional variability in teacher evaluation beyond those using binary rating systems, districts with four or more ratings still assign tenured teachers the lowest two rating options in one out of 16 cases. In each case, the basic outcome remains true: almost no teachers are identified as delivering unsatisfactory instruction.¹²

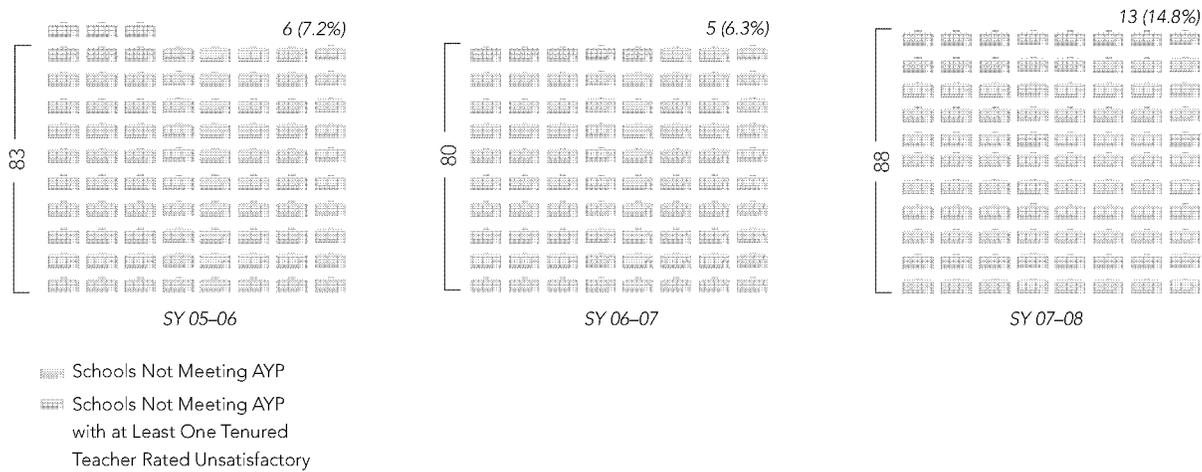
FIGURE 02 | Evaluation Ratings for Tenured Teachers in Districts with Multiple-Rating Systems*



*Note: Evaluation rating data in *Figures 01* and *02* were collected from each district. Data are as accurate as the records provided to TNTP for this study.

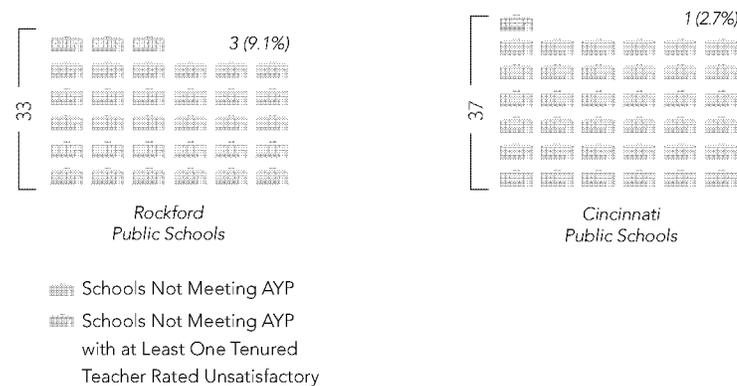
These data often stand in sharp relief against current levels of student achievement. For example, in Denver schools that did not make adequate yearly progress (AYP), more than 98 percent of tenured teachers received the highest rating – satisfactory.¹³ On average, over the last three years, only 10 percent¹⁴ of failing schools issued at least one unsatisfactory rating to a tenured teacher.

FIGURE 03 | Frequency of Unsatisfactory Ratings in Denver Public Schools that Did Not Meet AYP¹⁵



These findings are consistent with a one year snapshot of data from other districts. In both Rockford and Cincinnati, less than 10 percent of failing schools rated a tenured teacher unsatisfactory in 2007–08.

FIGURE 04 | Rockford Public Schools & Cincinnati Public Schools AYP Data (SY07-08)¹⁶



Moreover, it is important to note that performance simply goes untracked for a subset of teachers. In some cases, this is systemic. One of the 12 districts studied does not centrally track or record any evaluation data at all.¹⁷ However, in many other cases, it reflects the perfunctory nature of the evaluation system itself, as 9 percent of teachers surveyed in all districts¹⁸ appear to have missed their most recent scheduled evaluation.

Excellence Goes Unrecognized

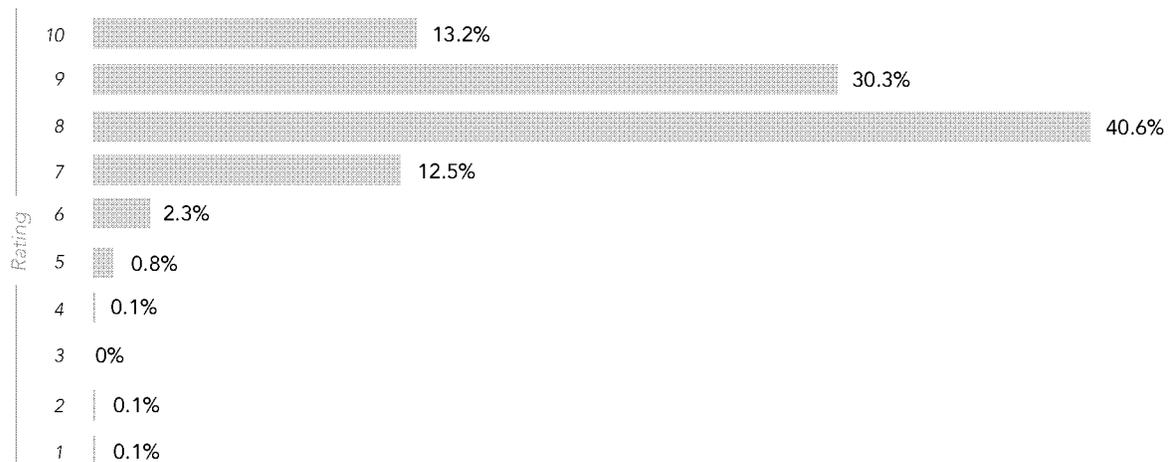
In a world where all teachers are rated as good or great, the truly outstanding teachers—those who are realizing life-changing academic success for their students—cannot be formally identified. And if they are not formally identified, schools cannot prioritize their retention or leverage them to develop and improve their colleagues.

In theory, districts should be able to identify their top performers by awarding them the highest rating on the evaluation scale, but as previously illustrated, the highest rating is awarded to many more teachers than can possibly fall into this category. The dilution of the highest rating category is reflected in teacher and administrator perceptions about how this category is defined. Nearly a quarter of administrators (24 percent) and nearly a fifth of teachers (18 percent) equate their district's highest rating with a teacher who is merely effective or even somewhat effective, rather than seeing that rating as reserved for those who are truly exceptional.¹⁹

In the absence of a mechanism for identifying and rewarding outstanding performers, the average effort becomes the bar for the mark of excellence.

In a subset of districts²⁰ where teachers were asked to rate their instructional performance on a scale from 1 to 10, more than 43 percent rated themselves a 9 or higher (see Figure 05). These teachers are not irrationally inflating their estimate of their teaching performance; they are simply responding to an environment in which all are assumed to be superior performers.

FIGURE 05 | Teacher Assessments of Their Own Instructional Performance ON A SCALE OF 1 TO 10, HOW WOULD YOU RATE YOUR INSTRUCTIONAL PERFORMANCE?



If districts could systematically identify which teachers perform at the highest level, they could use this information to inform teaching assignments, target teachers for teacher leader positions, and prioritize the retention of these teachers. In the absence of this information, however, excellence cannot be recognized or rewarded. As in other areas studied, there is broad agreement among teachers and administrators that this is a problem. Fifty-nine percent of teachers and 63 percent of administrators from the four study sites where we surveyed more deeply on the topic report their district is not doing enough to identify, compensate, promote and retain the most effective teachers.²¹

“There is no recognition for teachers who are doing an exemplary job.”

-Chicago Public Schools Teacher

Development Is Limited

The damage of ignoring differences in teacher effectiveness is not isolated to the limited recognition of excellence; an equally troubling consequence is that teachers rarely receive meaningful feedback on their performance through the formal evaluation system. In the 12 districts studied, development areas were identified for only 26 percent of teachers during their most recent evaluations.²²

In other words, nearly 3 of 4 teachers went through the evaluation process but received no specific feedback about how to improve their practice. This is true even for novice teachers who are most in need of actionable feedback as they learn their craft—only 43 percent of teachers in their first three years had any development areas identified. It is inconceivable that 74 percent of teachers, and 57 percent of teachers in their first three years, do not require improvement in any area of performance.

Some may argue that administrators prefer to give teachers critical feedback outside the formal evaluation process. However, 47 percent²³ of teachers report not having participated in a single informal conversation with their administrator over the last year about improving aspects of their instructional performance. In addition, of the relatively small group of teachers who had a performance area identified as in need of improvement or who were rated unsatisfactory, 62 percent²⁴ said they were not aware of performance concerns before their evaluation. This suggests that many administrators do not

regularly or proactively offer feedback on instructional performance outside of the formal evaluation process.

While districts often fail to identify areas where teachers are in need of improvement, they also fail to provide targeted support to the subset of teachers who have had development areas identified. Less than half (45 percent)²⁵ of teachers across all districts who had development areas identified on their most recent evaluations said they received useful support to improve those areas.

Constructive feedback that specifies areas for development is a critical facet of any performance evaluation, even for strong performers. In theory, even if virtually all teachers are rated as good or great, their evaluations could provide them with valuable feedback they could use to improve their instructional practice. However, that theoretical potential currently goes unrealized and teachers are too often denied both the knowledge and the opportunity to improve.

As a result, it is not surprising that so many teachers believe that the current evaluation system, and the absence of meaningful feedback it produces, does them a disservice. Across all districts, only 42 percent of teachers agree that evaluation allows accurate assessment of performance and only 43 percent of teachers agree that evaluation helps teachers improve.²⁶

“The evaluation process should have teacher development as the primary goal, not just assigning a number on a rubric. As it is set up now, there is no immediate feedback to the teacher in any constructive format. Scores are based on rigid, often meaningless recitations. It is the epitome of poor teaching methods to give a score without discussion.”

—Cincinnati Public Schools Teacher

Novice Teachers Receive No Special Attention or Scrutiny²⁷

One could argue teacher ratings are so high and development is so limited because probationary teachers undergo a rigorous screening process through which weak performers are weeded out. According to this line of argument, all the poorly performing teachers were effectively ushered out while they were still novices. Yet as illustrated in *Figure 06*, our research found no evidence that teachers are subject to a rigorous screening process during their probationary periods; only a fraction of teachers are “non-renewed” by the districts when they have the opportunity to do so.

As a result, though the awarding of tenure status has the potential to recognize effective teaching and to transition out teachers who are unable to reach a reasonable performance standard, in practice there is no observable rigor applied to the tenure decision. It is not surprising that many administrators (41 percent) report that they have never non-renewed a teacher in his or her final probationary year because they found that teacher’s performance unworthy of tenure. Moreover, 76 percent²⁸ of novice teachers express confidence that they will receive tenure even before they have completed the probationary period, often because they have consistently received superlative ratings—even as first-year teachers.

This lack of rigor also leads to a limited focus on development for novice teachers. Though it is widely recognized that teachers are less effective in their first years in the classroom, differences in performance tend to go unremarked from the very beginning of a teacher’s career. Novice teachers begin receiving the highest rating when they start their career or within a few years of being hired, with 66 percent of novice teachers receiving a rating greater than “satisfactory” on their most recent performance evaluation.²⁹ By giving novice teachers high ratings from the day they begin teaching, schools communicate inattention to and low expectations for instructional performance. Furthermore, they miss a critical window of opportunity to focus new teachers on their instructional strengths and weaknesses during a formative point in their careers. Instead of getting meaningful

“New teachers are given so little support in my district that sometimes they are simply doomed to fail. Yet, no one notices and they finish their probationary status without a negative evaluation.”

-Denver Public Schools Teacher

FIGURE 06 | Non-renewal Patterns of Probationary Teachers³⁰

SCHOOL DISTRICT	Number of non-renewals for performance in 5 years	
	Count	Percentage
Denver ³¹ Public Schools	130	3.1%
Jonesboro Public Schools	0	0.0%
Chicago ³² Public Schools	29	0.1%
District U-46 (Elgin)	28	0.9%
Toledo Public Schools	5	0.7%
Cincinnati Public Schools	7	0.1%

Average % of probationary teachers non-renewed for performance each year

“I think it gives the hard working, honest teachers a bad reputation being lumped together with a group of sub-par teachers. What’s even worse is that our principal does absolutely nothing about any of this.”

-Akron Public Schools Teacher

feedback about what they are doing right and wrong in their instructional practice, new teachers mostly get the message that their actual performance has little bearing on how they are rated.

Poor Performance Goes Unaddressed

It goes without saying that teacher dismissal has become a polarizing issue in the education community; however, we found that teachers and administrators broadly agree about the existence and scope of the problem and about what steps need to be taken to address poor performance in schools. In fact, an overwhelming majority of both teachers (68 percent) and administrators (91 percent) agree or strongly agree that dismissing poor performers is important to maintaining high-quality instructional teams. This may seem self-evident, but it suggests a consensus that teacher performance management should entail accountability, not just development.

In the four districts where we surveyed more deeply, teachers and administrators agree that there is a small but significant subset of teachers who perform poorly, with 81 percent of administrators and 58 percent of teachers reporting that there is a tenured teacher in their school who delivers poor instruction.³⁴ In *Figure 07*, we examine the levels of poor instructional performance teachers observe in their schools and compare it to the actual number of unsatisfactory ratings given in Chicago and Akron.³⁵ The data confirm what teachers and school administrators report—the number of teachers identified as unsatisfactory is miniscule and far lower than the percentage of poor performers observed by their colleagues.

Moreover, 43 percent of teachers across all districts believe that there is a tenured teacher in their school who should be *dismissed* for poor instructional performance but has not been. Yet experienced teachers are almost never actually dismissed for poor performance. Most administrators have not initiated the dismissal of a single tenured teacher in the past five years. In fact, the number of dismissals for performance in each district studied can be counted in the single digits, if at all.³⁶

FIGURE 07 | Percent of Poor Performers Teachers Observe in Their Schools vs. Percent of Teachers Given an Unsatisfactory Rating³³

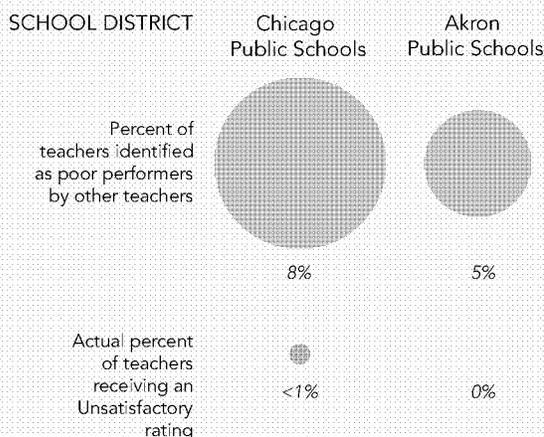
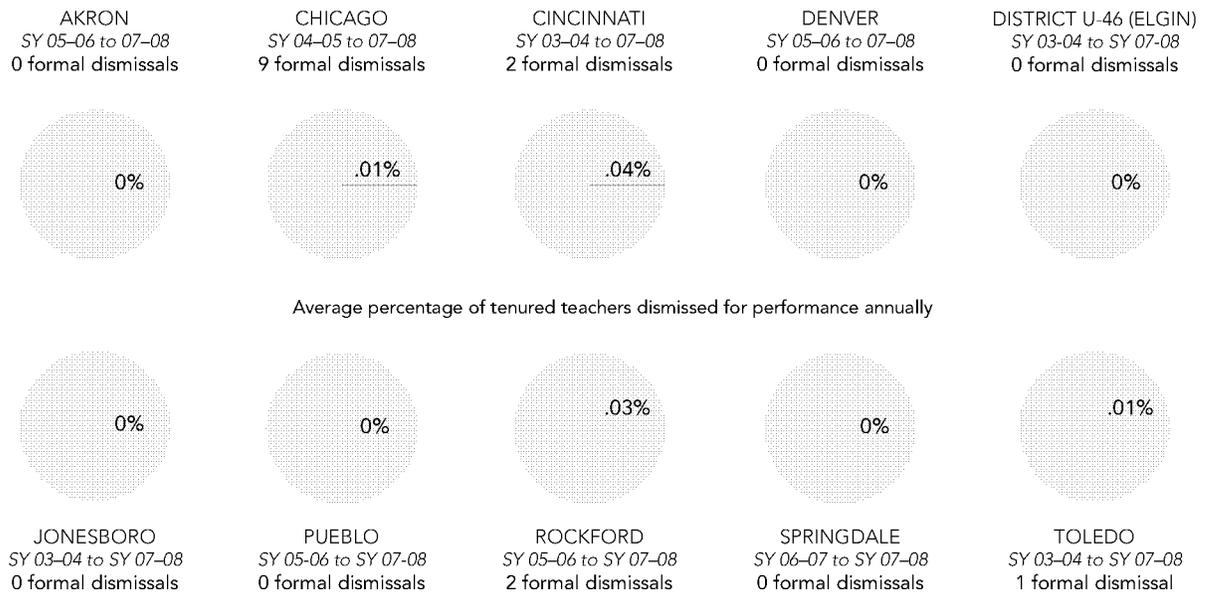


FIGURE 08 | Frequency of Teacher Dismissals for Performance

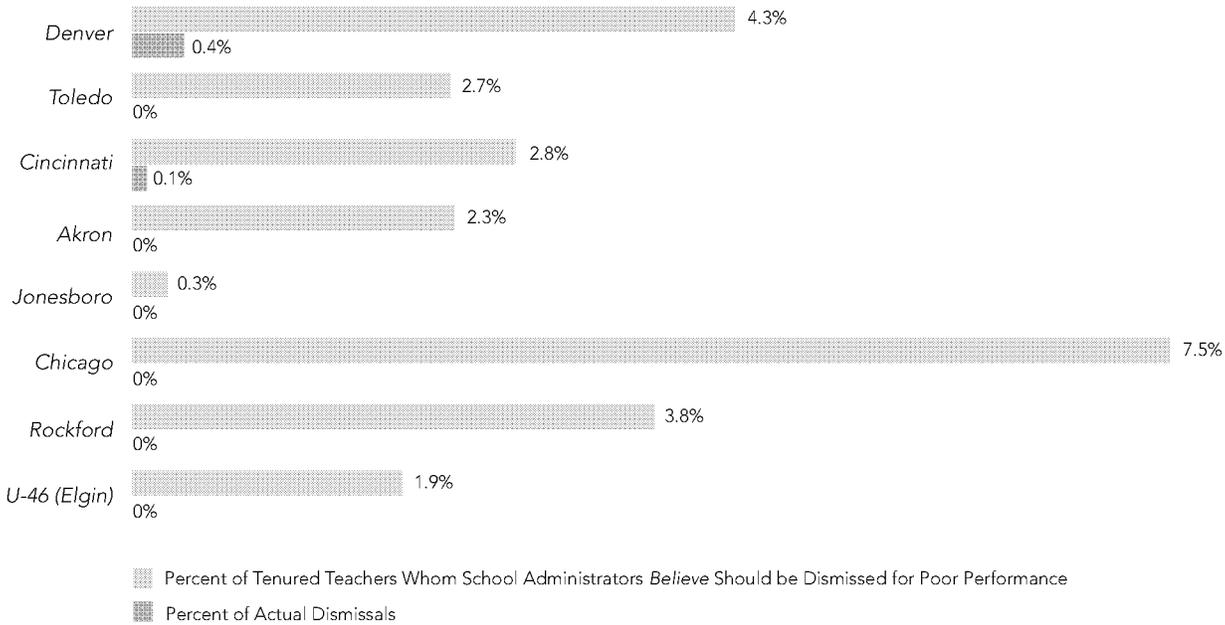


Note: Teacher dismissal for performance data was collected from ten districts, representing some combination of school years 2003-04 through 2007-08.³⁷

It is not surprising then that most teachers (68 percent³⁶) believe that poor performance is overlooked by administrators. This is essentially confirmed by administrators themselves, 86 percent³⁹ of whom say they do not always pursue dismissal even if it is warranted. School administrators appear to be deterred from pursuing remediation and dismissal because they view the dismissal process as overly time consuming and cumbersome, and the outcomes for those who do invest the time in the process is uncertain. Even for the small number of administrators that actually do attempt the process, fully half report that it yielded an outcome other than dismissal.

While all of the districts studied share the goal of an evaluation system that can identify instances of ineffective performance so administrators can properly intervene, the data make clear that this does not occur. Despite the fact that teachers and administrators report that poor performance is commonplace, intervention appears to be extremely rare when compared to the scope of the problem (*see Figure 09*). We are left to conclude that current systems for managing teacher performance fail to function on the most basic level—addressing poor instructional performance.

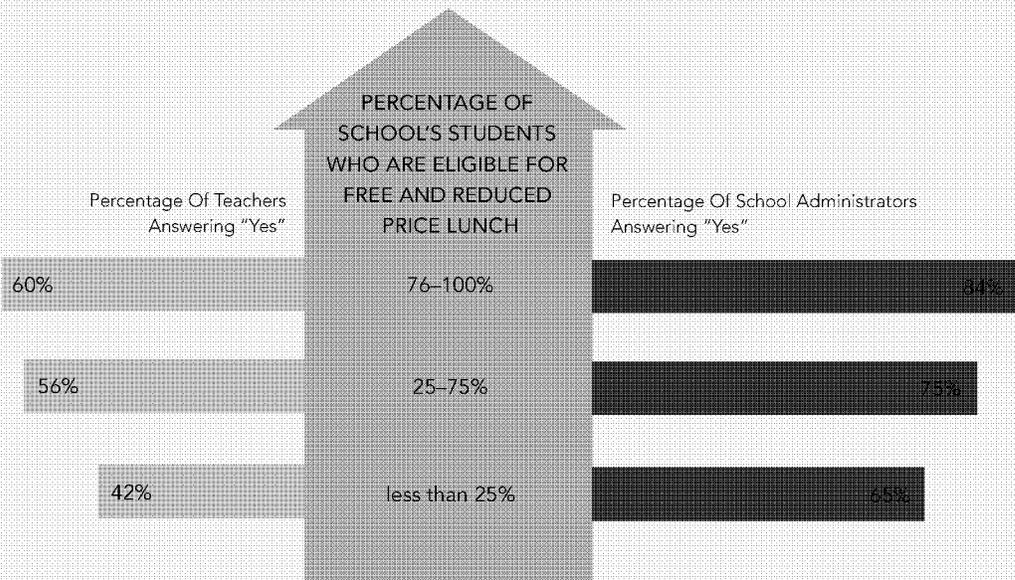
FIGURE 09 | Perceived Need for Dismissals vs. Actual Dismissals, by District



The Impact on High-Need Schools

Though poor performance goes unaddressed in most schools, our data indicate that the problem is most acute in the highest-need schools. These data are consistent across multiple districts⁴⁹ and with research that reflects that poor and minority children, who have the greatest need for effective teachers, are least likely to get them.

FIGURE 10 | In your opinion, are there tenured teachers in your school who deliver poor instruction?



FLAWS IN EVALUATION PRACTICE AND IMPLEMENTATION

While most teacher evaluation systems espouse grand intentions for teacher development, assessment and improvement, the data above show that all too often the outcome fails to equal the intent. Instead, the process becomes devalued. Evaluations are perfunctory, school districts do not invest in administrator capacity to provide meaningful feedback, and teachers come to expect that they will receive only positive feedback.

Teacher Evaluations Are Perfunctory

The current evaluation process reflects and codifies the assumption underlying the Widget Effect—that all teachers are essentially interchangeable. Operating under a belief system that one teacher is as good as any other, schools invest very little time or effort in evaluating teachers. Instead, they apply a perfunctory process, at best designed to capture a snapshot of a teacher’s instructional performance at a moment in time. Across the four states studied, all probationary teachers must be evaluated annually; however, tenured teachers may not be required to be evaluated at all, or only once every few years.

“It’s the easiest thing for administrators to do. It’s the path of least resistance. They don’t have time or often, even the authority, to coach or correct ineffective teachers. The good teachers remain unrewarded for doing fantastic jobs, while bad teachers get to coast along.”

—Little Rock Public Schools Teacher

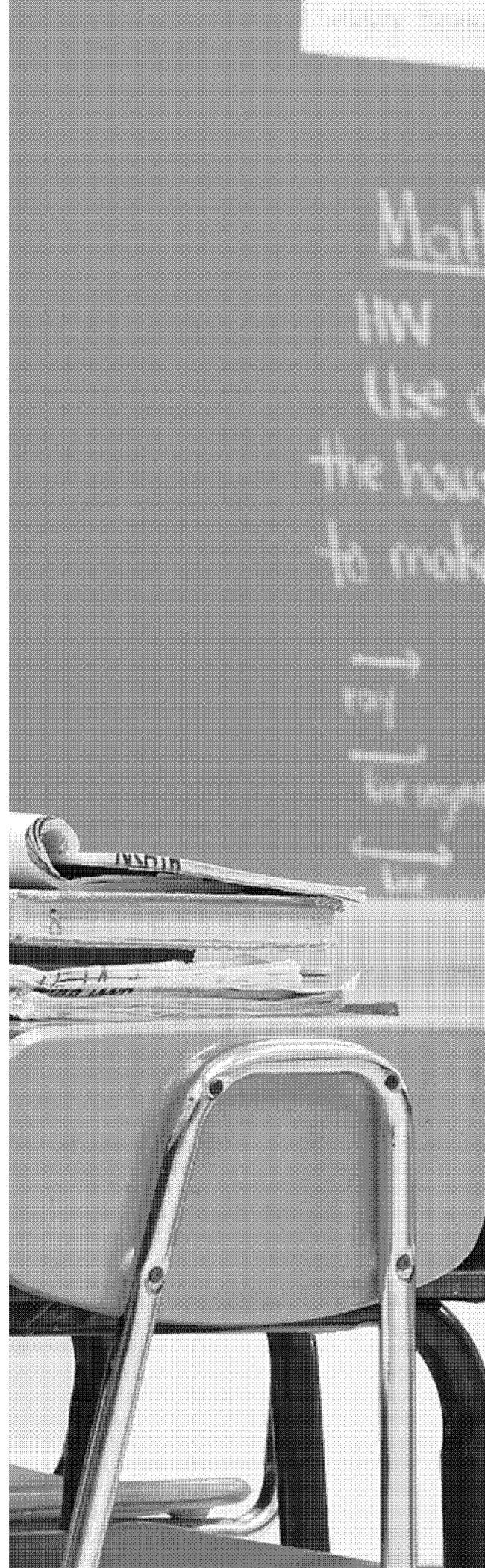
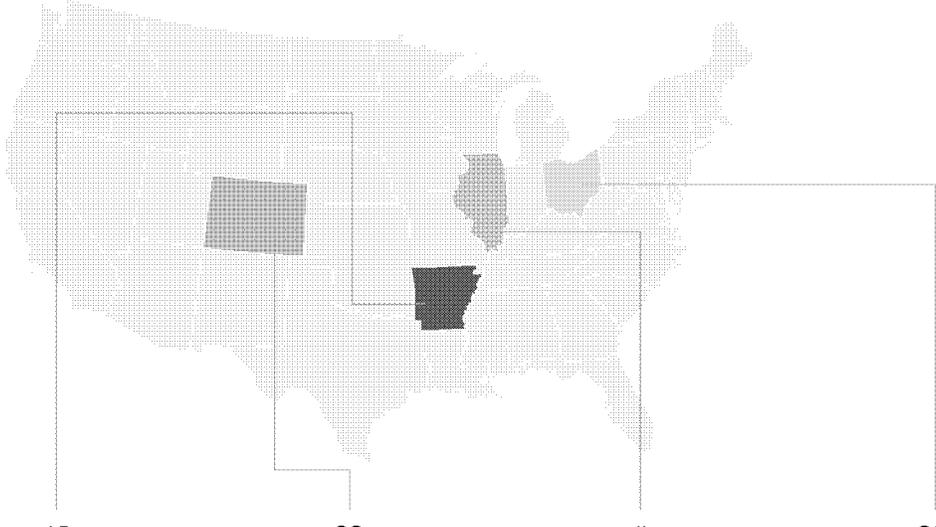


FIGURE 11 | State Teacher Evaluation Requirements in Brief



	AR		CO		IL		OH	
	<i>Probationary</i>	<i>Tenured</i>	<i>Probationary</i>	<i>Tenured</i>	<i>Probationary</i>	<i>Tenured</i>	<i>Probationary</i>	<i>Tenured</i>
Evaluation Frequency	no requirement	no requirement	1 per year	1 every 3 years	1 per year	1 every 2 years	2 per year	no minimum
# of Observations Required	3 per year	no minimum	2	1	1 (2 per year in Chicago only)	1 (2 per year in Chicago only)	2	2
Duration of Observations	no requirement	no requirement	no requirement	no requirement	no requirement	no requirement	30 minutes or more	30 minutes or more

These requirements outline the state laws. However, in practice the states' minimum standards become the districts' maximum. Across all 12 districts, only one Chicago Public Schools exceeds state standards for the frequency of evaluation of tenured teachers. (Even in Chicago, the extra requirement applies only to the few teachers who do not receive the top two ratings, amounting to less than 7 percent of the tenured workforce, who must be evaluated annually.)

Moreover, only four of the districts studied track evaluation results electronically, a step that would at least provide the opportunity to easily monitor and use evaluation information to inform decision-making at a school and district-wide level. Other districts record evaluations in paper files, typically housed at the central office.

Not surprisingly, school administrators spend very little time on what is a largely meaningless and inconsequential evaluation process. Most teacher evaluations are based on two or fewer classroom observations totaling 76 minutes or less. Across all districts, 64 percent of tenured teachers were observed two or fewer times for their most recent evaluation, for an average total of 75 minutes.⁴¹ Probationary teachers receive little additional attention despite their novice status; 59 percent of probationary teachers were observed two or fewer times for their most recent evaluation, for an average total of 81 minutes, a mere six additional minutes. Clearly, effective evaluation amounts to far more than how much time an administrator spends in a teacher's classroom, but the infrequency and brevity of administrator observations underscores their inattention to performance.

FIGURE 12⁴⁴ | Number of classroom observations by evaluator, prior to evaluator assigning final evaluation rating(s).

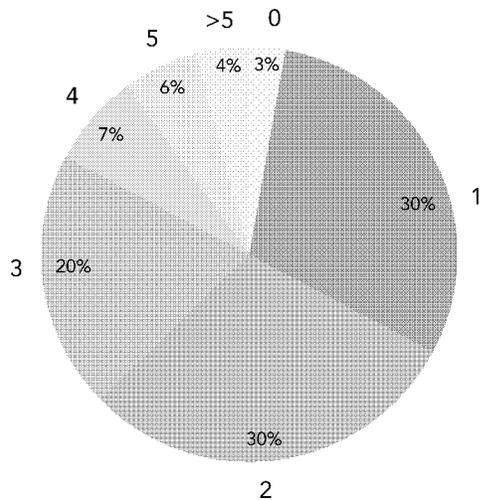
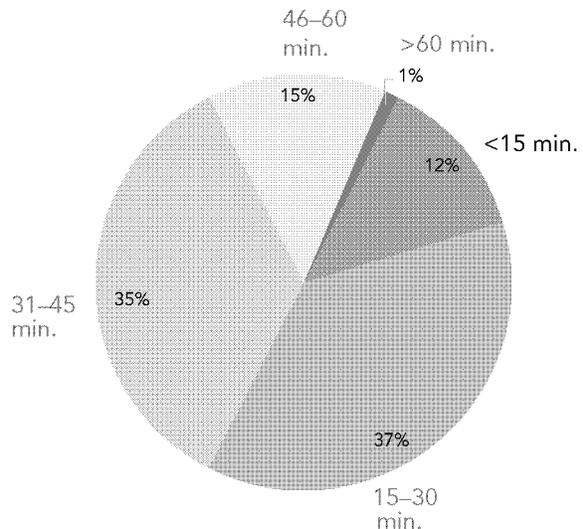


FIGURE 13⁴⁵ | Average minutes of a classroom observation, prior to a teacher being assigned a final evaluation rating(s).



Equally important, evaluators spend no more time to observe or give feedback to the small number of teachers identified as mediocre or poor performers than they spend with highly rated teachers. Teachers receiving lower than the highest rating report the same number of observations as their more highly rated colleagues and the same amount of informal feedback.⁴⁴

65 percent of the lower-rated teachers and 62 percent of highest-rated teachers report 2 or fewer observations during their last evaluation cycle.⁴⁵

58 percent of lower-rated teachers receive informal feedback as compared to 56 percent of higher-rated teachers.⁴⁶

Even when performance is clearly an issue—as represented by the small number of teachers who received the lowest rating on their last evaluation—evaluators fail to invest significant time monitoring instruction. Among the small number of teachers receiving the lowest rating, 74 percent report that they were observed three or fewer times despite significant concerns about their performance.

“I do not feel adequately trained to conduct a teacher evaluation. There are evaluation tools, but no one reviews them with you. We are not trained on the process. As a first year principal, you try it and you move through the process because it has to be done.”

—Toledo Public Schools Principal

School Administrators Receive Limited Training

Given the low priority assigned to teacher evaluation, it comes as no surprise that school districts invest minimally in evaluation training for school administrators. In many districts, evaluation training is a one-time endeavor provided either when an administrator is new in his or her position or when the district implements a revised teacher evaluation system. Consequently, school administrators are ill-equipped to evaluate teachers effectively.

Background conversations conducted with district staff suggest that, in many of our study sites, school administrators receive varying levels of training on how to conduct an effective teacher evaluation. For example, in the Cincinnati Public Schools, evaluation training can be provided upon request. In Chicago Public Schools and District U-46 (Elgin), training may occur once a year for a limited number of principals, but not all. In other districts, including El Dorado Public Schools and Akron Public Schools, it simply does not occur.

As a result, across all study sites, 51 percent of school administrators describe their level of training in how to conduct an effective evaluation as “very extensive” or “extensive”⁴⁷ and school administrators with more evaluation training are more likely to report that they enforce a high standard for instructional performance.

Yet, it is important to note that extensive training alone did not produce a significant change in evaluation outcomes. Principals with more extensive evaluation training report similar percentages of teachers enrolled in remediation or dismissed for delivering poor instruction as principals with less training.

Teacher Expectations Are Skewed

It is tempting to believe that simply requiring more frequent and thorough evaluations would result in more rigorous and accurate assessments of teacher performance and increase teachers’ confidence in and esteem for the evaluation process. However, we believe these reforms, while necessary, would be insufficient because the minimal nature of the process speaks to a far deeper problem in the culture of schools: the assumption that not only are all teachers the same, they are all performing at a high level.

Our research reflects that there is a strong and logical expectation among teachers that they will receive outstanding performance ratings. While the vast majority of teachers receive the highest rating, those teachers who do not receive it tend to believe that the higher rating was warranted.

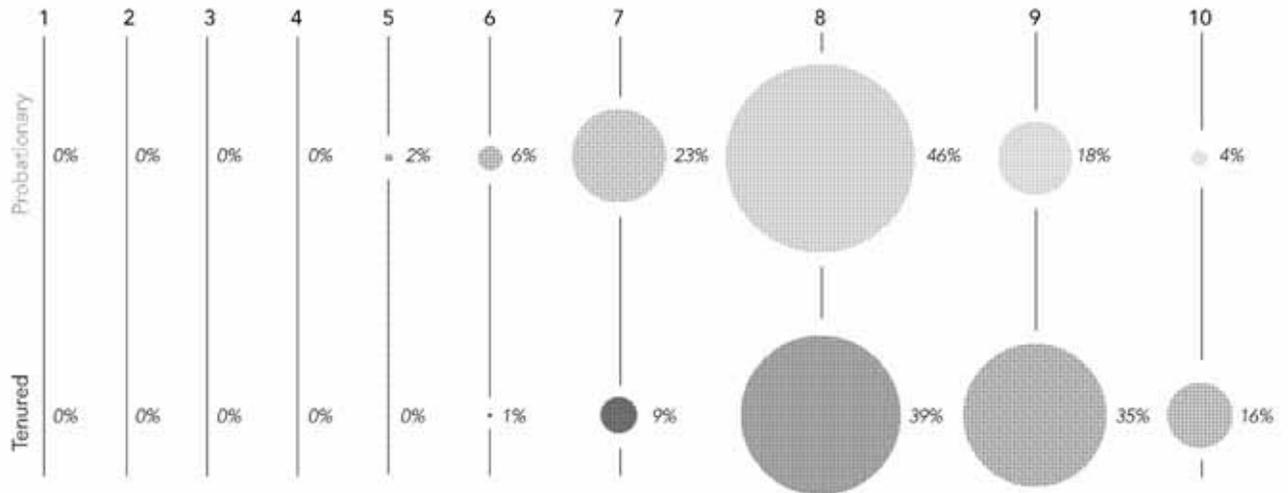
In the six districts with multiple-rating scales for which survey data were available,⁴⁸ 49 percent of probationary teachers and 50 percent of tenured teachers indicated that they believe they should have received the highest rating on their most recent evaluation. In the four districts with binary rating scales for which survey data were available,⁴⁹ 99 percent of probationary and 100 percent of tenured teachers think they should have received the highest rating (Satisfactory) on their most recent evaluation.

Even teachers who are just beginning their careers believe they deserve the highest performance ratings and are dissatisfied if they are rated good, not great. This inflated sense of performance is evident in the self-assessment ratings of novice teachers. In a subset of districts⁵⁰ where teachers were asked to assess their own instructional performance on a scale of 1 to 10, 69 percent of novice teachers rated their instructional performance an 8 or higher.

“Many teachers are accustomed to receiving a ‘superior’ rating and simply do not accept anything lower. It also seems to be an easier way out for the administrators, rather than have a confrontation with the teacher.”

—Chicago Public Schools Teacher

FIGURE 14 | Teachers' Self Assessments of Instructional Performance
ON A SCALE OF 1 TO 10, HOW WOULD YOU RATE YOUR INSTRUCTIONAL PERFORMANCE?



In a system where negative or even less than perfect performance ratings are given only rarely, teachers naturally develop an expectation that they will be among the large majority considered top performers. In this context, teachers perceive low or negative ratings not in terms of what they communicate about performance but as a personally-directed insult or attack. The response is understandable in the context of the current system, where so few teachers get critical feedback of any kind. When their evaluation does include criticism, they feel as though they have been singled out while other examples of poor performance go unaddressed.

This creates a culture in which teachers are strongly resistant to receiving an evaluation rating that suggests their practice needs improvement. Schools then find themselves in a vicious cycle; administrators generally do not accurately evaluate poor performance, leading to an expectation of high performance ratings, which, in turn, cause administrators to face stiff cultural resistance when they do issue even marginally negative evaluations. The result is a dysfunctional school community in which performance problems cannot be openly identified or addressed.

(b)(6)

POLICY IMPLICATIONS OF THE WIDGET EFFECT

By failing to produce meaningful information about instructional effectiveness, teacher evaluation systems severely limit the ability of schools and school systems to consider performance when answering critical questions or making strategic decisions about their teacher workforce. On paper, all teachers appear to be equally effective and interchangeable, so schools begin to treat them as such. It is in this way that the Widget Effect takes root.

The Widget Effect endures because there is no mandate for teacher evaluations to do more than identify a few teachers as egregiously incompetent. Performance ratings are not used for critical decisions. Unless a teacher is identified for improvement or dismissal due to a performance assessment suggesting near-total incompetence, evaluations tend to have no consequences, positive or negative.

As a result, the current education policy landscape is chiefly characterized by indifference toward instructional quality. There is no consequence for mediocre or below average teaching, as long as a teacher is not one of the unlucky few to be rated unsatisfactory and face remediation (and even then, it is often overlooked). Ineffective teachers receive salary step increases each year. They may be assigned to work with any group of students, even those who are years behind in academic progress and most in need of accelerated progress. They do not receive differentiated professional development to help them improve.

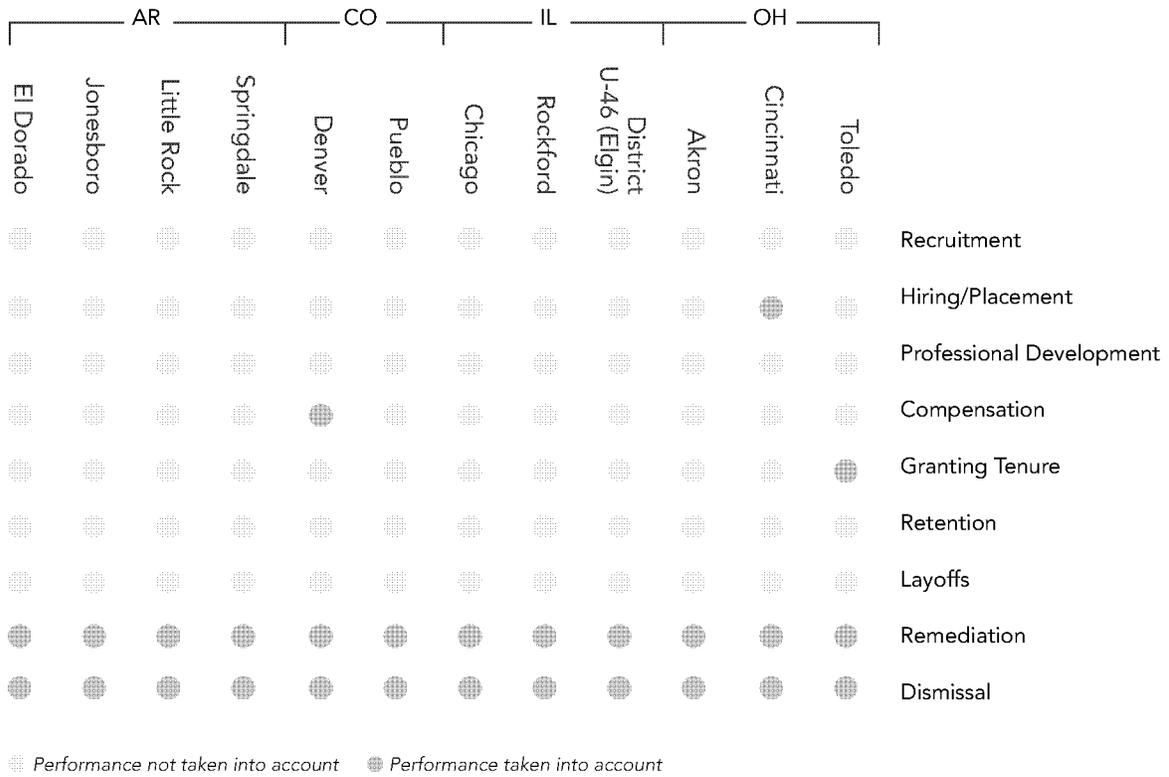
The indifference extends to the top end of the performance scale as well. For example, an exceptional performance rating does not provide protection from layoff for a teacher in any of the 12 districts studied. An outstanding instructor has no additional right to choose curricular materials for her courses, to participate in the selection or induction of newly hired teachers, or to receive a raise. In short, there is little or no benefit associated with being among the best.

In the absence of policy systems based on instructional effectiveness, districts make decisions about teachers in other ways. Most often, districts default to using a teacher's length of service in the system as a proxy for effectiveness and the basis for most high-stakes decisions.

“There are teachers who pour their hearts and souls into teaching. It is heartbreaking to know that all students may have gained in your classroom will not be continued as they move forward. This causes resentment and frustration in our school culture.”

—Chicago Public Schools Teacher

FIGURE 15 | The Widget Effect in Action: Where Evaluation Outcomes Are a Factor in Important Human Capital Decisions⁵¹



In Chicago, where teachers and administrators were asked about whether effectiveness should be a factor in these decisions, the vast majority of administrators (86 percent)⁵² reported that they would spend more time and effort on the evaluation process if evaluations held more importance for other decisions.⁵³ Similarly, teachers also indicated that evaluations should be considered in decisions such as which teachers lose their position during budget cuts, with 78 percent⁵⁴ of teachers in Chicago reporting that these choices should be informed by additional factors other than length of service teaching in the district (seniority).

Given the profound impact of the Widget Effect, it is not surprising that only 49 percent of teachers and only 44 percent of administrators agree or strongly agree that their district enforces a high standard of instructional performance for all teachers. It is a change in this number that will ultimately act as a barometer for whether our schools have eliminated the Widget Effect and introduced a new culture that promotes and supports instructional effectiveness.

"We're...making an unprecedented commitment to ensure that anyone entrusted with educating our children is doing the job as well as it can be done... [T]hat commitment means...treating teachers like the professionals they are while also holding them more accountable. New teachers will be mentored by experienced ones. Good teachers will be rewarded with more money for improved student achievement, and asked to accept more responsibilities for lifting up their schools. Teachers throughout a school will benefit from guidance and support to help them improve."

-President Barack Obama

RECOMMENDATIONS: REVERSING THE WIDGET EFFECT

The Widget Effect is deeply ingrained in the fundamental systems and policies that determine the quality and effectiveness of the teachers in our public schools. While high-functioning evaluation systems alone may be an insufficient antidote, it is clear that reversing the Widget Effect depends on the ability of such systems to produce accurate and credible information on instructional performance that can be connected to other high-stakes decisions.

Overcoming the Widget Effect will require the commitment and investment of all stakeholders in public education today. Taken together, the recommendations below represent a comprehensive approach to improving instructional effectiveness and maximizing student learning. We believe they will enable our nation's schools to recognize, reward and retain their most effective teachers; to provide useful and differentiated support and development to teachers who have not yet achieved their potential; and to ensure that those who do not improve despite receiving support are not permitted to remain in the classroom.

These recommendations are interlinked and co-dependent; adopting one or two while ignoring others will not eliminate the Widget Effect or produce the quantum leaps in student achievement our children deserve.

01 | Adopt a comprehensive performance evaluation and development system that fairly, accurately and credibly differentiates teachers based on their effectiveness in promoting student achievement and provides targeted professional development to help them improve.

Teachers, as professionals, should have their performance assessed based on their ability to succeed at the core mission of our public schools – to deliver instruction that fosters student academic growth. Such a system has to recognize that teachers perform at varying levels – they are not interchangeable parts with uniform attributes, strengths and weaknesses.

In order to be successful, it is critical that a teacher evaluation system be credible; credible to teachers, to administrators, to superintendents, to school boards and to parents. There is no single “correct” model of performance evaluation, but credible systems will share several characteristics:

Clear and straightforward performance standards focused on student achievement outcomes.

Multiple, distinct rating options that allow administrators to precisely describe and compare differences in instructional performance.

Regular monitoring and norming of administrator judgments (e.g., through or with the aid of peer evaluations, independent or third party reviews, and/or teacher surveys).⁵⁵

Frequent and regular feedback to teachers about whether and how their teaching performance meets, exceeds or fails to meet standards.

Professional development that is linked to the performance standards and differentiated based on individual teacher needs.

Intensive support for teachers who fall below performance standards.

VALUE ADDED DATA AND TEACHER EVALUATION

Some districts and states have developed “value-added” models to assess the impact of individual schools and teachers on student achievement. These models use various predictive factors to determine how well students are expected to achieve on standardized tests and then measure the positive or negative variation from that expected performance level as a means of evaluating the impact of individual teachers. These models, which have shown both to reliably predict future impact of many teachers and to correlate with administrator evaluations of classroom performance, are promising. However, they cannot serve as a substitute for a comprehensive teacher evaluation system. First, value-added models apply typically only to a minority of teachers, those in annual testing grades and subjects in elementary and middle schools. Second, while value-added models may be useful in identifying the impact of teachers on the margins of the performance spectrum, they are less reliable in differentiating among teachers in the middle ranges of performance. Value-added can be a useful supplement to a performance evaluation system where a credible model is available and may be appropriate for wider use as student assessment systems and value-added models evolve.⁵⁶

UNPRECEDENTED OPPORTUNITIES FOR IMPLEMENTATION AND SUPPORT

These recommendations are ambitious and comprehensive, befitting the demonstrable need for dramatic change in our schools. However, they are also pragmatic and achievable. While there will clearly be significant transition costs associated with the implementation of our recommendations, there are also unprecedented opportunities for schools to obtain external funding for this purpose. Major philanthropies are investing in human capital reform in K-12 education at historic levels,⁵⁷ and the American Recovery and Reinvestment Act includes substantial new funding for teacher effectiveness reform.⁵⁸ In addition, school districts may be able to reallocate the substantial funding they currently dedicate to undifferentiated professional development to provide better evaluation systems and more relevant professional development to meet the needs of their teachers.⁵⁹

02 | Train administrators and other evaluators in the teacher performance evaluation system and hold them accountable for using it effectively.

In order for a performance evaluation system to fairly and accurately reflect variations in teacher effectiveness, those who are conducting the evaluations—principals, assistant principals, peers or third parties—must be well trained in setting rigorous but achievable performance standards, objectively measuring teacher performance against those standards, providing constructive and actionable feedback to teachers and designing and providing the differentiated support teachers need to meet or exceed the standards.

The training must be intensive and ongoing. Evaluators will need to become expert on the performance evaluation system before it is launched, but just as importantly, will need ongoing guidance as they use the system. District officials must recognize that principals and assistant principals will be chiefly responsible not just for implementing a new evaluation process, but for leading a change in culture.

District officials also have an important role to play in ensuring that teachers are fairly and accurately differentiated based on their effectiveness in the classroom. They must ensure that differentiation through the performance evaluation system remains a priority for administrators by investing in ongoing support and holding them accountable for this process. Administrators who cannot effectively evaluate teacher performance will be unable to reward and retain top performers, improve or remove poor performers, or help all teachers to understand and respond to their own strengths and weaknesses. This fundamental failure translates to an inability to ensure that students receive consistently high-quality instruction, a failing that administrators' own evaluations must reflect.

03 | Use performance evaluations to inform key decisions such as teacher assignment, professional development, compensation, retention and dismissal.

The production of accurate information that can inform important human capital decisions in districts and schools is one of the clear advantages of utilizing a robust teacher performance evaluation system. At present, decisions about how much to pay teachers, where to assign them, what professional development to provide and whom to exit are based on information that generally has little or no relationship to effectiveness in the classroom.

Once districts fairly and accurately assess teacher effectiveness, they can and should put this information to broader use. For example, it might be used to match teachers who provide particularly effective instruction to English Language Learners with students in that category, or to determine which teachers to target for retention through recognition, additional responsibility, compensation or promotion.

Modify teacher compensation systems, most of which are exclusively based on years of service and attainment of educational credits, so that they also reward high-performing teachers and withhold step increases for low-performing teachers.

Factor teacher effectiveness into layoff and excessing (displacement) decisions, rather than basing such decisions solely on seniority.

Target professional development to identified teacher needs so that it helps teachers address areas where they can improve.

Recognize consistently excellent teachers through additional compensation and career ladder opportunities as well as opportunities to employ innovative instructional approaches and share best practices with novices and other colleagues.

Fairly but swiftly remove consistently low-performing teachers who are identified as such through a fair, credible evaluation process and who fail to meet performance standards despite receiving individualized support.

Attaching “stakes” to performance evaluation outcomes for teachers and school administrators is not merely advisable, it is essential. Basing these critical decisions on accurate measures of teacher effectiveness will help to create cultures of excellence in schools, where the focus is on achieving individual, group and school performance goals related to student achievement. In addition, administrators will have to invest substantial time in the performance evaluation system, and will be required to have the difficult conversations about performance with their teachers that so rarely occur in schools today. Without attaching stakes to evaluation outcomes, it would be unrealistic to expect that administrators will continue to do the hard work to ensure that the performance evaluation system remains rigorous and credible.

04 | Adopt dismissal policies that provide lower-stakes options for ineffective teachers to exit the district and a system of due process that is fair but streamlined and efficient.

When virtually all teachers are rated as satisfactory or better, a teacher identified as unsatisfactory may justifiably wonder whether he or she is the subject of a witch hunt. But under a system with clear performance standards, frequent constructive feedback and ample support for teachers failing to meet the standards, unsatisfactory ratings will not be anomalous, surprising or without clear justification. As a result, it is far more likely that teachers identified as unsatisfactory will accept the appraisal of their performance and voluntarily exit the district (as is common in other professions) rather than challenge the decision through formal processes.

Districts and states can facilitate the voluntary departure of unsatisfactory performers by providing low-stakes options such as multi-year unpaid sabbaticals (without job guarantees upon return). Districts can also motivate unsatisfactory teachers to voluntarily exit by denying them salary increases unless and until they meet performance standards, and by allowing pension plan portability so that veteran teachers who need a change can accept positions in other districts without sacrificing pension benefits.

Regardless of whether teachers leave voluntarily or through a streamlined due process system, they should not face license revocation unless they are a danger to children. Just as in other professions, those who fail to meet performance standards of a particular employer should not be barred from the profession, because “fit” matters and an effective match with a new school may lead to improved instructional performance.

Formal dismissal processes should no longer determine whether teachers can continue to practice their chosen profession, but, rather, should be a check on arbitrary decisions by administration. This much more narrow focus, coupled with a transparent evaluation system and process, should permit a dismissal process that does not involve protracted and expensive quasi-judicial hearings in which arbitrators substitute their judgment about teacher competence for that of school or district leaders. There should be no necessity, in fact, for schools and districts to invest hundreds of hours and hundreds of thousands of dollars seeking the dismissal of a single unsatisfactory-rated teacher.⁶⁰

Nor will extensive remediation processes be necessary in cases of unsatisfactory performance. Teachers failing to meet performance standards will receive fair notice of performance problems, guidance on how to improve and time to do so, all within the context of the performance evaluation system. On the heels of such a process, dismissal should not require extensive additional documentation or lengthy testimony about performance problems or remediation. In the context of a credible performance evaluation system, an expedited hearing of one day’s duration should be sufficient for an arbitrator to determine if the performance evaluation and development process were followed and that the judgments of schools administrators were made in good faith.

At present, decisions about how much to pay teachers, where to assign them, what professional development to provide and whom to exit are based on information that generally has little or no relationship to effectiveness in the classroom.

- ¹ Victor H. Bernstein, "Security of the Teacher in his Job," *The New York Times*, May 24, 1936.
- ² Remarks by President Barack Obama to the U.S. Hispanic Chamber of Commerce on a Complete and Competitive American Education, March 10, 2009.
- ³ For information about the impact of teacher effectiveness on student outcomes, see Rivkin, S. E. Hanushek, and J. Kain (2005). "Teachers, Schools, and Academic Achievement," *Econometrica*, 73(2), 417-458. Also see Sanders, W.L. and Rivers, J.C. (1996). "Research Project Report: Cumulative and Residual Effects of Teachers on Future Student Academic Achievement," University of Tennessee Value-Added Research and Assessment Center; and Rockoff, J. E. (2004). "The Impact of Individual Teachers on Students' Achievement: Evidence from Panel Data." *American Economic Review* 94(2), 247-52.
- ⁴ Teacher survey data was collected in 12 districts, Akron Public Schools, Chicago Public Schools, Cincinnati Public Schools, Denver Public Schools, District U-46 (Elgin), El Dorado Public Schools, Jonesboro Public Schools, Little Rock School District, Pueblo City Schools, Rockford Public Schools, Springdale Public Schools and Toledo Public Schools. A "negative" evaluation constitutes the lowest evaluation rating possible, per each district's evaluation system/tool used in the school years for which data were supplied. See Figures 01 and 02 for time periods associated with district ratings included in this report.
- ⁵ Districts that use a binary rating system to evaluate teachers include Denver Public Schools, Jonesboro Public Schools, Pueblo City Schools, Toledo Public Schools and Springdale Public Schools. Springdale Public Schools uses a binary evaluation system for tenured teachers and a multiple rating system for probationary teachers.
- ⁶ Denver Public Schools uses a multiple rating system for various indicators, and then a final summative rating of "satisfactory" or "unsatisfactory."
- ⁷ In Jonesboro Public Schools, teachers receive either "Meets Expectations" or "Needs Improvement" on each of the eight domains that comprise the district's evaluation tool. In compiling the data, teachers were given one point for each of the eight domains in which they received a rating of "Meets Expectations" box checked for more than half of the sub-domains in a particular domain. Rating totals represent the sum of ratings across all eight domains.
- ⁸ Satisfactory ratings represent all ratings given during the period specified by district in Figure 01.
- ⁹ Unsatisfactory ratings represent all ratings given during the period specified by district in Figure 01.
- ¹⁰ Districts that use a multiple rating system to evaluate teachers include Akron Public Schools, Chicago Public Schools, Cincinnati Public Schools, District U-46 (Elgin) and Rockford Public Schools.
- ¹¹ Highest ratings were assigned within the last three to five school years, depending upon district. See Figure 2 for district time periods associated with each rating.
- ¹² Based on percent of teachers that receive one of the lowest two ratings in Akron Public Schools, Chicago Public Schools and Cincinnati Public Schools
- ¹³ As defined by the federal No Child Left Behind Act. Schools with grade configurations that include both elementary and secondary grade levels, such as K-8 schools, receive multiple AYP ratings. If a school received at least one AYP rating of "Not Meeting," we counted the school in the set of those schools not meeting AYP.
- ¹⁴ Average calculated using the number of schools not meeting AYP in each school year as the unit of analysis.
- ¹⁵ Denver Public Schools Adequate Yearly Progress data was collected from the Colorado Department of Education website, located at <http://www.cde.state.co.us/FedPrograms/ayp/results.asp>, in March 2009. Charter schools were omitted from the data included in Figure 3.
- ¹⁶ Rockford Public Schools Adequate Yearly Progress data was collected from the Illinois State Board of Education website, located at <http://webprod.isbc.net/creport-card/publicsite/getSearchCriteria.aspx> in March 2009. Cincinnati Public Schools Adequate Yearly Progress Data was collected from the Ohio Department of Education website, located at <http://www.ode.state.oh.us/GD/Templates/Pages/ODE/ODEPrimary.aspx?page=2&TopicRelationID=130> in December 2009.
- ¹⁷ El Dorado Public Schools does not track current evaluation data centrally so these data could not be included in the report. In this instance, the district is represented by survey data alone.
- ¹⁸ Teachers in all districts were asked to report when their instructional performance was last evaluated.
- ¹⁹ Expanded surveys were issued in Akron Public Schools, Chicago Public Schools, Little Rock School District and Springdale Public Schools. Teachers and administrators in these districts were asked how their respective district's evaluation ratings translate to varying levels of effectiveness, including an exemplary teacher, an effective teacher, a somewhat effective teacher or an ineffective teacher.
- ²⁰ Expanded surveys were issued in Akron Public Schools, Chicago Public Schools, Little Rock School District, and Springdale Public Schools to survey teachers on additional topics including teacher development and the recognition of excellence. Data taken from these expanded surveys issued in four study sites are noted as such throughout the report.
- ²¹ Expanded surveys were issued in Akron Public Schools, Chicago Public Schools, Little Rock School District and Springdale Public Schools to survey teachers on additional topics including teacher development and the recognition of excellence.
- ²² Teachers in all 12 districts were asked if their evaluator identified any areas of unsatisfactory performance or performance in need of improvement on their most recent evaluation.
- ²³ Expanded surveys were issued in Akron Public Schools, Chicago Public Schools, Little Rock School District and Springdale Public Schools. Teachers were asked if they had participated in an informal conversation with their principal or evaluator in school year 2008-09, to discuss aspects of their instruction that could be improved.
- ²⁴ Expanded surveys were issued in Akron Public Schools, Chicago Public Schools, Little Rock School District and Springdale Public Schools. Teachers that received an unsatisfactory, or its equivalent rating, were asked if they were made aware of concerns about the quality of their instruction prior to their most recent evaluation.
- ²⁵ Respondents answering "Strongly agree" or "Agree"
- ²⁶ Respondents answering "Strongly agree" or "Agree."
- ²⁷ Novice is defined by the probationary teaching period, which depends on state policy and in some cases, district practice. Districts in our study range from a three to four year novice period.
- ²⁸ Respondents answering "Very confident" or "Confident"
- ²⁹ Percent of novice teachers in Akron Public Schools, Cincinnati Public Schools, Chicago Public Schools, District U-46, Little Rock School District, Rockford Public Schools and Springdale Public Schools who indicated they received a greater than satisfactory rating on their most recent performance evaluation. Cincinnati includes evaluation ratings for the "Teaching for Learning" domain only.
- ³⁰ Teacher non-renewals were counted based on explicit non-renewal codes included in extant data provided by the districts included in Figure 06. Data are as accurate as the records provided to TNTP for this study.
- ³¹ Data from SY05-06 through SY07-08.
- ³² Data available only for SY04-05 through SY07-08.
- ³³ Percent of teachers identified as poor performers was collected from teacher surveys in Chicago and Akron. Data regarding the actual percent of teachers receiving an unsatisfactory rating was provided by each district.

- ³⁴ Expanded surveys were issued in Akron Public Schools, Chicago Public Schools, Little Rock School District and Springdale Public Schools. Respondents were asked if there are tenured teachers in their school who deliver poor instruction.
- ³⁵ Expanded surveys were issued in Akron Public Schools and Chicago Public Schools, which asked teachers if they are aware of poor performers in their school. Evaluation rating data was also available for these districts, allowing for the comparison of reported poor performers and number of unsatisfactory ratings. A weighted average was used to calculate teacher observations of poor instructional performance.
- ³⁶ Respondents across all districts except Rockford Public Schools who indicated they have not initiated a dismissal proceeding for a poorly performing tenured teacher in the past five years.
- ³⁷ Teacher dismissal for performance data was collected from eight districts representing some combination of school years 2003-04 as noted in Figure 08. A formal dismissal is defined as a case of poor instructional performance whereby the district initiated dismissal proceedings against a teacher and those proceedings resulted in a dismissal. Akron Public Schools, Cincinnati public Schools, Denver Public Schools, Jonesboro Public Schools, Pueblo City Schools, Springdale Public Schools and Toledo Public Schools each supplied a code that identified which teachers were dismissed for poor performance. Chicago Public Schools, District U-49 (Elgin) and Rockford Public Schools supplied remediation data and a code detailing remediation outcome, which equates to dismissal.
- ³⁸ Respondents who said that they believe that administrators fail to dismiss tenured teachers who are poor instructional performers.
- ³⁹ Respondents that indicated they address poor instruction through alternative strategies, rather than initiate dismissal.
- ⁴⁰ Expanded surveys were issued in Akron Public Schools, Chicago Public Schools, Little Rock School District and Springdale Public Schools. Teachers and administrators were asked if there are tenured teachers in their school who deliver poor instruction.
- ⁴¹ Respondents were asked how many classroom observations their evaluator conducted prior to issuing their most recent evaluation rating, as well as the amount of time the evaluator spent, on average, in their classroom while conducting this (these) observations.
- ⁴² Respondents in all districts were asked to identify the number of classroom observations conducted prior to their evaluator assigning their most recent evaluation rating.
- ⁴³ Respondents in all districts were asked to identify the average number of minutes their evaluator spent observing them prior to assigning their most recent evaluation rating(s).
- ⁴⁴ Respondents were asked to report their most recent evaluation rating. These data were then analyzed against the amount of informal feedback teachers reported they received.
- ⁴⁵ Survey respondents were asked to identify their most recent performance evaluation rating. These data were then analyzed against the number of classroom observations conducted for the most recent evaluation.
- ⁴⁶ Survey respondents were asked to identify their most recent performance evaluation rating. These data were then analyzed against teacher reports of informal feedback.
- ⁴⁷ Respondents were asked to describe the extent of training they have received on how to conduct an effective evaluation of a teacher's instructional performance.
- ⁴⁸ Akron Public Schools, Chicago Public Schools, District U-46 (Elgin), Little Rock School District, Rockford Public Schools and Springdale Public Schools
- ⁴⁹ Denver Public Schools, Jonesboro Public Schools, Pueblo City Schools and Toledo Public Schools. These data do not include Springdale Public Schools, which uses a multiple rating evaluation system for probationary teachers and a binary evaluation rating system for tenured teachers.
- ⁵⁰ Akron Public Schools, Chicago Public Schools, Little Rock School District and Springdale Public Schools.
- ⁵¹ Definitions used in determining significance:
- Recruitment:* District uses instructional effectiveness outcomes to determine and target likely sources of high-potential teacher candidates.
 - Hiring/Placement:* District uses instructional effectiveness outcomes to determine which teachers are hired into which schools and/or placed in particular positions, e.g. hard-to-staff schools, lead teacher position, lead mentor, etc.
 - Professional Development:* District uses instructional effectiveness outcomes to determine what types of specific development and support an individual teacher needs in order to continuously improve their teaching performance.
 - Compensation:* District uses instructional effectiveness outcomes to determine compensation decisions, e.g., advance on salary schedule, pay-for-performance programs, merit pay, etc.
 - Granting Non-Probationary Status/Tenure:* District uses instructional effectiveness outcomes to determine which teachers are awarded non-probationary status or tenure.
 - Retention:* District uses instructional effectiveness outcomes to identify outstanding teachers, recognize their efforts and reward them for their performance, through preferred placement, greater autonomy, etc.
 - Layoffs:* District uses instructional effectiveness outcomes to determine which teachers are retained and/or released during layoff situations.
 - Remediation:* District uses instructional effectiveness outcomes to determine which teachers receive remediation support and what type of remediation they need.
 - Dismissal:* District uses instructional effectiveness outcomes to determine which teachers should be dismissed because their influence on student learning is less than satisfactory.
- ⁵² Respondents from the Chicago Public Schools administrator survey only.
- ⁵³ Expanded surveys were issued in Chicago Public Schools to survey teachers on additional topics including teacher development and the recognition of excellence.
- ⁵⁴ Respondents from the Chicago Public Schools teacher survey only.
- ⁵⁵ A critical part of ensuring that teachers accept any performance evaluation system as fair and credible is monitoring administrator judgments to ensure they are fair and objective. There are several mechanisms that can be used for this purpose. Peer evaluators can be deployed to provide input on administrator evaluations. District officials can independently review administrator judgments. Outside firms can be retained to provide objective third party assessments of the fidelity of administrators to performance evaluation standards. Teachers can be surveyed confidentially to assess their views of the accuracy of performance evaluations in their schools. These mechanisms will allow district officials to identify administrators who are not being fair or objective and instill confidence among teachers in the fairness of the process.
- ⁵⁶ Various researchers have explored the strengths and weaknesses of using value added data as an indicator of teacher effectiveness. See Goldhaber, D. and M. Hansen (2008). "Assessing the potential of using value-added estimates of teacher job performance for making tenure decisions." National Center for Analysis of Longitudinal Data in Education Research. Retrieved April 27, 2009, from http://www.urban.org/UploadedPDF/1001265_Teacher_Job_Performance.pdf. See Rothstein, J. (2008). "Teacher quality in educational production: tracking, decay, and student achievement." NBER. Retrieved April 27, 2009, from <http://www.nber.org/papers/w14442>. See McCaffrey, D., Lockwood, J.R., Koretz, D., & Hamilton L.S. (2003). Evaluating value-added models for teacher accountability. Santa Monica, CA: RAND
- ⁵⁷ Erik Robelen. "Gates Revamps its Strategy for Giving in Education." Education Week, November 11, 2008.
- ⁵⁸ See U.S. Department of Education <http://www.ed.gov/news/pressreleases/2009/04/04012009.html>.
- ⁵⁹ Shields, R., & Hawley Miles, K. (2008). "Finding Resources and Organizing to Build Teaching Capacity: The Professional Development Strategic Review."
- ⁶⁰ New York State School Boards Association (2007). "Accountability for All."

This report is based on data collected from a diverse group of sources, including state and local education stakeholders in four states; district leadership, administrators and teachers in 12 school districts; and existing state and district policies.



METHODOLOGY

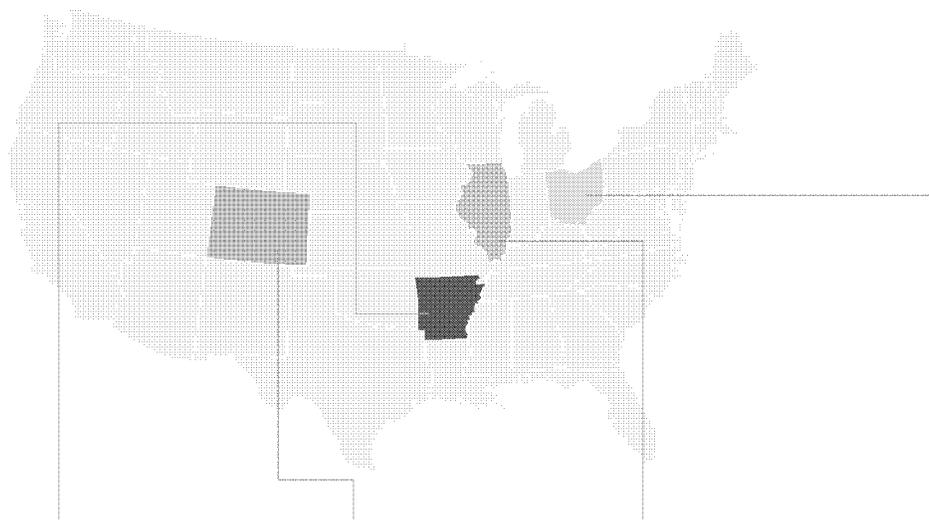
This report is based on data collected from a diverse group of sources, including state and local education stakeholders in four states; district leadership, administrators and teachers in 12 school districts; and existing state and district policies.

The four states and 12 districts represented in this report include:

Arkansas	Colorado	Illinois	Ohio
El Dorado Public Schools Jonesboro Public Schools Little Rock School District Springdale Public Schools	Denver Public Schools Pueblo City Schools	Chicago Public Schools District U-46 Rockford Public Schools	Akron Public Schools Cincinnati Public Schools Toledo Public Schools

The four states employ diverse teacher performance management policies and have demonstrated a significant commitment to improving teaching and learning. Arkansas is currently developing more guidance for districts on how to design and manage an effective teacher evaluation system, while Colorado and Ohio already provide some suggested structure for districts, particularly with respect to evaluation frequency and the number of observations required per evaluation. Illinois is the most prescriptive state included in our report, with state requirements related to the frequency of observations and the number and duration of each observation.

FIGURE 16 | State Teacher Evaluation Requirements in Brief



	AR		CO		IL		OH	
	Probationary	Tenured	Probationary	Tenured	Probationary	Tenured	Probationary	Tenured
Evaluation Frequency	no requirement	no requirement	1 per year	1 every 3 years	1 per year	1 every 2 years	2 per year	no minimum
# of Observations Required	3 per year	no minimum	2	1	1 (2 per year in Chicago only)	1 (2 per year in Chicago only)	2	2
Duration of Observations	no requirement	no requirement	no requirement	no requirement	no requirement	no requirement	30 minutes or more	30 minutes or more

All of the districts included in this report are committed to reform and face significant challenges in improving student achievement. The percentage of students who are economically disadvantaged, as defined by the U.S. Department of Education, ranges from 42 percent to 84 percent. The enrollment in the districts we studied ranges

from 4,450 to 413,700 students. Some districts are located in or near urban centers, while others are located in rural areas. The districts' evaluation policies and practices differ but, as this study demonstrates, the outcomes of the evaluation process are similar.

FIGURE 17 | District Teacher Evaluation Requirements-Tenured Teachers

District	Formal Evaluation Frequency	Number of Observations	Duration of Observations	Number of Ratings	Peer Review Process
Akron Public Schools	Once every 3 years	No more than 4	More than 15 minutes	5	No
Cincinnati Public Schools	Once every 5 years	1 sufficient in length; 2 at certain levels on the salary scale	Sufficient in length to justify rating	4	Yes
Chicago Public Schools	Once every 1 or 2 years	At least 2 to assign an unsatisfactory rating	At least 30 minutes	4	No
Denver Public Schools	Once every 3 years	At least one	At least 20 minutes	2	No
District U-46 (Elgin)	Once every 2 years	At least 1, no more than 3	At least 30 minutes	3	No
El Dorado Public Schools	Once per year	At least one uninterrupted instructional period		7	No
Jonesboro Public Schools	At least once per year	At least one formal and one informal	Formal is at least 30 minutes	2	No
Little Rock School District	Full evaluation is once every 3 years, with teachers being evaluated on various domains each year	Different domains evaluated every year so that each teacher is comprehensively evaluated every three years			No
Pueblo City Schools	Once every 3 years	One observation a year		2	No
Rockford Public Schools	Once every 2 years	3	One must be at least 30 minutes	3	No
Springdale Public Schools	Once every year	At least 2 unannounced observations per semester	No minimum	2	No
Toledo Public Schools	Every 4 years, limited contract teachers only; continuing contract teachers are not evaluated unless there are performance concerns	At least one observation	At least 30 minutes	2	Yes

Sources of Quantitative Data

Most districts included in this report provided teacher demographic data, including teacher contract status, separations from the district and teaching assignments. Most districts also provided data from their teacher evaluation systems, from which we created databases of historical evaluation ratings. Using these data, we were able to identify the teacher being evaluated, their contract status within the district, evaluation ratings for the past 3-5 years, and any movement made by the teacher subsequent to a given evaluation (e.g., transferring within or separating from the district).

Electronic evaluation data provided by district	Evaluation data manually collected by district or The New Teacher Project	No evaluation data available
Chicago Public Schools	Akron Public Schools	El Dorado Public Schools
Cincinnati Public Schools	Jonesboro Public Schools	Little Rock School District
Denver Public Schools	Pueblo City Schools	
District U-46 (Elgin)	Springdale Public Schools	
Rockford Public Schools	Toledo Public Schools	

We also conducted surveys of active school administrators and active teachers in every district. In six districts (Akron Public Schools, Cincinnati Public Schools, Denver Public Schools, District U-46, Pueblo City Schools, and Rockford Public Schools) we surveyed former classroom teachers who had left the respective district within the last five years for any reason. In all, we surveyed approximately 1,300 administrators, 15,000 active teachers and 790 former teachers. Each participant group was asked questions regarding their experiences with and perceptions of their district's evaluation system, evaluators and remediation program. All surveys were conducted via an anonymous online survey.

Survey Response Totals by District

	Teachers	Administrators
Akron Public Schools	1,010	36
Chicago Public Schools	4,858	624
Cincinnati Public Schools	1,287	70
Denver Public Schools	1,863	150
District U-46 (Elgin)	1,677	78
El Dorado Public Schools	341	15
Jonesboro Public Schools	405	11
Little Rock School District	687	36
Pueblo City Schools	565	34
Rockford Public Schools	947	92
Springdale Public Schools	763	55
Toledo Public Schools	773	80
Total	15,176	1,281

Sources of Qualitative Data

This report is based on an analysis of each district's current collective bargaining agreement, as well as relevant human resources policies and state legislation. To fully understand how each of these policies is implemented at the district level, we conducted interviews with district leadership, school board members, human resources staff members, legal counsel, labor relations specialists, union leadership, school principals, other evaluators, and teachers. In all we conducted 130 interviews.

Four-State Advisory Panel Process

This report benefits from the involvement of four advisory panels, one in each of our study states of Arkansas, Colorado, Illinois and Ohio.

We established the advisory panels because we believed strongly that it would have been impossible to author a high-quality report without incorporating the many perspectives of the various local education stakeholders. In the end, the advisory panels brought to bear participants' substantial experience and expertise to inform the study methodology, findings and recommendations.

Advisory panel membership varied from state to state but, in general, these panels were comprised of representatives from the state education agencies, state teachers unions or associations, school district superintendents and human resources staff, local teachers union or association leaders, and state-level professional organizations, such as the school administrators associations, personnel administrators associations, and school boards associations. In total, approximately 80 stakeholders participated in the four advisory panels.

Advisory panels met three times from June 2008 to April 2009 to discuss the study and its progress. The first meeting helped us to formulate and refine hypotheses and identify data sources, as well as build knowledge of local contexts. The second meeting allowed us to showcase portions of our data with the advisory panels, demonstrate what we were learning and test our arguments. The third and final meeting provided us with an opportunity to share our draft recommendations and gauge their viability.

In the end, advisory panel members were given the opportunity to provide a written response to the process and recommendations—a feature that we believe adds needed context to a challenging issue. Those responses can be found on our website at www.widgeteffect.org. Participation in an advisory panel does not suggest agreement with our findings and recommendations; the views of advisory panel members are presented first-hand in their written responses.

View the Advisory Panel members' responses to this report at www.widgeteffect.org

We are grateful to all of our advisory panel members for their unique contributions and insights.

ARKANSAS

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Michael Mertens

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Jim Rollins

Superintendent, Springdale Public Schools

Scott Smith

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Don Sharp

Superintendent of Schools, Cotter Public Schools / Vice President, Arkansas Rural Education Association

Beverly Williams

Assistant Commissioner, Arkansas Department of Education

“We need to develop a succinct performance appraisal system that recognizes good work, helps marginal employees get better and identifies employees who should be dismissed due to their inability to improve. Student performance must be the driving force to improve our current systems.”

-Springdale Public Schools (AR)

COLORADO

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Teacher–Pueblo City Schools, Pueblo Education Association

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President, Pueblo Education Association

Van Schoales

Program Officer, Urban Education, Piton Foundation

Shayne Spalten

Chief Human Resources Officer, Denver Public Schools

Kim Ursetta

President, Denver Classroom Teachers Association

Terry Whitney

Senate Majority Legislative Director, Colorado Legislature

“I believe that all stakeholders should come together to create a more credible, meaningful, and productive system for teacher, administrator, and school effectiveness evaluations. Teachers are professionals who value their chosen career and would like to work with colleagues who are excited and knowledgeable about their fields and teaching in general. Teachers and administrators working together in a system which promotes teachers as professionals and supports their professional development to meet the needs of their students, increase instructional quality, and develop effective curriculum is a benefit to all.”

-Pueblo Education Association (CO)

ILLINOIS

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IEA UniServ Director, Illinois Education Association

Jo Anderson
Executive Director, Illinois Education Association

Karen Bieschke
Vice President, Rockford Education Association

Bob Corder
Director, Human Resources, Rockford Public Schools

Beth Dalton
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Tim Davis
President, Elgin Teachers Association

Mark Doan
Superintendent, Farmington Central Community Schools/
Representative, Illinois Association of School Administrators

Lisa Jensen
Human Resources Director, School District U-46

Ascencion Juarez
Chief Human Resources Officer, Chicago Public Schools

John Luczak
Senior Program Officer, Joyce Foundation

Cordelia (Dea) Meyer
Executive Vice President, Civic Committee of
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Molly Phalen
President, Rockford Education Association

Elliot Regenstein
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Rachel Resnick
Chief Labor Relations Officer, Chicago Public Schools

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Angela Rudolph
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Robin Steans
Executive Director, Advance Illinois

Linda Tomlinson
Assistant Superintendent, Illinois State Board of Education

Lisa Vahey
Director, Chicago New Teacher Center

Cynthia S. Woods
Director for Advocacy, Illinois Association of School Boards

“The impact of reviewing how teachers and administrators are evaluated, as well as the impact of evaluations and decisions made about pay and retention need to be discussed openly so that questions can be raised and concerns addressed. Illinois is a very diverse state and decisions about hiring, teacher evaluations, and retention are decided at the local level. Therefore, it is paramount that unions, professional associations, teachers, administrators, and representatives from business and the community be involved as we collaborate and work toward ensuring that all students have effective teachers.”

-Illinois State Board of Education (IL)

OHIO

Tony Bagshaw
Senior Director of Knowledge Management, Battelle for Kids

Kenneth (Ken) Baker
Associate Executive Director, The Ohio Association
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Ann Bischoff
Senior Policy Analyst, KidsOhio.org

Patricia Frost-Brooks
President, Ohio Education Association

Lesley-Ann Gracie
Professional Issues Representative,
Cincinnati Federation of Teachers

Kirk Hamilton
Deputy Executive Director, Buckeye Association
of School Administrators

Julia Indalecio
Teacher Programs Manager, Cincinnati Public Schools

Rhonda Johnson
President, Columbus Education Association

Jerry Klenke
Executive Director, Buckeye Association of School Administrators

Tim Kraus
President, Cincinnati Federation of Teachers

Francine Lawrence
President, Toledo Federation of Teachers

Kathy McVey
Human Resources, Akron Public Schools

Bill Siegfert
President, Akron Education Association

Sue Taylor
President, Ohio Federation of Teachers

Debra Tully
Director of Professional Issues, Ohio Federation of Teachers

William Wendling
Executive Director, The Ohio 8

Michelle Winship
Education Reform Consultant, Ohio Education Association

Cynthia L. Yoder
Executive Director, Center for the Teaching Profession,
Ohio Department of Education

“I agree that all stakeholders need to come together to create a more effective teacher evaluation system. Cincinnati did try to do just that when we created our Teacher Evaluation System. Our system is a living, breathing structure that has changed for the better over time. We are constantly looking for ways to improve and build upon our evaluation system. The difficulty for us is that we do not have many other national examples to follow that have as detailed or as comprehensive of an approach to teacher evaluation. Comprehensive evaluation systems like ours are very expensive to run and we can only evaluate 1/5 of the teachers each year. If this is where our country is going we will need to find many, many more dollars to do this, particularly if every teacher is comprehensively evaluated every year. Again, I caution us all to consider changing the larger context of school structure first.”

-Cincinnati Federation of Teachers (OH)



About The New Teacher Project | The New Teacher Project (TNTP) is a national nonprofit dedicated to closing the achievement gap by ensuring that poor and minority students get outstanding teachers. Founded by teachers in 1997, TNTP partners with school districts and states to implement scalable responses to their most acute teacher quality challenges. TNTP recruits and trains thousands of exceptional new teachers annually, supports school principals in staffing their classrooms, provides teacher certification in high-need subjects, and documents the policy barriers that keep students from getting the teachers they need. Since its inception, TNTP has trained or hired approximately 33,000 teachers, benefiting an estimated 4.8 million students nationwide. This report is part of an ongoing series of studies on the policies and practices that determine the composition and quality of the nation's teacher workforce.

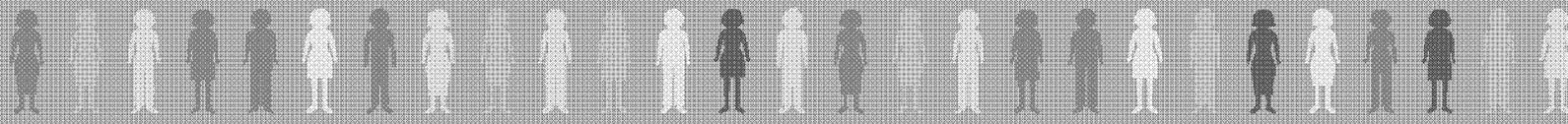
For more information, please visit www.tntp.org.

The report, graphics and figures were designed by Cricket Design Works in Madison, Wisconsin.

The text face is Baskerville Regular, originally designed by John Baskerville in England in the mid-18th century, revived in the early 20th century.

Fonts used for subheads, pull quotes and figure headers include Elmhurst Regular, Small Caps and Italic designed by Christopher Slye and issued by Font Bureau.

Headers, graphics, figures and pull quotes are set in Avenir, part of a family of type designed by Adrian Frutiger in 1988, published by Linotype.



tntp.org



Nevada Revised Statute 391.3125 –
Minimum Observation Requirements for Teachers

NRS 391.3125 Evaluations of licensed educational personnel; development of policy; number of evaluations; notice to probationary employee that he or she may not be reemployed; recommendations and assistance for employee; copy of evaluation.

1. It is the intent of the Legislature that a uniform system be developed for objective evaluation of teachers and other licensed personnel in each school district.

2. Each board, following consultation with and involvement of elected representatives of the teachers or their designees, shall develop a policy for objective evaluations in narrative form. The policy must set forth a means according to which an employee's overall performance may be determined to be satisfactory or unsatisfactory. The policy may include an evaluation by the teacher, pupils, administrators or other teachers or any combination thereof. In a similar manner, counselors, librarians and other licensed personnel must be evaluated on forms developed specifically for their respective specialties. A copy of the policy adopted by the board must be filed with the Department. The primary purpose of an evaluation is to provide a format for constructive assistance. Evaluations, while not the sole criterion, must be used in the dismissal process.

3. A conference and a written evaluation for a probationary employee must be concluded not later than:

- (a) December 1;
- (b) February 1; and
- (c) April 1,

↳ of each school year of the probationary period, except that a probationary employee assigned to a school that operates all year must be evaluated at least three times during each 12 months of employment on a schedule determined by the board. An administrator charged with the evaluation of a probationary teacher shall personally observe the performance of the teacher in the classroom for not less than a cumulative total of 60 minutes during each evaluation period, with at least one observation during that 60-minute evaluation period consisting of at least 45 consecutive minutes.

4. Whenever an administrator charged with the evaluation of a probationary employee believes the employee will not be reemployed for the second year of the probationary period or the school year following the probationary period, the administrator shall bring the matter to the employee's attention in a written document which is separate from the evaluation not later than March 1 of the current school year. The notice must include the reasons for the potential decision not to reemploy or refer to the evaluation in which the reasons are stated. Such a notice is not required if the probationary employee has received a letter of admonition during the current school year.

5. Each postprobationary teacher must be evaluated at least once each year. An administrator charged with the evaluation of a postprobationary teacher shall personally observe the performance of the teacher in the classroom for not less than a cumulative total of 60 minutes during each evaluation period, with at least one observation during that 60-minute evaluation period consisting of at least 30 consecutive minutes.

6. The evaluation of a probationary teacher or a postprobationary teacher must include, without limitation:

(a) An evaluation of the classroom management skills of the teacher;

(b) A review of the lesson plans and the work log or grade book of pupils prepared by the teacher;

(c) An evaluation of whether the curriculum taught by the teacher is aligned with the standards of content and performance established pursuant to NRS 389.520, as applicable for the grade level taught by the teacher;

(d) An evaluation of whether the teacher is appropriately addressing the needs of the pupils in the classroom, including, without limitation, special educational needs, cultural and ethnic diversity, the needs of pupils enrolled in advanced courses of study and the needs of pupils who are limited English proficient;

(e) If necessary, recommendations for improvements in the performance of the teacher;

(f) A description of the action that will be taken to assist the teacher in correcting any deficiencies reported in the evaluation; and

(g) A statement by the administrator who evaluated the teacher indicating the amount of time that the administrator personally observed the performance of the teacher in the classroom.

7. The teacher must receive a copy of each evaluation not later than 15 days after the evaluation. A copy of the evaluation and the teacher's response must be permanently attached to the teacher's personnel file. Upon the request of a teacher, a reasonable effort must be made to assist the teacher to correct those deficiencies reported in the evaluation of the teacher for which the teacher requests assistance.

NRS 391.3127 Administrators: Policy for evaluations; annual evaluation; procedures for demotion and appeal to board.

1. Each board, following consultation with and involvement of elected representatives of administrative personnel or their designated representatives, shall develop an objective policy for the objective evaluation of administrators in narrative form. The policy must set forth a means according to which an administrator's overall performance may be determined to be satisfactory or unsatisfactory. The policy may include an evaluation by the administrator, superintendent, pupils or other administrators or any combination thereof. A copy of the policy adopted by the board must be filed with the Department and made available to the Commission.

2. Each administrator must be evaluated in writing at least once a year.

3. Before a superintendent transfers or assigns an administrator to another administrative position as part of an administrative reorganization, if the transfer or reassignment is to a position of lower rank, responsibility or pay, the superintendent shall give written notice of the proposed transfer or assignment to the administrator at least 30 days before the date on which it is to be effective. The administrator may appeal the decision of the superintendent to the board by requesting a hearing in writing to the president of the board within 5 days after receiving the notice from the superintendent. The board shall hear the matter within 10 days after the president receives the request, and shall render its decision within 5 days after the hearing. The decision of the board is final.

(Added to NRS by 1973, 790; A 1975, 615; 1979, 1608, 1831; 1985, 1085; 1987, 1005)

DETERMINING PROCESSES THAT BUILD SUSTAINABLE TEACHER ACCOUNTABILITY SYSTEMS

October 2009

Lucy Steiner, *Public Impact*

(b)(6)

Ongoing issues of teacher accountability have impelled several responses in the form of changes to current teacher evaluation practices. This TQ Research & Policy Brief reports preliminary findings and recommendations from a study of such change processes that Public Impact conducted for the National Comprehensive Center for Teacher Quality in three school districts and three state departments of education.

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INTRODUCTION

ABOUT THE STUDY

Study Purpose. The National Comprehensive Center for Teacher Quality asked Public Impact to conduct a study exploring the change processes in the creation and implementation of teacher evaluation systems. This TQ Research & Policy Brief provides an overview of Public Impact's preliminary findings as they relate to the impetus for change and the political and policy context in which such change occurs.

Study Description. In late 2008, the Public Impact study team conducted semistructured interviews with district personnel and state department of education officials who had participated in efforts to improve teacher evaluation—or, in the case of New York City, teacher tenure systems. The study team conducted phone interviews with representatives from three school districts (Chicago Public Schools, Denver Public Schools, and the New York City Department of Education) and three state education agencies (Minnesota Department of Education, Ohio State Board of Education, and South Carolina Department of Education).

STUDY QUESTIONS

In order to get a better understanding of how districts and states were implementing changes to their teacher evaluation policies, Public Impact asked the following questions:

- What was the impetus for change? Why did you decide to make changes to your teacher evaluation system [teacher tenure system]?
- What were your goals for the new system that were not being met by the old system?
- What steps did you take as you made these changes?
- What were the outcomes of your efforts?
- What challenges did you face? How did you respond to these challenges?
- What lessons can you share with other districts and states that are interested in making changes to their teacher evaluation policies?

An overview of the responses to these questions from the three school districts and the three state departments of education appears in the Summary of Findings (page 5). More detailed responses appear in the Appendix.

Although there are relevant differences in district and state efforts to improve teacher evaluation systems, there also are lessons learned that cut across all districts and states included in this study. The examples and lessons offered here are designed to be useful to district and state officials who are engaged in efforts to improve teacher accountability systems or who are considering changes to their existing systems.



STUDY FINDINGS

Tables 1–5 present the interview responses in the following areas: impetus for change, goals, key stakeholders engaged in the planning process, outcomes, and challenges. Table 6 presents the strategies that were used to address the challenges. An X indicates that a particular item was relevant for the district or state.

Table 1. Impetus for Change

Impetus for Change	Chicago	Denver	New York City	Minnesota	Ohio	South Carolina
Dissatisfaction with old system	X	X	X	X	X	X
Legislation				X	X	X
Published study or report	X				X	X
Political pressure (governor, mayor)	X		X	X		
Federal grant	X			X	X	
Changes to the collective bargaining agreement	X	X				

Table 2. Goals

Goal	Chicago	Denver	New York City	Minnesota	Ohio	South Carolina
Increase student achievement by improving teacher quality.	X	X	X	X	X	X
Improve the quality of teacher evaluation tools and processes.	X	X	X	X	X	X
Link teacher evaluation results to professional development.	X	X		X	X	X
Build a comprehensive performance management system.	X			X	X	X
Link teacher evaluation results to increases in compensation (pay for performance).		X		X		
Develop guidelines for districts that want to improve their teacher evaluation process.				X	X	

Table 3. Key Stakeholders Engaged in Planning Process

Participating Stakeholders	Chicago	Denver	New York City	Minnesota	Ohio	South Carolina
District officials	X	X	X	X	X	X
Teachers	X	X		X	X	X
Principals		X	X	X	X	X
State department officials				X	X	X
Union representatives	X	X		X		
External experts	X				X	X
Representatives from higher education					X	X
School board members					X	
Parents		X				

Table 4. Outcomes

Outcome	Chicago	Denver	New York City	Minnesota	Ohio	South Carolina
Helped key stakeholders adopt a “systems” approach for thinking about human capital.	X		X	X	X	
Improved the data systems.	X		X			X
Developed new teacher evaluation tools.	X	X				X
Adopted an external, research-based framework and used it to design rubrics.	X	X				
Increased student achievement by improving teacher quality.*						

* Final outcomes have not yet been determined.

Table 5. Challenges

Challenge	Chicago	Denver	New York City	Minnesota	Ohio	South Carolina
Principals' concerns that the new system will require more work and time	X	X	X	X	X	X
Teachers' concerns about high-stakes consequences	X	X	X	X	X	
Financial resource limitations	X	X		X	X	X
Human capital limitations (e.g., ability of principals and district officials to implement new systems)			X	X	X	X
Measuring the impact of the new system on student achievement		X	X	X		X
Difficulty of changing current collective bargaining agreement	X		X		X	
Balancing state versus local control				X	X	

Table 6. Common Response Strategies Used to Address Challenges

Response Strategy	Challenges Addressed			
	Concern About Extra Work and Time	Concern About High-Stakes Consequences	Financial Resource Limitations	Human Capital Limitations
Develop a communications approach to frame teacher evaluations within the context of a comprehensive human capital management system.	X	X		X
Invest in training for principals and teachers to be proficient with the new system.	X	X		X
Develop technology or new processes to streamline new practices.	X		X	X
Develop a flexible system open to compromise and refinement.			X	

SUMMARY OF FINDINGS

The following paragraphs summarize the information presented in Tables 1–6 and indicate how the six districts and states approached the process of implementing changes to their teacher evaluation policies (or, in the case of New York City, teacher tenure policies).

IMPETUS FOR CHANGE

Dissatisfaction with the old system of teacher evaluation was an impetus for change in all six districts and states. Legislation, published studies or reports, political pressure from the governor or mayor, and federal grants impelled three districts and states to move forward. Changes to the collective bargaining agreement impelled two districts to take action.

GOALS

Major goals for all six states and districts were to increase student achievement by improving teacher quality and to improve the quality of teacher evaluation tools and processes. Five districts and states had the goal of linking teacher evaluation results to professional development. Four districts and states had the goal of building a comprehensive performance management system. Two districts and states had the goal of linking teacher evaluation results to increases in compensation (i.e., pay for performance) and developing guidelines for districts that want to improve the teacher evaluation process.

KEY STAKEHOLDERS ENGAGED IN THE PLANNING PROCESS

All six districts and states engaged district officials in the planning process for improving teacher evaluation. Five districts and states also involved teachers and principals. Three districts and states also involved officials from the state department of education, teacher union representatives, and external experts. Two states also involved representatives from higher education. One district and one state also involved school board members and parents.

OUTCOMES

Four districts and states helped key stakeholders adopt a “systems” approach for thinking about human capital. Three districts and states improved their data systems and developed new teacher evaluation tools. Two districts adopted an external research-based framework and used it to design teacher evaluation rubrics. Although all districts and states had the goal of increasing student achievement by improving teacher quality, the final outcomes in this area have not yet been determined.

RESPONSE STRATEGIES USED TO ADDRESS CHALLENGES

The response strategy of developing a communications approach to frame teacher evaluations within the context of a comprehensive human capital management system was used to address concerns about extra work and time needed to develop improved teacher evaluation policies, concerns about high-stakes consequences, and human capital limitations.

The response strategy of investing in training for principals and teachers, enabling them to become proficient with the new teacher evaluation system, also was used to address concerns about extra work and time needed to develop improved teacher evaluation policies, concerns about high-stakes consequences, and human capital limitations.

The response strategy of developing technology or new processes to streamline new practices was used to address concerns about extra work and time needed to develop improved teacher evaluation policies, financial resource limitations, and human capital limitations.

The response strategy of developing a flexible system open to compromise and refinement was used to address financial resource limitations.



CONCLUSION

The current focus of the federal government, as documented by the four assurances¹ under the American Recovery and Reinvestment Act (ARRA) and the competitive grants available through the Race to the Top Fund (U.S. Department of Education, 2009), indicates that a quality and comprehensive teacher evaluation system will eventually be required in all states. The challenge for districts and states lies in creating such a system in the most efficient and effective manner possible.

This Public Impact study explored the change processes in the creation and implementation of teacher evaluation and tenure systems in the districts and states in which such systems have been implemented. Although the data for this study were gathered prior to awareness of the new federal foci, the study's findings will inform district and state planning and greatly improve the efficiency and effectiveness of their implementation of teacher performance evaluation systems.

RECOMMENDATIONS

The major recommendations from the study are as follows:

- **Data Planning.** Plan data systems carefully to meet the needs identified by all stakeholders; such systems should be comprehensive, and all stakeholders should be able to access and share them.² Carefully planned data systems are fundamental for accurate assessment of teacher performance—especially as it relates to student academic achievement—and for informing the systems responsible for preparing and supporting effective teachers.
- **External Validation.** Model changes based on nationally recognized standards—such as the *Framework for Teaching* (Danielson, 2007), professional standards and certification standards (National Board for Professional Teaching Standards, 2002, 2009), or the Teacher Advancement Program [TAP] performance standards (National Institute for Excellence in Teaching, 2009)—and research to ensure that the resulting teacher evaluation systems are both valid and reliable. (See the list of teacher evaluation resources on page 9.)
- **Communication.** Acknowledge the value of effective communication. When the stakeholders are correctly identified, communication cultivates their involvement. Communication also helps teachers and principals see the value of changing the current teacher evaluation system. As a result, the likelihood of improving the system is greatly improved and its implementation becomes easier.
 - First, explain the link between quality teaching and improvements in student achievement—cite research, tell stories.
 - Second, frame changes to teacher evaluation within the context of building a comprehensive human capital management system (selection, induction, evaluation, professional development, tenure, compensation, career ladder).
 - Third, find opportunities for stakeholders to share their positive experiences with the new system (e.g., trainings, online forums, newsletters, conference presentations).
- **Early Wins as Groundbreakers.** As an effective strategy, consider *not* starting the teacher quality improvement effort with teacher evaluation. Instead, identify a related initiative that may

¹ The four ARRA assurances are as follows: increasing teacher effectiveness and equitable distribution, improving the collection and use of data, enhancing the quality of standards and assessments, and supporting struggling schools.

² The creation of statewide longitudinal data systems also is a focus of the federal government, and support is available for this purpose. For more information, refer to the Statewide Longitudinal Data Systems Grant Program (<http://nces.ed.gov/programs/slds/>).

be carried out more quickly and with less backlash while still advancing better definitions of educator quality (e.g., develop teaching standards, revamp principal evaluation, reform tenure). To encourage teacher buy-in, provide opportunities for open discussion. (See “Guiding Questions for Discussion” below.)

- **Sustainability.** Design a dynamic human capital management system that can continue to be refined over time. Ensure that the teacher evaluation process aligns with the goals of this system.

LOOKING FORWARD

With the greater federal focus on encouraging outcomes-based teacher evaluation systems, districts and states will need to think systemically and strategically about how they prepare, support, and evaluate the effectiveness of their teachers. The findings reported here and the lessons learned from districts and states that have gone through the process will serve all stakeholders in these very important efforts to improve systems of teacher evaluation and ensure success for all students.

Guiding Questions for Discussion

The following questions can be used by school districts or state education agencies to facilitate discussion of the teacher evaluation system and initiate improvements.

1. **Impetus for Change.** If you are or have been engaged in a teacher evaluation change effort, what is driving it in your state? What is the impetus for change? (Anything to add that is not captured in our data?)
2. **Goals.** Wherever you are in the change process—some of you may be at the early stages—what are your goals for the new system that are not being met by the old system? (Anything not captured here?)
3. **Prevalence of Systems Approach.** How widely accepted is the need to develop a human capital management system in your state or district?
4. **Early Wins.** Do you think starting with early wins would be a good strategy in your state or district? What would this approach look like in your state? What related initiatives could serve as feasible first steps?
5. **Challenges.** If you recently have initiated changes to your teacher evaluation system, what challenges did you face? If you are just starting or planning your change effort, what do you anticipate will be the major challenges to improving teacher evaluation in your state or district?
6. **Communication Strategy.** What do you think would be the most persuasive way to communicate with key stakeholders about the need to improve teacher evaluation in your state or district? If you are already in the midst of your change effort, which stakeholders have been most important in helping communicate your message?



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TEACHER EVALUATION RESOURCES AVAILABLE FROM THE TQ CENTER

A Practical Guide to Evaluating Teacher Effectiveness

<http://www.tqsource.org/publications/practicalGuide.pdf>

This publication provides guidance to states and districts as they consider which measure to use for the purpose of evaluating teacher effectiveness. It includes a definition of teacher effectiveness, a table indicating which evaluation methods are most suitable for different circumstances and goals, summaries of various measures, and a planning guide to use in designing an evaluation system.

Approaches to Evaluating Teacher Effectiveness: A Research Synthesis

<http://www.tqsource.org/publications/EvaluatingTeachEffectiveness.pdf>

This research synthesis examines how teacher effectiveness is currently measured. Practical guidance for evaluating teacher effectiveness extends beyond teachers' contributions to student achievement gains and includes their impact on classrooms, schools, and colleagues as well as their contributions to other important outcomes for students.

Improving Instruction Through Effective Teacher Evaluation: Options for States and Districts

<http://www.tqsource.org/publications/February2008Brief.pdf>

This TQ Research & Policy Brief discusses the measures currently used in teacher evaluation and focuses on their strengths and limitations. It underscores aspects of evaluation policies that currently are aligned with best practices and illuminates areas in which policymakers can enhance evaluation rules, regulations, and implementation, thereby improving teacher instruction and student performance.

Methods of Evaluating Teacher Effectiveness

http://www.tqsource.org/publications/RestoPractice_EvaluatingTeacherEffectiveness.pdf

This Research-to-Practice Brief is intended to help regional comprehensive center staff and state policymakers as they consider evaluation methods to clarify policy, develop new strategies, identify effective teachers, or guide and support districts in selecting and using appropriate evaluation methods for various purposes.

Communication Framework for Measuring Teacher Quality and Effectiveness: Bringing Coherence to the Conversation

<http://www.tqsource.org/publications/NCCTQCommFramework.pdf>

This framework was developed to promote effective dialogue about the measurement of teacher quality and effectiveness.

Paying for Teachers' Performance—Strategies and Conditions for Success

<http://www.tqsource.org/webcasts/payforteach/index.php>

This webcast examines the policy, research, and practice of performance-based compensation, specifically focusing on valid, reliable, and ethical ways to evaluate teachers' instructional performance. Experts discuss the promise and pitfalls of value-added and other statistical measures of student achievement growth as well as teaching portfolios and professional administrator evaluations.

“Considerations for Using Evaluation and Compensation to Enhance Teacher Effectiveness” (Chapter 4 of *America's Opportunity: Teacher Effectiveness and Equity in K–12 Classrooms*)

http://www.tqsource.org/publications/2009TQBiennial/2009BiennialReport_Ch4.pdf

This chapter of the TQ Center's 2009 Biennial Report addresses key questions, current knowledge, and trends related to teacher evaluation and compensation—both of which can be powerful levers for enhancing teacher effectiveness. It also includes an overview of the Ohio Department of Education's recent efforts to develop evidence-based teacher evaluation guidelines for Ohio school districts.



APPENDIX. INDIVIDUAL SITE DESCRIPTIONS

Chicago Public Schools			
<p>Chicago Public Schools (CPS) is currently piloting the <i>Framework for Teaching</i> (Danielson, 2007) in 44 elementary schools. In 2010, approximately 100 schools will be using the framework. The goal is to implement it districtwide within four years.</p>			
Impetus for Change	Goals	Engagement of Stakeholders	Process
<ul style="list-style-type: none"> • A report by The New Teacher Project (2007) was critical of CPS human resources practices, particularly teacher evaluation. • The 2007 collective bargaining agreement mandated the creation of a joint committee to change how teacher evaluations are conducted. • Senior leadership in the district supported an effort to develop a meaningful evaluation instrument. • CPS has several pilot initiatives that address evaluation; for example, the TAP program (see Chicago TAP, 2008) is available in some schools through the Teacher Incentive Fund (TIF) grant. 	<ul style="list-style-type: none"> • To develop a robust evaluation tool that will help teachers improve their teaching by identifying their strengths and weaknesses (intended to be used for development and improvement). • To find ways to incorporate the best elements of the TAP program and Fresh Start Peer Mentoring and Evaluation Program (see Chicago Public Schools, 2007) into a scalable model that could be taken districtwide. • To develop performance rubrics for nonclassroom teachers (e.g., social workers, nurses, instructional coaches). 	<ul style="list-style-type: none"> • A joint committee of five district and five union-appointed members was formed. • District members included representatives from the offices of Strategy and Planning and Labor and Employee Relations as well as an area instructional officer and the director of the Professional Development unit. A person from Charlotte Danielson's consulting organization, The Danielson Group, was the facilitator. • Principals and teachers in nine schools tested the <i>Framework for Teaching</i> in spring 2008 and participated in focus groups. Pilot teachers and principals were interviewed about the new rubric and evaluation process. 	<ul style="list-style-type: none"> • The committee met weekly for several hours, speaking with stakeholders and reviewing best practices. • The committee decided to adopt the Charlotte Danielson framework. • The committee was dissolved because of a dispute over how evaluations would affect renewal decisions for probationary teachers. • CPS decided to continue with the pilot using the framework the committee had developed without altering any contractual processes. • In the first year, 44 schools piloted the program. • The committee is currently refining problem areas and expanding the pilot to other schools. • The framework is being adapted to different uses, such as developing interview questions for principals.

Chicago Public Schools (Continued)		
Outcomes	Challenges and Responses	Recommendations
<ul style="list-style-type: none"> • Added a more robust component to the current evaluation system. • Led to thinking about how to use evaluations to inform the entire career of teachers from induction to tenure. • Realized that a perfect program cannot be rolled out—teacher evaluation will need periodic adjustments. • Developed a website for teachers to share stories and experiences with the new evaluation system. 	<ul style="list-style-type: none"> • Without union support, some teachers have been hesitant to embrace the new system. Working to overcome negative perceptions and resistance to change is a major task. <ul style="list-style-type: none"> ▪ CPS has worked to publish a newsletter and collect ongoing feedback to involve teachers in the process. ▪ To clear up misunderstandings, CPS is currently working to disseminate stories about experiences that teachers have had with the system. • Principals have expressed concerns about the additional work. <ul style="list-style-type: none"> ▪ CPS is working to change principals’ attitudes toward the new teacher evaluation process. For many, the new process is going to be challenging, so CPS needs to provide high-quality training and to convince principals that the change is important and worthwhile (e.g., leading to better teacher retention). • Additional cost is a major issue for CPS. • Evaluation work has driven CPS to rethink how it spends money on professional development. • CPS is now working to use its resources in a more efficient and effective way. 	<ul style="list-style-type: none"> • After the pilot, CPS realized it needs to do a better job of reaching out to teachers and sharing their stories. Teachers in the pilot program supported it, but many misunderstandings were floating around. • Support from district leadership is essential. This type of change is an ongoing process. To be successful, there must be a leader who understands high-quality teacher evaluation and supports the change process. • Teacher evaluation is part of a larger human capital management system. When reforming that system, teacher evaluation is the hardest place to start. Locate an early win somewhere else, and start there. • Training for teachers and principals is essential. If possible, conduct joint training on the new evaluation system so each group can learn from the other.

Denver Public Schools

Denver Public Schools (DPS) has developed a new teacher evaluation process called Professional Compensation for Teachers or ProComp (Denver Public Schools, n.d.), which affects all teachers in the district.

Impetus for Change	Goals	Engagement of Stakeholders	Process
<ul style="list-style-type: none"> • ProComp agreement between the district and the union has driven teacher evaluation changes in Denver. • Professional evaluation is one component of ProComp, so the agreement stipulated that any changes to teacher evaluation needed to go through a teacher evaluation committee. • The main parties driving changes have been the union and the district. • There has been little or no involvement from outside parties (e.g., political leaders, general public). 	<ul style="list-style-type: none"> • To develop a self-evaluation/reflection piece for teachers as well as a plan for struggling teachers (stipulated in ProComp). • To design an evaluation process for all teachers that is meaningful and based on standards and best practices. DPS wanted it to be linked to professional development and ultimately to improvements in student learning. • To design the process so that ProComp teachers get additional pay for higher evaluation scores. 	<ul style="list-style-type: none"> • The process was led by a committee of 25–30 people, cochaired by a human resources officer from the district and a teacher appointed by the union. The committee included parents, teachers, and administrators. • Subcommittees were formed to involve various stakeholders, each of which worked on its specific issues (e.g., the nurses subcommittee wrote standards for nurses). • Subcommittee members were asked to canvass constituencies at various points and bring back feedback. • A public relations firm was hired to support the process. This firm published newsletters and conducted focus groups and surveys. 	<ul style="list-style-type: none"> • The committee has met regularly over the past seven years. <ul style="list-style-type: none"> ▪ Initially, committee members reviewed best practices and brainstormed. ▪ The committee decided to use the standards developed by the National Board for Professional Teaching Standards (n.d.) as a framework for writing new rubrics and improving teacher practices. ▪ DPS piloted the new system for two years. ▪ As a result of the pilot, DPS changed remediation by scaling back its action plan and made it less confusing and quicker. • DPS conducted a one-year field test. • DPS is currently working on refining problem areas. • Newsletters written by the public relations firm have kept the committee on task (by requiring written responses every week) and have increased transparency.

Denver Public Schools (Continued)		
Outcomes	Challenges and Responses	Recommendations
<ul style="list-style-type: none"> • Redesigned the teacher evaluation process for all teachers. • Decided to separate corrective action (addressing issues of professionalism) from remediation (focusing on improving teaching and student outcomes). • Led to linking evaluation with professional development (through remediation). • Led to specific rubrics for different types of personnel (e.g., nurses, psychologists, coaches). 	<ul style="list-style-type: none"> • Time to conduct new evaluations was an issue for everyone. <ul style="list-style-type: none"> ▪ DPS tried to resolve this issue using technology. Unfortunately, the online system that DPS developed did not work, so it abandoned that method and is in the process of considering alternatives. ▪ DPS shortened the evaluation form to one page. ▪ DPS included time management in training, taught principals how to use the new system effectively, and helped them develop their own processes. • Fairness was a big issue, particularly as it relates to interrater reliability. <ul style="list-style-type: none"> ▪ DPS provided evaluator training to both teachers and principals. ▪ DPS separated corrective action (Are you behaving like a professional?) from remediation (Are you effective as a teacher?). • State law prohibited DPS from using peer evaluations. <ul style="list-style-type: none"> ▪ DPS is working on getting a waiver for this. ▪ DPS spent a lot of time making sure that the local bargaining agreement matched state law. There were multiple reviews by union and district lawyers. • Cost is another concern. Initially, DPS had a large grant from a foundation, but there is concern about the cost of training and focus groups in the future. 	<ul style="list-style-type: none"> • Transparency is necessary at every stage of the process. <ul style="list-style-type: none"> ▪ Use focus groups and surveys to get lots of feedback and address people’s concerns. Keep the committee aware of opposition to elements in the plan. ▪ Create a handbook that describes the new system in detail. • The desired data should be identified from the beginning, and the collection system should be built to collect them. DPS wishes it had been more deliberate about these necessities (e.g., in order to track evaluation results across the district). • Modeling the system on nationally recognized standards—using certification guidelines from the National Board for Professional Teaching Standards (2008)—helped teachers see the value. • Timing changes would improve results. DPS changed so many things at once that teachers had difficulties managing them, and so evaluation became a focus of general dissatisfaction. • Include a peer evaluation component. • Increase funding to pay for external evaluators to validate principal findings.

New York City Department of Education

The New York City Department of Education (NYCDOE) has not made any changes to its teacher evaluation process—that situation would require renegotiating its collective bargaining agreement with the union—but it has addressed teacher quality by launching a comprehensive effort to improve principals' ability to make well-informed tenure decisions.

Impetus for Change	Goals	Engagement of Stakeholders	Process
<ul style="list-style-type: none"> • NYCDOE recognized that one of the key teacher quality improvements the district could make was to enable principals to make well-informed tenure decisions. • Approximately 6,000 NYC teachers come up for tenure every year—a daunting number. District leadership recognized that improving the tenure process is a significant step toward improving its overall human capital management system. 	<ul style="list-style-type: none"> • To improve student achievement by improving the overall quality of the teaching force. • To improve the rigor of tenure decisions and give principals the information they need to make better informed tenure decisions. • To encourage principals to take responsibility for the quality of the teaching force in their buildings. • To reverse past practice, which was to grant tenure to almost all teachers at the end of their third year of teaching. 	<ul style="list-style-type: none"> • District leadership made the initial decision to improve principals' ability to make well-informed tenure decisions and worked with the Talent Office to implement necessary changes. • The district has engaged principals, superintendents, school support organizations, legal counsel, and others through training, communications, and one-on-one support. 	<ul style="list-style-type: none"> • In 2007, the district launched an effort to make tenure decisions more meaningful. • The first step was to create an online tenure notification system that informs principals when individual teachers are coming up for tenure. • The district has developed online toolkits within the <i>Principals' Portal</i>, a citywide password-protected website for principals. The tenure toolkit includes FAQs, reflection tools, and scenarios. • The district also has provided training directly to principals and other stakeholders. The intended message is the importance of quality teaching in improving student achievement. The training guides principals through the tenure-granting process.

New York City Department of Education (Continued)		
Outcomes	Challenges and Responses	Recommendations
<ul style="list-style-type: none"> • The district notified principals of upcoming tenure decisions. This step in itself was a very powerful intervention; many had not received this information under the previous system. • Principals now have many more resources and a better understanding of the role that tenure can play in improving overall teacher quality. • NYCDOE developed a data system to track tenure decisions across the district. 	<ul style="list-style-type: none"> • Principals had initial concerns about paperwork and the time required to terminate probationary employees. <ul style="list-style-type: none"> ▪ The district put the notification and approval system online, which saved time by making it easier for principals to search for a teacher’s rating the previous year and enabling them to access the system at home. ▪ The district also created online training and toolkits to answer FAQs, respond to myths, and clarify facts. • It was a challenge to convince principals to think about the link between teacher quality and student achievement. Some principals completely understand the link; for others, understanding the link is a stretch. <ul style="list-style-type: none"> ▪ The district has implemented competency-based principal screening to identify a principal’s ability to strategically manage staff. ▪ The district has designed training to help principals see how teacher quality affects student achievement and how even modest improvements make a difference. • Principals did not have tools to help them facilitate tenure discussions and decision making at their schools. <ul style="list-style-type: none"> ▪ The district created an automated e-mail system to alert principals when teachers were in a position to earn tenure. ▪ The district created an online toolkit and offered training on how to start tenure discussions and get teachers to reflect on tenure. 	<ul style="list-style-type: none"> • The quality of people making tenure decisions is important: Focus efforts on better principal selection as well as on providing current principals with compelling evidence about the importance of improving teacher quality. • Shift from compliance-based decision making to data- and tool-driven decision making, which will empower principals to make good decisions. • Develop easy-to-use tools. In addition to giving principals information about the process, the district also should provide them with tools to make better decisions—scenarios that they can read and discuss, self-reflection pieces, examples from practice. Tools should not be too prescriptive; principals should take responsibility for making more strategic decisions. • There is an overall need to examine the entire human capital management system and identify areas where the district can have the most influence. In the case of NYCDOE, tenure was an important lever.

Minnesota Department of Education

Minnesota has developed the Quality Compensation for Teachers or Q Comp system, a voluntary program that helps districts fund integrated human capital management systems (see Minnesota Department of Education, 2008a). Q Comp includes a teacher evaluation system that requires classroom observations and evidence of student achievement gains as measures of teacher performance.

Impetus for Change	Goals	Engagement of Stakeholders	Process
<ul style="list-style-type: none"> • State discussions of how to define and measure teacher quality are ongoing. Interest in reforming professional development, teacher pay, and evaluations in the state is high. • In 2003, the state received a U.S. Department of Education Teacher Quality Enhancement (TQE) grant, which required the department to redesign its human capital management system. • The governor, commissioner, and deputy commissioner pushed the effort to improve teacher evaluation, culminating in the passage of the Q Comp law in 2005. 	<ul style="list-style-type: none"> • To build a framework for districts to design an integrated human capital management system that includes teacher evaluation, professional development, and alternative compensation. • To encourage districts to enroll in Q Comp and adopt its framework, including revisions to current teacher evaluation processes. • To design a system that respects local control. The result needs to improve district practices without being overly prescriptive. 	<ul style="list-style-type: none"> • The governor's office, department commissioner, deputy commissioner, Education Minnesota (the state teachers union), and education organizations collaboratively developed the five elements of the Q Comp framework (see Minnesota Department of Education, 2008b). • At the district level, leaders and teacher representatives are in charge of designing their own plans to meet the requirements of the Q Comp system. 	<ul style="list-style-type: none"> • In 2002, the state began an alternative compensation program. The program started a conversation about how to align pay with performance. • In 2003, the state received a TQE grant. One of the grant components was a requirement to pilot a program aligning compensation to teacher quality and increase the number of effective teachers. • In 2005, the Q Comp framework was signed into law. The Q Comp framework includes five components: (1) career ladder/advancement options, (2) job-embedded professional development, (3) teacher evaluation/observation, (4) performance pay, and (5) alternative salary schedules (Minnesota Department of Education, 2008b). • Districts submit applications to the state for approval in order to join Q Comp.

Minnesota Department of Education (Continued)

Outcomes	Challenges and Responses	Recommendations
<ul style="list-style-type: none"> • The department created an integrated system for teacher evaluation, professional development, and compensation that districts can voluntarily adopt in return for additional resources. • Minnesota wrote its system into law in 2005 through Q Comp legislation. 	<ul style="list-style-type: none"> • There is an ongoing tension between providing direction to districts while allowing for local control. • When the original TQE grant was received, many believed that initiatives would end after the money ran out. This situation led many to adopt a “wait and see” attitude toward reforms. Overcoming this perception was a major obstacle to implementation. <ul style="list-style-type: none"> ▪ Signing Q Comp into law and tying state money to the program convinced many that Q Comp is here to stay. ▪ Stressing the link between evaluation, professional development, and student achievement also helped solidify the importance of the initiative. • Teachers resisted change. <ul style="list-style-type: none"> ▪ The state found ways to highlight teachers who were having success and let them influence colleagues. ▪ The state helped district leaders develop a clear message to send to the stakeholders. • Funding is an ongoing concern. Professional development budgets are often the first to be cut, so hard work is needed to convince local leaders that professional development should be a major focus. <ul style="list-style-type: none"> ▪ Sharing research and stories to illustrate the connection between professional development and teacher quality can help change attitudes. ▪ Seeing the connection can be a very powerful realization. 	<ul style="list-style-type: none"> • Developing a structure in the state for stakeholders to begin having the conversation about utilizing human capital is an important first step. For state and district stakeholders, the TQE grant and Q Comp created a safe zone to talk about reforming the human capital management system as a whole. • Local buy-in is essential to the process. Build support from the bottom up by helping participants share positive experiences with others. • Training also is important. Assist teachers and school leaders in understanding their new roles. Many are not familiar with how evaluations should be conducted. When possible, perform the training together. It is important for school evaluation structures to mirror one another and not have separate expectations for formal and peer evaluations. • Have a plan to work with local districts to develop a communication strategy. Sending the right message about these changes is very important early on. There may be fears and misconceptions about any new teacher evaluation program.

Ohio State Board of Education

The Ohio State Board of Education, in collaboration with the Ohio Board of Regents, is working to establish guidelines for the evaluation of teachers and principals. Principal evaluation guidelines were established in 2007, and teacher guidelines were being established in 2008–09.

Impetus for Change	Goals	Engagement of Stakeholders	Process
<ul style="list-style-type: none"> • A 2004 law required the state to develop uniform standards for teachers. • A federal TIF grant to expand the TAP program in the state encouraged some districts to rethink the state's evaluation systems and helped articulate what high-quality teacher evaluation could look like. 	<ul style="list-style-type: none"> • Because state law dictates that teacher evaluations are bargained at the district level, the Ohio State Board of Education's goal has been to develop research-based guidelines for districts to adopt if they choose. • The state wants encourage more districts to adopt best practices in teacher evaluation, including developing formative evaluation models. • Eventually, the state would like to develop a model framework for districts. 	<ul style="list-style-type: none"> • The committee that developed teaching standards was made up of teachers, principals, a superintendent, a school board member, and representatives from higher education. • More recently, the state put together a group of 30 key stakeholders to review the work in Ohio and elsewhere. The group conducted focus groups across the state and brought in external experts on teacher evaluation. • The state plans to hold statewide conferences to engage stakeholders in discussions of new practices. 	<ul style="list-style-type: none"> • In 2003, the Governor's Commission on Teaching Success published a report recommending that the state write a set of uniform standards for teachers. • As a result, the state passed a law in 2004 creating a state board to write standards that align across the teaching career. • In 2007, the state piloted a framework for principal evaluations. • In 2008, the state began working on a similar framework to guide teacher evaluations. • The state plans to convene a second group next year to develop a model teacher evaluation process.

Ohio State Board of Education (Continued)		
Outcomes	Challenges and Responses	Recommendations
<ul style="list-style-type: none"> • The board developed a uniform set of standards for teachers. • The board revised principal evaluations to include formative components. • The board developed a set of guidelines from the best available research that can guide the teacher evaluation process at the district level. • The board hosted a statewide conference to highlight what districts are doing to improve teacher evaluation. 	<ul style="list-style-type: none"> • State law mandates that teacher evaluation policies be dictated by the local collective bargaining agreement. <ul style="list-style-type: none"> ▪ The state has focused on advocating best practices and creating forums at which teachers can discuss issues and learn from each other and from external experts. ▪ The state has changed the process of principal evaluations, which are not covered by the collective bargaining agreement. • Principals have concerns that a new evaluation system will be too time-consuming to use. <ul style="list-style-type: none"> ▪ The state is looking for ways to develop evaluations that are not based on observation. Such evaluations might involve portfolio review; examination of student work; peer review; or other, more participatory models. • Limited resources are a major challenge for work at the state level. Because this new initiative blurs the boundaries between departments, the project is short on staff. <ul style="list-style-type: none"> ▪ The staff shortage has forced the department to work slowly and deliberately. ▪ The pace of the process may have positive effects because it provides time for changes to take effect organically. 	<ul style="list-style-type: none"> • Creating educator standards is an important first step. Working on them provided a strong foundation and established a framework to begin talking about improving evaluations. Designing these standards with a broad-based group of people helped develop early buy-in. • If possible, start by revamping principal evaluation, which secures buy-in from principals and serves as a dry run to provide experience with the change process. • Helping people connect to research is an important role the state can play: Provide forums for stakeholders to discuss teacher evaluation, and provide them with literature and reviews of the state’s practices to help them understand what they need to do and what value it has. • Some districts will eagerly embrace reform, some will be hesitant, and others will oppose it. Tailor responses to the district’s stance. Encourage early adopters and educate the hesitant.

South Carolina Department of Education

The state requires local districts to use the statewide evaluation system, called Assisting, Developing, and Evaluating Professional Teaching (ADEPT), which measures teachers' success in meeting 10 established performance standards. As of 2008, 45 schools in 14 districts also were fully implementing the South Carolina Teacher Advancement Program (SCTAP), which is aligned with ADEPT.

Impetus for Change	Goals	Engagement of Stakeholders	Process
<ul style="list-style-type: none"> • Teachers and principals expressed widespread dissatisfaction with the state's previous evaluation system. • A state-sponsored report by an external consultant in 2004 recommended improvements to ADEPT. • The state superintendent has made professional development a high priority. • In general, policymakers have been moving toward more evidence-based decision making. 	<ul style="list-style-type: none"> • To develop a comprehensive new evaluation model for teachers that informs decision making. • To empower teachers to be more reflective and take an active role in their professional development. • To use data to inform decisions throughout a teacher's career from training and induction to tenure. 	<ul style="list-style-type: none"> • A statewide committee of many stakeholders was convened to create the system. • The committee included representatives from all fields who would be covered by the new system (e.g., teachers, administrators, nonclassroom personnel, higher education). • Committee members were expected to act as representatives who would relay information and gather feedback from their constituents. • The committee was proactive about posting information and soliciting feedback from outsiders. 	<ul style="list-style-type: none"> • In 1998, South Carolina passed a law eliminating its old evaluation system and replacing it with ADEPT. • In 2003, ADEPT was expanded to include standards for nonclassroom personnel. • In 2002, the state began piloting SCTAP in a few schools. SCTAP performance standards are correlated with ADEPT. • In 2004, a study recommended adding a student achievement component, aligning implementation of the system's components, and adding more training for evaluators. • The state has been working to address all these recommendations. It is also working to scale up SCTAP.

South Carolina Department of Education (Continued)		
Outcomes	Challenges and Responses	Recommendations
<ul style="list-style-type: none"> • The state created a new evaluation system for all teachers and nonclassroom personnel. • The state created a statewide data base that teachers and administrators can access and that includes each teacher's ADEPT history. • The state also began linking teacher evaluation information back to teacher certification programs. • The state developed rubrics for other personnel (e.g., nurses, coaches). 	<ul style="list-style-type: none"> • Getting buy-in to a new process is always a challenge. <ul style="list-style-type: none"> ▪ The state tried to clearly articulate the goals of the new process and how it affects different stakeholders differently. ▪ The state emphasized that the new evaluation process was designed to improve student learning. The process should enable teachers to tailor professional development to their needs. ▪ The state emphasized ways that the new system is an improvement over the old system, which most people agreed was not helpful. • Scarcity of resources was another challenge. <ul style="list-style-type: none"> ▪ The department had to move slower than it would have liked on some elements. ▪ Even in the midst of budget shortfalls, the department did not compromise on either training or communications but kept them as high priorities. • Measuring whether the new system is working was difficult to do. <ul style="list-style-type: none"> ▪ After a few years, the department brought in an external consultant to review the system. This approach lent credibility to the process and helped the department clarify next steps for improvement. 	<ul style="list-style-type: none"> • Decide early on what accomplishments are desirable in order to explain what is being accomplished. Explaining actions is very important, so articulate a clear, concise, and meaningful message. This message will help guide the process and allow future self-evaluation. • When getting feedback from constituents, it is best to present ideas for their response, rather than start from scratch. Starting from scratch in an unstructured forum can create a logjam that impedes all progress. • Remember that change is a long-term commitment. A dynamic system created from the beginning will position the department for adjustments to the process that future circumstances may require.

ABOUT THE NATIONAL COMPREHENSIVE CENTER FOR TEACHER QUALITY

The National Comprehensive Center for Teacher Quality (TQ Center) was created to serve as the national resource to which the regional comprehensive centers, states, and other education stakeholders turn for strengthening the quality of teaching—especially in high-poverty, low-performing, and hard-to-staff schools—and for finding guidance in addressing specific needs, thereby ensuring that highly qualified teachers are serving students with special needs.

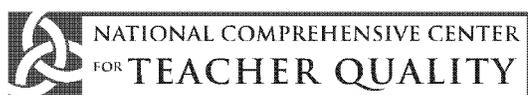
The TQ Center is funded by the U.S. Department of Education and is a collaborative effort of ETS, Learning Point Associates, and Vanderbilt University. Integral to the TQ Center's charge is the provision of timely and relevant resources to build the capacity of regional comprehensive centers and states to effectively implement state policy and practice by ensuring that all teachers meet the federal teacher requirements of the current provisions of the Elementary and Secondary Education Act (ESEA), as reauthorized by the No Child Left Behind (NCLB) Act.

The TQ Center is part of the U.S. Department of Education's Comprehensive Centers program, which includes 16 regional comprehensive centers that provide technical assistance to states within a specified boundary and five content centers that provide expert assistance to benefit states and districts nationwide on key issues related to the current provisions of ESEA.

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NRS 391.312 Grounds for suspension, demotion, dismissal and refusal to reemploy teachers and administrators; consideration of evaluations and standards of performance.

1. A teacher may be suspended, dismissed or not reemployed and an administrator may be demoted, suspended, dismissed or not reemployed for the following reasons:

- (a) Inefficiency;
- (b) Immorality;
- (c) Unprofessional conduct;
- (d) Insubordination;
- (e) Neglect of duty;
- (f) Physical or mental incapacity;
- (g) A justifiable decrease in the number of positions due to decreased enrollment or district reorganization;
- (h) Conviction of a felony or of a crime involving moral turpitude;
- (i) Inadequate performance;
- (j) Evident unfitness for service;
- (k) Failure to comply with such reasonable requirements as a board may prescribe;
- (l) Failure to show normal improvement and evidence of professional training and growth;
- (m) Advocating overthrow of the Government of the United States or of the State of Nevada by force, violence or other unlawful means, or the advocating or teaching of communism with the intent to indoctrinate pupils to subscribe to communistic philosophy;
- (n) Any cause which constitutes grounds for the revocation of a teacher's license;
- (o) Willful neglect or failure to observe and carry out the requirements of this title;
- (p) Dishonesty;
- (q) Breaches in the security or confidentiality of the questions and answers of the achievement and proficiency examinations that are administered pursuant to NRS 389.015;
- (r) Intentional failure to observe and carry out the requirements of a plan to ensure the security of examinations adopted pursuant to NRS 389.616 or 389.620; or
- (s) An intentional violation of NRS 388.5265 or 388.527.

2. In determining whether the professional performance of a licensed employee is inadequate, consideration must be given to the regular and special evaluation reports prepared in accordance with the policy of the employing school district and to any written standards of performance which may have been adopted by the board.

(Added to NRS by 1967, 968; A 1973, 791; 1987, 1004; 1999, 1434, 3241; 2001, 1211)

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**The Effects of Teach For
America on Students:
Findings from a National
Evaluation**

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EXECUTIVE SUMMARY

Teach For America (TFA) was founded in 1989 to address the educational inequities facing children in low-income communities across the United States by expanding the pool of teacher candidates available to the schools those children attend. TFA recruits seniors and recent graduates from colleges around the country, people who are willing to commit to teach for a minimum of two years in low-income schools.

TFA focuses its recruitment on people with strong academic records and leadership capabilities, whether or not they have planned to teach or have taken education courses. TFA is particularly interested in candidates that have the potential to be effective in the classroom but in the absence of TFA would not consider a teaching career. Consequently, most TFA recruits do not have education-related majors in college and therefore have not received the same training that traditional teachers are expected to have.

Although the teacher training TFA provides its recruits is limited in duration, it is quite intensive. Once recruits are accepted into the program, they participate in a five-week TFA summer institute to prepare them for placement in the classroom at the start of the school year. The institute includes courses on teaching practice, classroom management, diversity, learning theory, literacy development, and leadership. During the institute, groups of participants also take full teaching responsibility for four weeks of a class of summer school students. Participants also meet regularly with subject- and grade-specific learning teams and attend various evening workshops, with their progress evaluated through regular assessment and feedback provided by institute faculty. The institute has established a rigorous process for participants. According to TFA, the typical attendee must carry out a number of preliminary assignments and then spend 70 hours a week on institute-related activities during the five weeks. Furthermore, for most TFA corps members, their training continues after they are placed in their classrooms, partly because many states and districts require it.

TFA has been highly successful in attracting applicants that meet its standards, and its numbers have expanded rapidly in recent years. Between 2000 and 2003, the TFA applicant pool grew almost fourfold (from 4,068 to 15,706), and the number of new corps members nearly doubled (from 868 to 1,656). In 2004, the program plans to place corps members in 22 urban and rural regions, an increase from 15 regions served in 2000.

OBJECTIVE AND DESIGN

Despite TFA's rapid recent expansion, little evidence exists regarding the impact of TFA teachers on student achievement. This report addresses this issue directly by answering the question, Do TFA teachers improve (or at least not harm) student outcomes relative to what would have happened in their absence? Our approach to addressing this question is to compare the outcomes among students taught by TFA teachers with the outcomes of students taught by other teachers *in the same schools and at the same grades*, whom we refer to as "control teachers." We refine this comparison by randomly assigning students to their classrooms prior to

the start of the school year to ensure that the TFA and control teachers have essentially identical classes of students.

For our analysis, we defined “control teachers” to include any teacher who was never a TFA corps member. Control teachers therefore included traditionally certified, alternatively certified, and uncertified teachers—any teacher who came from a source other than TFA. TFA teachers included any teacher that entered teaching through TFA—both current TFA corps members in their first two years of teaching and a small number of former TFA corps members who were still teaching in the schools in our study.

We conducted two types of comparisons of TFA and control teachers. First, we compared classes taught by TFA teachers with classes taught by all control teachers, which could include both novices and veterans. In this case the average years of teaching experience was far higher for the control than for the TFA teachers. To control directly for differences in teaching experience, we conducted a second type of comparison based on classes taught by novice TFA teachers and novice control teachers. (We defined novice teachers as those in their first three years of teaching during the study year.)

The estimates presented in this report reflect the “full” impact of the TFA program, which encompasses both the recruitment effect of TFA on the type of teachers that enter the profession in low-income communities and the effect of the TFA training on program participants. Both these TFA effects may in turn affect student outcomes. Because the two components are integral to the TFA program, our study was not designed to disentangle their separate influences on student outcomes.

The primary student outcomes we examined were based on math and reading tests administered at the beginning and end of the school year. We measured other outcomes by collecting school records and asking teachers to respond to a survey about their own practices and attitudes and their perceptions of the classroom environment.

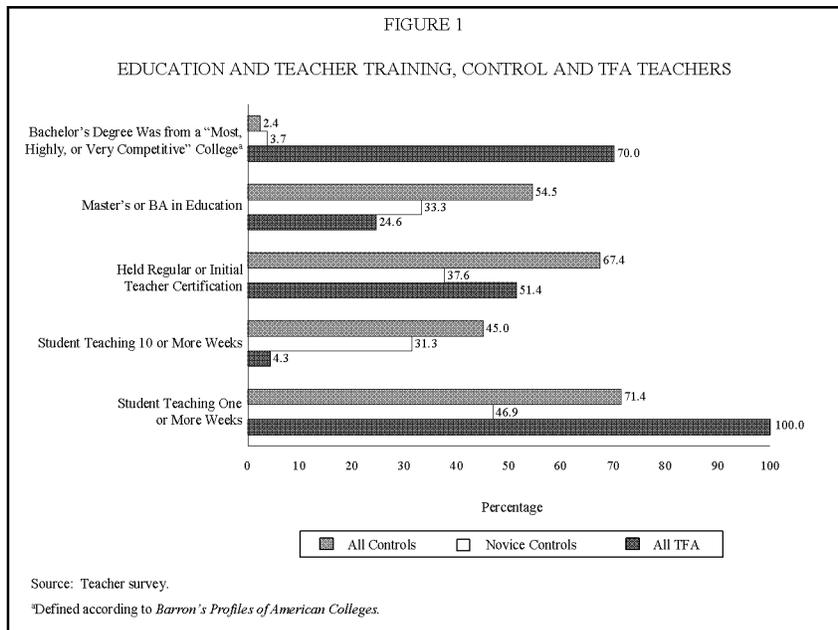
The evaluation was conducted in two stages: a pilot study in one region (Baltimore) during the 2001–2002 school year and a full-scale evaluation in five additional regions (Chicago, Los Angeles, Houston, New Orleans, and the Mississippi Delta) during the 2002–2003 school year. The final sample includes 6 of the 15 regions where TFA placed teachers at the time the study was being designed. To facilitate random assignment, we restricted our study to grades 1 to 5, in which students were typically assigned to self-contained classes for math and reading instruction. The final research sample included 17 schools, 100 classrooms, and nearly 2,000 students. Since TFA places teachers in schools that are generally disadvantaged and face substantial teaching shortages, our study related to these schools, not the average school in the United States.

FINDINGS

Our study sheds light on who teaches in the schools where TFA places teachers, and on the impacts TFA teachers have on student outcomes. The findings for teachers show that TFA produces teachers who differ in some key ways from the other teachers in the same schools. As expected, the TFA teachers in our sample had strong academic backgrounds. Figure 1 shows that over two-thirds of the TFA teachers in our sample graduated from colleges classified as

either “most competitive,” “highly competitive,” or “very competitive” by *Barron’s Profile of American Colleges*. This compares with fewer than 4 percent of either all control group teachers or the novice control group teachers that had graduated from colleges ranked at these levels.

On the other hand, TFA teachers had less education-specific training than the control teachers, although the differences between TFA teachers and novice control group teachers were modest. Figure 1 shows that by the end of the study year, about 25 percent of TFA teachers had either a bachelor’s or a master’s degree in education, compared with 55 percent of control group teachers overall, and 33 percent of the novices. Most TFA teachers earned their education degree while they were teaching—



only 3 percent had such a degree when they began teaching. Over 51 percent of the TFA teachers had earned a regular or initial teacher certification by the end of the study year, a figure that was still substantially below the 67 percent for the full control group, although on par with that of the novice control teachers.¹

Before beginning their teaching assignment, TFA teachers had less student teaching experience than many of, but by no means all, the control group teachers. Only 4 percent of TFA teachers reported having spent 10 or more weeks student teaching, compared with 45 percent of the control teachers and 31 percent of the novice control teachers (Figure 1). On the other hand, all TFA teachers had at least 4 weeks of student teaching experience from having participated in the summer institute, while many of the control teachers (and over half the novice control teachers) had no student teaching experience at all.

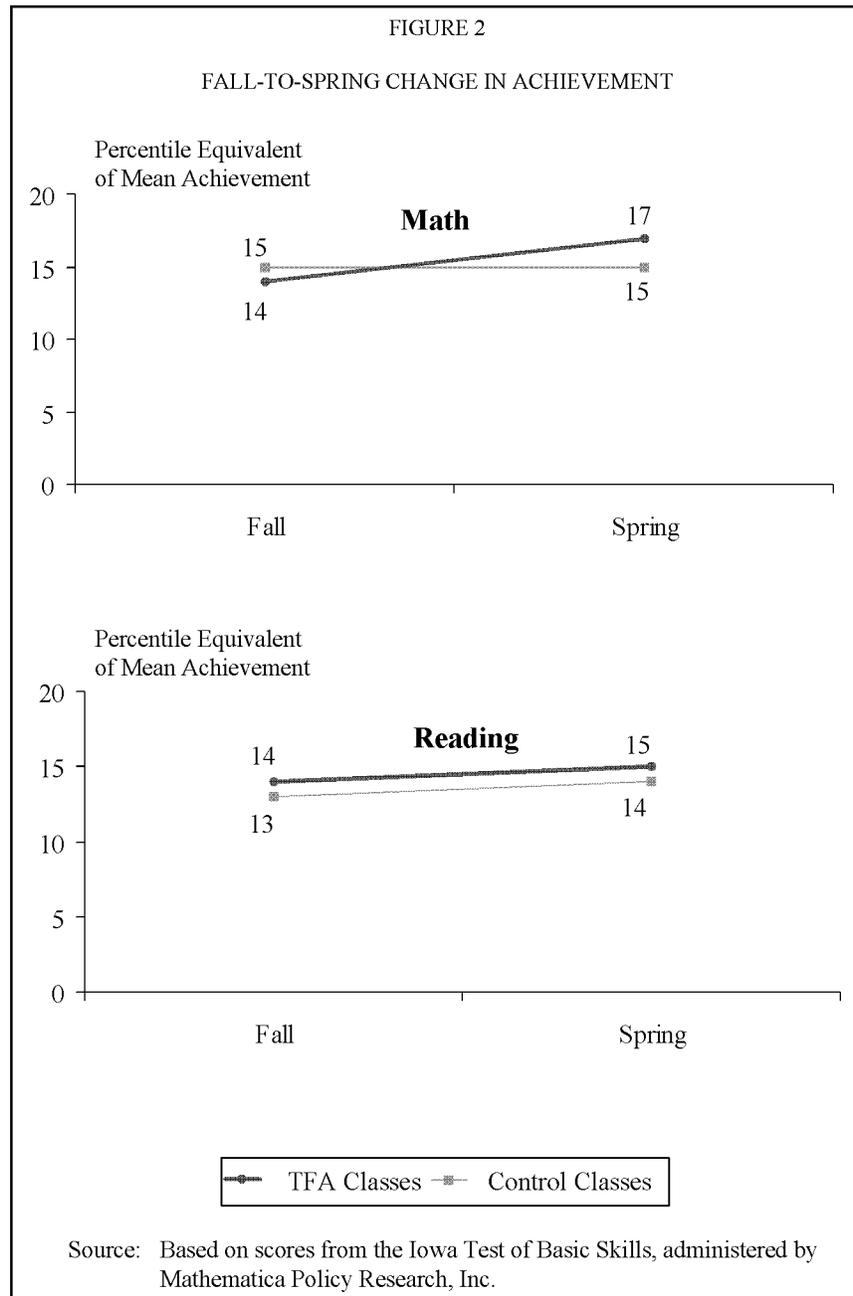
Although these findings reinforce some expectations regarding the differences in teacher preparation between TFA teachers and control teachers, they also show that the control teachers had a mix of backgrounds and teacher preparation. That is, many of the control teachers in the

¹ Although in the aggregate more TFA teachers are certified than novice control teachers (51 percent versus 38 percent), we found that certification varied by district and school. This variation is not surprising, as certification requirements differed by location. Once the TFA sample was limited to those teaching in the same schools and grades as the novice control teachers, the difference in rates of certification (40 percent versus 38 percent) disappeared into statistical insignificance.

schools in our study, particularly the novice teachers, had not entered teaching through a traditional route in which they were fully trained prior to their entry into the classroom. This finding reflects the situation in the poor schools where TFA places teachers rather than the situation in all schools across the country. Compared with a nationally representative sample of teachers, the control teachers in the schools in our study had substantially lower rates of certification and formal education training.

Looking at student outcomes, we found that TFA teachers had a positive impact on the math achievement of their students—average math scores were significantly higher among TFA students than among control students. Figure 2 shows the percentile rankings of the average students in TFA and control classrooms at the beginning (fall) and the end (spring) of the school year. For math (shown in the top panel of Figure 2), the average control class student scored in the 15th percentile in the fall and remained in the 15th percentile at the end of the year. That is, control class students experienced “normal” achievement growth, shown in Figure 2 by a horizontal gray line. In contrast, the average TFA class student increased in rank from the 14th to the 17th percentile over the same period. When adjusted using sample weights and regression methods, the difference in the growth rates was statistically significant, which demonstrates that TFA teachers generated larger math achievement gains.

This impact is equivalent to an effect size of approximately 0.15 of a standard deviation and translates into roughly 10 percent of a grade equivalent, or about one additional month of math instruction.



TFA teachers did not have an impact on average reading achievement. Students in TFA and control classrooms experienced the same growth rate in reading achievement—an increase equivalent to one percentile. The nearly parallel lines in Figure 2 reflect the similarity in these growth rates. The regression-adjusted impact estimate was not statistically significant.

When we restricted the analysis to novice teachers, the impacts of TFA were the same or larger than those reported for the comparison with all teachers. Compared with their novice counterparts, novice TFA teachers generated math test scores that were 0.26 standard deviations higher, on average. The impact on reading scores remained statistically insignificant based on the novice comparisons. We also found that impacts were similar, although slightly lower, when TFA teachers were compared with control teachers with regular teaching certificates. In general, the sample sizes for all the teacher subgroup comparisons were too small to determine whether the impacts for the subgroup comparison were significantly different from the overall impacts.

The TFA impacts were similar across different subgroups of students. For example, the impacts were similar for boys and girls and for different racial/ethnic groups. They were also similar for students with different baseline achievement scores and for those in different grades.

The conclusions regarding the positive impact of TFA teachers on math scores and no impact on reading scores were not sensitive to the assumptions underlying our estimation model. In extensive sensitivity tests, we found that the estimated test score impacts varied within a fairly narrow range. For example, estimated impacts of TFA teachers on average math scores based on alternative specifications hovered around the benchmark estimate described above, ranging from 0.13 to 0.18 standard deviation units, and were always statistically significant. We found similar stability in the estimated impacts of TFA teachers on average reading scores—all the estimates were small and not statistically significant. Finally, the impacts on both math and reading scores were reasonably similar across locations—the overall impacts were not attributable to any particular region, school, or grade.

TFA teachers had no substantial impact on the probability that students were retained in grade or assigned to summer school. The findings on student discipline, absenteeism, and behavior varied somewhat by data source. Estimates based on data from student records showed that TFA teachers had no impact on these outcomes. However, data from the teacher survey showed that the TFA teachers were more likely than the control teachers to report having had problems with student disruptions and physical conflicts among students in their classrooms. Since these measures were based on teacher reports, the differences may simply reflect differences between TFA and control teachers' expectations and perceptions regarding student behavior rather than actual differences between the classrooms.

IMPLICATIONS

Our findings have important implications for a variety of stakeholders. Program funders, program operators, and policymakers at the state and federal levels have an enduring interest in finding ways to attract and retain high-quality teachers in low-income communities. District officials and school staff in such areas have an especially practical interest in the same question, particularly in the short term, with federal requirements under No Child Left Behind to place a highly qualified teacher in every classroom. Finally, parents and children in low-income

communities are most directly affected by decisions about who will teach in their schools. We consider the implications of our findings for each of these groups.

From the perspective of a community or a school faced with the opportunity to hire TFA teachers, our findings suggest that TFA offers an appealing pool of candidates. First, the positive impacts on math scores suggest that by hiring TFA teachers, a school can expect to increase the average math achievement of its students (without lowering their reading achievement). Second, the consistent pattern of positive or zero impacts on test scores across grades, regions, and student subgroups suggests that there is little risk that hiring TFA teachers will reduce achievement, either for the average student or for most subgroups of students. Finally, since TFA teachers are paid the same as other teachers, the schools pay no direct costs for the achievement increase and school districts typically contribute only \$1,500 per corps member to offset recruiting costs. This contrasts with other interventions that have been shown to increase achievement, such as class size reduction, but that can entail substantial direct costs.

One could expand this reasoning to conduct a larger assessment of whether, from society's perspective, TFA is a cost-effective way to attract teachers to low-income schools. However, a full cost-effectiveness assessment would require information on a number of factors our study does not address directly. For example, although TFA teachers are paid on the same salary scale as their counterparts, they may create hidden costs if they leave their jobs sooner—for example, at the end of their two-year commitment—and have to be replaced more frequently than their non-TFA peers. Measuring such costs would be difficult, because the retention rates of TFA and non-TFA teachers are not well documented. Our data showed no difference in within-year attrition rates, but because they cover only a single school year, they cannot be used to compare attrition rates over time between our TFA and control teachers. Hanushek et al. (2004) show that teacher attrition rates are particularly high in schools that serve large numbers of academically disadvantaged students—exactly the types of schools where TFA places teachers. Therefore, there is no strong reason to presume that TFA teachers have an attrition rate higher than that of other new teachers in the same schools.

From the perspective of TFA and its funders, our findings clearly show that the organization is making progress toward its primary mission of reducing inequities in education—it supplies low-income schools with academically talented teachers who contribute to the academic achievement of their students. The success of TFA teachers is not dependent on their having extensive exposure to teacher practice or training. Even though TFA teachers generally lack any formal teacher training beyond that provided by TFA, they produce higher student test scores than the other teachers in their schools—not just other novice teachers or uncertified teachers, but also veterans and certified teachers.

Finally, our study provides important information to policymakers who are working to improve the educational opportunities for children in poor communities. The finding that many of the control teachers in our study were not certified or did not have formal pre-service training highlights the need for programs or policies that can attract good teachers to schools in the most disadvantaged communities. Our findings show that TFA is one such program.

I. INTRODUCTION

Teach For America (TFA) was founded in 1989 to address the educational inequities facing children in low-income communities across the United States by expanding the pool of teacher candidates available to schools in those communities. TFA recruits seniors and recent graduates from about 320 colleges around the country, people who are willing to commit to teach for a minimum of two years in low-income schools.

In its recruitment efforts, TFA focuses on individuals who possess strong academic records and leadership capabilities, regardless of whether or not they have exposure to teaching practice prior to entry into TFA. TFA is particularly interested in candidates that have the capability of being effective teachers but in the absence of TFA would not consider a teaching career. Consequently, most TFA recruits do not have education-related majors in college and therefore have not received the training that is typical of teachers before they enter the classroom. However, TFA recruits do stand out as high academic achievers. For example, the new corps members in 2003 had an average SAT score of 1310 and an average grade point average of 3.5. In addition, 92 percent of these corps members were defined by TFA as holding “a leadership role on a college campus” prior to joining TFA.

Once recruits are accepted into the program, they are required to participate in a five-week TFA summer institute to prepare them for placement in the classroom at the end of the summer. The TFA summer institute includes courses covering teaching practice, classroom management, diversity, learning theory, literacy development, and leadership. During the institute, groups of participants also take full teaching responsibility for a class of summer school students. Participants’ progress is evaluated through regular assessment and feedback provided by institute faculty.

TFA has been highly successful in attracting individuals that meet its standards and its numbers have expanded rapidly in recent years. Between 2000 and 2003, the TFA applicant pool grew almost fourfold (from 4,068 to 15,706) and the number of new corps members nearly doubled (from 868 to 1,656). Since the program began, more than 10,000 TFA corps members have taught more than 1.5 million students. In 2004, the program plans to place corps members in 22 urban and rural regions, an increase from 15 regions served in 2000.

Despite TFA’s rapid expansion, there is little evidence whether teachers with strong academic backgrounds, but limited exposure to teaching practice, can be effective. Some critics argue that programs such as TFA are “loopholes” that permit unlicensed and under-trained teachers into the classroom simply as a way to address teacher shortages. Darling-Hammond (1994, 1996) has argued that TFA teachers “often have difficulty with curriculum development, pedagogical content knowledge, students’ different learning styles, classroom management, and student motivation.” Other researchers are more optimistic about the potential benefits of hiring teachers through programs such as TFA. Ballou and Podgursky (1998) argue that there is no evidence that formal teacher certification produces more qualified teachers and that certification policies may discourage talented individuals from entering the profession. Two recent studies (Raymond et al. 2001; and Laczko-Kerr and Berliner 2002) attempted to assess the impact of

TFA using nonexperimental methods on samples drawn from single regions, and generated mixed findings regarding the effectiveness of TFA teachers. Our study extends beyond these previous studies by using a unique experimental methodology and by working with a nationwide sample.

This study examines the impact of TFA teachers on the students in their classrooms compared with what would have happened in the absence of the TFA teachers. To estimate this impact, we therefore need to know what would have happened to students in the absence of the TFA teachers. In Chapter III of this report, we describe in detail our approach to estimating this hypothetical outcome. We characterize our estimate of the impact of TFA teachers on their students as the “full” impact of the TFA program, which encompasses both the recruitment effect of TFA on the type of teacher that enters teaching in low-income communities and the effect of TFA on the training provided to these teachers. Both of these TFA effects may in turn affect student outcomes. Because both of these components are integral to the TFA program, our study was not designed to disentangle their separate influences on student outcomes.

II. HOW TFA WORKS

In the introduction to this report, we stated that TFA can affect both the types of teachers that enter teaching in low-income communities and the training received by these entering teachers. In this chapter we briefly describe the process by which TFA recruits, prepares, and supports teacher candidates.

A. APPLICATION

TFA recruits graduating college seniors or recent graduates from all academic majors. Applicants are required to have a minimum cumulative undergraduate GPA of 2.50 at the time of their application and when they graduate. To apply, candidates complete an online application, including a letter of intent, a resume, and an essay. The most promising applicants are invited to participate in a day-long interview, which includes a sample teaching lesson, a group discussion, a written exercise, and a personal interview. Applicants who are invited to interview are also required to provide transcripts and have the option of providing a reference. Using information collected through the application and interview, TFA bases their selection of candidates on a model that accounts for multiple criteria that they believe are linked to success in the classroom, including: achievement, personal responsibility, critical thinking, organizational ability, motivational ability, respect for others, and commitment to the TFA mission. TFA conducts ongoing research on their selection criteria, focusing on the link between the selection criteria and observed single-year gains in student achievement in TFA classrooms. Over the years, they have adjusted the selection model based on this research.

At the time of their interview, applicants establish their preferences regarding the location of their placement, as well as the grade level and subjects they want to teach; and TFA works to balance these preferences with the needs and requirements of the regions where they place teachers. With respect to location, applicants rank each TFA region as highly preferred, preferred, or less preferred and indicate any special considerations, such as the need to coordinate location with a spouse. According to TFA, over 90 percent of the TFA applicants accepted are matched to one of their “highly preferred” regions.

TFA also attempts to match applicants to preferred grade levels and subjects, although applicants’ ability to do this depends on their academic backgrounds, district needs, and state and district certification requirements. Because requirements vary from region to region, applicants may not be qualified to teach the same subjects and grade levels in all regions. Furthermore, it is difficult for school regions to predict in the spring the exact openings they will have in the fall, and changes in subject or grade-level assignments following initial placement are not uncommon.

B. TRAINING AND SUPPORT

The centerpiece of the teacher training provided by TFA is the five-week summer institute in which TFA corps members must participate prior to beginning their teaching assignments. The summer institute is designed to help new TFA corps members understand the approach TFA

believes is needed to be a successful teacher in a low-income community. Before attending the institute, participants are expected to have completed assigned readings, engaged in classroom observations, and completed exercises based on their readings and observations so as to lay the foundation for their institute training. Once at the institute, corps members are required to participate in four institute activities:¹

1. **Six formal education courses:** Teaching as Leadership; Instructional Planning and Delivery; Classroom Management and Culture; Literacy Development; Diversity, Community, and Achievement; and Learning Theory. These courses provide the educational foundation to prepare corps members to enter the classroom. Corps members' performance in these courses is evaluated based on weekly written assessments of their knowledge.
2. **Full teaching responsibility for a class of summer school students.** Corps members work collaboratively in groups of three or four to set academic goals for their students, plan lessons, deliver instruction, assess students, and communicate with parents. The classes, which begin in the second week of the institute, meet for several hours a day and last four weeks. In handling their classroom responsibilities, corps members are mentored by experienced teachers and are observed and evaluated by TFA staff and veteran teachers from the local school districts.
3. **Weekly meetings of institute learning teams focused on teaching methods.** The institute learning teams are organized according to subject and grade level. The teams meet one evening per week and are led by institute staff, with a focus on content- and grade-specific teaching methods.
4. **Content- and grade-specific workshops.** Workshops are conducted by institute faculty, TFA alumni, and other experienced educators and generally expand on the objectives of the six institute courses.

The institute also provides an orientation to TFA culture, including the organization's beliefs, core values, and mission. The typical corps member who participates in the institute works about 70 hours per week on institute-related activities.

In addition to the TFA summer institute, corps members take part in a one- to two-week, TFA-led induction in their assigned region. Beyond that, corps members often participate in local teacher induction programs conducted by the school regions. These induction programs are used to orient all new teachers, not just TFA corps members, to local factors that may affect students' academic experience and their school's culture.

Once TFA corps members are in their assigned regions, they receive ongoing support from TFA staff and faculty located in each community, as well as from TFA national staff. TFA

¹This description is based on the current TFA summer institute, which differs somewhat from the institute which most study participants attended. Since 2002, for example, TFA has revised the literacy curriculum and has added a separate course on diversity.

prefers to place corps members in schools with other corps members and alumni, so that they can collaborate on projects and support each other's professional growth. Last year, 90 percent of TFA corps members were placed in a school with at least one other corps member. Local TFA staff conduct classroom observations of corps members, identify corps members' professional development needs, and connect corps members to resources that are helpful, given their particular needs. These resources include relevant books and articles, professional development workshops, and exemplary teachers in particular grades or content areas. Finally, corps members stay connected to TFA colleagues in their region and across the country through organized social activities, seasonal retreats, discussion groups, the TFA website, and inter-regional conferences.

C. COMPENSATION AND CERTIFICATION

TFA corps members are paid directly by the school districts for which they work and generally receive the same salaries and health benefits as other beginning teachers. Most districts pay a fee to TFA, \$1,500 per corps member, to offset screening and recruiting costs. TFA gives corps members various additional financial benefits not related directly to their district compensation. For example, corps members historically have been part of AmeriCorps, entitling them to an "education award" of \$4,725 for each year of service, which they can use toward past or future educational expenses, as well as forbearance of qualified student loans. TFA also offers transitional grants and no-interest loans to help corps members make it to their first paycheck. Applicants may apply for transitional packages that range from \$1,000 to \$5,000, based on an applicant's demonstrated need and the cost of living in the assigned region. Aid may be used for travel to the summer institute and regional orientations, as well as for personal and moving expenses (for example, deposits on apartments) and necessary coursework, testing, and district processing fees.

TFA corps members are hired to teach in local school districts through alternative routes to certification. Typically, they must take and pass exams required by their districts before they begin teaching. Corps members may also be required to take additional courses to meet state certification requirements or to comply with the requirements for highly qualified teachers under the No Child Left Behind Act (NCLB). Although corps members ultimately are responsible for meeting the certification requirements in their states, TFA works with school districts, states, and schools of education to help ensure that corps members have access to coursework, test information, and preparation tools to meet these requirements. To acquire their teacher certification, corps members often pursue a master's degree in education after they have begun teaching; and TFA has established partnerships with graduate schools in most areas to facilitate this process.

III. STUDY DESIGN

This report addresses the question: Do TFA teachers improve (or, at least, not harm) student outcomes relative to what would have happened in their absence? To measure the impact of TFA teachers on students, ideally we would compare the experience of students assigned to TFA teachers with the same students' experiences in the absence of TFA. Since this counterfactual could not be directly observed, we approximated it by using a comparison sample of non-TFA teachers teaching similar students in the same environment. Specifically, our estimation strategy was to compare outcomes of students taught by TFA teachers with outcomes of students taught by non-TFA, or control, teachers *in the same schools and at the same grades*. We further refined the comparison by ensuring that the TFA and control teachers had essentially identical classes of students, which we did by randomly assigning students to their classrooms prior to the start of the school year.

For our analysis, we defined “control teachers” to include any teacher in the study who was not a TFA corps member either at the time of the study or at any time in the past. “Control teachers” therefore included traditionally certified, alternatively certified, and uncertified teachers—any active teacher who came from any source other than TFA. “TFA teachers” included any teacher who entered the profession through TFA—both current TFA corps members in their first two years of teaching and alumni (former corps members) who were still teaching.

We conducted two types of comparisons of TFA and control teachers. First, we compared classes taught by TFA teachers with classes taught by all control teachers, which could include both novice and veteran teachers. In this case, the average years of teaching experience was far higher for the control teachers than for the TFA teachers. To control for differences in teaching experience, we conducted a second type of comparison based on classes taught by novice TFA teachers with novice control teachers. We defined “novice teachers” as including teachers in one of their first three years of teaching during the study year.

Which of these two comparisons is most relevant is a matter of some debate. In the absence of TFA, the students in our sample would have been taught by a mix of novices and veterans found in their schools. However, one might assume that if a TFA teacher were not hired, then some other, presumably novice, non-TFA teacher would be hired in his or her place. Rather than try to identify which comparison is most relevant from an empirical perspective, we simply examined both the “all teachers” and “novice only” comparisons.

Before the start of the academic year, we randomly assigned all students entering the targeted grades to their classes. This assignment ensured that the classes in the targeted grades were essentially identical with respect to the average characteristics of students assigned to the classes; consequently, any differences in average outcomes between the classes can be attributed to differences in the teachers. In effect, this approach represents a series of *mini-experiments* at each school and grade, which are replicated across all the schools and grades in the study. Throughout this report, we refer to the TFA and control teachers in the same school and at the same grade—those making up one of the mini-experiments—as a *comparison block*.

To facilitate the use of random assignment, our study included only elementary students (grades 1 to 5). Elementary classes are generally structured to be similar within any given grade, so random assignment—which will generate essentially identical classes—is consistent with the class structure. Furthermore, students at these grade levels typically are assigned to homeroom teachers that teach both reading and math. As a result, we expected that students would receive reading and math instruction from the same teacher to whom they were randomly assigned. Elementary schools where students switched teachers for reading or math instruction, or “looped” students (who stay together with the same teacher from one grade to the next), were excluded from our study.

The evaluation was conducted in two stages. We first conducted a pilot study in one region—Baltimore—during the 2001-2002 school year; then conducted a full-scale evaluation during the 2002-2003 school year in five additional regions—Chicago, Los Angeles, Houston, New Orleans, and the Mississippi Delta. The sample includes 6 of the 15 regions where TFA placed teachers at the time the study was being designed.² The regions were selected after stratifying the regions according to the dominant race/ethnicity of students served (African American/Hispanic) by the schools and whether the region is an urban or rural one. To avoid arbitrary selection of regions, we randomly selected regions within strata when possible. Within the selected regions, a total of seven school districts participated in the study, since one region—the Mississippi Delta—had two districts included in the study. In Los Angeles, we selected the Compton district to participate in the study. Within each of the seven school districts, we randomly selected schools from those that had the staffing needed to support our design.³ The final research sample, which is summarized in Table III.1, consisted of 17 schools, 100 classrooms, and nearly 1,800 students.

The schools in our study were chosen to be broadly representative of the schools where TFA placed teachers at the time of the evaluation. Since TFA places teachers in schools that are generally disadvantaged and face substantial teacher shortages, our study focused on these disadvantaged schools, not the average school in the United States. For example, across the 17 schools in our study, the average rate of student eligibility for free or reduced-price lunches was over 95 percent, compared with about 41 percent nationwide.

Our measures of student achievement were based on standardized mathematics and reading test scores. Using the Iowa Test of Basic Skills (ITBS), we administered a baseline achievement test in the fall and a follow-up test in the spring in each of the classes included in the study.

²We distinguish between regions and school districts. In some cases, mostly in the large urban regions, TFA works with a single district in a region. In other cases, particularly in the rural regions, TFA works with multiple districts in a region.

³Only schools with both TFA and control teachers at the same grade were candidates for the study. Given this requirement, our sample may be tilted somewhat toward larger schools and schools with greater teacher turnover, since these schools were probably more likely to have TFA and control teachers at the same grades.

TABLE III.1
STUDY SAMPLE

Region	Number of Schools	Number of Comparison Blocks	Number of Classes Taught by:			Number of Students Taught by: ^a		
			TFA Teacher	Novice Control Teacher	Veteran Control Teacher	TFA Teacher	Novice Control Teacher	Veteran Control Teacher
Baltimore	3	6	7	1	8	137	18	147
Chicago	3	7	7	2	5	139	42	105
Houston	3	7	7	3	7	126	56	114
Los Angeles/ Compton	2	6	6	6	4	97	111	72
Mississippi Delta	3	6	12	2	10	201	31	146
New Orleans	3	5	5	1	7	85	21	117
Total	17	37	44	15	41	785	279	701

Source: Project tracking system.

^aIncludes students in the research sample who completed the spring achievement test.

We also collected data from school records and administered a survey of teachers. The school records contained some basic demographic data on students, as well as data on attendance and retention in grade. The teacher survey provided contextual information for our estimates and allowed us to compare the characteristics, teacher preparation, and teaching methods and philosophies of TFA and non-TFA teachers.

IV. WHO TEACHES IN THE SCHOOLS WHERE TFA PLACES TEACHERS?

The TFA program works with schools that serve disadvantaged students, have limited resources, and typically face substantial teacher shortages. Therefore, it is important to understand who normally teaches in those schools and how the TFA corps members compare in terms of background, experience, and teaching practices. We examine the characteristics of our control teachers who, by design, provide a picture of the teachers who would have been teaching in those schools in the absence of the TFA program, as well as the characteristics of the TFA teachers themselves.

We collected data on teachers by administering a survey late in the school year. The survey measured personal characteristics, preparation for teaching, teaching experience, career expectations, professional development, mathematics pedagogy, reading pedagogy, receipt of help in the classroom, and student behavior. Teachers in 98 of the 100 classrooms in our study completed a survey. Of those, 41 were TFA teachers and 57 were control teachers (18 novice teachers and 39 veterans).⁴

A. CONTROL TEACHERS HAD DIVERSE BACKGROUNDS

Most control teachers in our sample were female and non-white. Table IV.1 shows that nearly 9 out of 10 of the control teachers were women. About 76 percent of these teachers were African American, 11 percent were Hispanic, and 11 percent were white.

A majority of the control teachers in our sample (55 percent) had a bachelor's or master's degree in education (most were bachelor's degrees), but 45 percent had no education degree at all (Table IV.1). In earning their bachelor's degrees, only one control teacher in our sample attended a college classified as either "most competitive," "highly competitive," or "very competitive," by the 2003 edition of *Barron's Profile of American Colleges*.

Many, but not all, of the control teachers entered teaching through a traditional teacher certification route—they received their teacher training from an institution of higher education and possessed both a regular teaching certificate and student teaching experience prior to entering the classroom. Just over two-thirds (67 percent) of the control teachers held either a regular or an initial teaching certification in elementary education at the time of the survey, and nearly all of these certified teachers reported entering teaching through a traditional certification route. The remaining one-third of the control teachers had a temporary certification (10 percent), an emergency certification (15 percent), or some other type of provisional certification (7 percent). Surprisingly, although 45 percent of the control teachers had substantial student teaching experience (10 weeks or more) before they formally entered teaching, almost 30 percent had no student teaching experience.

⁴Eight classrooms experienced turnover of teachers during the school year, so the numbers of novice controls, veteran controls, and TFA teachers who completed our spring questionnaire differed slightly from the numbers of those who began the school year.

TABLE IV.1
EDUCATION AND DEMOGRAPHIC CHARACTERISTICS OF TEACHERS

	Control Teachers		TFA Teachers
	All	Novice	
Gender (Percentage)			
Male	13.2	15.6	30.7
Female	86.8	84.4	69.3
Race/Ethnicity (Percentage)			
Hispanic	10.6	21.9	5.8
White, non-Hispanic	10.6	12.5	67.4
African American, non-Hispanic	76.1	62.5	15.9
Other	2.8	3.1	10.9
Age (Years)^a			
Median age when receiving bachelor's degree	24.0	24.0	22.0
Median age during first year of teaching	27.0	28.0	22.0
Median age (years)	35.0	30.0	24.0
Education (Percentage)			
Bachelor's degree from a most, highly, or very competitive college or university	2.4	3.7	70.0
Bachelor's degree in education	52.2	33.3	2.9
Bachelor's or master's degree in education	54.5	33.3	24.6
Certification (Percentage)			
Regular	63.9	31.3	28.6
Initial	3.5	6.3	22.9
Temporary	10.4	28.1	12.1
Emergency	15.3	25.0	27.9
Other	6.9	9.4	8.6
Weeks of Student Teaching (Percentage)			
Not at all	28.6	53.1	0.0
1 to 5 weeks	5.7	9.4	92.9 ^b
6 to 9 weeks	20.7	6.3	2.9
10 weeks or more	45.0	31.3	4.3
Median Years of Teaching Experience^a			
	6.0	2.0	2.0
Years of Teaching Experience (Percentage)			
1 year	11.3	31.3	43.3
2 years	14.8	46.9	43.3
3 years	4.9	21.9	6.7
4 to 9 years	34.5	0.0	6.7
10 to 19 years	18.3	0.0	0.0
20 or more years	16.2	0.0	0.0
Sample Size	57	18	41

TABLE IV.1 (*continued*)

Source: Teacher survey.

Note: The p-values for the treatment-control differences are presented in Appendix A along with separate analyses that compare novice controls to only the TFA teachers in their grades and schools.

^aWe report the median age and experience because the means are affected by a small number of outliers. The mean age and experience are slightly higher than the medians reported here.

^bWhile a number of TFA teachers responded that they had no student teaching at all, we set their value to “1 to 5 weeks” because all TFA teachers practice-teach for four weeks at the TFA summer institute.

Many of the control teachers had spent several years in the classroom and planned to make teaching their lifetime career. Table IV.1 shows that among all control teachers, the median level of teaching experience was 6 years and the median age was 35 years. Most control teachers reported that they expect to remain in teaching. About 61 percent reported that they will teach as long as they are able or until retirement (Table IV.2). Approximately 11 percent planned to leave as soon as possible or if “something better comes along.” Seventy-two percent of the control teachers reported that they would become a teacher again if they could start their career over.

B. NOVICE CONTROL TEACHERS HAD DIVERSE BACKGROUNDS AND MOST WERE NOT TRADITIONALLY TRAINED

Novice control teachers, those in our sample with three or fewer years of teaching experience at the end of the study year, are of special interest because they provide the best representation of the teachers who would have been newly hired by those same schools had TFA not been available. Of the 57 control teachers in our sample, 18 were novices; so the sample size is somewhat small for making broad generalizations. Despite the limited sample size, the characteristics of these novice teachers are important enough to deserve a closer look.

TABLE IV.2
COMMITMENT TO TEACHING AS A CAREER

	Control Teachers		TFA
	All	Novice	Teachers
Expected Duration in Teaching (Percentage)			
As long as able	33.8	43.8	11.4
Until retirement	26.8	25.0	0.0
Until something better comes along	7.0	0.0	12.9
Will leave as soon as possible	4.2	0.0	10.0
Undecided	25.4	31.3	22.9
Other	2.8	0.0	42.9 ^a
Would They Become a Teacher if They Could Start Over? (Percentage)			
Yes	71.5	78.1	71.4
No	12.5	0.0	2.9
Don't know	16.0	21.9	25.7
Sample Size	57	18	41

Source: Teacher survey.

Note: In separate analyses we compared novice controls to only the TFA teachers in their grades and schools. The findings for those analyses are similar to the results presented in this table and are presented in Appendix A.

^aAlmost 43 percent of the TFA teachers wrote in “other” responses to this question. We found that 17 percent of the TFA teachers wrote that they would return to school, 10 percent noted that they would finish their commitment to TFA, and 7 percent noted that they planned to become school administrators.

As with the full control group, the novice control teachers tended to be female and non-white. The novice group was 84 percent female (Table IV.1). About 63 percent of the novices in our sample were African American, 22 percent were Hispanic, and 13 percent were white. (The novice teachers in our sample were found to be somewhat disproportionately in regions with large Hispanic populations.)

Not surprisingly, novices were younger than the full sample and, by definition, inexperienced. They were not as young as typical college graduates, however. Their median age was 30 years, with 3 of the 18 teachers being over 40 years old. In other words, the pool of novice teachers in these schools includes some who enter the profession later in life. Numbers presented in Table IV.1 suggest that part of the reason for this is that the control teachers, on average, earned their bachelor's degrees relatively late—the median age of the control teachers at college graduation was 24.

Most of the novice control teachers did not have substantial teaching-related training. Table IV.1 shows that only one-third of the novice control teachers possessed a bachelor's degree in education, and none possessed a master's degree in education at the time of the survey. Prior to entering teaching, only 31 percent had spent 10 or more weeks student teaching, and 53 percent had no student teaching experience at all. Less than 38 percent of the novice control teachers reported having a regular or initial teacher certification, and more than 50 percent reported having a temporary or emergency certification. Only one of the novice non-TFA teachers attended a college classified as “most competitive,” “highly competitive,” or “very competitive,” according to *Barron's Profile of American Colleges*.

Most novice control teachers appeared committed to long careers in teaching. A substantial proportion of them reported that they expect to teach indefinitely. According to Table IV.2, more than 68 percent said that they will teach as long as they were able or until retirement. Furthermore, none of the novice control teachers expect to leave as soon as possible or when something better comes along, although almost one-third say they are undecided about how long they will teach. Finally, most reported that they would become a teacher if they could start their career over again.

These findings reinforce what we learned in our discussions with principals and other school staff and what we learned from reviewing national data on teacher training—that the control teachers have a broad mix of backgrounds and teacher preparation and that they have different training than the average elementary school teacher. The survey findings suggest that the control teachers in the schools in our study, particularly the novice teachers, did not all enter teaching through a strictly traditional, education-based preparation route in which they were fully trained prior to their entry into the classroom. National data also suggest that the control teachers are less likely to have education-specific training and less likely to have gone to competitive colleges than the average elementary school teacher in the county. For example, the 1999–2001 Schools and Staffing Survey (SASS) documents that more than 76 percent of the nation's public elementary school teachers either majored or minored in elementary education when earning their bachelor's degrees. In contrast, only 61 percent of the control teachers had majored or minored in elementary education. In addition, according to SASS, 95 percent of the country's elementary teachers, and 84 percent of the country's novice elementary teachers, had regular or initial certification in elementary education. This stands in sharp contrast to the full group of control teachers, and the novice control teachers, of whom only 67 and 38 percent, respectively,

had regular or initial certification in elementary education. Finally, 22 percent of all public elementary teachers in the nation had attended colleges classified as “most competitive,” “highly competitive,” or “very competitive” by the 2003 edition of *Barron’s Profile of American Colleges*, while only 3 percent of the control teachers attended colleges that were that competitive.

C. TFA TEACHERS’ BACKGROUNDS REFLECTED THE PROGRAM’S STRUCTURE

The TFA teachers in our sample generally had characteristics consistent with the nature and structure of the TFA program. With respect to demographics, TFA teachers in our sample were more likely to be female than male, although the proportion who were female was substantially lower than for the control group. A majority (67 percent) of the TFA teachers were white, which contrasts sharply with the control teachers. Most TFA teachers began teaching immediately after receiving their bachelor’s degree.⁵

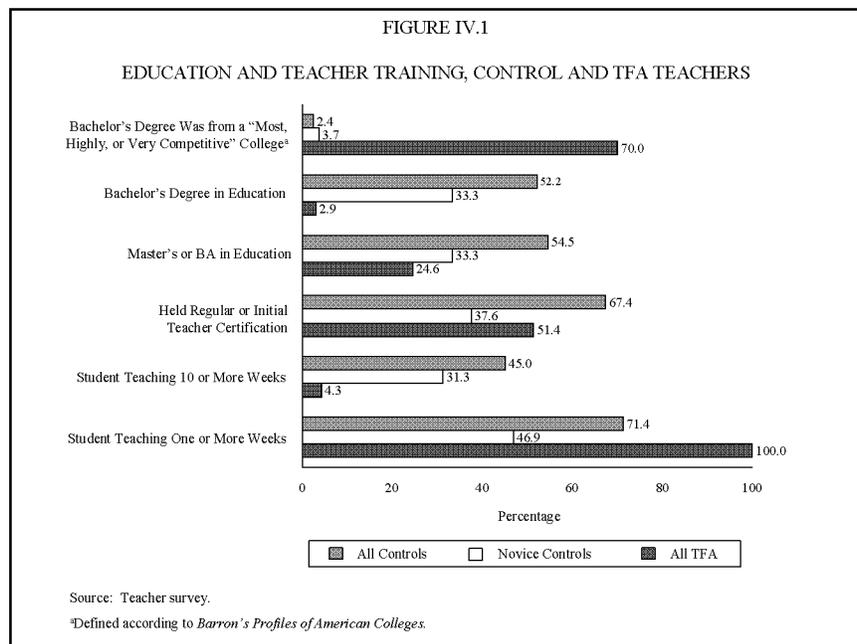
Relative to the control teachers, TFA teachers in our sample stand out in terms of the competitiveness of their undergraduate institutions.⁶ Figure IV.1 highlights the differences between the preparation of the TFA and control teachers. More than two-thirds of the TFA teachers in our sample graduated from undergraduate colleges classified as “most competitive,” “highly competitive,” or “very competitive,” by *Barron’s Profile*. As shown in Figure IV.1, TFA teachers were more likely than control teachers to have graduated from colleges ranked at these levels. This finding is not surprising, since TFA generally targets their recruitment to the most competitive undergraduate institutions.

Although the TFA teachers went to highly competitive colleges, most TFA teachers did not have substantial education-related training prior to entering the classroom. Figure IV.1 shows that only 3 percent of the TFA teachers had a bachelor’s degree in education, which is consistent with the program’s strategy of generally targeting candidates with non-education majors. However, as noted in the description of the TFA program in Chapter II, once TFA teachers begin teaching in a region, they must meet the state and district teacher preparation requirements. Meeting these requirements usually entails taking education courses toward teaching certification

⁵Our sample of TFA teachers is broadly representative of TFA corps members nationwide. For example, 69 percent of our sample and 76 percent of the 2000–2002 TFA corps were female. Our sample was 67 percent white, 16 percent black and 6 percent Hispanic, while the national TFA corps was 64 percent white, 18 percent black, and 6 percent Hispanic. Seventy percent of our TFA corps members, versus 80 percent nationally in the 2000–2002 cohorts, graduated from colleges that were “most competitive,” “highly competitive,” or “very competitive.”

⁶We tested whether TFA and control teachers had statistically significant differences on each of the characteristics presented in Tables IV.1 through IV.4. The p-values associated with these tests are presented in Appendix A. Unless it is stated in the text that a relationship is *not* statistically significant, all TFA/control differences referred to in the text are statistically significant with a p-value of 0.10 or less.

and, possibly, an education degree. Therefore, it is not surprising that 51 percent of the TFA teachers had earned a regular or initial teacher certification while they were teaching, a figure substantially below the 67 percent for the full control group, although it is on a par with the novice control teachers.⁷ Furthermore, by the time of our survey, nearly 40 percent of the TFA teachers had earned a master's degree, and many of these degrees (nearly a quarter of the total TFA sample) were in education.



While TFA teachers had little student teaching experience before formally entering the classroom, on average, they were more likely than the control teachers to have had at least some student teaching experience. Given that they were required by TFA to spend only 4 weeks student teaching, it is no surprise that less than 5 percent reported having spent 10 or more weeks student teaching (Figure IV.1). In contrast, Figure IV.1 shows that 45 percent of the control teachers (31 percent of the novice control teachers) had spent 10 or more weeks student teaching. On the other hand, these figures imply that many of the control teachers did not have substantial student-teaching experience prior to entering the classroom. In fact, while all of the TFA teachers had some student teaching experience, 29 percent of all control teachers and 53 percent of the novice control teachers had not engaged in any student teaching before they started teaching.

The experience, age, and career expectations of TFA teachers in our sample follow a pattern consistent with what is known about the TFA program. On average, the TFA teachers had about the same experience as the novice non-TFA teachers (two years) because the first-year TFA teachers were offset by some of the TFA teachers who had remained in teaching beyond their two-year commitment. The median age of the TFA teachers was 24 years, which suggests that most of the TFA teachers in our sample were recent college graduates who entered teaching

⁷Although, in the aggregate, more TFA teachers are certified than novice control teachers (51 percent versus 38 percent), we found that certification varied by district and school. This variation is not surprising, given that certification requirements differ by location. Once the TFA sample is limited to those teaching in the same schools and grades as the novice controls, the difference in rates of certification virtually disappears (40 percent versus 38 percent) and is not statistically significant.

directly from college. This is consistent with the observation that the TFA program largely begins recruiting students in their senior year of college.

Furthermore, as expected, few of the TFA teachers anticipated a long career in teaching. As with the control teachers, most of the TFA teachers reported that they would enter teaching if they could start their career over again, but only 11 percent reported that they expect to remain in teaching as long as they are able, and none expected to teach until retirement (Table IV.2). This is substantially lower than the 69 percent of novice control teachers who gave either response. The responses suggest that many of the TFA teachers expect to leave teaching once their two-year commitment is complete. However, despite being less committed to a teaching career than non-TFA teachers, almost a quarter of the TFA teachers are undecided about their future and thus may be at least considering remaining beyond two years. A survey conducted by TFA in 2003 shows that TFA teachers do not completely exit the profession when their formal commitment to TFA ends. The survey indicates that 34 percent of the alumni were still teaching in primary or secondary schools. In addition, 25 percent of the alumni were working in the field of education either in administrative positions, at non-profits, or at some other type of educational setting.

D. TFA AND CONTROL TEACHERS HAD SIMILAR INSTRUCTIONAL PRACTICES, DIFFERENT PHILOSOPHIES

Teachers hired and trained through the TFA program may teach differently than the control teachers in our sample; and this, in turn, could help explain any observed differences in the math and reading scores of their students. We asked teachers to report the amount of time they spent using different instructional modes such as lecturing, placing students in small groups, or asking them to work independently. In addition, we asked them questions about their philosophy and approach to mathematics and reading instruction. As we will illustrate below, there were no meaningful differences in instructional modes, but there were differences in philosophy.

In both math and reading, the TFA and control teachers utilized each instructional mode for similar amounts of time (Table IV.3). In both subjects, the most popular mode was teacher-directed whole-class activities. Teacher-directed small-group activities, students working independently in small groups, and students working individually on class assignments were the next most popular modes. The mode used least often was allowing students to select their own activities.

Although the general modes for delivering instruction were similar, the teachers differed in mathematics and reading philosophies. We measured teacher's philosophical orientation by gauging their beliefs and their actual practices, which are shown in Table IV.4. We measured both concepts because teachers' beliefs and practices may not always be consistent.

Survey responses from teachers suggest that the control teachers were more likely than TFA teachers to embrace a phonics orientation (Table IV.4). Based on teachers' responses to 28 statements contained in Deford's Theoretical Orientation to Reading scale, the control teachers' responses indicate that they are closer to a phonics orientation than the TFA teachers.

TABLE IV. 3
INSTRUCTIONAL MODES

	Control Teachers		
	All	Novice	TFA Teachers
Percent of Time Spent Teaching Versus Managing			
Academic instruction	74.6	74.3	72.1
Managing classroom behavior	15.1	13.6	17.9
Managing classroom tasks (e.g., handing out papers, transitions)	10.4	12.8	10.3
Reading/Language Arts (Percent of Time Spent in Each Mode)			
Teacher-directed whole class activities	26.5	26.9	29.1
Teacher-directed small group activities	22.0	22.6	18.7
Working independently in small groups	21.1	19.9	21.5
Working individually on class assignments	19.3	18.1	19.4
Selecting their own activities	12.2	12.6	11.3
Math (Percent of Time Spent in Each Mode)			
Teacher-directed, whole-class activities	28.8	32.5	27.2
Teacher-directed, small-group activities	21.7	19.0	21.0
Working independently in small groups	19.9	20.4	23.5
Working individually on class assignments	18.9	17.7	17.3
Selecting their own activities	11.0	10.3	9.6
Sample Size	57	18	41

Source: Teacher survey.

Note: In separate analyses, we compared novice controls only to the TFA teachers in their grades and schools. The findings for those analyses are similar to the results presented in this table and are presented in Appendix A.

Table IV.4 presents some examples of how TFA and control teachers differ in their beliefs, based on individual items. For example:

- While 69 percent of all control teachers (47 percent of novice control teachers) strongly agreed with the statement that “a child needs to be able to verbalize the rules of phonics in order to ensure proficiency in processing new words,” only 17.9 percent of TFA teachers felt similarly.
- In addition, while 67 percent of all control teachers (53 percent of novice control teachers) strongly agreed with the statement that “phonic analysis is the most important form of analysis used when meeting new words,” only 31 percent of TFA teachers felt the same.
- Finally, while 50 percent of all control teachers (41 percent of novice control teachers) strongly agreed with the statement that “being able to label words according to grammatical function (nouns, etc.) is useful in proficient reading,” only 19 percent of TFA teachers felt this way.

TABLE IV.4
INSTRUCTIONAL PHILOSOPHIES AND PRACTICES

	Control Teachers		
	All	Novice	TFA Teachers
Reading/Language Arts			
Deford's Theoretical Orientation Composite (Composite) ^a	66.2	66.7	74.4
Practices Phonics (Composite) ^b	3.9	4.0	3.5
Practices Whole Language (Composite) ^c	3.6	3.3	3.7
Percent Who Strongly Agree with the Following:			
A child needs to be able to verbalize the rules of phonics in order to ensure proficiency in processing new words.	69.0	46.9	17.9
Phonic analysis is the most important form of analysis used when encountering new words.	66.7	53.1	31.3
Being able to label words according to grammatical function (nouns, etc.) is useful in proficient reading.	50.0	40.6	18.7
It is a good practice to allow children to edit what is written into their own dialect when learning to read.	40.0	38.7	29.9
Materials for early reading should be written in natural language without concern for short, simple words, and sentences.	38.0	53.1	32.5
Children's initial encounters with print should focus on meaning, not on exact graphic representation.	22.9	25.0	34.6
Math			
Practices Basic Skills (Composite) ^d	4.3	4.5	4.0
Practices Application (Composite) ^e	4.4	4.0	4.4
Percent Who Place Major Emphasis on the Following:			
Getting the right answer	52.2	46.7	9.3
Memorizing facts, rules, and steps	59.3	53.3	26.4
Understanding why and when a rule is needed	60.9	46.7	40.7
Developing students' awareness of the practical application of math skills to everyday life	70.4	56.3	65.7
Understanding the concepts behind mathematics	69.9	81.3	76.4
Performing computations with speed and accuracy	21.8	18.8	40.7
Sample Size	57	18	41

Source: Teacher survey.

Note: The p-values for the treatment-control differences are presented in Appendix A along with separate analyses that compare novice controls to only the TFA teachers in their grades and schools.

^aDeford's Theoretical Orientation Composite is based on teachers' responses to 28 statements regarding reading instruction. Teachers indicate how strongly they agree or disagree with a given statement. A score in the low range (0-65) indicates a phonics orientation, a score in the middle range (65-110) a skills-based orientation, and a score within the high range (110-140) a whole-language orientation.

TABLE IV.4 (continued)

^bThe practices phonics composite is based on six items reported by teachers: work on learning the names of the letters, listen to you read stories where they see the print, work in a reading workbook or on a worksheet, read text with controlled vocabulary, read text with strong phonetic patterns, and read text with patterned or predictable text. The composite is equal to the mean of the six variables. Values on these items range from 1 to 6. A value of 1 on the composite indicates a low level of usage, and a value of 6 indicates a high level of usage.

^cThe practices whole language composite is based on six items reported by teachers: retell stories, compose or write stories or reports, do an activity or project related to a book or story, publish their own writing, perform plays and skits, and engage in peer tutoring. The composite is equal to the mean of the seven variables. Values on these items range from 1 to 6. A value of 1 on the composite indicates a low level of usage, and a value of 6 indicates a high level of usage.

^dThe practices basic skills composite is based on four items reported by teachers: count out loud, do math problems from their textbook, complete math problems on the chalkboard, do worksheets or workbook pages emphasizing routine practice or drill. The composite is equal to the mean of the four variables. Values on these items range from 1 to 6. A value of 1 on the composite indicates a low level of usage, and a value of 6 indicates a high level of usage.

^eThe practices application composite is based on six items reported by teachers: play math-related games, explain how a math problem is solved, solve math problems in small groups, work on math problems that reflect real-life situations, work in mixed-achievement groups on math activities, and work on problems for which there are several appropriate methods or solutions. The composite is equal to the mean of the six variables. Values on these items range from 1 to 6. A value of 1 on the composite indicates a low level of usage, and a value of 6 indicates a high level of usage.

The differences in how the TFA and control teachers reported teaching their classes was not as pronounced as what they reported about their beliefs. While results based on a phonics practices composite suggests that the TFA teachers may be less likely to use a phonics-based approach than the control teachers, the difference is not statistically significant (p-value 0.12). On the other hand, when the novice control teachers are compared to the TFA teachers teaching in the same schools the novice control teachers are significantly more likely to use a phonics approach (p-value 0.04).

In mathematics, a comparison of the control and TFA teachers revealed both similarities and differences. Both types of teachers placed a major emphasis on understanding mathematics in an applied fashion, but control teachers were more likely than TFA teachers to believe that emphasizing getting the answer right and memorizing mathematical rules are important. TFA teachers were more likely than control teachers to believe that computational speed and accuracy are important. For example, Table IV.4 shows the following:

- 52 percent of all control teachers (47 percent of novice controls) place a major emphasis on “getting the answer right,” compared to only 9 percent of TFA teachers.
- While 59 percent of control teachers (53 percent of novice control teachers) placed a major emphasis on memorizing facts, rules and steps, only 26 percent of TFA teachers placed a major emphasis on these skills.
- Only 22 percent of control teachers (19 percent of novice control teachers) placed a major emphasis on performing computations with speed and accuracy, but 41 percent of TFA teachers emphasized these skills.

As with reading, the TFA/control differences in reported practices are not as strong as the differences in reported beliefs. Findings based on a mathematics practices composite suggests that the TFA teachers may be less likely to use a basic skills approach than the control teachers, but the difference is not statistically significant (p-value 0.12). On the other hand, when the novice control TFA teachers are compared to the TFA teachers teaching in the same schools, the novice control teachers are significantly more likely to use a basic skills approach (p-value 0.07).

V. WHAT DOES OUR SAMPLE OF STUDENTS LOOK LIKE?

To place the impact findings in context, it is important to understand the population of students in schools where TFA places teachers and, more specifically, the characteristics of the students in this study. The sample used for this study is a fairly typical, although not statistically representative, characterization of the larger population in the schools where TFA places teachers. Hence, it provides a useful snapshot of the students in these elementary schools. Based on the sample for this study, we conclude that TFA works with schools that serve a very disadvantaged group of children, the random assignment procedures produced equivalent groups of children in TFA and control classrooms, and our data collection generated high response rates, which means the final sample reflects the population we sought to include.

TABLE V.1

BACKGROUND CHARACTERISTICS OF STUDENTS IN THE TFA STUDY

Characteristic	Percentage
Gender	
Male	51.2
Female	48.8
Race/Ethnicity	
Hispanic or Latino	26.0
Black, non-Hispanic	67.3
Other, non-Hispanic	2.8
Unknown	3.8
Overage for Grade	19.8
Eligible for Free or Reduced-Price Lunch	95.3
Grade	
1	18.5
2	10.3
3	34.2
4	27.7
5	9.4
Sample Size (Students)	1,969

Source: Data from school and district records.

A. TFA WORKS WITH SCHOOLS THAT SERVE A DISADVANTAGED, LARGELY MINORITY, POPULATION

Nearly all students in our sample are from low-income families, and, on average, they are also low academic performers. Table V.1 shows that over 95 percent of the students in our sample were certified for free or reduced-price school lunch, compared with only about 41 percent of students nationwide. In addition, many of the students—more than a fifth—were overage for their grade.⁸

In academic performance, the typical student in our study starts off the year achieving far below the level of children in the same grade nationally. The average score for our sample members was 27 Normal Curve Equivalent (NCE) points in mathematics and 26 in reading (Table V.2). The NCE scale has a mean of 50 and standard deviation of 21 in a nationally representative norm group of children in the same grade. Ranked against students in this national norm group, these NCE scores would place our average sample member in the 14th percentile in math and the 13th percentile in reading.

The racial/ethnic composition of our sample is largely determined by the mix of schools, which are themselves very homogeneous. Nearly all students in the study schools in Baltimore, Chicago, the Mississippi Delta, and New Orleans are African American, except for one school, which had a mostly white student body. The schools in Compton and Houston have large majorities of Hispanic students. This results in an overall sample that is about 67 percent African American and 26 percent Hispanic (Table V.1).

TABLE V.2
BASELINE MATHEMATICS AND READING SCORES

Subject	Average Score (NCE)	Standard Deviation (NCE)	Percentile of Average Score
Mathematics	27.2	15.9	14
Reading	26.2	17.1	13

Source: Scores from the Iowa Test of Basic Skills, administered by Mathematica Policy Research, Inc.

Note: Test scores are expressed in terms of Normal Curve Equivalents (NCEs), whose average score nationally is 50 and standard deviation is 21.06.

⁸ Students were considered overage for grade if they were older than the most common age for that grade (7 years old for first graders, 8 years old for second graders, etc.) before September 1. For example, if a fourth-grade student turned 9 years old in August just before the school year began, she was overage. If she turned 9 years old in September, she was not overage.

B. RANDOM ASSIGNMENT PRODUCED EQUIVALENT GROUPS

An important feature of the study is the use of random assignment to produce equivalent groups of students across classrooms within each block (grade within school). Table V.3, which compares the average baseline characteristics of students in TFA (treatment) and non-TFA (control) classes, shows that random assignment did indeed produce equivalent groups in terms of demographic characteristics, baseline test scores, and class characteristics. All of the treatment-control differences were small and none is statistically significant.⁹

TABLE V.3
BASELINE DIFFERENCES BETWEEN TFA AND CONTROL GROUPS

Characteristic	Control Students	TFA Students	Difference	P-value
Demographics^a				
Percent female	48.3	50.0	1.8	0.400
Percent Black or African American	67.4	68.5	1.1	0.908
Percent Hispanic or Latino	30.5	30.5	0.0	0.998
Percent overage for grade	23.7	21.6	-2.1	0.538
Percent free lunch-eligible	98.6	98.1	-0.5	0.581
Test Scores				
Baseline Math (average NCE)	28.1	27.4	-0.6	0.689
Baseline Reading (average NCE)	25.6	26.7	1.1	0.573
Baseline Math (percentile)	14.9	14.2	-0.7	0.689
Baseline Reading (percentile)	12.3	13.4	1.1	0.573
Class Characteristics				
Class size (number of students)	24.0	24.8	0.8	0.533
Percentage of students nonresearch	14.8	15.7	0.8	0.679

Source: Official school records and achievement tests.

Note: Data are weighted to account for unequal numbers of treatment and control classrooms in each block.

^aMissing values are imputed.

⁹ For the comparisons shown in Table V.3, as well as the impact analyses presented below, we used weights to make the overall treatment and control group means reflect differences within blocks, where experimental conditions were maintained, rather than between blocks. Appendix B contains details.

Not only were the baseline characteristics of the two groups equivalent, the mobility patterns were similar as well (Table V.4). About 87 percent of the sample members stayed in the same classroom all year.¹⁰ The percentages of students who switched classrooms from TFA to control or vice versa (crossovers), who moved within the district, who moved out of the district, or who transferred out but could not be located, were about the same for students in both TFA and control classrooms. The differences between the two groups were not statistically significant.

C. RESPONSE RATES WERE HIGH

A concern in many longitudinal studies of student achievement is the possibility of differential nonrandom attrition. Attrition occurs when students cannot be assessed at followup because they have left the study classrooms or schools or they are absent on testing days. Factors that cause mobility and absenteeism are also likely to affect student achievement. Therefore, if attrition is high, then the sample one uses for the analysis of outcomes would not be

TABLE V.4
MOBILITY RATES OF CONTROL AND TFA STUDENTS
(Percentages)

Mobility Type	Control Students	TFA Students	Difference ^a	Total
Stayer	87.8	86.0	-1.8	87.3
Crossover ^b	3.7	4.3	0.7	4.0
Mover Within District	5.2	5.6	0.4	5.4
Mover Out of District	2.3	2.9	0.6	2.5
Mover Other/Unknown	1.3	1.3	0.0	1.3
Sample Size	1,094	875		1,969

Source: Student tracking system.

^aChi-squared test fails to reject the null hypothesis of equal distributions ($p = 0.898$); that is, the differences between TFA and control students are not statistically significant.

^b“Crossover” refers to students who switched from a TFA classroom to a control classroom, or vice versa.

¹⁰This figure includes a small number of students who transferred between classrooms of the same treatment status, such as control to control or TFA to TFA. Such transfers have a negligible effect on inferences about the impact of TFA and are treated as stayers in our analysis (since they “stay” with their original classification as a TFA or control student).

representative of the initial sample that was subject to random assignment. If the attrition rates differ for TFA and control group members, then the problem is more serious, because the impacts would be biased. For example, if movers have lower expected achievement and they move disproportionately out of TFA classrooms, then the impact of TFA, defined as the difference in test scores at the end of the year between students originally assigned to TFA and control classrooms, would be biased upward.

The overall response rate in our study—the percentage of students at baseline who completed a spring test at the end of the year—was high, over 90 percent, and it was nearly the same for TFA and control students.¹¹ Furthermore, this response rate, or completion rate, was high among most subgroups of students (Table V.5). While there was some variation among regions, ranging from the low of 86 percent in New Orleans to the high of 94 percent in the Mississippi Delta, the differences between TFA and control groups within region were small. One reason for the high response rate was the fact that we followed students who left the school during the year, if they remained in the school district. In addition, for students who were absent on the day we administered tests, we conducted makeup sessions to ensure that nearly everyone was included.

¹¹We assume that students who were subject to random assignment over the summer but who did not enroll in the school (“no-shows”) made their enrollment decisions independently of their treatment assignment, so these students were not part of the research sample.

TABLE V.5
SPRING TEST SCORE COMPLETION RATES

Subgroup	Completion Rate (Percentages)			Sample Size (Students) ^a
	Control Students	TFA Students	All	
Full Sample	90	91	91	1,893
Gender				
Male	89	90	90	972
Female	92	92	92	921
Race				
Black, non-Hispanic	92	92	92	1,283
Other	91	90	91	548
Ethnicity				
Hispanic or Latino	91	91	91	490
Other	92	92	92	1,188
Free and Reduced-Price Lunch				
Eligible	92	92	92	1,453
Not eligible	100	100	100	27
Region				
Baltimore	88	88	88	319
Chicago	93	93	93	305
Compton	89	87	88	316
Houston	93	92	93	296
Mississippi Delta	94	95	94	400
New Orleans	85	88	86	257
Grade				
Grade 1	92	89	91	352
Grade 2	83	92	86	198
Grade 3	92	92	92	626
Grade 4	89	90	90	535
Grade 5	92	95	93	182
Mobility Type				
Stayer	97	98	98	1,663
Crossover	82	71	77	64
Mover, within district	40	44	42	98
Mover, outside district	0	5	2	45
Mover, other	14	0	9	23

Source: Student tracking system.

^aCompletion rates are based on students who completed the baseline test in the fall.

VI. WERE TFA TEACHERS EFFECTIVE IN THE CLASSROOM?

The most important question this study addressed is whether students taught by TFA teachers performed at least as well on achievement tests as students taught by other teachers, and we found that they did. We refer to this difference between TFA and control students' performance as the "impact" of TFA on student achievement, the central criterion we used to judge the effectiveness of TFA teachers relative to their peers. The impact estimates are based on scores from tests we administered at the end of the school year, accounting for any preexisting differences based on the test we administered at the beginning of the school year. Because students were randomly assigned to the two types of teachers, such preexisting differences were very small. Therefore, differences in achievement test score *levels* between TFA and control students in the spring and differences between the two groups in score *gains* (change in scores from fall to spring) were about the same.

By the end of the school year, average student test scores in TFA classrooms were higher than in control classrooms in mathematics and were about the same as control classrooms in reading. These results are found broadly across subgroups of teachers and students and are robust to a variety of tests and assumptions.

A. STUDENTS OF TFA TEACHERS PERFORMED BETTER IN MATH AND THE SAME IN READING COMPARED TO STUDENTS OF CONTROL TEACHERS

Students in TFA classrooms outperformed control students in mathematics, as Figure VI.1 shows. The figure shows the math percentile ranking of the average student in TFA and control classrooms in the fall and again in the spring, at the end of the school year.¹² The average control class students scored in the 15th percentile in the fall and remained in the 15th percentile at the end of the year. That is, control class students experienced typical achievement growth, shown in Figure VI.1 by the light-gray line.¹³ In contrast, the average TFA class students increased their ranking from the 14th percentile to the 17th percentile over the same period. The difference in growth rates is statistically significant.

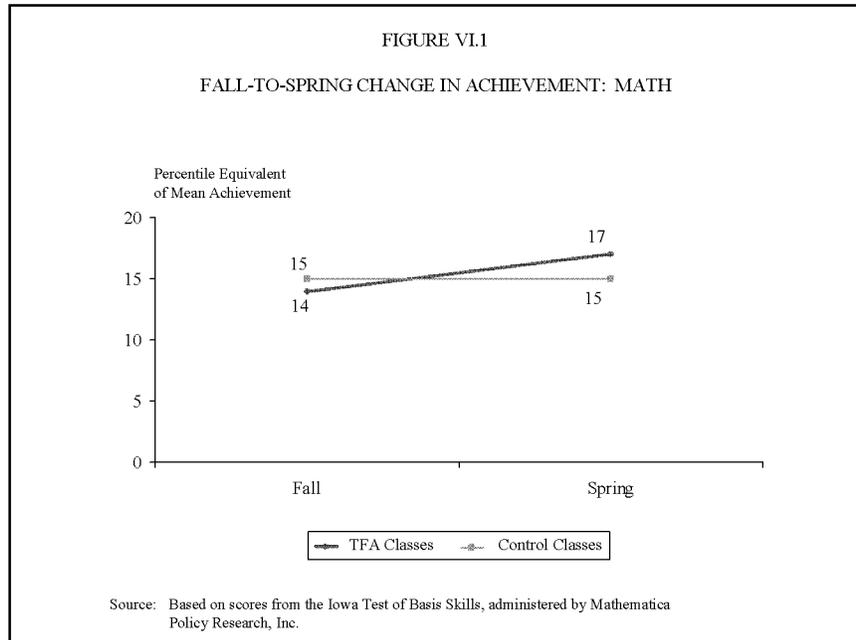
For reading achievement, we found that the average student in TFA and control classrooms experienced the same growth rate. The average sample member increased by the equivalent of about one percentile point during the study year. The nearly parallel lines in Figure VI.2 demonstrate the similarity in these growth rates.¹⁴

¹²All calculations in this report used normal curve equivalent (NCE) scores, which are translated into percentile rankings for ease of interpretation.

¹³A flat line is a sign of normal growth because all rankings are expressed relative to a nationally representative norm group, which also experienced fall-to-spring achievement growth.

¹⁴The initial treatment-control difference of a single percentile point is not statistically significant.

The findings shown in Figures VI.1 and VI.2 do not account for variation in other factors that might affect test scores, but they are confirmed when subjected to formal modeling and hypothesis testing—other things being equal, TFA students performed better in math and the same in reading. To get a better sense of the size and statistical significance of these findings, we used regression methods to adjust for any background differences between



treatment and control groups that might remain after random assignment.¹⁵ Table VI.1 shows the resulting impact estimates. We report all impact estimates of NCEs, which are scaled so that a nationally representative population has a mean of 50 and standard deviation of 21.06. Using this metric, the impact on math achievement is 2.4 NCEs, which is significantly different from zero.

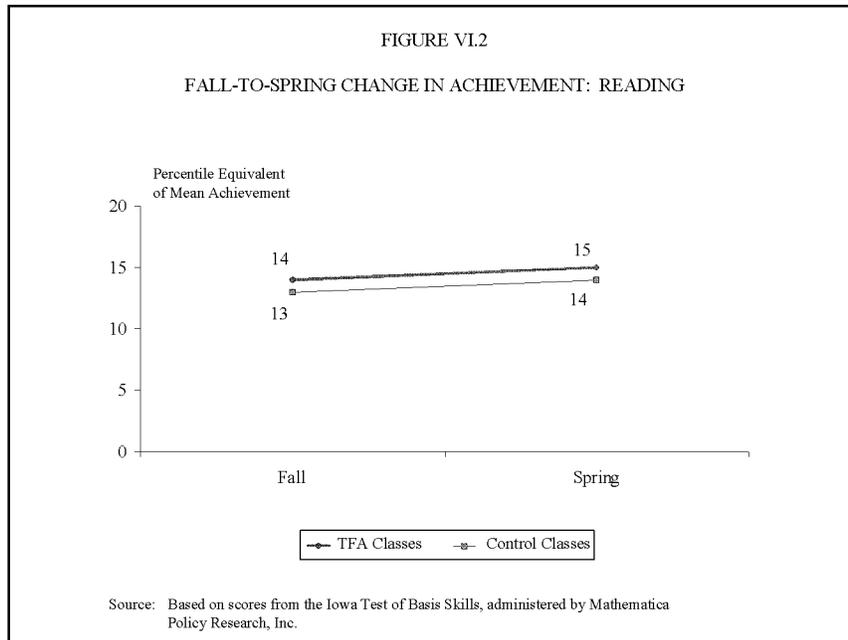
The same impact can be expressed in a different type of unit known as an “effect size.” An effect size is the fraction of a standard deviation in the underlying measure (test score) and is a popular metric for comparing results of studies that use different outcome measures. An impact on mathematics scores of 2.4 NCEs corresponds to an effect size of 0.15, or equivalently, 15 percent of a standard deviation.¹⁶

The positive impact of TFA on math scores is statistically significant, but is it large enough to imply that TFA teachers produce meaningfully greater math achievement? When expressed in grade equivalents, the math achievement advantage TFA teachers offered appears to be

¹⁵We used a hierarchical regression model to control for students’ baseline achievement, age, gender, race, ethnicity, and eligibility for free or reduced-price lunch. At the classroom level, the model controls for the percentage of students in the classroom who were not part of the study (nonresearch students). Nonresearch students, who made up about 15 percent of the study classrooms by the end of the school year, mostly included students who transferred in during the year. This group also included a few students whose parents had refused consent to participate, or who required a special teacher placement and were therefore exempted from random assignment and the study. Appendix B explains the hierarchical regression model in detail.

¹⁶ The standard deviations used in effect size calculations are 15.9 for math and 17.1 for reading (see Table V.2).

meaningful. The impact translates into about 10 percent of a grade equivalent, suggesting that the advantage to TFA students corresponds roughly to an additional month of instruction. Comparisons with other evaluation findings also suggest that the TFA impacts on math achievement are meaningful. An often-cited benchmark for assessing impacts on education performance is the effect of reducing elementary school class size from an average



of 23 to 15 students, which has been reported to have a single-year effect size of about 0.23, based on a large-scale experimental study in Tennessee (Finn and Achilles 1999). Therefore, when compared with the effect of reduction in class size, the magnitude of the TFA impact on math scores—an effect size of 0.15—is about 65 percent of the effect of a reduction in class size of eight students.

The estimated impact on reading scores, also shown in Table VI.1, was very close to zero and was not statistically significant. The point estimate of 0.56 NCEs corresponds to an effect size of 0.03.

B. IMPACTS WERE SIMILAR FOR DIFFERENT TYPES OF TEACHERS

To address variations on the study’s main research question, we estimated impacts for various subgroups of teachers. We focused on the subgroup defined according to teacher experience. Some might argue that a fair test of TFA would be to compare its teachers against a comparable group of teachers who began teaching around the same time, not against a mixed group that contained some 20- and 30-year veterans, as our full sample does. To examine this “novice-only” comparison, we estimated the impacts for TFA and control teachers with three or fewer years of experience. Based on this comparison, we found the impact of TFA on math scores was 4.1 NCEs (Table VI.2). This corresponds to an effect size of 0.26.

We also found, however, that the impact estimate for novice teachers was sensitive to how we specified the regression model. By including or excluding different control variables, the impact estimate (not shown) ranged from 3.0 to 6.2. We expected the subgroup impact estimate might be less robust than the full-sample estimate, because we anticipated having a small sample of novice control teachers. When implementing the study, it was difficult to locate schools where a novice control teacher was working alongside a TFA teacher. Therefore, the novice comparison is based on only 11 comparison blocks (25 classrooms), about one-quarter of the original sample.

TABLE VI.1
IMPACTS ON AVERAGE TEST SCORES

Subject	Control Mean ^a	TFA Mean	Impact	P-value
Mathematics	28.01	30.44	2.43***	0.002
Reading	27.61	28.17	0.56	0.372
Sample Size				
Blocks	37	37	37	
Classrooms	56	44	100	
Students	956	759	1,715	

Source: Scores from the Iowa Test of Basic Skills, administered by Mathematica Policy Research, Inc.

Note: All test scores are expressed in NCEs, whose average score nationally is 50 and standard deviation is 21.06.

^aControl group means and impacts are regression-adjusted. The regression model controls for all baseline variables: baseline test scores, gender, race/ethnicity, eligibility for free or reduced-price lunch, age (whether overage for grade), and percentage of students in the classroom who were not in the research sample.

*Significantly different from zero at the .10 level, two-tailed test.

**Significantly different from zero at the .05 level, two-tailed test.

***Significantly different from zero at the .01 level, two-tailed test.

Taken together, however, these results suggest that the impact of TFA teachers relative to novice control teachers is positive and at least as large as the impact relative to all control teachers. The small sample size and the sensitivity of the estimate to model specification reduce our confidence in a particular point estimate.

The impact of TFA on reading for the novice-only comparison followed a similar pattern, although the estimated impact was closer to zero. Using the main regression model, the reading impact of TFA for novice teachers was 1.1 NCEs, which was not statistically significant. Under alternative regression models, the estimate was about 0.7 NCEs, on average.¹⁷

¹⁷Samples of students and comparison blocks used for different teacher subgroup analyses are not mutually exclusive. For example, students in the TFA classrooms that had both novice and veteran control teachers in the same grade were included in both the novice comparison and the veteran comparison.

TABLE VI.2

IMPACTS ON TEST SCORES, TEACHER SUBGROUPS (NCEs)

Subgroup Comparison	Mathematics				Reading				Sample Size		
	Control Mean ^a	TFA Mean	Impact	P-value	Control Mean ^a	TFA Mean	Impact	P-value	Blocks	Classes	Students
Full Sample	28.01	30.44	2.43***	0.002	27.61	28.17	0.56	0.372	37	100	1,715
Experience											
Novice TFAs Versus Novice Controls	21.25	25.39	4.13***	0.009	24.32	25.39	1.06	0.396	11	25	432
All TFAs Versus Veteran Controls	26.04	28.74	2.71***	0.009	28.31	28.75	0.45	0.521	31	79	1,370
First-Year TFAs Versus All Controls	28.13	29.94	1.81	0.312	29.86	28.96	-0.90	0.385	12	32	526
Second-Year and Veteran TFAs Versus All Controls ^b	28.08	30.63	2.55***	0.002	26.78	27.87	1.09	0.135	29	77	1,320
Certification											
All TFAs Versus Certified Controls	28.50	30.42	1.92*	0.052	29.04	29.05	0.01	0.992	27	70	1,216
All TFAs Versus Uncertified Controls	27.59	30.71	3.12**	0.016	24.61	26.73	1.01	0.308	14	36	620

Source: Scores from the Iowa Test of Basic Skills, administered by Mathematica Policy Research, Inc.

Note: All test scores are expressed in NCEs, whose average score nationally is 50 and standard deviation is 21.06.

^aControl group means and impacts are regression-adjusted. The regression model controls for baseline test scores, gender, race/ethnicity, eligibility for free or reduced-price lunch, age (whether average for grade), and percentage of students in the classroom who were not in the research sample.

^bSome TFA teachers continue to teach in the same schools beyond their two-year commitment. In our sample, there were five TFA teachers in their third year, one in their fifth year, and one in their sixth year. Of the rest, 15 were in their first year of teaching, and 22 were in their second year.

*Significantly different from zero at the .10 level, two-tailed test.

**Significantly different from zero at the .05 level, two-tailed test.

***Significantly different from zero at the .01 level, two-tailed test.

We also estimated the impact for first-year TFA teachers only to see if there was a difference from an extra year on the job for these teachers. We found the impact for first-year TFA teachers in math was lower than the full-sample impact—1.8 compared to 2.4. The precision of this new estimate is also very low, because of the smaller number of first-year teachers from which to generalize (standard error is 1.7 NCEs), so this impact is not significantly different from zero. Not surprisingly, the impact on math scores at 2.5 NCEs was slightly higher for second-year TFAs than it was for the full sample. In addition to having one more year of experience in the classroom, many second-year TFAs had earned a master’s degree in education (see Chapter IV).

To examine the role of certification, we repeated the exercise, this time comparing all TFA teachers with certified teachers only. We found the math impact was 1.9 NCEs. It was 3.1 when we compared TFA teachers to their uncertified counterparts. These findings imply that certified teachers outperformed uncertified ones, on average. However, the difference in impacts for the two groups is small, and the standard errors are large, so these different estimates between the subgroup of certified teachers and the full sample are as likely due to chance as they are to a real certification effect. Our data cannot distinguish.

For all the teacher subgroup comparisons above, the impact on reading changes in a similar pattern, but the impacts were consistently small, no more than 1.2 NCE points in absolute value, and were not statistically significant.

C. IMPACT FINDINGS SIMILAR FOR DIFFERENT SUBGROUPS OF STUDENTS

We examined the hypothesis that the TFA teachers might have more success with some types of students than with others and found little evidence to support such a claim. Instead, the impact of TFA appeared across a broad spectrum of subgroups. A key constraint in testing the hypothesis is that the study was not designed specifically for subgroup analysis. As one begins to look at subgroup impacts, it becomes difficult to distinguish true differences from chance differences, because the size of subgroups is often small. For most subgroups of students, however, the pattern of impacts was similar to that of the full sample.

The impacts of TFA were similar across boys and girls and across racial/ethnic groups. Table VI.3 shows that the impacts on math scores were positive and significant for both boys and girls, and the impacts on reading were not significantly different from zero for both groups. The impacts on math scores for the race/ethnic groups that were large enough to estimate separate impacts—African American and Hispanic students—were 1.8 and 1.9 NCE points, respectively.¹⁸ The estimate of the impact for African American students was highly sensitive to inclusion of a few comparison blocks that consisted of just two or three students. These were classrooms in largely Hispanic schools. Removing the outlier blocks resulted in an impact on

¹⁸One limitation in estimating impacts by race/ethnicity is that the groups are not similarly distributed across regions. Hence, we cannot effectively isolate variation in impacts by race/ethnicity from variation in impacts by region, and these estimates should be interpreted cautiously.

TABLE VI.3

IMPACTS ON TEST SCORES, STUDENT SUBGROUPS (NCEs)

Subgroup	Mathematics			Reading			Sample Size				
	Control Mean ^a	TFA Mean	Impact	P-value	Control Mean ^a	TFA Mean	Impact	P-value	Blocks	Classes	Students
Full Sample	28.01	30.44	2.43***	0.002	27.61	28.17	0.56	0.372	37	100	1,715
Gender											
Females	26.00	28.83	2.83***	0.006	28.72	28.86	0.14	0.862	37	100	843
Males	25.53	27.48	1.95*	0.065	26.77	27.47	0.71	0.432	37	100	872
Race/Ethnicity											
African American	27.16	28.91	1.75	0.277	27.03	27.06	0.03	0.961	32	88	1,141
Hispanic	30.20	32.09	1.89	0.187	26.14	28.24	2.10	0.211	13	33	442
Overlap for Grade											
Overlap	28.29	29.51	1.23	0.299	24.13	24.23	0.10	0.884	37	100	305
Not Overlap	28.08	30.01	1.93**	0.040	29.89	30.06	0.17	0.835	37	100	1,191
Missing Age	23.79	28.45	4.67*	0.076	19.35	21.32	1.97	0.484	4	12	205
Mobility Status											
Stayers	27.89	30.45	2.56***	0.001	27.76	28.11	0.35	0.626	37	100	1,622
Movers	31.23	31.30	0.07	0.987	27.77	30.43	2.66	0.377	28	70	89
Initial Achievement											
Low	19.14	21.45	2.32**	0.044	17.52	18.03	0.51	0.572	37	100	464
Middle	24.16	26.25	2.08	0.139	26.28	25.74	-0.54	0.544	37	100	580
High	32.97	35.24	2.27*	0.098	35.31	36.45	1.14	0.205	37	100	671
Grade Level											
Grade 1	23.14	24.40	1.26	0.335	18.93	20.02	1.09	0.348	9	23	320
Grade 2	22.55	25.76	3.21	0.420	33.93	35.90	1.97	0.475	4	10	171
Grade 3	30.95	33.53	2.58	0.128	30.45	29.09	-1.36	0.320	11	34	574
Grade 4	29.99	33.13	3.14**	0.017	29.71	30.46	0.75	0.635	9	25	480
Grade 5	31.67	34.25	2.58	0.321	29.82	30.82	1.00***	0.005	4	8	170

TABLE VI.3 (continued)

Source: Scores from the Iowa Test of Basic Skills, administered by Mathematica Policy Research, Inc.

Note: All test scores are expressed in NCEs, whose average score nationally is 50 and standard deviation is 21.06.

^aControl group means and impacts are regression-adjusted. The benchmark regression model controls for baseline test scores, gender, race/ethnicity, eligibility for free or reduced-price lunch, age (whether average for grade), and percentage of students in the classroom who were not in the research sample.

*Significantly different from zero at the .10 level, two-tailed test.

**Significantly different from zero at the .05 level, two-tailed test.

***Significantly different from zero at the .01 level, two-tailed test.

African American students' math scores of 2.4 to 2.5 NCEs, depending on the threshold used. The corresponding impacts on reading scores differed. The impact on African American students' reading scores was less than one point. For Hispanic students, it was more than two points (although not statistically significant). Interestingly, the impact on African American students' reading scores in regions with a majority of Hispanic students was also high, more than 3.4 NCE points (not presented in the table). These findings that the impacts on the reading scores in regions with a majority of Hispanic students were higher than the full sample are based on only 10 comparison blocks but could provide a lead for further research.

Estimates of separate impacts by age-within-grade were hampered somewhat by sample size considerations. Those who are not overage were in the majority, and the impacts for this group are similar to the full-sample estimates. Those who were older than their classmates or whose age was unknown formed smaller groups, for whom it is difficult to estimate the impacts precisely. The same was true for impacts by student mobility—most students remained in the school where they took the baseline achievement test.

Estimated TFA impacts were similar across students with different baseline achievement scores and students in different grades. We divided the student population into three groups based on their level of initial achievement and found the impacts on math scores for the three subgroups fell in a narrow range—between 2.1 and 2.3 NCE points. The estimated impacts on reading varied more widely—from -0.5 for the middle achievers to 1.1 for the high achievers, with an impact of 0.5 for the low achievers—although all of the estimates were fairly close to zero. The fact that these estimates did not ascend or descend uniformly according to achievement level is consistent with the idea that the range of estimates reflects random fluctuation in estimates that one would expect when examining subgroups that are one-third the size of the overall sample. Similarly, the grade-level impacts shown in Table VI.3 do not show any patterns but fluctuate randomly around the impact estimates for the overall sample. Except for grade 1, the estimates of the math impact are more than two NCE points for each grade level. The estimates of the reading impact are less than two NCE points in absolute value for every grade level.

D. IMPACT FINDINGS NOT SENSITIVE TO DIFFERENT ASSUMPTIONS

To examine the sensitivity of the impact findings, we tested alternative specifications. The goal was to determine whether the findings would change if we had made different assumptions about the statistical model or if certain groups of students, teachers, schools, or districts had been excluded. For example, we eliminated the schools where the test was administered in Spanish and reestimated the impacts to see if the findings would change, and we eliminated the classrooms and districts with the most extreme outcomes to see if the findings would change. We also tried estimating the impacts with a different set of variables in the regression models to see if the results were sensitive to model specification.

Based on our sensitivity analyses, we found that the impact of TFA on mathematics achievement, estimated under various assumptions, ranged from 2.0 to 3.0 NCEs (which corresponds to a range of 0.13 to 0.19 standard deviation units) and was always statistically significant. The estimated impact on reading achievement ranged from -0.4 to 0.8 NCEs (which corresponds to a range of effect sizes from -0.03 to 0.05), with none of the estimates being statistically significant. All the values within each range led to the same general conclusion—

students in TFA classrooms outperformed students in control classrooms in math, and they performed about the same, on average, in reading.

Table VI.4 shows some illustrative results of the sensitivity analyses. They include the following tests for each subject area:

- In Alternative Specification (1) in Table VI.4, we used test score *gains* between the fall and spring as the outcomes, as opposed to the model from the previous sections, which used the spring test scores as the outcome with the fall test as a control variable. The score gain model is more restrictive than the more general model, which allows baseline test scores to have a varying effect on achievement in the spring. Using the score gain model, the estimated impact on math scores was 2.87 and on reading scores was -0.35 .
- In Alternative Specification (2), we included binary variables for each school to account for school fixed effects—school-specific effects on test scores that are fixed over time. Under this specification, the impact estimate for math was 2.00 with a standard error of 0.89, which makes it significant at the 0.05 level. The impact estimate for reading was -0.08 .
- We also estimated the model with and without Spanish-language test takers. A number of classrooms in our sample (accounting for 8.7 percent of the students) provided instruction in Spanish, so we administered a Spanish-language version of the test to these students. To see whether these Spanish-language scores (which had to be adjusted to be comparable to the English-language scores) were influencing the results, we estimated the impacts separately with these classes excluded (Alternate Specification [3] in Table IV.4). The math impact excluding the Spanish-language test takers was 2.43, and the impact on reading was 0.22.
- We used different methods to correct for floor effects, which occurred because some students received the minimum possible test score. About seven percent of the sample members received the minimum test score in math, and a similar number did so in reading, suggesting that the test itself was unable to discriminate between low and very low achievers. We used a censored regression model to account for these cases (Alternate Specification [4] in Table IV.4), and the resulting impacts were 2.01 for math and 0.75 for reading.
- Finally, in Alternate Specification (5), we estimated impacts for stayers only. This test removes the effects of students who left their assigned classrooms during the school year to transfer to another school or to cross over from a treatment to a control classroom or vice versa. There is always a concern that including crossovers might bias the impacts toward zero by attributing performance gains from better teachers to worse teachers and vice versa. (For analysis, we classified mobile students according to the classroom to which they were randomly assigned.) Noting that the crossover rates both out of and into TFA classrooms were about the same (four percent), we estimated the impact on just those students who stayed in their designated classroom. The TFA impact on math for stayers was 2.56, and the impact on reading was 0.35.

TABLE VI.4

IMPACTS ON TEST SCORES, SENSITIVITY ANALYSES (NCEs)

Subgroup	Mathematics			Reading			Sample Size		
	Control Mean ^a	TFA Mean	Impact P-value	Control Mean ^a	TFA Mean	Impact P-value	Blocks	Classes	Students
Base Model	28.01	30.44	2.43***	27.61	28.17	0.56	37	100	1,715
Alternative Specifications:									
(1) Used Gain Scores as Dependent Variable	-0.36	2.51	2.87***	1.20	0.85	-0.35	37	100	1,732
(2) Included School Fixed Effects	28.44	30.44	2.00**	28.25	28.17	-0.08	37	100	1,715
(3) Dropped Blocks if Spanish-Language Test	28.15	30.58	2.43***	28.32	28.54	0.22	33	89	1,551
(4) Adjusted for Floor Effects (Censored Regression)	26.15	28.16	2.01***	27.42	28.17	0.75	37	100	1,715
(5) Included Stayers Only	27.89	30.45	2.56***	27.76	28.11	0.35	37	100	1,622

Source: Scores from the Iowa Test of Basic Skills, administered by Mathematica Policy Research.

Note: All test scores are expressed in NCEs, whose average score nationally is 50 and standard deviation is 21.06.

^aControl group means and impacts are regression-adjusted. The benchmark regression model controls for baseline test scores, gender, race/ethnicity, eligibility for free or reduced-price lunch, age (whether overage for grade), and percentage of students in the classroom who were not in the research sample.

*Significantly different from zero at the .10 level, two-tailed test.

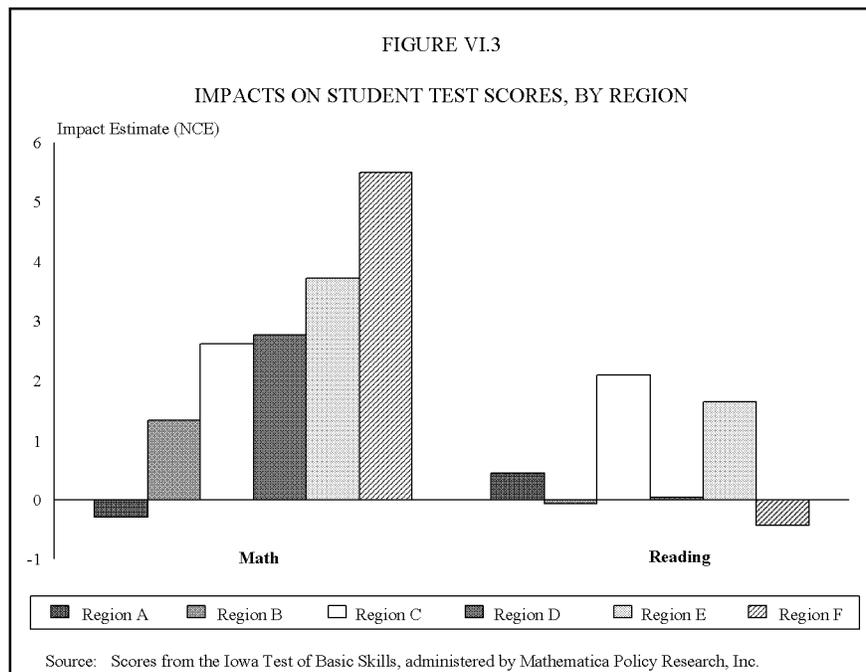
**Significantly different from zero at the .05 level, two-tailed test.

***Significantly different from zero at the .01 level, two-tailed test.

We also examined impacts with different control variables in the regression model, different sample weighting schemes, and different exclusion rules to leave out the small number of classrooms or schools where teachers reported having received help from teacher aides or other teachers or where any possible anomalies might have occurred. In all cases, the impact estimates fell within the ranges described earlier.

In addition to the specification checks above, we examined whether the findings might be sensitive to outliers. We used two methods for checking for outliers. One was to examine the impacts separately by region. The other was to examine the distribution of block-specific impacts, where each block is a group of teachers in the same school at the same grade.

The range of estimates across the six regions varies around the overall estimate for the study, with the impact on mathematics scores ranging from just below zero to 5.5 NCE points and the impacts on reading ranging from just below zero to 2 NCE points (Figure VI.3). Because each of the six regions represents only one-sixth of the sample, the region-specific impact estimates are imprecise. The variation across regions appears similar to what one might expect from ordinary sampling variation about an overall mean. Given the imprecision of the region-specific estimates, we chose to not link specific impact estimates to the identities of the districts in Figure VI.3.

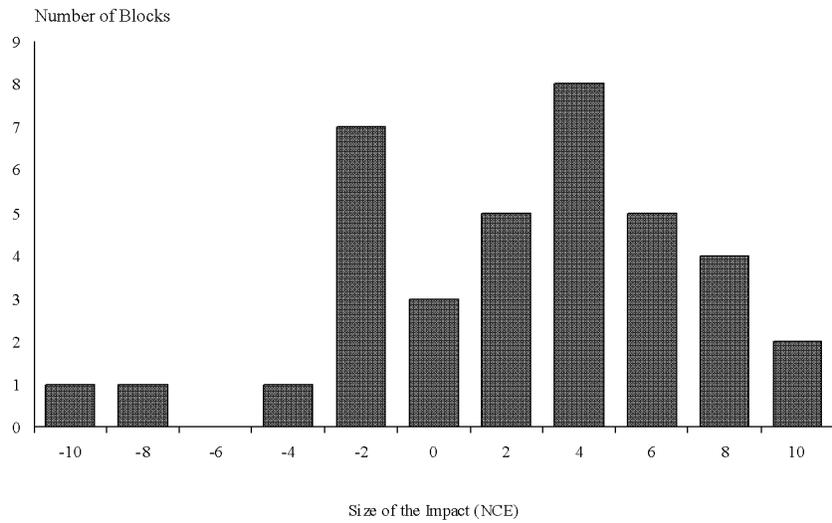


Another test for outliers was to examine the distribution of impacts at the block level. Block-specific impacts represent an even finer grain of analysis than the district-specific impacts, so the individual estimates are even less precise. Nevertheless, the pattern is informative.

The distributions of impacts by block for mathematics and reading, (Figures VI.4 and VI.5 respectively) suggest that the general findings are not driven by one or two outliers. The math impacts are mostly positive or just under zero, with only two blocks appearing to be outliers from the rest. Eliminating those outliers would increase the estimate of the impact of TFA on math. For reading, the impact estimates follow an approximately bell-shaped distribution, centered on zero. This is consistent with a story that says there was no real impact on reading but some sampling error surrounding the estimates.

FIGURE VI.4

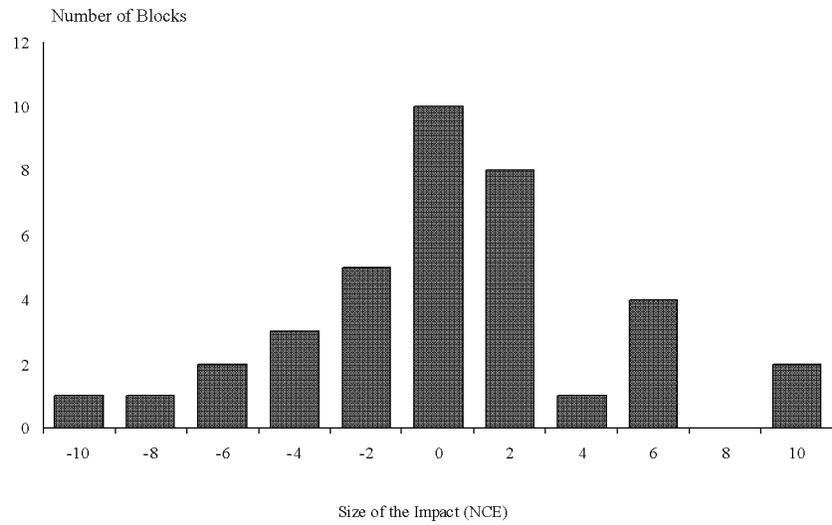
DISTRIBUTION OF TEST SCORE IMPACTS BY BLOCK, MATH



Source: Scores from the Iowa Test of Basic Skills, administered by Mathematica Policy Research, Inc.

FIGURE VI.5

DISTRIBUTION OF TEST SCORE IMPACTS BY BLOCK, READING



Source: Scores from the Iowa Test of Basic Skills, administered by Mathematica Policy Research, Inc.

VII. DID TFA HAVE AN IMPACT ON OTHER STUDENT OUTCOMES?

In addition to administering achievement tests, we examined other outcomes using data from school records, district records, and teacher reports on classroom management. From these sources, we were able to measure retention in grade, assignment to summer school, disciplinary incidents, tardiness, chronic absence, and the extent to which student behavior disrupted the class. Estimated impacts for most of these outcomes were not statistically significant (Tables VII.1 through VII.3), but they raise important issues for future research.

A. NO SUBSTANTIAL IMPACTS ON GRADE PROMOTION OR SUMMER SCHOOL ATTENDANCE

We found no strong evidence that students in TFA classrooms were either more or less likely to attend summer school or be held back in grade. On average, 12 percent of the children in control classrooms were retained in grade and 31 percent attended or were slated to attend summer school (Table VII.1). However, both of these outcomes varied considerably across grade levels and school districts, most likely due to differences in district policies. For example, in some districts, a majority of students attended summer school. In others, summer school attendance was common only for a select grade (such as grade 3), and in others it was rare for anyone to attend. As Table VII.1 shows, the differences between TFA and control students—less than one percentage point in grade retention (TFA students being held back with slightly greater frequency) and less than one percentage point in summer school attendance—were not statistically significant. When the comparison was restricted to novice teachers, we found slightly larger differences, but they were still not significantly different from zero and did not go in a consistent direction (positive or negative).

TABLE VII.1
IMPACTS ON OTHER ACADEMIC OUTCOMES
(Percentages)

	Control Mean ^a	TFA Mean	Impact	P-value	Sample Size		
					Blocks	Classrooms	Students
Retained in Grade	12.09	13.03	0.94	0.536	31	84	1,596
Attended Summer School	30.52	30.92	0.40	0.884	37	100	1,912

Source: Data from school and district records.

^aControl group means and impacts are regression-adjusted. The regression model controls for baseline test scores, gender, race/ethnicity, eligibility for free or reduced-price lunch, and age (whether overage for grade), as well as percentage of students in the classroom who were not in the research sample.

*Significantly different from zero at the .10 level, two-tailed test.

**Significantly different from zero at the .05 level, two-tailed test.

***Significantly different from zero at the .01 level, two-tailed test.

B. NO CLEAR IMPACTS ON BEHAVIORAL OUTCOMES

Through objective data from the school records and from teacher impressions, we were able to estimate the impact of TFA on a variety of outcomes related to classroom management. The evidence is inconclusive on whether TFA teachers had an easier or more difficult time than their colleagues in managing their classrooms. Results for novice teachers (not shown here) were similar to those for the full sample.

According to estimates based on the school records data, TFA had no impact on absenteeism or disciplinary incidents (Table VII.2). Absenteeism was measured in two ways: (1) number of days absent, and (2) percentage of students who we defined as chronically absent—absent more than 10 percent of the time while enrolled. Under this definition, we would consider a student who was enrolled for a full 180-day school year as chronically absent if he or she missed more than 18 days. For both number of days and percent chronically absent, the differences between TFA and control students were small—0.5 days and 0.5 percent, respectively—and not statistically significant.

The estimated impacts on disciplinary incidents were also not statistically significant. We examined two measures of disciplinary incidents: (1) the percentage of students who were ever suspended or expelled, and (2) the number of days suspended. As one would expect in elementary schools, such disciplinary incidents were rare, occurring for about 11 percent of the sample, averaging less than a quarter of one day of suspension per student. TFA had no impact

TABLE VII.2
IMPACTS ON SCHOOL-REPORTED ABSENTEEISM AND DISCIPLINE

Outcome	Control Mean ^a	TFA Mean	Impact	P-value	Sample Size		
					Blocks	Classrooms	Students
Absenteeism							
Number of days absent	8.31	8.83	0.52	0.415	36	97	1,783
Chronically absent (percentage)	15.07	15.60	0.52	0.794	36	97	1,775
Disciplinary Incidents							
Number of days suspended	0.23	0.28	0.04	0.578	31	84	1,574
Ever suspended or expelled (percentage)	10.55	13.31	2.77	0.177	31	84	1,574

Source: Data from school and district records.

^aControl group means and impacts are regression-adjusted. The regression model controls for baseline test scores, gender, race/ethnicity, eligibility for free or reduced-price lunch, and age (whether overage for grade), as well as percentage of students in the classroom who were not in the research sample.

*Significantly different from zero at the .10 level, two-tailed test.
 **Significantly different from zero at the .05 level, two-tailed test.
 ***Significantly different from zero at the .01 level, two-tailed test.

on number of days suspended, which essentially averaged zero for both control students and TFA students. The estimated TFA impact on probability of suspension or expulsion was more substantial, but again not statistically significant.

Teacher-reported experiences in the classroom seem to paint a different picture of absenteeism, discipline, and other classroom management outcomes. TFA teachers were significantly more likely to report that student disruptions and physical conflicts among students in their classrooms were a “serious” problem (Table VII.3). While 17 percent of the control teachers said that physical conflicts among students were a serious problem, more than a third of the TFA teachers said they were a serious problem. In addition, TFA teachers reported significantly more class interruptions to deal with student disruptions—24 interruptions in the past week reported by TFA teachers, on average, compared with 14 reported by control teachers. In addition, TFA teachers reported greater verbal abuse and a greater frequency of student absenteeism, but the differences were not statistically significant. Differences in the rest of the teacher-reported outcomes in Table VII.3 were smaller and not statistically significant.

TABLE VII.3
IMPACTS ON TEACHER-REPORTS OF CLASSROOM PROBLEMS

Outcome	Control Mean ^a	TFA Mean	Impact	P-value	Number of Teachers
Teacher Reports a Serious Problem with Attendance/Tardiness (Percentage)					
Student tardiness	12.9	16.2	3.3	0.669	96
Student absenteeism/class-cutting	8.6	17.1	8.6	0.237	96
Teacher Reports a Serious Problem with Behavior (Percentage)					
Physical conflicts among students	17.1	34.3	17.1*	0.073	96
Verbal abuse of teachers	4.3	14.3	10.0	0.107	96
General misbehavior (for example, students talking in class, refusal to follow classroom rules)	22.9	30.0	7.1	0.460	96
Problems in the Most Recent Week (Average Number)					
Students tardy or absent without excuse	4.5	6.6	2.1	0.108	94
Teacher interrupted class to deal with student disruptions	13.7	24.0	10.2*	0.061	94
Teacher sent child out of the room	2.4	2.6	0.3	0.795	95

Source: Teacher survey.

^aControl group means and impacts are regression-adjusted. The regression model controls for baseline test scores, gender, race/ethnicity, eligibility for free or reduced-price lunch, and age (whether overage for grade), as well as percentage of students in the classroom who were not in the research sample.

*Statistically significant at the 0.10 level, two-sided test.

**Statistically significant at the 0.05 level, two-sided test.

***Statistically significant at the 0.01 level, two-sided test.

There are at least two potential explanations for the findings of no impacts based on school-reported outcomes and potentially harmful impacts based on teacher self-reports. One is that TFA teachers had different expectations and perceptions than control teachers about student behavior, which could lead them to interrupt the class more often for disruptive students or be more prone to describing their students' behavior as problematic. This explanation seems plausible, since, as we have demonstrated, TFA teachers and control teachers come from substantially different backgrounds before teaching. Another possibility is that TFA teachers actually had more difficulty managing their classrooms, which resulted in an objective increase in physical conflicts, verbal abuse, and disruption of class time. Because the results presented here on classroom management are inconclusive, further research is needed to fully understand the impacts of TFA on student behavior in the classroom.

VIII. CONCLUSION

The TFA teacher recruitment and training strategy produces teachers who differ in important ways from the other teachers in their schools. The TFA teachers in our sample had strong academic backgrounds, but they generally had less extensive teacher training than the control teachers in the same schools. Before entering the classroom, TFA teachers were less likely to have education degrees, be fully certified, or have substantial student teaching experience.

Our sample shows that although there were clear TFA-control differences in teacher training, the differences were modest, primarily because the control teachers tended to be a diverse group with respect to their training. Many control teachers in these schools, like their TFA counterparts, did not have education degrees; and many were not fully certified and did not have extensive student teaching experience prior to entering the classroom. This finding reflects the situation in the schools in low-income communities where TFA places teachers rather than the situation in all schools across the country. Compared with a nationally representative sample of teachers, the control teachers in the schools in our study had substantially lower rates of certification and formal education training. Hence, in evaluating the impact of TFA teachers in our study, the appropriate counterfactual was not a set of fully certified teachers with education majors and substantial student teaching experience but, rather, a diverse group with mixed training.

Our estimates, based on student outcomes, show that TFA teachers had a positive impact on the math achievement of their students—average math scores were higher among TFA students than among control students, and the difference was statistically significant. TFA teachers did not have an impact on reading achievement—average reading gains were comparable among the TFA and control students. The findings regarding math and reading impacts were fairly consistent across grades, regions, and student subgroups, and they were robust to changes in modeling assumptions and specifications. Our estimates also suggest that TFA teachers had larger impacts on both math and reading achievement when compared with novice control teachers than when compared with all control teachers, but the limited sample size for the novice teacher estimate precludes our drawing a definitive conclusion on this point. Estimates for other student outcomes did not reveal any other impacts of TFA. TFA teachers were more likely than control teachers to report having had problems with student disruptions and physical conflicts, but this fact may simply reflect differences between TFA and control teachers' expectations and perceptions regarding student behavior rather than actual differences between classrooms.

The positive impacts of TFA teachers on student test scores should not be interpreted as evidence that traditional teacher preparation routes provide training inferior to that provided by TFA. First, as we point out in the report, the control teachers in our comparisons included many who entered the profession through nontraditional routes. Second, this study was designed to examine the impact of the entire TFA program, which encompasses both the recruitment effect of TFA on the type of teacher that enters the profession and the effect of TFA training on program participants. We attempted to estimate the combined impact, rather than trying to disentangle these two effects, because it is most relevant for policymakers.

Regardless, our findings have important implications for a variety of stakeholders. Program funders, program operators, and policymakers at the state and federal levels have an enduring interest in finding ways to attract and retain high-quality teachers in low-income communities. District officials and school staff in such areas have an especially practical interest in the same question, particularly in the short term, with federal requirements under No Child Left Behind to place a highly qualified teacher in every classroom. Finally, parents and children in low-income communities are most directly affected by decisions about who will teach in their schools. We consider the implications of our findings for each of these groups.

From the perspective of a community or a school faced with the opportunity to hire TFA teachers, our findings suggest that TFA offers an appealing pool of candidates. First, the positive impacts on math scores suggest that by hiring TFA teachers, a school can expect to increase the average math achievement of its students (without lowering their reading achievement). Second, the consistent pattern of positive or zero impacts on test scores across grades, regions, and student subgroups suggests that there is little risk that hiring TFA teachers will reduce achievement, either for the average student or for most subgroups of students. Finally, since TFA teachers are paid the same as other teachers, the schools pay no direct costs for the achievement increase and school districts typically contribute only \$1,500 per corps member to offset screening and recruiting costs. This contrasts with other interventions, such as reduction in class size, that have been shown to increase achievement but that entail substantial direct costs.

One could expand this reasoning to conduct a larger assessment of whether, from society's perspective, TFA is a cost-effective way to attract teachers to low-income schools. However, a full cost-effectiveness assessment would require information on a number of factors our study does not address directly. For example, although TFA teachers are paid on the same salary scale as their counterparts, they may create hidden costs if they leave their jobs sooner—for example, at the end of their two-year commitment—and have to be replaced more frequently than their non-TFA peers. Measuring such costs would be difficult, because the retention rates of TFA and non-TFA teachers are not well documented. Our data showed no difference in within-year attrition rates, but because they cover only a single school year, cannot be used to compare attrition rates over time between our TFA and control teachers. Hanushek et al. (2004) show that teacher attrition rates are particularly high in schools that serve large numbers of academically disadvantaged students—exactly the types of schools where TFA places teachers. Therefore, there is no strong reason to presume that TFA teachers have an attrition rate higher than that of other new teachers in the same schools.

From the perspective of TFA and its funders, our findings clearly show that the organization is making progress toward its primary mission of reducing inequities in education—it supplies low-income schools with academically talented teachers who contribute positively to the academic achievement of their students. The success of TFA teachers is not dependent on teachers having extensive exposure to teacher practice or training. Even though TFA teachers generally lack any formal teacher training beyond that provided by TFA, they produce higher student test scores than the other teachers in their schools—not just other novice teachers or uncertified teachers, but also veterans and certified teachers.

Finally, our study provides important information to policymakers who are trying to improve the educational opportunities of children in poor communities. The findings that many of the control teachers in our study were not certified or did not have formal pre-service training highlights the need for programs or policies that offer the potential of attracting good teachers to schools in the most disadvantaged communities. Our findings show that TFA is one such program.

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APPENDIX A
SUPPLEMENTARY TABLES

TABLE A.1

EDUCATION AND DEMOGRAPHIC CHARACTERISTICS OF TEACHERS

	All Non-TFA and TFA				Novice Non-TFA and Corresponding TFA			
	Non-TFA	TFA	Difference	p-value	Non-TFA	TFA	Difference	p-value
Gender (Percentage)								
Male	13.2	30.7	-17.5**	0.047	15.6	41.7	-26.0*	0.095
Female	86.8	69.3	17.5		84.4	58.3	26.0	
Race/Ethnicity (Percentage)								
Hispanic	10.6	5.8	4.8	0.440	21.9	6.9	15.0	0.207
White, non-Hispanic	10.6	67.4	-56.8***	0.000	12.5	74.1	-61.6***	0.000
African American, non-Hispanic	76.1	15.9	60.1		62.5	3.4	59.1	
Other	2.8	10.9	-8.1		3.1	15.5	-12.4	
Education (Percentage)								
B.A. from a most, highly, or very competitive college or university	2.4	70.0	-67.6***	0.000	3.7	73.3	-69.6***	0.000
B.A. in education	52.2	2.9	49.3***	0.000	33.3	6.9	26.4*	0.058
B.A. or master's degree in education	54.5	24.6	29.8***	0.008	33.3	24.1	9.2	0.567
Certification (Percentage)								
Regular	63.9	28.6	35.3***	0.008	31.3	20.0	11.3	0.566
Initial	3.5	22.9	-19.4		6.3	20.0	-13.8	
Temporary	10.4	12.1	-1.7		28.1	15.0	13.1	
Emergency	15.3	27.9	-12.6		25.0	25.0	0.0	
Other	6.9	8.6	-1.6		9.4	20.0	-10.6	
Weeks of Student Teaching (Percentage)								
Not at all	28.6	0.0	28.6***	0.000	53.1	0.0	53.1***	0.000
Less than 5 weeks ^a	5.7	92.9	-87.1		9.4	86.7	-77.3	
6 to 9 weeks	20.7	2.9	17.9		6.3	6.7	-0.4	
10 weeks or more	45.0	4.3	40.7		31.3	6.7	24.6	
Age and Experience (Years)								
Median age when receiving B.A. ^b	24.0	22.0	2.0		24.0	22.0	2.0	
Median age during first year teaching	27.0	22.0	5.0		28.0	23.0	5.0	
Median age (years)	35.0	24.0	11.0		30.0	24.0	6.0	

TABLE A.1 (continued)

	All Non-TFA and TFA			Novice Non-TFA and Corresponding TFA				
	Non-TFA	TFA	Difference	p-value	Non-TFA	TFA	Difference	p-value
Median Years of Teaching	6.0	2.0	4.0		2.0	2.0	0.0	
Sample Size	57	41			18	20		

Source: Teacher survey.

^aOver 46 percent of the TFA teachers did not count their four weeks of summer institute practice teaching as student teaching. This may be due to how the survey question was worded.

^bWe report the median age and experience because the means are affected by a small number of outliers. The mean age and experience are slightly higher than the medians reported here.

*Significantly different from zero at the .10 level, two-tailed test.

**Significantly different from zero at the .05 level, two-tailed test.

***Significantly different from zero at the .01 level, two-tailed test.

TABLE A.2

COMMITMENT TO TEACHING AS A CAREER

	All Non-TFA and TFA			Novice Non-TFA and Corresponding TFA				
	Non-TFA	TFA	Difference	p-value	Non-TFA	TFA	Difference	p-value
Expected Duration in Teaching (Percentage)								
As long as able	33.8	11.4	22.4***	0.000	43.8	20.0	23.8	0.187
Until retirement	26.8	0.0	26.8		25.0	0.0	25.0	
Until something better comes along	7.0	12.9	-5.8		0.0	3.3	-3.3	
Will leave as soon as possible	4.2	10.0	-5.8		0.0	10.0	-10.0	
Undecided	25.4	22.9	2.5		31.3	33.3	-2.1	
Other	2.8	42.9	-40.0		0.0	33.3	-33.3	
Would They Become a Teacher if They Could Start Over? (Percentage)								
Yes	71.5	71.4	0.1	0.192	78.1	66.7	11.5	0.456
No	12.5	2.9	9.6		0.0	0.0	-11.5	
Don't know	16.0	25.7	-9.7		21.9	33.3	0.0	
Sample Size	57	41			18	20		

Source: Teacher survey.

*Significantly different from zero at the .10 level, two-tailed test.

**Significantly different from zero at the .05 level, two-tailed test.

***Significantly different from zero at the .01 level, two-tailed test.

TABLE A.3

INSTRUCTIONAL MODES

	All Non-TFA and TFA				Novice Non-TFA and Corresponding TFA			
	Non-TFA	TFA	Difference	p-value	Non-TFA	TFA	Difference	p-value
Percent of Time Spent Teaching Versus Managing								
Academic instruction	74.6	72.1	2.5	0.433	74.3	74.8	-0.5	0.912
Managing classroom behavior	15.1	17.9	-2.8	0.347	13.6	16.1	-2.6	0.559
Managing classroom tasks (e.g. handing out papers, transitions)	10.4	10.3	0.1	0.924	12.8	9.8	3.0	0.118
Reading/Language Arts								
(Percentage of Time Spent in Each Mode)								
Teacher-directed whole class activities	26.5	29.1	-2.6	0.314	26.9	28.0	-1.1	0.814
Working individually on class assignments	22.0	18.7	3.2*	0.092	22.6	20.5	2.1	0.517
Working independently in small groups	21.1	21.5	-0.4	0.858	19.9	22.1	-2.2	0.522
Teacher-directed small group activities	19.3	19.4	-0.1	0.961	18.1	18.2	-0.1	0.966
Selecting their own activities	12.2	11.3	0.9	0.566	12.6	11.2	1.3	0.646
Math (Percentage of Time Spent in Each Mode)								
Teacher-directed whole class activities	28.8	27.2	1.6	0.515	32.5	28.1	4.5	0.331
Working individually on class assignments	21.7	21.0	0.7	0.701	19.0	23.8	-4.8	0.119
Working independently in small groups	19.9	23.5	-3.5*	0.058	20.4	22.5	-2.1	0.471
Teacher-directed small group activities	18.9	17.3	1.6	0.387	17.7	14.1	3.7	0.225
Selecting their own activities	11.0	9.6	1.3	0.481	10.3	11.6	-1.3	0.675
Sample Size	57	41			18	20		

Source: Teacher survey.

*Significantly different from zero at the .10 level, two-tailed test.

**Significantly different from zero at the .05 level, two-tailed test.

***Significantly different from zero at the .01 level, two-tailed test.

TABLE A.4

INSTRUCTIONAL PHILOSOPHIES

	All Non-TFA and TFA				Novice Non-TFA and Corresponding TFA				
	Non-TFA	TFA	Difference	p-value	Non-TFA	TFA	Difference	p-value	
Reading/Language Arts									
Deford's Theoretical Orientation Composite (Composite) ^a	66.2	74.4	-8.2***	0.000	66.7	76.5	-9.9***	0.001	
Practices Phonics (Composite) ^b	3.9	3.5	0.4	0.118	4.0	3.3	0.8**	0.038	
Practices Whole Language (Composite) ^c	3.6	3.7	-0.1	0.744	3.3	3.6	-0.3*	0.089	
Percent Who Strongly Agree with the Following: A child needs to be able to verbalize the rules of phonics in order to assure proficiency in processing new words.	69.0	17.9	51.1***	0.000	46.9	23.3	23.5	0.157	
Phonic analysis is the most important form of analysis used when meeting new words.	66.7	31.3	35.3***	0.002	53.1	16.7	36.5**	0.031	
Being able to label words according to grammatical function (nouns, etc.) is useful in proficient reading.	50.0	18.7	31.3***	0.004	40.6	15.0	25.6	0.101	
It is a good practice to allow children to edit what is written into their own dialect when learning to read.	40.0	29.9	10.1	0.345	38.7	33.3	5.4	0.748	
Materials for early reading should be written in natural language without concern for short, simple words and sentences.	38.0	32.5	5.5	0.613	53.1	28.3	24.8	0.148	
Children's initial encounters with print should focus on meaning, not upon exact graphic representation.	22.9	34.6	-11.7	0.243	25.0	41.7	-16.7	0.310	
Math									
Practices Basic Skills (Composite) ^d	4.3	4.0	0.3	0.119	4.5	4.0	0.5*	0.067	
Practices Application (Composite) ^e	4.4	4.4	0.0	0.958	4.0	4.2	-0.2	0.511	
Percent who place a major emphasis on the following: Developing students awareness of the practical application of math skills to everyday life	70.4	65.7	4.7	0.645	56.3	50.0	6.3	0.717	

TABLE A.4 (continued)

	All Non-TFA and TFA			Novice Non-TFA and Corresponding TFA				
	Non-TFA	TFA	Difference	p-value	Non-TFA	TFA	Difference	p-value
Understanding the concepts behind mathematics	69.9	76.4	-6.6	0.506	81.3	68.3	12.9	0.393
Understanding why and when a rule is needed	60.9	40.7	20.2*	0.070	46.7	41.7	5.0	0.774
Memorizing facts, rules, and steps	59.3	26.4	32.9***	0.003	53.3	28.3	25.0	0.151
Getting the right answer	52.2	9.3	43.0***	0.000	46.7	1.7	45.0***	0.004
Performing computations with speed and accuracy	21.8	40.7	-18.9*	0.062	18.8	35.0	-16.3	0.294
Sample Size	57	41			18	20		

Source: Teacher survey.

^aDeford's Theoretical Orientation Composite is based on teachers responses to 28 statements regarding reading instruction. Teachers indicate how strongly they agree or disagree with a given statement. A score in the low range (0-65) indicates a phonics orientation, a score in the middle range (65-110) a skills based orientation, and a score within the high range (110-140) a whole language orientation.

^bThe practices phonics composite is based on six items reported by teachers: work on learning the names of the letters, listen to you read stories where they see the print, work in a reading workbook or on a worksheet, read text with controlled vocabulary, read text with strong phonetic patterns, and read text with patterned or predictable text. The composite is equal to the mean of the six variables. Values on these items range from 1 to 6. A value of 1 on the composite indicates a low level of usage and a value of 6 indicates a high level of usage.

^cThe practices whole language composite is based on six items reported by teachers: retell stories, compose or write stories or reports, do an activity or project related to a book or story, publish their own writing, perform plays and skits, and engage in peer tutoring. The composite is equal to the mean of the seven variables. Values on these items range from 1 to 6. A value of 1 on the composite indicates a low level of usage and a value of 6 indicates a high level of usage.

^dThe practices basic skills composite is based on four items reported by teachers: count out loud, do math problems from their textbook, complete math problems on the chalkboard, do worksheets or workbook pages emphasizing routine practice or drill. The composite is equal to the mean of the four variables. Values on these items range from 1 to 6. A value of 1 on the composite indicates a low level of usage and a value of 6 indicates a high level of usage.

^eThe practices application composite is based on six items reported by teachers: play math-related games, explain how a math problem is solved, solve math problems in small groups, work on math problems that reflect real-life situations, work in mixed achievement groups on math activities, and work on problems for which there are several appropriate methods or solutions. The composite is equal to the mean of the six variables. Values on these items range from 1 to 6. A value of 1 on the composite indicates a low level of usage and a value of 6 indicates a high level of usage.

*Significantly different from zero at the .10 level, two-tailed test.

**Significantly different from zero at the .05 level, two-tailed test.

***Significantly different from zero at the .01 level, two-tailed test.

APPENDIX B
ESTIMATION APPROACH

Our procedure for estimating the impacts of TFA on student outcomes takes into account the nested structure of the data. In particular, we recognize that students were randomly assigned to classrooms *within grades* within schools. Each grade within a school represents a block, which can be thought of as a mini-experiment. Therefore, the national study consists of 37 mini-experiments (comprised of 100 classrooms).

The statistical model can be presented as a multi-level or hierarchical model. We describe the estimation in terms of a student level equation nested within a block level equation.

A. STUDENT LEVEL

The student level model is a “post-test-on-pretest” regression, with dummy indicators for each block (Equation 1). The block dummies are interacted with TFA status, and the coefficients on those interaction terms represent the achievement growth for the TFA teacher(s) in each block relative to the non-TFA teacher(s) in that block. The average of these 37 TFA impacts is the average impact of policy interest.

$$Y_{ijk}^{spring} = \theta Y_{ijk}^{fall} + \beta' X_{ijk} + \alpha_k I_{ijk} + \delta_k I_{ijk} * TFA_{jk} + \varepsilon_{ijk} \quad (1)$$

where:

i indexes students

j indexes classrooms

k indexes blocks

Y = test score or other outcome

X = vector of student characteristics

I = block dummy indicator

TFA = treatment status dummy indicator

$\theta, \alpha, \beta, \delta$ = parameters to be estimated

ε = independent and identically distributed (iid) random error term

The vector X includes student level control variables such as indicators for free lunch eligibility, Hispanic origin, and gender. These control variables play a minor role, since schools tend to be homogeneous within blocks.

While each block can include more than one TFA classroom or more than one control classroom—a typical configuration had one TFA and two control classrooms—we did not include a separate classroom level in this model. With only one or two classrooms per treatment condition per block, allowing the block dummies to represent the average classroom fixed effect accounted for most of the clustering of students and produced nearly the same result.

We estimated Equation (1) using linear regression, with weights to account for nonresponse (noncompletion of spring test scores, for example, if children moved out of the district) and the unequal numbers of control group members by block. The weights are described in Section C below. From Equation (1) we computed 37 block-specific impact estimates and a corresponding

variance-covariance matrix that characterizes the estimation error associated with those estimates.

B. BLOCK LEVEL

The simplest approach to estimating the overall impact of TFA is to average the 37 block impact estimates (the unconditional mean). However, we estimated the average impact conditional on some control variables, with weighting strategies used to capture unequal block sizes or other factors.

First, we note that the 37 block-level impacts are measured with estimation error:

$$\hat{\delta}_k = \delta_k + \omega_k \quad (2)$$

Using the coefficients on the treatment-block dummy indicators as regressors in the block-level model, we derive the following expression:

$$\hat{\delta}_k = \mu + \lambda'W_k + \{\eta_k + \omega_k\} \quad (3)$$

where W is the vector of block-specific variables and the composite error term captures both the estimation error from the student-level model and the sampling error from the block-level model. The block-specific variables contained in W can include grade level, school, or district. We used school dummy indicators as fixed effects to address the problem of blocks from the same school having a common unmeasured component such as the influence of a principal that could bias the estimates of impacts and standard errors. This effect is small, because most schools have only two blocks and we found the differences between blocks in the same school were just as large as differences between blocks from different schools.

To estimate equation (3) in the presence of a composite error term we used a weighted least squares regression (WLS), using the method of Hanushek (1974) to compute the error variance matrix for the WLS estimates.

The model represented by equations (1) and (3) can be estimated for the full sample and for subgroups. We conducted analysis of subgroups defined by both student characteristics and teacher characteristics. For student subgroups the sample size in Equation (1) was smaller, but in most cases the number of blocks available for analysis in Equation (3) was unaffected. For some subgroups that were unevenly distributed, all the blocks might not have been represented in equation (3). For teacher subgroups, we first dropped classrooms that were not members of the subgroup, and then we dropped blocks in which there did not remain at least one TFA and one control teacher.

C. NONRESPONSE AND NORMALIZATION WEIGHTS

We used weighting strategies to make two types of minor adjustments. One adjustment accounts for the fact that some sample members did not complete a post-test in the spring. This type of adjustment aims to give more weight to those completers whose characteristics appear

more similar to the non-completers so they can “stand in” for their counterparts. Another adjustment accounts for the variation in the ratio of TFA to control group members across different comparison blocks that comprised the overall study. This type of adjustment is used to normalize the ratio between TFA and control group members so that TFA-control differences, which are based on differences *within* comparison blocks, are not confounded with differences *between* comparison blocks.

Nonresponse weights were computed using propensity score matching methods with respondents and nonrespondents. For analysis of the test scores, respondents were defined as students who completed the spring achievement test and nonrespondents were students who did not.¹ We began by first estimating a logistic regression model of the probability of completing a spring test, given one’s treatment status (TFA or control), district, grade level, gender, race, ethnicity, age-for-grade status, eligibility for free or reduced price lunch, and pre-test scores on math and reading tests. The predicted probability was the estimated propensity score. We then formed groups based on ten equal intervals of the propensity score distribution and computed the average propensity within each group. The nonresponse weight was the inverse of the average propensity for each sample member’s group. As a check, we created an alternative weight equal to the inverse of the propensity score estimate itself. The two weights were very similar and produced nearly identical results for the test score impact findings.

Another type of weighting was required to adjust for two types of sample size imbalance: the unequal numbers of students in each block and the unequal ratios of TFA to control students in each block. Some blocks were larger than others and some blocks had a larger number of control class students than TFA class students.² Table B.1 shows the number of TFA and control students in each block. In a perfectly balanced experiment, there would be an equal number of students in each treatment condition in each block. Dividing the overall sample of 1,969 students among 37 blocks and two treatment conditions, there would be 26.6 students in each treatment condition in each block. As is evident from Table B.1, the actual cell sizes vary from a low of 11 control students in block 25 to a high of 88 TFA students in block 6. We used weights proportional to the inverse of the cell size of each block to correct this imbalance. We found that these normalization weights had a small effect on the estimated impacts, but did not change the conclusions.

To incorporate both the nonresponse weights and the normalization weights in the regression analyses we produced a combined weight w as the sum, within treatment condition T and block k , of the inverse of the predicted propensity score p from the logistic model of nonresponse:

$$w_{kT} \propto \sum_{i \in k, T} \frac{1}{p_i} \quad (4)$$

¹For the other student outcomes, response/nonresponse was based on whether school records data were available for the student.

²The differing numbers of students within a block was primarily the result of different numbers of classrooms, since class size was typically the same within each comparison block.

TABLE B.1
SAMPLE SIZE BY BLOCK AND TREATMENT STATUS

Block ^a	Control Students	TFA Students	Block ^a	Control Students	TFA Students	Block ^a	Control Students	TFA Students
1	23	21	15	13	15	29	12	14
2	31	31	16	28	26	30	32	15
3	27	25	17	38	19	31	30	28
4	23	21	18	33	18	32	21	38
5	57	33	19	39	19	33	31	15
6	37	88	20	58	27	34	48	56
7	15	13	21	40	18	35	21	19
8	46	20	22	26	23	36	49	23
9	27	26	23	24	23	37	46	25
10	17	15	24	15	14			
11	19	17	25	11	12			
12	40	22	26	18	18			
13	26	15	27	21	19			
14	28	20	28	24	24			

^aBlock numbers are arbitrary.

A Study on the Impact of Teach For America Teachers in the Los Angeles Unified School District

December 2008

Analysis conducted by:
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Pardee RAND Graduate School

Made Possible With Support From:



THE IMPACT OF TEACH FOR AMERICA TEACHERS IN LAUSD

EXECUTIVE SUMMARY

BACKGROUND

In 2008, The Eli and Edythe Broad Foundation funded an analysis conducted by Vazha Nadareishvili, Ph.D. candidate, Pardee RAND Graduate School, to measure the impact Teach For America teachers within the Los Angeles Unified School District (LAUSD) were having on student achievement, in comparison to their peer teachers.

The study sought to determine whether Teach For America teachers within LAUSD outperform non-Teach For America teachers, including those with similar and or many more years of experience, in a statistically significant manner. Furthermore, the study analyzed whether Teach For America teachers within LAUSD outperform their non-Teach for America counterpart teachers, in a statistically significant manner, when those counterparts had five years or less classroom experience. Finally, the study also analyzed various value-added methodologies such as a gain score methodology and a covariate adjustment methodology to assist Teach For America as it builds its own capacity to analyze the student achievement growth of its corps members nationwide.

RESULTS

Teach For America teachers within LAUSD outperformed non-Teach For America teachers in raising student achievement in the same school, to a statistically significant degree, even though more than half of the non-Teach For America teacher comparison group had far more experience in the classroom. Teach For America teachers produced student achievement gains that were 3 scale score points higher than non-Teach For America teachers, including those with many more years of teaching experience.

In addition, when compared to other early career non-Teach For America teachers in the same school (with “early career” defined as those with five years of teaching experience or less), Teach For America teachers in LAUSD schools demonstrated even greater out-performance in terms of raising student achievement. Teach For America teachers produced student achievement gains that were 4 scale score points higher than other early career non-TFA teachers (those with five or less years of teaching experience).

The results within LAUSD are consistent with previous studies published about the relative impact Teach for America teachers are having compared to their peer teachers in other parts of the country.

METHODOLOGY

Data for the study was provided by LAUSD and E&R Services President Denise Quigley served as the methodology consultant for the analysis.

The study included 119 second-year or alumni Teach For America teachers who taught either reading or math in grades 2-12 during both 2005 and 2006 in 27 different LAUSD schools. As a control, the study also evaluated the impact of 1,190 non-Teach For America teachers who taught the same grade levels and subjects in the same schools as the Teach For America teachers.

The Teach For America teachers were compared with two groups of non-Teach For America teachers in these same 27 schools:

1. All non-Teach For America teachers, regardless of number of years of classroom teaching experience; and
2. All non-Teach For America teachers who had five years or less of classroom teaching experience.

All 119 Teach For America teachers evaluated had five years or less of teaching experience. In contrast, more than half of the non-Teach For America teachers evaluated, or 642, had more than five years of teaching experience.

The dataset contained reading and math California Standards Test (CST) test scores from 74,127 students (grades 2-12) who were taught during 2005 and 2006 by either a Teach For America teacher or a non-Teach For America teacher and were tested in the same subjects (reading and/or math).

After different value-added methodology models were tested, the evaluation was conducted using a covariate adjustment model, which proved to represent the best fit for the data. The covariate adjustment model was run with original scale scores on the reading and math CST exams.

Abstract

With over 5,000 corps members serving in the United States, Teach For America (TFA) is the nation's largest provider of teachers for low-income communities. As TFA continues to expand the number of regions, schools and students it serves, it is critical to develop a systematic and standardized method for measuring the impact of TFA teachers on student achievement. In this study, the Broad Foundation used a value-added model methodology to investigate the impact of TFA teachers compared with non-TFA teachers in 27 Los Angeles Unified School District (LAUSD) schools. Results of the study found a statistically significant advantage of TFA teachers compared to non-TFA teachers especially when TFA teachers were compared to other novice teachers with 5 or less years of experience.

Introduction

Teach for America (TFA) was founded in 1989 to address educational inequities facing children in low-income communities across the United States. TFA focuses recruitment on people with strong academic records and leadership capabilities, whether or not they planned to teach or have taken education courses. TFA is particularly interested in candidates who have the potential to be effective in the classroom, but would not have considered a teaching career but for TFA's existence. Consequently, most TFA recruits do not have education-related majors in college and therefore have not received the same training that traditional teachers are expected to have. The teacher training TFA provides its recruits is limited in duration, but quite intensive.

The Eli and Edythe Broad Foundation (TBF) has funded TFA since 2002. TBF is highly committed to measuring the impact of its investment on student achievement. As a result TBF is very intent on ascertaining how effective TFA is at reducing the educational inequities it was founded to address. TFA employs its own internal evaluation system, which attempts to measure "significant" gains where significant is defined as growth in mastery of content above and beyond one grade level. TFA's efforts to encourage teachers to push for significant gains and measure student progress are necessary and admirable. Given the improvement in the availability of data since TFA originally devised the "significant gains" methodology, and in an effort to encourage TFA to adopt a robust methodology for measuring impact on student achievement, TBF piloted the use of such a methodology on behalf of TFA using data obtained from LAUSD.

The Data

Data for the study were obtained from the Los Angeles Unified School District (LAUSD). The sample included 119 second-year or alumni TFA teachers who taught either reading or math in grades 2-12 during both 2005 and 2006 in 27 different schools. As a control, the sample also contained 1,190 non-TFA teachers who taught the same grade levels and subjects in the same schools as the TFA teachers. Table D provides details on the distribution of observations with TFA and non-TFA teachers across test subjects and grades in 2006. Additionally, the dataset contained scores from 74,127 students in grades 2-12 who were taught by either the TFA or non-TFA teachers and were tested in the same subjects (reading or math) during both 2005 and 2006 on the California Standards Test (CST). Data related to the years of teaching experience and other teacher characteristics (detailed in Table A) were available for 109 TFA teachers and 1,097 non-TFA teachers. All 109 TFA teachers had 5 years or less of teaching experience compared to 548, or fifty percent, of non-TFA teachers.

Methodology

The Broad Foundation worked with Dr. Denise Quigley of E&R Services to identify statistical models currently in use to measure teacher effects. A search of the literature indicated that a number of researchers in the field are now exploring the use of longitudinal data on students to model teacher or school contributions to student achievement. Four possible models used in the past to model teacher or school contributions to student achievement were identified through this literature review:

1. A gain score methodology,
2. A covariate adjustment methodology,
3. A general multivariate, longitudinal mixed model that incorporates the complex grouping structures inherent to longitudinal student data linked to teachers known as value-added methodology (VAM) and used by Bill Sanders in Tennessee, and
4. A general mixed model using fixed and random effects methodology.

TBF tested two of these models for this analysis: a gain score model and a covariate adjustment model.

The gain score model, assesses program effects by examining the relationship between teachers and student achievement using data related to the change in student test scores between two points in time. The gain score model is expressed by the equation below:

$$\text{SCORE_GAIN} = B_0 + B_1 * \text{TFA} + A_1 * X_1 + A_2 * X_2 + \dots A_n * X_n + \varepsilon,$$

The notation SCORE_GAIN represents $\text{SCORE}_{2006} - \text{SCORE}_{2005}$ where $\text{SCORE}_{\text{year}}$ is the score of an individual student on the math or reading California Standards Test (CST) in the year indicated by the subscript. The variable TFA is a dummy variable that is designated by 1 if the student's teacher is a corps member of TFA and 0 if the teacher is not. The notations X_1, X_2, \dots, X_n represent different student and teacher level variables as detailed in Table A. The notations $B_1, B_2, A_1, A_2, \dots, A_n$, designate regression coefficients, and ϵ is an error term.

The covariate adjustment model, evaluates program effects by examining the relationship between teachers and student achievement using longitudinal data with prior student achievement scores as a covariate in the model of current outcomes (Rowan, Correnti, and Miller, 2002; Diggle, Liang, and Zeger, 1996; Meyer, 1997). The covariate adjustment model is expressed by the following equation with the same definition of variables as indicated in the gain score model above:

$$\text{SCORE}_{2006} = B_0 + B_1 * \text{TFA} + B_2 * \text{SCORE}_{2005} + A_1 * X_1 + A_2 * X_2 + \dots + A_n * X_n + \epsilon,$$

TBF ran several versions of both of these models to test their effectiveness and power. For each of the models we run Ordinary Least Square (OLS) regressions with

1. Two versions of CST test scores
 - a. An original scale score, measured on a scale of 150-600.
 - b. A normalized scale score whereby scores were normalized to fit a distribution with a mean of 0 and a standard deviation of 1 for each year, grade and subject. This was designed to control for variations of the test version over time and across subjects and grades.
2. Two different control group populations
 - a. All non-TFA teachers affiliated with the 27 schools of interest.
 - b. Only teachers with no more than 5 years of teaching experience to match the maximum teaching experience of the TFA teachers.
3. Four different sets of variables designed to test the explanatory power of different combinations or inputs in four different regressions to test the explanatory value of different variables:
 - a. The first and most simple regression included just the TFA variables and, for the covariate adjustment models, student test scores for 2005.
 - b. In the second set of regressions, student-level covariates were added.
 - c. In the third set of regressions, dummies for grade-subject combinations were added.
 - d. The final set of regressions added teacher-level variables such as years of teaching experience, credential status, and education level. Additional details related to the variables in the different models are included in Table A.

TBF also ran multilevel models with random effects for schools and teachers nested within schools. The equation used is the same as for the covariate adjustment and gain score models described above except the residual error term had the following form:

$$\varepsilon = \sum_{j=1}^{27} \gamma_j School_j + \sum_{j=1}^{27} \sum_{k=1}^{K_j} \delta_{jk} Teacher_{jk} + e_r,$$

In this regression, $School_j$ and $Teacher_{jk}$ are dummies for school j and teacher k from school j . The terms γ_j and δ_{jk} are school and teacher random effects respectively. The random effects and residual e_r are assumed to be independent and identically distributed random normal variables - $N(0, \sigma_\gamma^2)$, $N(0, \sigma_\delta^2)$, and $N(0, \sigma_e^2)$ respectively.

For these models again, two comparison groups were examined: all other teacher in the schools and novice teachers only. We also looked at the same 4 variable combinations that were used for the OLS regressions. For these models the original CST scores were used as the OLS regressions indicated scaling had almost no effect on the outcomes.

Findings

Regarding the models

The covariate adjustment model represents a better fit than the gain score model. The R-squared values for the Covariate Adjustment models are consistently above 0.5, which indicates these models explain more than 50% of the variability in student test scores between years. In the case of the gain score models, the R-squared values are between 0.00 and 0.07, indicating that these models explain at most seven percent of the variability in student test scores between 2005 and 2006. The fact that the gain score model forces the coefficient of the SCORE₂₀₀₅ to have a value of 1 greatly diminishes its explanatory power. As a result, the remaining analysis of findings will focus on the outcomes of the -covariate adjustment models.

The simplest OLS regressions including only the TFA dummy variable and the students' 2005 scores have nearly as much explanatory power as the regressions including student and teacher characteristics. This may reduce data collection requirements.

Finally, rescaling of test scores had almost no effect on the TFA coefficients and their statistical significances. Such results were expected as long as CST test scores are measured on the same scale (150-600) for all grades and both tests, and the ratio of TFA teachers among all teachers has a little variability across grades and subjects in our dataset. Since the variations in the format of the test scores did not impact the results, the remaining discussion will focus on results generated by the regressions with the original scale scores.

Regarding TFA's impact

Table B reports the results of the OLS regressions including the coefficients for the TFA dummy variable as well as p values and R-squared values, which demonstrate the goodness of fit for each equation. Table C reports the coefficients for all the variables included in the covariate adjustment models.

Based on the results of the various OLS regressions in Table B it is evident that TFA teachers outperformed both control groups in all 4 models. In the two most complex OLS regressions (3 and 4) shown in Table B, the coefficients for TFA teachers are 2.798 and 3.090 respectively, which indicates that student scaled scores on the 2006 CST tests are, on average, 2.798 to 3.090 points higher than for non-TFA teachers. These coefficients are statistically significant at the 1 percent level. An examination of the corresponding models for teachers with 5 years or less teaching experience shows that scale scores for TFA teachers are 3.782 to 4.245 higher than for non-TFA teachers respectively, which is also statistically significant at 1 percent level. Therefore, while the impact of having a TFA teacher produces statistically significant results in both cases, the impact of a TFA teacher is greater when compared to teachers with similar years of teaching experience.

Table C, which includes the results for the multilevel regressions using the covariate adjustment models, shows a similar picture. Students of TFA teachers outperformed students of all non-TFA teachers by 2.835 points in 2006 when 2005 test results and student characteristics were controlled. (sub-model 3). Additionally, students of TFA teachers outperformed students of non-TFA teachers with 5 years or less teaching experience by 3.673 points in 2006 under the above conditions. When teacher characteristics were also controlled for (submodel 4), students of TFA teachers outperformed students of non-TFA teachers by 2.897 points. The extent of outperformance increased to 4.453 points when comparing TFA teachers to Non-TFA teachers with 5 or less years of experience.

These results are consistent with those of previous studies regarding TFA's impact on student achievement which are summarized in Appendix 1.

Conclusions

Similar to previous studies of the TFA effect, our study demonstrates that TFA teachers produce statistically significant gains for students when compared to non-TFA teachers regardless of years of experience. Specifically, gains produced by TFA teachers were most significant when TFA teachers were compared with teachers having 5 years or less experience. The results of this study reinforce the findings of earlier studies and support the efficacy of the TFA program. TFA teachers produced student achievement that was 3 scale score points higher than all non-TFA teachers (including those with tenure) and 4 scale score points higher than all novice non-TFA teachers (those with five or less years of teaching experience). Urban schools generally have unacceptable rates of proficiency, so reform strategies that produce student gains should be bolstered.

With respect to the various models that were tested in this study, it can be concluded that the best fit model for the data was the covariate adjustment model. In terms of the submodel, there were minimal differences between conditions where the CST scores were in their original format versus those where they were rescaled. Similarly, there was no major distinction between the results of sub-models 1-4. The addition of variables did not produce significant changes to the results; therefore, the simplest variation of the covariate adjustment model could be used for future research on this topic.

As a next step we are planning to run another iteration of the analysis to examine the effects of TFA teachers on student achievement at different grade levels, on different subjects (ie reading and math) and vis-à-vis non-TFA teachers within the same school.

We hope that the successful implementation of this pilot study will encourage Teach For America to work with districts to collect student achievement data on a yearly basis and monitor the program's impact on student achievement.

Appendix Tables

Table A. Variables Included in Different Models

Variable Description	Variable Name	Model Number			
		1	2	3	4
Dummy variable for being a TFA Teacher	tfa_teacher	x	x	x	x
<i>Student Level Variables</i>					
Scaled Score at CST test in 2005	cst_ss_original2005*	x	x	x	x
Rescaled Score at CST test in 2005	cst_ss_rescaled2005**	x	x	x	x
Dummy variable for male	male		x	x	x
Dummy variable for Black	black		x	x	x
Dummy variable for Hispanic	hisp		x	x	x
Dummy variable for disadvantaged	disadvantaged		x	x	x
Dummy variable for limited English proficiency	lang_lep		x	x	x
Dummy variable for redesignated-fluent English proficient	lang_rfep		x	x	x
Dummy variable for unknown English proficient	lang_unknown		x	x	x
Dummy variable for special education status	sped		x	x	x
Dummy variable for older than corresponding grade	old_for_grade		x	x	x
1 if difference between 2006 and 2005 grades is equal to -1, 0 otherwise	grd_dif_negative1		x	x	x
1 if difference between 2006 and 2005 grades is equal to 0, 0 otherwise	grd_dif0		x	x	x
1 if difference between 2006 and 2005 grades is equal to 2, 0 otherwise	grd_dif2		x	x	x
1 if difference between 2006 and 2005 grades is equal to 3, 0 otherwise	grd_dif3		x	x	x
1 if difference between 2006 and 2005 grades is equal to 4, 0 otherwise	grd_dif4		x	x	x
Grade2006*subject dummies	grade_2_math, grade_2_read, ..., grade_12_math			x	x
<i>Teacher Level Variables</i>					
Years of teaching experience	yrs_teach				x
Dummy variable for having full credentials	full_cred				x
1 if info on full credential status is missing, 0 otherwise	full_cred_missing				x
1 if education level is "Master's degree plus 30 or more semester hours", 0 otherwise	ed_level2				x
1 if education level is "Master's degree", 0 otherwise	ed_level3				x

otherwise		
1 if education level is "Bachelor's degree plus 30 or more semester hours", 0 otherwise	ed_level4	x
1 if education level is "Bachelor's degree", 0 otherwise	ed_level5	x

Table B. OLS Regression Results

Model No	Independent Variable	Coefficient for TFA Teacher	P Value	Number of Observations	R-squared
All Teachers					
<i>Covariate Adjustment Models with Original Scaled Scores</i>					
(1)	Scaled Score in 2006	4.178***	(0.000)	74127	0.54
(2)	Scaled Score in 2006	4.169***	(0.000)	74127	0.55
(3)	Scaled Score in 2006	2.798***	(0.000)	74127	0.59
(4)	Scaled Score in 2006	3.090***	(0.000)	68721	0.59
<i>Covariate Adjustment Models with Rescaled Scores</i>					
(1)	Rescaled Score in 2006	0.0630***	(0.000)	74127	0.53
(2)	Rescaled Score in 2006	0.0597***	(0.000)	74127	0.55
(3)	Rescaled Score in 2006	0.0528***	(0.000)	74127	0.55
(4)	Rescaled Score in 2006	0.0596***	(0.000)	68721	0.56
<i>Gain Score Models with Original Scaled Scores</i>					
(1)	Difference between Scaled Scores in 2006 and 2005	2.118***	(0.000)	74127	0.00
(2)	Difference between Scaled Scores in 2006 and 2005	2.511***	(0.000)	74127	0.01
(3)	Difference between Scaled Scores in 2006 and 2005	2.610***	(0.000)	74127	0.07
(4)	Difference between Scaled Scores in 2006 and 2005	1.378***	(0.006)	68721	0.07
<i>Gain Score Models with Rescaled Scores</i>					
(1)	Difference between Rescaled Scores in 2006 and 2005	0.0417***	(0.000)	74127	0.00
(2)	Difference between Rescaled Scores in 2006 and 2005	0.0471***	(0.000)	74127	0.01
(3)	Difference between Rescaled Scores in 2006 and 2005	0.0425***	(0.000)	74127	0.01
(4)	Difference between Rescaled Scores in 2006 and 2005	0.0209**	(0.048)	68721	0.02

Teachers with 5 Years or Less Experience

Covariate Adjustment Models with Original Scaled Scores

(1)	Scaled Score in 2006	4.735***	(0.000)	40374	0.52
(2)	Scaled Score in 2006	4.737***	(0.000)	40374	0.53
(3)	Scaled Score in 2006	3.782***	(0.000)	40374	0.58
(4)	Scaled Score in 2006	4.245***	(0.000)	40374	0.58

Covariate Adjustment Models with Rescaled Scores

(1)	Rescaled Score in 2006	0.0815***	(0.000)	40374	0.51
(2)	Rescaled Score in 2006	0.0773***	(0.000)	40374	0.53
(3)	Rescaled Score in 2006	0.0778***	(0.000)	40374	0.54
(4)	Rescaled Score in 2006	0.0858***	(0.000)	40374	0.54

Gain Score Models with Original Scaled Scores

(1)	Difference between Scaled Scores in 2006 and 2005	1.154**	(0.014)	40374	0.00
(2)	Difference between Scaled Scores in 2006 and 2005	1.552***	(0.001)	40374	0.01
(3)	Difference between Scaled Scores in 2006 and 2005	2.396***	(0.000)	40374	0.07
(4)	Difference between Scaled Scores in 2006 and 2005	2.049***	(0.000)	40374	0.07

Gain Score Models with Rescaled Scores

(1)	Difference between Rescaled Scores in 2006 and 2005	0.0374***	(0.000)	40374	0.00
(2)	Difference between Rescaled Scores in 2006 and 2005	0.0432***	(0.000)	40374	0.01
(3)	Difference between Rescaled Scores in 2006 and 2005	0.0458***	(0.000)	40374	0.02
(4)	Difference between Rescaled Scores in 2006 and 2005	0.0363***	(0.001)	40374	0.02

*** p<0.01, ** p<0.05, * p<0.1

Table C. Regression Results for Covariate Adjustment Models

	All Teachers				5 Years or Less		
	(1)	(2)	(3)	(4)	(1)	(2)	(3)
tfa_teacher	3.830*** (0.006)	3.624*** (0.007)	2.835** (0.014)	2.897** (0.033)	3.945*** (0.009)	3.575** (0.015)	3.673*** (0.002)
cst_ss_original2005	0.608*** (0.000)	0.563*** (0.000)	0.563*** (0.000)	0.562*** (0.000)	0.615*** (0.000)	0.564*** (0.000)	0.567*** (0.000)
male	-	1.332*** (0.000)	-	1.357*** (0.000)	1.432*** (0.000)	2.064*** 0.000	2.085*** 0.000
black	-	10.13*** (0.000)	-	10.48*** (0.000)	10.18*** (0.000)	8.225*** (0.000)	8.494*** (0.000)
hisp	-	5.059*** (0.000)	-	5.302*** (0.000)	5.150*** (0.000)	3.538*** (0.006)	3.693*** (0.004)
disadvantaged	-	1.251*** (0.000)	-	1.221*** (0.001)	1.192*** (0.001)	1.568*** (0.001)	1.561*** (0.001)
lang_lep	-	7.055*** (0.000)	-	7.385*** (0.000)	7.422*** (0.000)	6.500*** (0.000)	6.805*** (0.000)
lang_rfep	-	3.726*** (0.000)	-	3.843*** (0.000)	3.981*** (0.000)	4.461*** (0.000)	4.495*** (0.000)
lang_unknown	-	-10.97* (0.058)	-	-10.52* (0.067)	-9.995* (0.088)	-9.914 (0.220)	-9.136 (0.250)
sped	-	7.858*** (0.000)	-	8.017*** (0.000)	7.926*** (0.000)	7.078*** (0.000)	7.214*** (0.000)
old_for_grade	-	-1.588* (0.079)	-	-1.578* (0.078)	-1.807* (0.051)	3.190*** (0.007)	3.338*** (0.004)
grd_dif_negative1	-	16.69*** (0.006)	-	14.72** (0.014)	17.26*** (0.009)	14.13 (0.120)	11.77 (0.200)
grd_dif0	-	0.562 (0.560)	-	2.589*** (0.009)	3.819*** (0.000)	-1.848 (0.140)	4.461*** (0.001)
grd_dif2	-	6.730*** (0.002)	-	7.108*** (0.001)	7.189*** (0.001)	-6.419** (0.038)	-5.664* (0.067)
grd_dif3	-	-14.15* (0.073)	-	-16.60** (0.046)	-15.36* (0.081)	-15.87* (0.070)	-18.05* (0.058)
grd_dif4	-	18.08 (0.380)	-	9.973 (0.630)	9.969 (0.630)		
grade_2_math	-		-	48.61** (0.010)	53.89*** (0.005)		52.53** (0.017)

grade_2_read	5.873 (0.760)	10.51 (0.580)	13.21 (0.550)
grade_3_math	2.969 (0.870)	3.29 (0.860)	-2.51 (0.890)
grade_3_read	-17.61 (0.330)	-16.83 (0.360)	-20.53 (0.260)
grade_4_math	1.359 (0.940)	2.497 (0.890)	4.487 (0.810)
grade_4_read	14.41 (0.430)	14.66 (0.420)	12.92 (0.480)
grade_5_math	-9.23 (0.610)	-7.949 (0.660)	-16.42 (0.370)
grade_5_read	-10.31 (0.570)	-9.169 (0.620)	-10.98 (0.550)

p values in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table C (Continued)

grade_6_math			-22.34 (0.210)	-21.43 (0.240)			-22.8 (0.210)
grade_6_read			-17.98 (0.320)	-17 (0.350)			-16.97 (0.350)
grade_7_math			-14.41 (0.420)	-13.38 (0.460)			-11.3 (0.530)
grade_7_read			-9.856 (0.580)	-8.96 (0.620)			-9.693 (0.590)
grade_8_math			-31.76* (0.078)	-30.97* (0.088)			-27.93 (0.120)
grade_8_read			-11.43 (0.520)	-10.4 (0.570)			-10.41 (0.560)
grade_9_math			-30.98* (0.083)	-31.22* (0.084)			-28.95 (0.110)
grade_9_read			-15.28 (0.390)	-14.21 (0.430)			-15.55 (0.380)
grade_10_math			-41.14** (0.022)	-41.35** (0.022)			-39.31** (0.029)
grade_10_read			-21.36 (0.230)	-20.62 (0.250)			-21.78 (0.220)
grade_11_math			-39.61** (0.027)	-39.02** (0.031)			-37.09** (0.039)
grade_11_read			-15.47 (0.390)	-14.58 (0.420)			-15.83 (0.380)
grade_12_math			-48.34** (0.033)	-60.07** (0.025)			-57.19** (0.030)
yrs_teach				-0.0182 (0.720)			
full_cred				-0.069 (0.950)			
ed_level2				-0.547 (0.850)			
ed_level3				0.945 (0.740)			
ed_level4				0.93 (0.740)			
ed_level5				-0.504 (0.860)			
Constant	110.4*** (0.000)	132.1*** (0.000)	148.3*** (0.000)	147.9*** (0.000)	108.2*** (0.000)	129.5*** (0.000)	144.3*** (0.000)
Observations	74127	74127	74127	68721	40374	40374	40374
Number of groups	27	27	27	27	27	27	27

p values in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table D. Distribution of Observations with TFA and non-TFA Teachers Across Test Subjects and Grades in 2006.

Subject-Grade in 2006	TFA Teachers	Non-TFA Teachers	Total Teachers	Percent TFA Teachers
Reading grade 02	2	32	34	5.88
Reading grade 03	84	1,091	1,175	7.15
Reading grade 04	161	1,010	1,171	13.75
Reading grade 05	138	1,093	1,231	11.21
Reading grade 06	1,408	7,607	9,015	15.62
Reading grade 07	1,047	7,600	8,647	12.11
Reading grade 08	731	7,732	8,463	8.64
Reading grade 09	478	4,518	4,996	9.57
Reading grade 10	190	2,678	2,868	6.62
Reading grade 11	62	1,073	1,135	5.46
Reading grade 12	2	1	3	66.67
Math grade 02	2	32	34	5.88
Math grade 03	84	1,099	1,183	7.10
Math grade 04	160	1,014	1,174	13.63
Math grade 05	137	1,108	1,245	11.00
Math grade 06	1,255	7,524	8,779	14.30
Math grade 07	455	7,918	8,373	5.43
Math grade 08	501	5,868	6,369	7.87
Math grade 09	162	3,920	4,082	3.97
Math grade 10	120	2,349	2,469	4.86
Math grade 11	77	1,600	1,677	4.59
Math grade 12	0	4	4	0.00
Total	7,256	66,871	74,127	9.79

###



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News

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Online Call for Proposals is open for the Thirteenth National New Teacher Center Symposium on Teacher Induction.

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Results Released on Learning Conditions Survey in Colorado

Results of a statewide survey administered by NTC show that ¾ of Colorado teachers believe their schools are good places to work. Ensuring that every teacher is inducted into the profession and receives frequent support to improve instruction was one of six recommendations in the report.

[Read the press release.](#)

[Read the full report.](#)

NTC CEO invited to testify before Congress

On April 15, Ellen Moir testified before the U.S. Senate Committee on Health, Education, Labor and Pensions to discuss the importance of induction programs for all new teachers.

[Read the written testimony.](#)

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Improving Working Conditions for Teachers with Borrowed Classrooms

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Jean Duffey is a teacher on a mission—she wants to improve working conditions for teachers who “float” into borrowed classrooms. An algebra teacher for twenty years,

Jean is a master mentor at Sam Rayburn High School in Pasadena, Texas. Her role as a mentor caused her to volunteer for a new assignment last year—one that has fueled her passion to advocate for new teachers.

[Read the story.](#)

Getting the Balance Right: Federal Policy on Effective Teaching

President Obama and Education Secretary Arne Duncan have made teaching quality a major focus of federal education policy — and rightly so. Teachers are the most powerful school-based influence on student learning. This update discusses the current Federal policy efforts underway, NTC’s perspective, and the challenges of ensuring that these not only meet the political needs of policymakers, but must also meet the professional needs of individual teachers. [More...](#)

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February issue of AFT's American Teacher profiles success of NTC's Teaching and Learning Condition Survey in Massachusetts.

[Read the article.](#)

NTC and Race to the Top

Forty states and the District of Columbia submitted applications to the U.S. Department of Education during the first round of the Race to the Top grant competition. NTC supported or was written into applications in more than a dozen states. [More...](#)

NTC Recommendations Adopted for Beginning Teacher Support

At its January meeting, the North Carolina State Board of Education unanimously approved the North Carolina Mentor Task Force report which addressed the need for mentoring as identified by the 2008 Teacher Working Conditions Survey. The survey data, from over 104,000 educators, along with NTC's policy expertise and on the ground presence allowed us to lead the process. Among the strong recommendations is the revision of beginning teacher support program standards and accompanying continuum using NTC tools as the basis.

The full set of recommendations can be viewed at:

[NC Mentor Task Force Report](#) (PDF Download: 1.3MB)

Foundation Commits \$335 Million to Promote Effective Teaching and Raise Student Achievement

The Measures of Effective Teaching project, funded by the Bill and Melinda Gates Foundation, includes NTC survey to assess and improve working conditions.

[More... \(at gatesfoundation.org\)](#)

State Policies to Improve Teacher

New Issue of Reflections Now Available

The new issue of Reflections is focused on Defining, Measuring, and Articulating the Impact of Effective Teacher Induction. Articles offer concrete examples and share research such as how mentors increase beginning teachers' professional growth and instructional planning, cultures that foster teacher leadership, and optimal learning conditions. Processes and tools to measure impact of different aspects of induction programs are explained. [View and Download](#)

Virginia Commonwealth University Expands and Deepens Collaboration with School Leadership Development

Over the past few years, NTC's Teacher Induction division has built a solid reputation with their work in supporting new teachers and mentoring in the Central Virginia region. SLD has now been bringing our supervision (ISA) and CLASS (Coaching Leaders to Achieve Student Success) workshops to this region to great response.

[Read the full story.](#)

Online Mentoring for New Math and Science Teachers. Anytime. Anywhere.



e-Mentoring for Student Success (eMSS) supports the development and retention of beginning science and math teachers through content-specific online mentoring that promotes student achievement.

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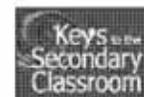
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suggests (and doesn't) about the power of well designed mentoring programs to shape teacher and student outcomes.

[Read the full description](#)

New Publication by Corwin Press

Keys to the Secondary Classroom



This user-friendly guide provides a solid foundation for classroom management, lesson planning, and assessment with step-by-step tips for organizing standards based curriculum across the content areas.

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NTC Director Eric Hirsch and the National Governors Association co-authored a brief describing tactics to maximize the impact of professional development on student achievement.

[Read the press release \(at nga.org\).](#)

[Read the brief \(at nga.org\).](#)

NTC Teaching & Learning Conditions Survey helps state policy makers understand what teachers need.

[Read the article in the magazine of the National Conference of State Legislatures.](#)

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Section E:

**Turning Around the
Lowest-Achieving Schools**

NRS 385.357 Plan to improve achievement of pupils for individual schools; duties of school support team in preparing plan; annual review; process for submission and approval of plan; timeline for carrying out plan. [Effective through June 30, 2010.]

1. The principal of each school, including, without limitation, each charter school, shall, in consultation with the employees of the school, prepare a plan to improve the achievement of the pupils enrolled in the school.

2. The plan developed pursuant to subsection 1 must include:

(a) A review and analysis of the data pertaining to the school upon which the report required pursuant to subsection 2 of NRS 385.347 is based and a review and analysis of any data that is more recent than the data upon which the report is based.

(b) The identification of any problems or factors at the school that are revealed by the review and analysis.

(c) Strategies based upon scientifically based research, as defined in 20 U.S.C. § 7801(37), that will strengthen the core academic subjects, as defined in NRS 389.018.

(d) Policies and practices concerning the core academic subjects which have the greatest likelihood of ensuring that each group of pupils identified in paragraph (b) of subsection 1 of NRS 385.361 who are enrolled in the school will make adequate yearly progress and meet the minimum level of proficiency prescribed by the State Board.

(e) Annual measurable objectives, consistent with the annual measurable objectives established by the State Board pursuant to NRS 385.361, for the continuous and substantial progress by each group of pupils identified in paragraph (b) of subsection 1 of that section who are enrolled in the school to ensure that each group will make adequate yearly progress and meet the level of proficiency prescribed by the State Board.

(f) Strategies, consistent with the policy adopted pursuant to NRS 392.457 by the board of trustees of the school district in which the school is located, to promote effective involvement by parents and families of pupils enrolled in the school in the education of their children.

(g) As appropriate, programs of remedial education or tutoring to be offered before and after school, during the summer, or between sessions if the school operates on a year-round calendar for pupils enrolled in the school who need additional instructional time to pass or to reach a level considered proficient.

(h) Strategies to improve the academic achievement of pupils enrolled in the school, including, without limitation, strategies to:

(1) Instruct pupils who are not achieving to their fullest potential, including, without limitation:

(I) The curriculum appropriate to improve achievement;

(II) The manner by which the instruction will improve the achievement and proficiency of pupils on the examinations administered pursuant to NRS 389.015 and 389.550; and

(III) An identification of the instruction and curriculum that is specifically designed to improve the achievement and proficiency of pupils in each group identified in paragraph (b) of subsection 1 of NRS 385.361;

(2) Increase the rate of attendance of pupils and reduce the number of pupils who drop out of school;

(3) Integrate technology into the instructional and administrative programs of the school;

(4) Manage effectively the discipline of pupils; and

(5) Enhance the professional development offered for the teachers and administrators employed at the school to include the activities set forth in 20 U.S.C. § 7801(34) and to address the specific needs of pupils enrolled in the school, as deemed appropriate by the principal.

(i) An identification, by category, of the employees of the school who are responsible for ensuring that the plan is carried out effectively.

(j) In consultation with the school district or governing body, as applicable, an identification, by category, of the employees of the school district or governing body, if any, who are responsible for ensuring that the plan is carried out effectively or for overseeing and monitoring whether the plan is carried out effectively.

(k) In consultation with the Department, an identification, by category, of the employees of the Department, if any, who are responsible for overseeing and monitoring whether the plan is carried out effectively.

(l) For each provision of the plan, a timeline for carrying out that provision, including, without limitation, a timeline for monitoring whether the provision is carried out effectively.

(m) For each provision of the plan, measurable criteria for determining whether the provision has contributed toward improving the academic achievement of pupils, increasing the rate of attendance of pupils and reducing the number of pupils who drop out of school.

(n) The resources available to the school to carry out the plan. If this State has a financial analysis program that is designed to track educational expenditures and revenues to individual schools, each school shall use that statewide program in complying with this paragraph. If a statewide program is not available, each school shall use the financial analysis program used by the school district in which the school is located in complying with this paragraph.

(o) A summary of the effectiveness of appropriations made by the Legislature that are available to the school to improve the academic achievement of pupils and programs approved by the Legislature to improve the academic achievement of pupils.

(p) A budget of the overall cost for carrying out the plan.

3. In addition to the requirements of subsection 2, if a school has been designated as demonstrating need for improvement pursuant to NRS 385.3623, the plan must comply with 20 U.S.C. § 6316(b)(3) and the regulations adopted pursuant thereto.

4. Except as otherwise provided in subsection 5, the principal of each school shall, in consultation with the employees of the school:

(a) Review the plan prepared pursuant to this section annually to evaluate the effectiveness of the plan; and

(b) Based upon the evaluation of the plan, make revisions, as necessary, to ensure that the plan is designed to improve the academic achievement of pupils enrolled in the school.

5. If a school has been designated as demonstrating need for improvement pursuant to NRS 385.3623 and a support team has been established for the school, the support team shall review the plan and make revisions to the most recent plan for improvement of the school pursuant to NRS 385.36127. If the school is a Title I school that has been designated as demonstrating need for improvement, the support team established for the school shall, in making revisions to the plan, work in consultation with parents and guardians of pupils enrolled in the school and, to the extent deemed appropriate by the entity responsible for creating the support team, outside experts.

6. On or before November 1 of each year, the principal of each school or the support team established for the school, as applicable, shall submit the plan or the revised plan, as applicable, to:

(a) If the school is a public school of the school district, the superintendent of schools of the school district.

(b) If the school is a charter school, the governing body of the charter school.

7. If a Title I school is designated as demonstrating need for improvement pursuant to NRS 385.3623, the superintendent of schools of the school district or the governing body, as applicable, shall carry out a process for peer review of the plan or the revised plan, as applicable, in accordance with 20 U.S.C. § 6316(b)(3)(E) and the regulations adopted pursuant thereto. Not later than 45 days after receipt of the plan, the superintendent of schools of the school district or the governing body, as applicable, shall approve the plan or the revised plan, as applicable, if it meets the requirements of 20 U.S.C. § 6316(b)(3) and the regulations adopted pursuant thereto and the requirements of this section. The superintendent of schools of the school district or the governing body, as applicable, may condition approval of the plan or the revised plan, as

applicable, in the manner set forth in 20 U.S.C. § 6316(b)(3)(B) and the regulations adopted pursuant thereto. The State Board shall prescribe the requirements for the process of peer review, including, without limitation, the qualifications of persons who may serve as peer reviewers.

8. If a school is designated as demonstrating exemplary achievement, high achievement or adequate achievement, or if a school that is not a Title I school is designated as demonstrating need for improvement, not later than 45 days after receipt of the plan or the revised plan, as applicable, the superintendent of schools of the school district or the governing body, as applicable, shall approve the plan or the revised plan if it meets the requirements of this section.

9. On or before December 15 of each year, the principal of each school or the support team established for the school, as applicable, shall submit the final plan or the final revised plan, as applicable, to the:

- (a) Superintendent of Public Instruction;
- (b) Governor;
- (c) State Board;
- (d) Department;
- (e) Committee;
- (f) Bureau; and
- (g) Board of trustees of the school district in which the school is located.

10. A plan for the improvement of a school must be carried out expeditiously, but not later than January 1 after approval of the plan pursuant to subsection 7 or 8, as applicable.

(Added to NRS by 2003, 19th Special Session, 11; A 2005, 710, 1651, 1978; 2007, 1946)

NRS 385.357 Plan to improve achievement of pupils for individual schools; duties of school support team in preparing plan; annual review; process for submission and approval of plan; timeline for carrying out plan. [Effective July 1, 2010.]

1. Except as otherwise provided in NRS 385.37603 and 385.37607, the principal of each school, including, without limitation, each charter school, shall, in consultation with the employees of the school, prepare a plan to improve the achievement of the pupils enrolled in the school.

2. The plan developed pursuant to subsection 1 must include:

(a) A review and analysis of the data pertaining to the school upon which the report required pursuant to subsection 2 of NRS 385.347 is based and a review and analysis of any data that is more recent than the data upon which the report is based.

(b) The identification of any problems or factors at the school that are revealed by the review and analysis.

(c) Strategies based upon scientifically based research, as defined in 20 U.S.C. § 7801(37), that will strengthen the core academic subjects, as defined in NRS 389.018.

(d) Policies and practices concerning the core academic subjects which have the greatest likelihood of ensuring that each group of pupils identified in paragraph (b) of subsection 1 of NRS 385.361 who are enrolled in the school will make adequate yearly progress and meet the minimum level of proficiency prescribed by the State Board.

(e) Annual measurable objectives, consistent with the annual measurable objectives established by the State Board pursuant to NRS 385.361, for the continuous and substantial progress by each group of pupils identified in paragraph (b) of subsection 1 of that section who are enrolled in the school to ensure that each group will make adequate yearly progress and meet the level of proficiency prescribed by the State Board.

(f) Strategies, consistent with the policy adopted pursuant to NRS 392.457 by the board of trustees of the school district in which the school is located, to promote effective involvement by parents and families of pupils enrolled in the school in the education of their children.

(g) As appropriate, programs of remedial education or tutoring to be offered before and after school, during the summer, or between sessions if the school operates on a year-round calendar for pupils enrolled in the school who need additional instructional time to pass or to reach a level considered proficient.

(h) Strategies to improve the academic achievement of pupils enrolled in the school, including, without limitation, strategies to:

(1) Instruct pupils who are not achieving to their fullest potential, including, without limitation:

(I) The curriculum appropriate to improve achievement;

(II) The manner by which the instruction will improve the achievement and proficiency of pupils on the examinations administered pursuant to NRS 389.015 and 389.550; and

(III) An identification of the instruction and curriculum that is specifically designed to improve the achievement and proficiency of pupils in each group identified in paragraph (b) of subsection 1 of NRS 385.361;

(2) Increase the rate of attendance of pupils and reduce the number of pupils who drop out of school;

(3) Integrate technology into the instructional and administrative programs of the school;

(4) Manage effectively the discipline of pupils; and

(5) Enhance the professional development offered for the teachers and administrators employed at the school to include the activities set forth in 20 U.S.C. § 7801(34) and to address the specific needs of pupils enrolled in the school, as deemed appropriate by the principal.

(i) An identification, by category, of the employees of the school who are responsible for ensuring that the plan is carried out effectively.

(j) In consultation with the school district or governing body, as applicable, an identification, by category, of the employees of the school district or governing body, if any, who are responsible for ensuring that the plan is carried out effectively or for overseeing and monitoring whether the plan is carried out effectively.

(k) In consultation with the Department, an identification, by category, of the employees of the Department, if any, who are responsible for overseeing and monitoring whether the plan is carried out effectively.

(l) For each provision of the plan, a timeline for carrying out that provision, including, without limitation, a timeline for monitoring whether the provision is carried out effectively.

(m) For each provision of the plan, measurable criteria for determining whether the provision has contributed toward improving the academic achievement of pupils, increasing the rate of attendance of pupils and reducing the number of pupils who drop out of school.

(n) The resources available to the school to carry out the plan. If this State has a financial analysis program that is designed to track educational expenditures and revenues to individual schools, each school shall use that statewide program in complying with this paragraph. If a statewide program is not available, each school shall use the financial analysis program used by the school district in which the school is located in complying with this paragraph.

(o) A summary of the effectiveness of appropriations made by the Legislature that are available to the school to improve the academic achievement of pupils and programs approved by the Legislature to improve the academic achievement of pupils.

(p) A budget of the overall cost for carrying out the plan.

3. In addition to the requirements of subsection 2, if a school has been designated as demonstrating need for improvement pursuant to NRS 385.3623, the plan must comply with 20 U.S.C. § 6316(b)(3) and the regulations adopted pursuant thereto.

4. Except as otherwise provided in subsection 5, the principal of each school shall, in consultation with the employees of the school:

(a) Review the plan prepared pursuant to this section annually to evaluate the effectiveness of the plan; and

(b) Based upon the evaluation of the plan, make revisions, as necessary, to ensure that the plan is designed to improve the academic achievement of pupils enrolled in the school.

5. If a school has been designated as demonstrating need for improvement pursuant to NRS 385.3623 and a support team has been established for the school, the support team shall review the plan and make revisions to the most recent plan for improvement of the school pursuant to NRS 385.36127. If the school is a Title I school that has been designated as demonstrating need for improvement, the support team established for the school shall, in making revisions to the plan, work in consultation with parents and guardians of pupils enrolled in the school and, to the extent deemed appropriate by the entity responsible for creating the support team, outside experts.

6. On or before November 1 of each year, the principal of each school or the support team established for the school, as applicable, shall submit the plan or the revised plan, as applicable, to:

(a) If the school is a public school of the school district, the superintendent of schools of the school district.

(b) If the school is a charter school, the governing body of the charter school.

7. If a Title I school is designated as demonstrating need for improvement pursuant to NRS 385.3623, the superintendent of schools of the school district or the governing body, as applicable, shall carry out a process for peer review of the plan or the revised plan, as applicable, in accordance with 20 U.S.C. § 6316(b)(3)(E) and the regulations adopted pursuant thereto. Not later than 45 days after receipt of the plan, the superintendent of schools of the school district or the governing body, as applicable, shall approve the plan or the revised plan, as applicable, if it meets the requirements of 20 U.S.C. § 6316(b)(3) and the regulations adopted pursuant thereto and the requirements of this section. The superintendent of schools of the school district or the governing body, as applicable, may condition approval of the plan or the revised plan, as applicable, in the manner set forth in 20 U.S.C. § 6316(b)(3)(B) and the regulations adopted pursuant thereto. The State Board shall prescribe the requirements for the process of peer review, including, without limitation, the qualifications of persons who may serve as peer reviewers.

8. If a school is designated as demonstrating exemplary achievement, high achievement or adequate achievement, or if a school that is not a Title I school is designated as demonstrating need for improvement, not later than 45 days after receipt of the plan or the revised plan, as applicable, the superintendent of schools of the school district or the governing body, as applicable, shall approve the plan or the revised plan if it meets the requirements of this section.

9. On or before December 15 of each year, the principal of each school or the support team established for the school, as applicable, shall submit the final plan or the final revised plan, as applicable, to the:

- (a) Superintendent of Public Instruction;
- (b) Governor;
- (c) State Board;
- (d) Department;
- (e) Committee;
- (f) Bureau; and
- (g) Board of trustees of the school district in which the school is located.

10. A plan for the improvement of a school must be carried out expeditiously, but not later than January 1 after approval of the plan pursuant to subsection 7 or 8, as applicable.

(Added to NRS by 2003, 19th Special Session, 11; A 2005, 710, 1651, 1978; 2007, 1946; 2009, 2304, effective July 1, 2010)

NRS 385.3721 Designation as demonstrating need for improvement for 3 consecutive years: Notice; technical assistance; comprehensive audit of school.

1. Except as otherwise provided in subsection 2, if a public school is designated as demonstrating need for improvement pursuant to NRS 385.3623 for 3 consecutive years:

(a) The board of trustees of the school district shall:

(1) Provide notice of the designation to the parents and guardians of pupils enrolled in the school on the form prescribed by the Department pursuant to NRS 385.382; and

(2) Ensure that the school receives technical assistance in the manner set forth in 20 U.S.C. § 6316(b)(4) and the regulations adopted pursuant thereto.

(b) The Department shall require the board of trustees of the school district to conduct a comprehensive audit of the school which must include an audit of the curriculum, including, without limitation, methods of instruction and assessments, implemented by the school.

2. If a charter school is designated as demonstrating need for improvement pursuant to NRS 385.3623 for 3 consecutive years:

(a) The governing body of the charter school shall provide notice of the designation to the parents and guardians of pupils enrolled in the charter school on the form prescribed by the Department pursuant to NRS 385.382.

(b) For a charter school sponsored by the board of trustees of a school district, the board of trustees shall, in conjunction with the governing body of the charter school, ensure that the charter school receives technical assistance in the manner set forth in 20 U.S.C. § 6316(b)(4) and the regulations adopted pursuant thereto.

(c) For a charter school sponsored by the State Board or by a college or university within the Nevada System of Higher Education, the Department shall, in conjunction with the governing body of the charter school, ensure that the charter school receives technical assistance in the manner set forth in 20 U.S.C. § 6316(b)(4) and the regulations adopted pursuant thereto.

(d) The Department shall require the governing body of the charter school to conduct a comprehensive audit of the charter school which must include an audit of the curriculum, including, without limitation, methods of instruction and assessments, implemented by the charter school.

(Added to NRS by 2003, 19th Special Session, 22; A 2007, 2562; 2009, 2310)

NRS 385.3773 Types of corrective actions for school districts; notice of corrective action and opportunity for hearing.

1. Except as otherwise provided in NRS 385.3774, if corrective action for a school district is required pursuant to 20 U.S.C. § 6316(c)(10) or if the Department determines that corrective action is appropriate for a school district pursuant to subsection 3 of NRS 385.3772, the Department shall take one or more of the following corrective actions:

(a) Deferring money for programs or reducing money for administrative purposes.

(b) Instituting and fully carrying out a new curriculum that is based upon the standards of content and performance adopted by the State Board pursuant to NRS 389.520, including, without limitation, the provision of appropriate professional development relating to the new curriculum.

(c) Replacing employees of the school district if the Department determines that those employees contributed to the failure of the school district to make adequate yearly progress.

(d) Removing particular schools within the school district from the jurisdiction of the school district and establishing an alternative system of governance and supervision for those schools.

(e) Appointing a receiver or trustee to administer the affairs of the school district.

(f) Taking appropriate steps to abolish the school district, including, without limitation, making recommendations to the Legislature for revisions to applicable statutes to abolish the school district.

(g) Authorizing pupils to transfer from schools operated by the school district to schools operated by another school district that are not designated as demonstrating need for improvement.

2. Before carrying out corrective action pursuant to this section, the Department shall provide notice to the board of trustees of the school district and an opportunity for a hearing. The Department shall continue to provide technical assistance pursuant to subsection 2 of NRS 385.3772 during the time that the corrective action is carried out.

3. If corrective action is taken against a school district pursuant to this section, the Department shall, not later than 10 days after the corrective action is taken, provide notice to the parents and guardians of pupils enrolled in the school district, the Governor, the Committee, the Bureau and the general public concerning the corrective action. The notice must comply with 20 U.S.C. § 6316(c)(10).

(Added to NRS by 2003, 19th Special Session, 32)

CATEGORY I. CURRICULUM and INSTRUCTION

INDICATOR 1.1 All instructional staff members implement a curriculum that is aligned with state standards.

Element	1 Area of Need	2 Area of Concern	3 Meets Expectation	4 Exemplary
1.1a Vertical Alignment	The instructional staff does not implement a written curriculum vertically aligned to state core content standards.	The instructional staff implements a written curriculum vertically aligned to some of the state core content standards.	The instructional staff implements a written curriculum vertically aligned to all state core content standards.	The instructional staff implements a written curriculum vertically aligned to all state content standards.
1.1b Horizontal Alignment	The instructional staff does not implement a written curriculum horizontally aligned to state core content standards.	The instructional staff implements a written curriculum horizontally aligned to some of the state core content standards.	The instructional staff implements a written curriculum horizontally aligned to all state core content standards.	The instructional staff implements a written curriculum horizontally aligned to all content standards.
1.1c Professional Development	The instructional staff has been informed of the state content standards, but is not required to access them and is not provided with professional development to facilitate understanding and implementation.	The instructional staff receives copies of the state content standards but is not provided with professional development to facilitate understanding and implementation.	All instructional staff receives copies of the state content standards and participates in professional development to understand and implement curriculum aligned with state content standards as needed.	All instructional staff and school administrators participate in ongoing professional development to understand and implement curriculum aligned with state content standards as needed.

CATEGORY I. CURRICULUM and INSTRUCTION

INDICATOR 1.2 All instructional staff members deliver the standards-based curriculum to all students.

	1 Area of Need	2 Area of Concern	3 Meets Expectation	4 Exemplary
1.2a Standards-Based Instruction	Few, if any, instructional staff members ensure that students receive grade-level/content area, standards-based instruction.	Some instructional staff members ensure that students receive grade-level/content area, standards-based instruction.	All instructional staff members ensure that all students receive grade-level/content area, standards-based instruction designed to help students achieve at the proficient level.	All instructional staff members ensure that all students receive grade-level/content area, standards-based instruction designed to help students acquire the skills and knowledge needed for college and work force readiness.
1.2b Content Knowledge	Few, if any, instructional staff members accurately teach content and use vocabulary aligned to the content standards.	Some instructional staff members accurately teach content and uses vocabulary aligned to the content standards.	All instructional staff members accurately teach content and use vocabulary aligned to the content standards.	All instructional staff members accurately teach content and use vocabulary aligned to the content standards; all staff members have the content knowledge necessary to meet the needs of students who have already demonstrated proficiency.
1.2c Cognitive Level	Few, if any, instructional staff members deliver instruction that fully reflects the level of cognitive demand indicated in the state core content standards.	Some instructional staff members deliver instruction that reflects the level of cognitive demand indicated in the state core content standards.	All instructional staff members deliver instruction that reflects the level of cognitive demand indicated in the state core content standards.	All instructional staff members deliver instruction that reflects the level of cognitive demand indicated in the state core content standards and provide enrichment activities to students who have demonstrated proficiency.
1.2d Communication	Few, if any, instructional staff members communicate grade-level/content area standards in classrooms in student-friendly terms.	Some instructional staff members communicate grade-level/content area standards in student friendly terms.	All instructional staff members clearly communicate grade-level/content area standards in student friendly terms.	All instructional staff members clearly communicate grade-level/content area standards in all classrooms in student-friendly terms. Students can explain the expectations for academic performance.
1.2e Observable Student Work	Little, if any, student work reflects grade-level/content area standards.	Some student work reflects grade-level/content area standards.	Student work consistently reflects grade-level/content area standards.	Student work reflects grade-level/content area standards and students are able to connect the work they do with college and work Force readiness.

CATEGORY I. CURRICULUM and INSTRUCTION

INDICATOR 1.3 All instructional staff members use effective instructional strategies to meet the learning needs of all students.				
Element	1 Area of Need	2 Area of Concern	3 Meets Expectation	4 Exemplary
1.3a Effective Strategies	Instructional staff uses few, if any, effective instructional strategies, including differentiated instruction, to meet the learning needs of individual students and student groups.	Instructional staff inconsistently uses effective instructional strategies, including differentiated instruction, to meet the learning needs of individual students and student groups.	All instructional staff members' use proven effective instructional strategies, including differentiated instruction, most of the time to meet the learning needs of individual students and student groups.	All instructional staff members consistently use proven effective instructional strategies, including differentiated instruction, to meet the learning needs of individual students and student groups.
1.3b Adaptations	Few, if any, instructional staff members use multiple approaches to instruction. Nearly all instructional staff provide instruction primarily in whole class or lecture format.	Some instructional staff members use multiple approaches to instruction. Most staff provide instruction primarily in whole class or lecture format.	All instructional staff members use multiple approaches to instruction. All staff members use whole group, small group, and individualized instruction on a consistent basis.	All instructional staff members use varied and multiple approaches to instruction, including whole group, small group and individualized instruction on a consistent basis. In addition, all instructional staff members use other approaches, such as project/community-based learning and cooperative learning, to meet the needs of students.
1.3c Professional Development	Few instructional staff members participate in professional development on effective instructional strategies or to enhance content knowledge. Professional development is only provided upon request.	Some instructional staff members participate in professional development to enhance pedagogy and content knowledge.	All instructional staff members participate in professional development on effective instructional strategies, including differentiated instruction, to enhance pedagogy and content knowledge.	All instructional staff members participate in ongoing professional development on effective instructional strategies, including differentiated instruction, to enhance pedagogy and content knowledge. Follow-up classroom support is provided to instructional staff to implement the effective strategies into the classroom.
1.3d Cultural/Linguistic Responsiveness	Few, if any, instructional staff members use instructional strategies designed to address students with diverse linguistic and cultural backgrounds.	Some instructional staff members use instructional strategies designed to address students with diverse linguistic and cultural backgrounds.	All instructional staff members use instructional strategies that are designed to address students with diverse linguistic and cultural backgrounds.	All instructional staff members have extensive knowledge of instructional strategies designed to address students with diverse linguistic and cultural backgrounds and stay current with the literature on diversity and culturally responsive instruction.

CATEGORY I. CURRICULUM and INSTRUCTION

INDICATOR 1.4 All instructional staff members routinely collaborate to review the impact of instructional strategies and to modify instruction accordingly.

Element	1 Area of Need	2 Area of Concern	3 Meets Expectation	4 Exemplary
1.4a Collaboration	Instructional staff rarely, if ever, collaborates to review the impact of instructional strategies.	Instructional staff members occasionally collaborate to informally review the impact of instructional strategies.	All instructional staff members routinely collaborate to review the impact of instructional strategies by examining assessment data. Collaboration time is regularly scheduled and the impact on classroom instruction is formally reviewed.	All instructional staff members routinely collaborate to review the impact of instructional strategies by examining assessment data, student work and other evidence. Collaboration time is regularly scheduled and the impact is formally reviewed at grade level, departmental level, and school level.
1.4b Sharing Information	Few, if any, instructional staff members share information on what works for individual students with other teachers who instruct the same students.	Some instructional staff members share information on what works for individual students with other teachers who instruct the same students.	All instructional staff members routinely share information on what works for individual students with other teachers who instruct the same students.	All instructional staff members routinely share information on what works for individual students with other teachers who instruct the same students. Together, these teachers evaluate the effectiveness of the information to identify the sets of strategies that are most effective.
1.4c Continuous Improvement	Few, if any, instructional staff members analyze or modify their own instructional practices and procedures in order to impact student achievement.	Some instructional staff members analyze and modify their own instructional practices and procedures in order to impact student achievement.	Each instructional staff member analyzes and modifies his/her own instructional practices and procedures in order to help all students become proficient.	Each instructional staff member analyzes and modifies his/her own instructional practices and procedures in order to help all students become proficient. Each instructional staff member also identifies individual student strengths and weaknesses to modify instruction to help all students advance to higher levels of achievement.

CATEGORY I. CURRICULUM and INSTRUCTION

INDICATOR 1.5 All instructional staff members analyze results from available assessments, including state and local, and use the results to refocus or modify instruction at the school and classroom levels to ensure that all students meet or exceed proficiency.

Element	1 Area of Need	2 Area of Concern	3 Meets Expectation	4 Exemplary
1.5a Analyze and Use Data	Few, if any, instructional staff members analyze classroom and individual student level data derived from a variety of assessments to refocus or modify instruction through selection of instructional strategies and content emphasis to ensure students meet or exceed proficiency.	Some instructional staff members analyze classroom and individual student level data derived from a variety of assessments to refocus or modify instruction through selection of instructional strategies and content emphasis to ensure students meet or exceed proficiency.	All instructional staff members consistently analyze classroom and individual student level data derived from a variety of assessments to refocus or modify instruction through selection of instructional strategies and content emphasis to ensure students meet or exceed proficiency.	All instructional staff members consistently analyze classroom and individual level data and student work to refocus or modify instruction through selection of instructional strategies and content emphasis to ensure all students advance to higher levels of achievement.
1.5b Collaboration	Few, if any, instructional staff members meet collectively to analyze assessment data to plan instruction.	Some instructional staff members meet collectively to analyze assessment data to plan instruction.	All instructional staff members meet periodically to collectively analyze assessment data to improve instruction, particularly for those students whose achievement is not improving.	All instructional staff members meet routinely to collectively analyze assessment data, offering each other suggestions for improving instruction and outcomes for all students.
1.5c Professional Development	Few, if any, instructional staff members receive training on how to analyze and use data.	Some instructional staff members receive training on how to analyze and use data.	All instructional staff members receive training on how to analyze and use data to refocus and modify instruction.	All instructional staff members receive ongoing training on how to analyze and use data to refocus and modify instruction and follow-up is provided.

CATEGORY I. CURRICULUM and INSTRUCTION

INDICATOR 1.6 All instructional staff members provide students with additional instruction and intervention as needed to improve student achievement.

	1						
Element	Area of Need	2	Area of Concern	3	Meets Expectation	4	Exemplary
1.6a Identification	Instructional staff does not have a process in place to identify students who need additional instruction and intervention.	Instructional staff members have a process in place to identify students who need additional instruction and intervention, but not all instructional staff members follow the process.	All instructional staff members follow a well-defined process to identify students who need additional instruction and intervention.	All instructional staff members follow a well-defined process to identify students who need additional instruction and intervention, and the effectiveness of the process is regularly monitored.			
1.6b Re-teaching/Additional Instruction	Few, if any, instructional staff members provide identified students with additional instruction or interventions.	Some instructional staff members provide additional instruction or interventions to identified students during the school day, but do not consistently use different methods to re-teach. Re-teaching does not consistently occur.	All instructional staff members routinely provide additional instruction and a variety of interventions to identified students (through assessment results) during the school day. The instruction uses different methods and materials to re-teach.	All instructional staff members routinely re-teach lessons as needed through differentiation based on analysis of assessments. Students who continue to struggle are re-taught as often as needed. A variety of interventions are available during the school day, before or after school, and/or during the summer.			
1.6c Participation	Opportunities for student interventions are limited and only exist if a teacher decides to provide them.	Not all students who are identified have the opportunity to participate in appropriate interventions.	All students who are identified have the opportunity to participate in appropriate interventions.	All students who are identified have the opportunity to participate in appropriate interventions, and the barriers to participation have been reduced (e.g., staff and materials are available).			
1.6d Results	Participation in the interventions, when available, rarely results in improved student achievement.	Participation in the interventions sometimes results in improved student achievement.	Participation in the interventions consistently results in improved student achievement.	Participation in the interventions leads to an increase in the number of students who reach proficient and advanced levels.			

CATEGORY I. CURRICULUM and INSTRUCTION

INDICATOR 1.7 All instructional staff members use instructional materials that meet the identified needs of all students.

Element	1 Area of Need	2 Area of Concern	3 Meets Expectation	4 Exemplary
1.7a Materials	Few students are provided with proven and effective instructional materials (e.g., textbooks, manipulatives, technology, etc.) aligned to grade level standards.	Some students are provided with proven and effective instructional materials (e.g., textbooks, manipulatives, technology, etc.) aligned to grade level standards.	All students are provided with proven and effective instructional materials (e.g., textbooks, manipulatives, technology, etc.) aligned to grade level standards.	All students are provided with proven and effective instructional materials (e.g., textbooks, manipulatives, technology, etc.) aligned to grade level standards. In addition, supplemental enrichment materials are available for all students.
1.7b Variety	Few instructional materials are available in a variety of formats (e.g., assistive technology, adapted assignments, etc.).	Some instructional materials are available in a variety of formats (e.g., assistive technology, adapted assignments, etc.).	Most instructional materials are available in a variety of formats (e.g., assistive technology, adapted assignments, etc.).	All instructional materials are available in a variety of formats (e.g., assistive technology, adapted assignments, etc.) and address various learning modalities (e.g. visual, kinesthetic, etc.).
1.7c Diversity	Little or no consideration has been given to providing the student population exposure to a variety of cultures and ethnicities.	Some instructional materials provide the student population exposure to a variety of cultures and ethnicities.	Most instructional materials provide the student population exposure to a variety of cultures and ethnicities.	All instructional materials provide the student population exposure to a variety of cultures and ethnicities.

CATEGORY I. CURRICULUM and INSTRUCTION				
INDICATOR 1.8 The school implements an equitable code of conduct to create an environment conducive to teaching and learning.				
Element	1 Area of Need	2 Area of Concern	3 Meets Expectation	4 Exemplary
1.8a Culture	Few, if any, school staff members promote reinforcement of self-discipline and responsibility. School policy provides for student discipline, assistance, counseling, and/or referral, but procedures are not clearly defined or consistently followed.	Some school staff members promote reinforcement of self-discipline and responsibility. School policy and procedures are clearly defined to provide for student discipline, assistance, counseling, and referral but are not consistently followed.	All school staff members consistently promote reinforcement of self-discipline and responsibility. School policy and procedures are clearly defined and followed by all staff to provide for identification of at-risk students, discipline, assistance, counseling, and/or referral.	All school staff members promote reinforcement of self-discipline and responsibility and actively teach these skills to students. School policy and procedures are clearly defined and followed by all staff to provide for identification of at-risk students, discipline, assistance, counseling and/or referral. The policy and procedures actively promote social skills, conflict management, and intervention and prevention programs.
1.8b Policies and Procedures				

CATEGORY I. CURRICULUM and INSTRUCTION

INDICATOR 1.9 School-parent partnerships are primarily focused on student achievement.

Element	1 Area of Need	2 Area of Concern	3 Meets Expectation	4 Exemplary
1.9a Culture	School staff rarely seeks parental involvement in the school. Parents do not consistently feel welcome in the school, and few, if any, parents volunteer to help the school.	Some school staff occasionally seeks parental involvement in the School. Some parents feel welcome in the school and a few parents volunteer to help the school.	All school staff actively seeks and supports parental involvement in educational activities for student academic achievement. All parents feel welcome in the school, and some parents regularly volunteer to help the school.	All school staff actively seeks and supports parental involvement in all aspects of school life including student academic achievement. All parents feel welcome in the school, and many parents regularly volunteer to help the school.
1.9b Policies and Procedures	Few school staff implements policies and procedures that provide access to information to all parents. Information may not be easy to obtain for parents whose first language is not English or who are illiterate.	Most school staff implements policies and procedures that provide access to information to all parents. Information is available in some languages other than English.	All school staff implements policies and procedures that provide access to information to all parents. Information is available in all of the languages spoken most frequently by parents and assistance is available for those who are illiterate.	All school staff implements policies and procedures that maximize access to information by all parents. Communication is two-way and frequent. Information is available in all of the languages spoken most frequently by parents and assistance is available for those who are illiterate.
1.9c Parent Training	School staff provides no training for parents to support student achievement.	School staff provides some training for parents to support student achievement.	School staff regularly provides training for parents to support student achievement.	School staff provides on-going training for all parents and uses a variety of means to actively engage parents in supporting student achievement.
1.9d Teacher Training	Few, if any, instructional staff is trained on how to work with parents.	Some instructional staff is trained on how to work with parents.	Instructional staff is trained on how to work with parents as partners in supporting student achievement.	Instructional staff is trained on how to reach out to, communicate with, and work with parents as equal partners in supporting student achievement.
1.9e Reporting	Few instructional staff reports results on student achievement to parents beyond the regular report cards. No attempt is made to communicate reports in a language that the parents most easily understand.	Some instructional staff reports results on student achievement to parents beyond the regular report cards. Few attempts are made to communicate reports in a language that the parents most easily understand.	All instructional staff provides reports on student achievement to parents beyond the regular report cards in a language that the parents most easily understand.	All instructional staff provides reports on student achievement to parents beyond the regular report cards in a language that the parents most easily understand. All instructional staff also report results of evaluation of programs and plans to parents and seeks feedback from them.

II. ASSESSMENT and ACCOUNTABILITY				
INDICATOR 2.1 All instructional staff members use classroom assessments aligned to state content standards.				
Element	1 Area of Need	2 Area of Concern	3 Meets Expectation	4 Exemplary
2.1a Alignment	Few, if any, classroom assessments are aligned with state content standards.	Some classroom assessments are aligned with state content standards.	All classroom assessments are aligned with state content standards.	All classroom assessments are aligned with state content standards and reflect appropriate vertical and horizontal alignment.
2.1b Assessment	Few instructional staff members implement classroom assessments that reflect criteria for mastery.	Some instructional staff members implement classroom assessments that reflect criteria for mastery.	All instructional staff members implement classroom assessments that reflect criteria for mastery.	All instructional staff members implement classroom assessments that reflect criteria for mastery and are available in multiple formats to match students' needs.

II. ASSESSMENT and ACCOUNTABILITY

INDICATOR 2.2 All instructional staff develops unit/lesson plans based on student assessment results and adjusts instruction accordingly.				
Element	1 Area of Need	2 Area of Concern	3 Meets Expectation	4 Exemplary
2.2a Plan Development	Few, if any, instructional staff members create unit or lesson plans that are based on analysis of student assessment results, though plans may be based on general observation of student strengths and weaknesses.	Some instructional staff members create unit or lesson plans that are based on analysis of student assessment results, though most plans are based on general observation of student strengths and weaknesses.	All instructional staff members create unit or lesson plans that are based on analysis of ongoing student assessment results.	All instructional staff members create unit or lesson plans that are based on analysis of ongoing student assessment results from varied assessments and documented student strengths and weaknesses.
2.2b Adjustment	Few, if any, instructional staff members adjust units or lessons as needed, based on analysis of student assessment results. Instructional staff members rarely, if at all, allow for adjustment of concepts, level of difficulty, strategy for instruction, and/or amount of work time needed to meet individual needs.	Some instructional staff members adjust units or lessons as needed, based on analysis of assessment results, but only occasionally allow for adjustment of concepts, level of difficulty, strategy for instruction, and/or amount of work time needed to meet individual needs.	All instructional staff members adjust units or lessons as needed, based on analysis of assessment results, and allow for adjustment of concepts, level of difficulty, strategy for instruction, and/or amount of work time needed to meet individual needs.	All instructional staff members adjust units or lessons as needed, based on analysis of assessment results, and consistently and routinely allow for adjustment of concepts, level of difficulty, strategy for instruction, and/or amount of work time needed to meet individual needs.

II. ASSESSMENT and ACCOUNTABILITY

INDICATOR 2.3 All instructional staff members use progress monitoring, grading, and/or reporting procedures that are standards-based to inform students and parents of student academic progress.				
Element	1 Area of Need	2 Area of Concern	3 Meets Expectation	4 Exemplary
2.3a Progress Monitoring	Few, if any, instructional staff members use standards-based progress monitoring.	Some instructional staff members use standards-based progress monitoring to assess student academic growth.	All instructional staff members use standards-based progress monitoring to assess student academic growth.	All instructional staff members use standards-based progress monitoring to assess student academic growth; both staff and students share a vision of what constitutes quality student work.
2.3b Use of Standards-based Data in Grading Practices	Few, if any, instructional staff members base grades on progress toward meeting standards.	Some instructional staff members base grades on progress toward meeting standards.	All instructional staff members base grades on progress toward meeting standards.	All instructional staff members base grades on progress toward meeting standards, and these practices have been explained to parents and students in a language they understand.
2.3c Reporting	Few, if any, instructional staff members implement a standards-based reporting system to inform students and parents of student academic progress.	Some instructional staff members implement a standards-based reporting system to inform students and parents of student academic progress.	All instructional staff members implement a standards-based reporting system to inform students and parents of student academic progress.	All instructional staff members consistently implement a standards-based reporting system to inform students and parents of student academic progress.

II. ASSESSMENT and ACCOUNTABILITY

INDICATOR 2.4 All instructional staff members provide specific and timely feedback to students on an ongoing basis, and students use the feedback to improve their performance.				
Element	1 Area of Need	2 Area of Concern	3 Meets Expectation	4 Exemplary
2.4a Frequency	Instructional staff members rarely provide feedback to students on their performance.	Instructional staff members occasionally provide feedback to students to help them improve their performance.	Instructional staff members provide feedback on an ongoing basis to all students to help them improve their academic performance.	All instructional staff members consistently provide feedback to all students to help them improve their academic performance and ensures that students understand the feedback.
2.4b Specific, Timely and Constructive	Feedback provided to students may not be specific or timely and is not understood by students as constructive in helping them improve their performance.	Feedback provided to students is specific and timely but is not understood by students as constructive in helping them improve their performance.	Feedback is specific, timely, and is consistently understood by students as constructive in helping them improve their performance.	Feedback is specific, timely, and is consistently understood by students as constructive in helping them improve their performance. Both instructional staff and peers provide feedback.
2.4c Use of Feedback	Students rarely use feedback to improve their performance.	Students occasionally use feedback to improve their performance.	Students regularly use the feedback to improve their performance.	Students regularly use feedback to improve their performance, and instructional staff monitors the effectiveness of the feedback supplied to students and make adjustments to the feedback as needed.

III. LEADERSHIP

INDICATOR 3.1 School leadership develops and communicates a clear, shared vision and mission.

Element	1 Area of Need	2 Area of Concern	3 Meets Expectation	4 Exemplary
3.1a Beliefs	Few instructional staff members articulate high expectations for mastery of standards by all students regardless of students' backgrounds or economic status. School administration makes little effort to communicate the shared vision and mission.	Some instructional staff members articulate high expectations for mastery of standards by all students regardless of students' backgrounds or economic status. School administration communicates the shared vision and mission to staff in limited ways.	All instructional staff members articulate high expectations for mastery of standards by all students regardless of students' backgrounds or economic status. School leadership communicates the shared mission and vision to entire school community in several ways.	All instructional staff members articulate high expectations for mastery of standards by all students regardless of students' backgrounds or economic status. All students know they are expected to reach proficiency and believe they can. School leadership communicates the shared mission and vision to the entire school community in several ways and the community can articulate the vision and mission.
3.1b Communication				
3.1c Implementation	The mission and vision statement does not guide decisions that impact the school academically.	Some decisions that impact the school academically are guided by the mission and vision statement.	All decisions that impact the school academically are guided by the mission and vision statement.	All decisions that impact the school are guided by the mission and vision statement.
3.1d Revision	Mission and vision statements have not been reviewed or revised within the last few years.	Mission and vision statements are reviewed only when the district or another entity requires them to be reviewed, and are revised with input from some staff.	Mission and vision statements are reviewed at least annually and revised as necessary with input from all staff.	Mission and vision statements are reviewed at least annually and revised as necessary with input from multiple internal and external stakeholders.

III. LEADERSHIP

INDICATOR 3.2 School leadership focuses the entire school community on school improvement.

Element	1 Area of Need	2 Area of Concern	3 Meets Expectation	4 Exemplary
3.2a Leadership	School administration makes little or no effort to establish a school improvement planning team.	School administration provides some limited leadership throughout the school improvement process. A school improvement planning/leadership team exists but is not fully functional.	School administration provides visible leadership throughout the school improvement process in a systemic way, including establishment of a broad-based school improvement planning/leadership team.	School administration provides visible leadership throughout the school improvement process in a systemic way, including establishment of a broad-based school improvement planning/leadership team. All staff is invited to provide additional input or feedback.
3.2b Planning	School improvement planning focuses on the desires of the teachers or administrators.	School improvement planning relies on teacher perceptions and anecdotes rather than assessed student needs.	School improvement planning stems from a school-wide focus on student learning and is responsive to assessed student needs.	School improvement planning stems from a schoolwide focus on student learning using varied assessments, and the planning process clearly prioritizes educational excellence for all students.
3.2c Implementation and Monitoring	School leadership does not require or monitor implementation of the school improvement plan.	School leadership informs staff of the improvement plan and asks them to implement, but does not monitor implementation.	School leadership informs all staff of the improvement plan, ensures that all staff implements the plan, and monitors implementation on a regular basis.	School leadership informs all stakeholders of the improvement plan, discusses individual roles and responsibilities in its success, monitors and evaluates implementation on a regular basis, and regularly discusses needed revisions with all stakeholders.
3.2d Sustained Support	School leadership makes few resources (time, training, or personnel) available for the school improvement process.	School leadership makes some resources (time, training, or personnel) available for the school improvement process.	School leadership makes appropriate resources (time, training, and personnel) available for the school improvement process.	School leadership makes resources (time, training, personnel, facilities, or money) available for the school improvement process and places a high priority on the improvement process.
3.2e Recognition	Members of the school community seldom celebrate student academic success.	Members of the school community periodically celebrate student academic success.	The entire school community celebrates student academic success throughout the year.	The entire community acknowledges and publicly celebrates student academic success throughout the year.

III. LEADERSHIP

INDICATOR 3.3 School leadership focuses on improving and supporting effective instruction.

	1 Area of Need	2 Area of Concern	3 Meets Expectation	4 Exemplary
3.3a Expectations	School leadership rarely or never communicates expectations that all instructional staff will provide effective standards-based instruction.	School leadership occasionally communicates expectations that all instructional staff will provide effective standards-based instruction.	School leadership routinely communicates expectations that all instructional staff will provide effective standards-based instruction.	School leadership routinely communicates expectations that all school staff will provide effective standards-based instruction and models the expectation that staff stay current on research on effective instruction.
3.3b Policies and Procedures	School policies and procedures do not emphasize the importance of effective instruction.	School policies and procedures emphasize the importance of effective instruction, but leadership does not always follow the policies and procedures.	School policies and procedures clearly emphasize and outline expectations for effective instruction and leadership consistently follows the policies and procedures.	School policies and procedures clearly emphasize and outline expectations for effective instruction and leadership consistently follows the policies and procedures. Policies and procedures are routinely reviewed and revised as needed to strengthen the emphasis and clarify expectations.
3.3c Assignment	School leadership assigns teachers based on teacher selection, schedules, and/or class size policies without regard to the teacher's Highly Qualified status.	School leadership assigns most teachers to classes for which they are Highly Qualified.	School leadership assigns all teachers to classes for which they are Highly Qualified.	School leadership assigns Highly Qualified teachers based on the teachers' proven effectiveness and abilities to match with specific student needs (i.e., bilingual teachers).
3.3d Sustained Support	Professional development demonstrates little or no focus on instruction.	Some professional development is provided to address effective instruction, but the forms of professional development may not be varied and/or the professional development may not be specifically designed to meet the instructional needs of staff.	Multiple forms of professional development, including coaching and mentoring, are provided to address effective instruction. The professional development is aligned with established expectations and is designed to meet the needs of instructional staff.	Professional development, including coaching, mentoring, and other ongoing support, is aligned with established expectations. Professional development reflects current research, and is designed to meet the needs of all students and staff.

III. LEADERSHIP

INDICATOR 3.4 School leadership systematically monitors and evaluates the effectiveness of instructional programs.

Element	1 Area of Need	2 Area of Concern	3 Meets Expectation	4 Exemplary
3.4a Monitoring	School leadership monitors the behavior of teachers using the district teacher evaluation instrument but little consideration is given to the effectiveness of teachers.	School leadership monitors the behavior of teachers using the district teacher evaluation instrument.	School leadership systematically monitors the effectiveness of teachers using explicit criteria.	School leadership systematically monitors the effectiveness of teachers both formally and informally using explicit criteria and provides useful feedback that results in improved practice.
3.4b Monitoring Standards- based Instruction	School leadership rarely monitors the implementation of standards-based instruction.	School leadership provides some monitoring of the effectiveness of standards-based instruction.	School leadership systematically monitors the effectiveness of standards-based instruction, using established criteria.	School leadership systematically monitors the effectiveness of standards-based instruction, using established criteria, and makes adjustments accordingly.
3.4c Teacher Evaluation	The system of teacher evaluation does not hold instructional staff accountable for implementing the district curriculum or for delivering effective standards-based instruction.	The system of teacher evaluation holds instructional staff accountable for implementing the district curriculum, but may not hold all staff accountable for providing effective standards-based instruction.	The system of teacher evaluation holds all instructional staff accountable for implementing the district curriculum, providing effective standards-based instruction, and implementing the concepts that are introduced through professional development.	The system of teacher evaluation holds all instructional staff accountable for implementing the district curriculum, providing effective standards-based instruction, and refining the concepts that are introduced through professional development to match student need.
3.4d Feedback	School leadership provides little or no constructive feedback to instructional staff.	School leadership occasionally provides some constructive feedback to instructional staff.	School leadership regularly provides constructive feedback to instructional staff regarding instructional effectiveness.	School leadership regularly provides constructive feedback to instructional staff regarding instructional effectiveness and collaborates with instructional staff on how to effectively implement the feedback.

III. LEADERSHIP

INDICATOR 3.5 School leadership allocates the resources necessary to increase student achievement.

Element	1 Area of Need	2 Area of Concern	3 Meets Expectation	4 Exemplary
3.5a Budget Development	School leadership does not have a comprehensive budgeting process for allocation of resources.	School leadership does not involve staff in the budgeting process for allocation of resources.	School leadership involves staff in the budgeting process for allocation of resources.	School leadership uses a comprehensive budgeting process that addresses fiscal resources, involves staff and communicates to the entire school community.
3.5b Resource Allocation	School leadership does not take student achievement data into account when making budgetary decisions.	School leadership periodically refers to analysis of student achievement data in making some budgetary decisions, but does not consistently do so.	School leadership consistently refers to analysis of student achievement data to make budgetary and resource allocation decisions.	School leadership has a formal process for ensuring that budgetary and resource allocation decisions align to student achievement goals for all students and subgroups.
3.5c Managerial Duties	School leadership does not demonstrate managerial responsibility for budget monitoring.	School leadership demonstrates limited managerial responsibility for budget monitoring and does not seek resources from outside sources.	School leadership demonstrates managerial responsibility for budget monitoring and occasionally seeks resources from outside sources.	School leadership demonstrates managerial responsibility for budget monitoring and continuously seeks resources from outside sources.
3.5d Resource Acquisition	School leadership has no process to support staff in acquiring resources from external sources.	School leadership provides limited support for staff in acquiring resources from external sources.	School leadership supports staff in acquiring resources from external sources.	School leadership actively assists staff in identifying and acquiring resources from external sources.

III. LEADERSHIP

INDICATOR 3.6 School leadership ensures the effective use of instructional time.

	1 Area of Need	2 Area of Concern	3 Meets Expectation	4 Exemplary
3.6a Time Allocation	School leadership does not systematically allocate instructional time in core content areas.	School leadership allocates a designated amount of time in some core content areas.	School leadership consistently allocates a designated amount of time for each core content area.	School leadership consistently allocates a designated amount of time for each core content area, as well as ensuring that additional learning time is provided for students who have not yet mastered content.
3.6b Protection of Instructional Time	School leadership does not systematically protect instructional time in core content areas and allows interruptions such as announcements during the day, frequent assemblies, and field trips.	School leadership allows some interruptions to instructional time, such as announcements during the day, frequent assemblies, and field trips.	School leadership limits interruptions to instructional time including announcements during the day, assemblies, and field trips.	School leadership allows no interruptions to instructional time (e.g., announcements during the day) and only allows assemblies and field trips that are aligned with academic learning.
3.6c Monitoring	School leadership does not engage in monitoring of the way that instructional time is used.	School leadership occasionally monitors the use of instructional time in core content areas.	School leadership consistently monitors the use of instructional time in all core content areas and immediately addresses any problems that arise.	School leadership consistently monitors the use of instructional time in all core content areas, immediately addressing any problems that arise, and ensures that students who are already at the proficient or advanced levels receive instruction to enhance their learning.

III. LEADERSHIP

INDICATOR 3.7 School leadership ensures that all professional development is focused on improving student achievement.

	1	2	3	4
Element	Area of Need	Area of Concern	Meets Expectation	Exemplary
3.7a Focus	Professional development is not focused on instructional staff needs generated by an analysis of student achievement data.	Professional development is focused on instruction staff needs, based on a general analysis of test scores, and the leaders' perception of instructional staff needs.	Professional development is focused on instructional staff needs, based on an analysis of multiple forms of student achievement data. The focus of the professional development is on the areas that the achievement data show are the most pressing instructional staff needs.	Professional development is focused on instructional staff needs, based on an analysis of multiple forms of student achievement data. The focus of the professional development is differentiated and targeted, based on the specific needs of groups of instructional staff.
3.7b Planning	Professional development is planned without seeking the input of instructional staff.	Professional development is planned with input from some instructional staff.	Professional development is planned with input from all of the instructional staff.	Professional development is planned with input from all of the instructional staff to meet the instructional needs of targeted groups.
3.7c Leadership Support	There is no professional development specifically focused on helping school leaders to become effective instructional leaders and to help them lead instructional staff through effective instructional change processes.	There is some professional development specifically focused on helping school leaders to become effective instructional leaders and to help them lead instructional staff through effective instructional change processes.	There is focused professional development for school leaders to help them become effective instructional leaders and to provide specific guidance for them to use in their own buildings to lead their instructional staff through effective instructional change processes.	There is focused and customized professional development for school leaders to help them maximize their skills as effective instructional leaders. Both administrators and others who serve in leadership positions receive customized help so that they can effectively lead building staff through effective change processes.
3.7d Evaluation	School leadership does not evaluate the impact and effectiveness of professional development on teacher practice or student achievement.	School leadership informally evaluates the impact and effectiveness of professional development on teacher practice.	School leadership formally evaluates the impact and effectiveness of professional development on teacher practice and student achievement using assessment data.	School leadership and staff formally evaluate the impact and effectiveness of professional development on teacher practice and student achievement using assessment data and classroom observations.

Nevada Comprehensive Curriculum Audit Tool for Schools (NCCAT-S)

User's Guide



2009-2010

Nevada Department of Education

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INTRODUCTION

The Nevada Comprehensive Curriculum Audit Tool for Schools (NCCAT-S) is designed to assist schools, districts, and the state in identifying the priority needs of a school in need of improvement and for identifying the types of technical assistance a school will need in order to improve. The NCCAT-S is a collection of 20 rubrics. Each rubric is comprised of one indicator and two to five elements. This audit tool was developed by the Nevada Department of Education (NDE) in response to the 2009 Nevada Legislature's Senate Bill 389, which requires districts to conduct a comprehensive curriculum audit of schools identified as In Need of Improvement (INOI) – Year 3, as a corrective action. It is also part of the state's system of support and corrective actions under the requirements of Section 1116 of the No Child Left Behind Act (NCLB). Ultimately, the results of the NCCAT-S will be used to determine the types of focused technical assistance and support that a school will need, and to guide the district in its development of the school's Restructuring or Turnaround Plan.

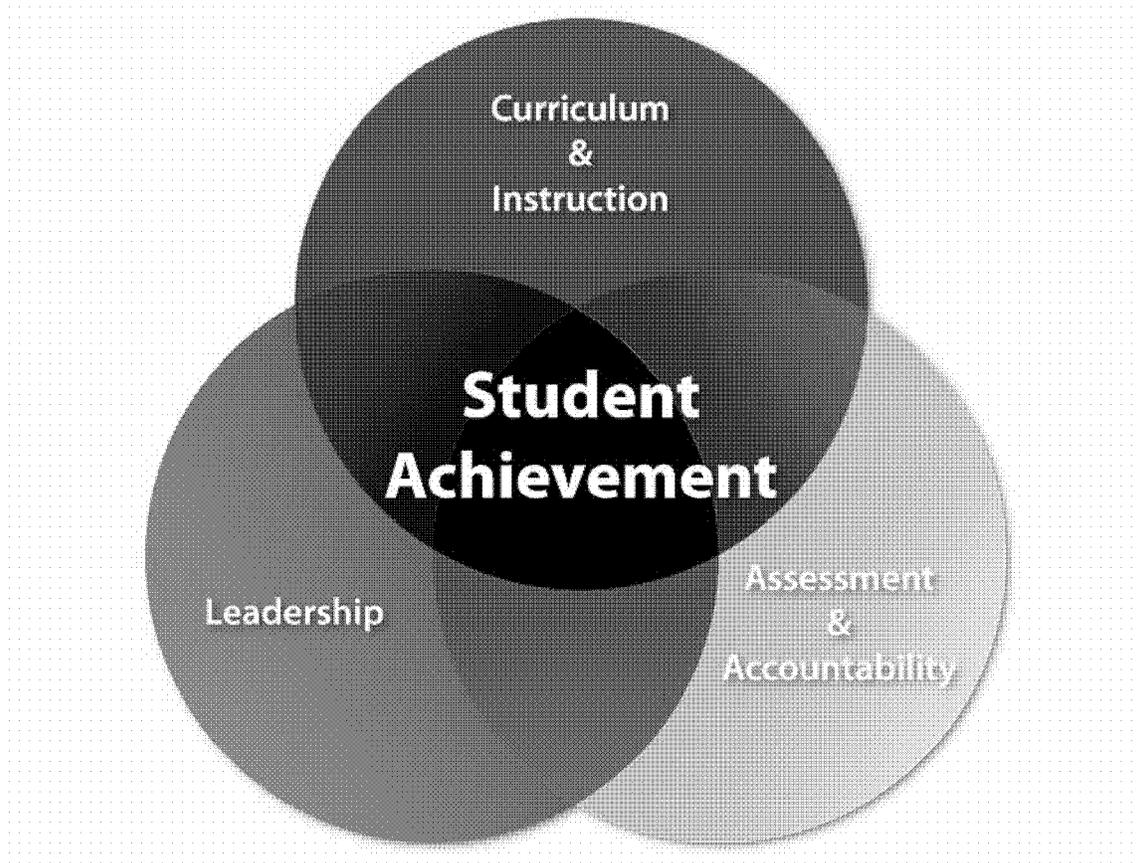
Many resources were utilized during the development of this instrument. The Council of Chief State School Officers (CCSSO) December 2005 publication *District Audit Tool: A Method for Determining Level of Need for Support to Improvement* provided the primary format, structure, and content for the document. Additional tools, such as Clark County School District's Universal Audit Tool, the Center on Innovation and Improvement's Rapid Improvement Indicators, Nevada's Five Dimensions of Successful Schools Data Analysis Guide (DAG) and the Nevada Comprehensive Curriculum Alignment Tool for Districts (NCCAT-D), were cross-referenced and used to inform the development of the final instrument, as applicable. Additionally, audit tools from other states were referenced to further bolster the document. Finally, a statewide task force made up of school, district, and state stakeholders were engaged in shaping the NCCAT-S – providing critical insight, feedback, and consensus on content.

The NCCAT-S reflects the research and serves as the foundation for the work of turning around or restructuring schools. Using a rubric format, the NCCAT-S describes characteristics of high-performing schools in the following categories:

- I. Curriculum and Instruction
- II. Assessment and Accountability
- III. Leadership

These are the areas that the research tells us are the most important foci for turning around schools and rapidly improving student performance. They are overlapping and inter-dependent. When a school is functioning at high levels in all three categories, student achievement improves. Figure 1 illustrates the integrated nature of these functions and how, when they are working effectively and collaboratively, they impact student achievement.

Figure 1. Interdependent Relationship of NCCAT-S Categories.



Curriculum and Instruction. Curriculum and Instruction is the cornerstone of any successful educational program. Research indicates that student access to aligned curriculum, appropriate instructional materials, and grade level standards-based instruction taught by highly-qualified, effective teachers leads to increased student academic achievement. A review of the literature revealed that curriculum alignment, in particular, “is capable of diminishing, if not entirely eliminating, conventional predictors of student achievement, such as socioeconomic status, gender, race, and teacher effect” (pg. 108, CCSSO, 2005)¹. However, once curriculum alignment is in place, “Black and William (1998) noted that standards only influence student learning to the extent that students receive meaningful instruction on their content” (pg. 109, CCSSO, 2005). Consequently, effective classroom instruction plus aligned, standards-based curriculum equates to increases in student achievement.

Assessment and Accountability. The focus and goal of education is student learning and achievement. Without assessments aligned to the curriculum and state standards, it is difficult to determine if the focus and goal of education is ever achieved. According to a

¹ The Council of Chief State School Officers (2005). *District Audit Tool: A Method for Determining Level of Need for Support to Improvement*. Washington, D.C.: The Council of Chief State School Officers.

review of the literature by CCSSO (2005), “research indicates that assessment and accountability systems are most effective when internal and external measures are coordinated by schools and districts to improve student achievement” (pg. 120). The entire assessment and accountability system must be interconnected and aligned – assessments aligned to the standards, which are aligned with curriculum; assessment results are reported out for all stakeholders (including parents and students) so that all have a responsibility for student learning (Newmann & Wehlage, 1995). Furthermore in successful schools and districts, teachers use assessment results, whether from standardized tests or classroom assessments, to inform instruction and curriculum planning and all data are used to determine and respond to student needs. Research suggests that high-performing learning communities continuously examine student achievement using a variety of indicators so all students can reach high standards (Cawelti & Protheroe, 2001).

Leadership. CCSSO (2005) says it best in the document *District Audit Tool: A Method for Determining Level of Need for Support to Improvement*: “A preponderance of education research suggests that highly-effective schools are characterized by effective leadership, among other factors. Without such leadership, a school is little more than a set of independent classrooms, each pursuing individual goals without a shared understanding about what is important to be learned” (pg. 103). Leadership is not confined to administration or the principal. It includes teacher leaders and other advisory or decision-making bodies as well. No matter who the leader is, the leadership must, among other things, convey a clear mission and vision for the school, provide instructional leadership, promote aligned initiatives, and focus on and monitor school improvement.

COMPONENTS of the NCCAT-S

Categories, Indicators, and Elements

Categories. As mentioned above, the NCCAT-S addresses 3 overarching categories –

- I. Curriculum and Instruction,
- II. Assessment and Accountability, and
- III. Leadership

Indicators. Within each category, there are Indicators. The entire audit tool contains a total of 20 indicators – Curriculum and Instruction has 9, Assessment and Accountability has 4, and Leadership has 7. Collectively, these 20 indicators characterize the essential components that are typically in place for a school to be successful.

Elements. Under each indicator, there are elements that help to more clearly define the indicator. Elements provide the audit team with descriptors that detail the nuances of an indicator. Additionally, the degree to which an element is implemented will be scored on a rubric using the following scale:

- 4 = Exemplary: This element contributes to the school’s success, and provides a model for other schools to emulate.
- 3 = Meets expectation: This element is fully functional and all required elements are evident.
- 2 = Area of Concern: This element is marginal. Performance in this area should be monitored for change and may need to be addressed quickly.
- 1 = Area of Need: There is little to no evidence that this element is met or understood by the school. This element should be identified as a priority and would need to be addressed quickly.

ADMINISTERING the NCCAT-S

Getting Started – Initial Steps

Who. According to the 2009 Nevada Legislature’s Senate Bill 389, school districts are required to conduct the NCCAT-S on schools identified as In Need of Improvement (INOI) – Year 3 (and on schools INOI Year 4 and beyond during the 2009/10 transition year). However, the NCCAT-S is designed to be utilized as a self-analysis tool (see “Addressing the Challenges of Self-Assessment” guidance in Appendix D) and it is recommended that districts work collaboratively with schools in conducting this audit.

It is recommended that the district in collaboration with the school form an audit team to help manage and coordinate the audit process for the school year. For example, previously existing teams at the school, such as the School Improvement or Leadership team, could serve as the foundation of the audit team. Membership could be expanded to include district level personnel who can provide expertise in specific areas such as data analysis or curriculum. However, the work of the audit team does not need to be limited only to “team members.” It might be appropriate to ask teachers and/or other staff to investigate and explore various indicators and elements and have them report back to the audit team on what they have found.

When. Districts have an entire school year to conduct the NCCAT-S on schools identified as In Need of Improvement – Year 3. For example in a traditional school year, it would be anticipated that the initial steps in conducting the audit begin in September and the completion of the audit occurs by May. Also, depending on the audit team’s particular work style, meetings could occur weekly or monthly or sometime in between. In the appendix are two pacing calendars that have been developed to assist districts and schools in planning for anticipated NCCAT-S activities. The first calendar suggests pacing during the transitional year of 2009-10. The second calendar guides a team on how to plan for conducting the audit in subsequent years.

Conducting the Audit

How to Begin. Once an audit team is identified, work can begin. With 20 indicators and 70 elements, it is recommended that the audit team break down the work into metered, manageable steps. For example, the first audit team meeting in September

could conclude with work assignments that only encompass the first five indicators (i.e., Curriculum and Instruction, Indicators 1.1 – 1.5). Small sets of teams can be assigned to investigate and collect evidence against the indicators they were assigned. In this scenario, it might be that 2 classroom teachers, the district data coordinator, and the principal are assigned Indicator 1.5. Over the next month, it would be their job to collect evidence that indicates the level of implementation for each element designated under Indicator 1.5 and the evidence collected would then support the score or rating given for each element.

Tools to Assist Audit Teams. Data collection tools have been developed and are located in Appendix E. These tools were developed to assist teams in managing the collection of evidence as well as to provide teams with suggestions regarding what types of evidence might best support indicator/element accomplishments. The types of tools include protocols for interviews and focus groups, as well as a list of documents or sources to review and analyze. In addition, NCCAT-S Indicator Worksheets (Appendix F) have been developed to assist teams in recording their findings relative to an indicator, its elements, and the associated scores.

Collecting and Analyzing the Evidence. Using the available tools in the Appendix, audit teams can guide their work relative to gathering appropriate evidence and data that supports the level of implementation of any given indicator/element. For example, work groups could use the “Document/Sources” list provided to assist them in determining what evidence to examine and analyze. Also, the provided NCCAT-S Indicator Worksheets can be used by small work groups to list their evidence, and record their analyses, findings, and scores.

It is recommended that at least three forms of evidence be analyzed in order to inform the scoring of an element. For instance, the analysis of evidence such as curriculum mapping, lesson plans, and the results of a teacher focus group could provide the needed information for rating the elements of Curriculum and Instruction Indicator 1.1. Please note, teams should collect a sufficient amount of evidence to make informed decisions but do not need to collect more evidence than is necessary to do so.

Scoring. Each element on the NCCAT-S must receive a rubric score based on the supporting evidence. As mentioned earlier, an element can receive one of the following rubric scores on the NCCAT-S:

Rubric Score:

- 4 = Exemplary,
- 3 = Meets Expectation,
- 2 = Area of Concern, or
- 1 = Area of Need.

Accuracy of element rubric scores is essential because rubric scores provide critical information for the district and state and inform the consequences and supports that the school will receive. If a score is low, say a 1 or 2, eventually it will need to be addressed in some way by the district when it develops the school’s Restructuring or Turnaround

Plan. It is also important to note that these rubric scores guide the state in differentiating the types of support the school will receive. Therefore, it is recommended that the full audit team have a system or process in place for affirming the veracity of the element rubric scores, especially if small teams are used to investigate individual indicators and score the related elements.

It may happen that a school does have a large number of elements accurately scored on the rubric at a 1 (Area of Need) or 2 (Area of Concern) level. Having many low scores may seem overwhelming at first, but there is a process in place that assists audit teams in determining priorities. The School Indicator Worksheets will guide a team through assigning a priority and opportunity score, which creates an index score. These scores are explained here. For each element, the priority score represents what the audit team considers to be of either highest (a score of 3), medium (a score of 2), or lowest (a score of 1) priority for the school to address. The opportunity score represents the level of ease or difficulty the audit team believes the school will face in addressing the element. Multiplying the priority score by the opportunity score, the audit team will create an index score (Priority score x Opportunity score = Index score). For example, the audit team may determine that an element is of highest priority, so it selects a 3 as the Priority score. For the Opportunity score, the audit team determines that addressing this element can be accomplished within the current policy and budget conditions, and therefore assigns an Opportunity score of 2. The Priority score 3 multiplied by the Opportunity score 2 equals an Index score of 6 (e.g., $3 \times 2 = 6$). The following is a synopsis of the priority, opportunity and resulting index scores:

Priority Score:

- 3 - highest priority for school/district to address
- 2 - medium priority for school/district to address
- 1 - lowest priority for school/district to address

Opportunity Score:

- 3 – relatively easy to address
- 2 – accomplished within current policy and budget conditions
- 1 – requires changes in current policy and budget conditions

Index Score:

- Highest Index Score possible = 9
- Lowest Index Score possible = 1

A high index score of either a 6 or a 9 will identify those elements that should be addressed by schools and districts first. Likewise, a lower index score, such as a 1 or a 2, will indicate that those elements that do not need to be addressed first but rather may be considered at some point, if appropriate, throughout the Restructuring or Turnaround Plan process.

In the end, audit teams should have the following ratings and scores per element:

- Rubric Score, ranging from a 4 (Exemplary) to a 1 (Area of Need),

- Priority Score, ranging from a 3 (Highest priority for school/district to address) to a 1 (Lowest priority for school/district to address),
- Opportunity Score, ranging from a 3 (Relatively easy to address) to a 1 (Requires changes in current policy and/or budget conditions),
- Index Score, ranging from a 9 (highest priority for addressing first) to a 1 (lower priority for addressing).

As mentioned earlier, the School Indicator Worksheets will help audit teams keep track of the scores and ratings. Additionally, the worksheets provide space to list the evidence that supports the rubric scores as well as allows teams to summarize the current level of development or implementation for the given indicator.

Final Steps

Summary Report. Once all of the elements have been investigated and the associated scores assigned, audit teams will need to complete the NCCAT-S Summary Report template. This template, which can be found in Appendix G and is also available for use in Excel format, asks for each rubric and index score per element as well as for the list of evidence used to support the rubric ratings. The template also requests that the team provide a summary list of those indicators and/or elements that are considered to be of highest priority based on Index and Rubric scores.

Elements that receive a high index score and a low rubric score are good candidates for being placed on the summary list. Districts and schools will want to critically examine elements that fall into this area (e.g., a high index score of 9 and a low rubric score of 1). These elements have been identified not only as an “Area of Need” but also as an element that is of high priority to the team and is considered to be relatively easy to address. Likewise, the team may find that all of the elements of an indicator have received low rubric scores (ones and twos) and high index scores (nines and sixes). In this case, it would be appropriate for a team to identify the entire indicator on the summary list as a high priority for further examination and discussion.

During the next school year when a school (INOI-Year 4) and district are planning for Restructuring or Turnaround, the summary list will provide the beginning framework for determining where to focus Restructuring or Turnaround efforts. In the event the school is not INOI-Year 4, the information derived through the NCCAT-S is very useful for development or revision of a school improvement plan and/or other school improvement efforts.

As part of the monitoring requirement set forth in SB 389 by the Nevada 2009 Legislature, the Nevada Department of Education (NDE) expects the NCCAT-S Summary Report be submitted to the NDE by June 1 of each year.

USING NCCAT-S RESULTS

In Need of Improvement – Year 4

Beginning to Plan for Restructuring or Turnaround Plan Development. After the NCCAT-S is conducted as the Corrective Action for schools INOI-Year 3, districts are required over the next school year to develop Restructuring or Turnaround Plans for schools INOI-Year 4 based on the audit results. The Summary List within the NCCAT-S Summary Report provides the initial starting point for Restructuring or Turnaround Planning. Additionally, all of the work and rich discussions that occurred during the audit year, and that continue throughout the planning year, provide valuable information when developing the Restructuring or Turnaround Plans. With the NCCAT-S results as well as notes and minutes from the past year, planning teams will have the essential information necessary to begin the important process of Restructuring or Turnaround Plan development.

Focusing the Plan – Prioritizing Needs and Concerns. While the Restructuring or Turnaround Planning Teams are examining the results of the NCCAT-S and specifically the items on the Summary List, they may find that there are several elements and/or indicators that were identified as a high priority to address. The planning team recognizes it needs a way to review and filter the Summary List in order to distinguish the one or two most critical items that will eventually become the focus of the Restructuring or Turnaround Plan. Thankfully, there are ways to approach the challenge of narrowing a Restructuring or Turnaround Plan’s focus and identifying the essential areas that need to be addressed for rapid school improvement. Below is information to assist teams in thinking preliminarily about prioritization, understanding that the bulk of this work will happen during development of the Restructuring or Turnaround Plan.

The following suggested steps and guiding questions will assist planning teams to narrow the focus of Restructuring or Turnaround Plans by identifying priorities that will likely have the greatest positive impact on student achievement:

First Step: Have individual planning team members identify priorities independently. Each member identifies the top three items from the Summary List that he or she feels should be addressed in the Restructuring or Turnaround Plan and believes is likely to have the most impact on raising student achievement. Once each member selects his/her top three, as a group identify the top five items that received the most “votes.”

Second Step: In order to narrow the top five to one or two items, the team will need to work together and come to a consensus utilizing Sork’s Importance and Feasibility Criteria (Sork, 1982)² as described here:

² Sork, T. (1982). *Determining Priorities*. Vancouver, Canada: University of British Columbia.

Importance Criteria:

1. How many individuals are affected by this need?
2. If we took this step, to what extent would it contribute to the school's goals?
3. Does the need require immediate attention or will it resolve itself over time?
4. How large is the difference between the current conditions and the desired results?
5. To what extent would taking this step have a positive impact in other areas?

Feasibility Criteria:

1. To what degree can this step contribute to reducing or eliminating the need it is supposed to address?
2. To what extent is the school willing to commit to this change?

Using this approach is one way for planning teams to initially move towards developing focused and concise Restructuring or Turnaround Plans. However, beyond this approach, teams will also want to identify those one or two areas that, if addressed, will likely reap the biggest benefits and have the greatest impact on school improvement and student achievement. In Spring 2010, a companion document that does just that will be available. The document will further assist planning teams by providing them with the effect size (i.e., anticipated impact) of addressing a given set of indicators and/or elements. By knowing the effect size, planning teams will be able to decide which indicators and/or elements to focus on first. For example, if three different indicators have initially been identified as an area of need that should be addressed, planning teams will be able to consider and make decisions based on the effect sizes for each of those indicators. If an indicator has a large effect size, planning teams would want to focus on that indicator in the Restructuring or Turnaround Plan so that schools can concentrate on an area that will likely have the most beneficial effect on improvement. Once the companion document is finalized, it will be posted on the NDE website and districts will be notified of its availability.

Conclusion

As with all school improvement efforts, the ultimate goal of this entire process is to increase student achievement. In order to reach this goal, schools and districts must utilize the results of the NCCAT-S to develop focused and meaningful Restructuring or Turnaround Plans that can be implemented effectively by schools and Local Educational Agencies (LEAs). Additionally, district-level assistance, guidance, and support throughout this valuable process will further ensure schools accomplish targeted goals and increase student achievement. Given the appropriate implementation of this system, schools across Nevada will begin to realize the positive impact of their efforts and students will reap the benefits.

APPENDICES

APPENDIX A

NCCAT – S Glossary of Terms

Alignment

Alignment is the degree to which curriculum, instruction, or assessment is related to content standard expectations for student learning.

- **Vertical alignment** is the degree to which expectations progress from lower grade levels to higher grade levels for a given content area.
- **Horizontal alignment** is the degree to which expectations are matched across classrooms for the same grade level in the same content area.

Assessment

Measuring the learning and performance of students or teachers. Different types of assessment instruments include achievement tests, minimum competency tests, developmental screening tests, aptitude tests, observation instruments, performance tasks, and authentic assessments.

Classroom assessments

Teacher/school generated measurements of student achievement of performance goals and objectives.

Curriculum

Although this term has many possible meanings, it usually refers to a written plan outlining what students will be taught (a course of study). Curriculum documents often also include detailed directions or suggestions for teaching the content. Curriculum may refer to all the courses offered at a given school, or all the courses offered at a school in a particular area of study.

Effective Instruction

A critically important characteristic of a successful instructional program is that it is effective at promoting student learning. Effective instruction in Nevada schools is empirically-proven instructional practice that achieves the goals of forwarding student learning and achievement of grade-level content standards. Effectiveness is demonstrable and defensible.

Instructional Staff

The instructional staff is the school-based personnel, other than principals, responsible for the supervision, instruction, and evaluation of students. This group should include teachers, librarians, counselors, psychologists, resource teachers and other specialists charged with instructional duties.

Quality, Balanced Assessments

Educational assessments measure student learning. Different types of assessment instruments include summative tests, formative tests, diagnostic or predictive tests,

minimum competency tests, developmental screening tests, aptitude tests, observation instruments, performance tasks, and authentic assessments. Assessments can be given at the state, local or classroom levels.

Assessments should provide valuable information to Nevada students, teachers, administrators, and parents. They should be of high quality, be valid and reliable, and be available to all students in the state. Assessments should also be balanced in order to provide valuable data collected *of* and *for* student learning. A quality balanced assessment system includes both summative and formative assessments, promotes improvement of student learning, and involves the students in ongoing evaluation of their own work.

Progress Monitoring and Reporting

Effective instruction and achievement of content standards requires careful monitoring of student progress. Effective progress monitoring is research-based, assesses students' academic performance, and evaluates the effectiveness of instruction. Progress monitoring can be implemented with individual students or an entire class.

Standards-based System

Nevada schools operate within a standards-based system. Expectations for students are based on identified knowledge and skills students must first learn and then demonstrate on assessments. Teachers are responsible for the critical task of ensuring that students are given opportunity to learn the standards through purposeful curriculum and instruction and classroom assessments. School, District, and State administrators are responsible for the critical task of ensuring teachers are given the opportunity to teach and develop professionally in order to support student learning targets. Summative, statewide assessments provide feedback to the system through student achievement on those targets.

APPENDIX B

SUGGESTED NCCAT-S PACING CALENDAR for 2009/10 School Year

OCTOBER

- Identify and notify Audit Team Members
- Select 1st Meeting Date

NOVEMBER

- Conduct 1st Meeting
- Assign small group work – focusing on Curriculum and Instruction Indicators 1.1 – 1.5

DECEMBER

- Team Meeting
- Report progress/results on work regarding Curriculum and Instruction (C & I) Indicators 1.1 – 1.5
- Continue any needed small group work relative to C & I Indicators 1.1 – 1.5
- Assign small group work – focusing on C & I Indicators 1.6 – 1.9

JANUARY

- Team Meeting
- Finalize element scores for C & I Indicators 1.1 – 1.5
- Report progress/results on work regarding C & I Indicators 1.6 – 1.9
- Continue any needed small group work relative to C & I Indicators 1.6 – 1.9
- Assign small group work – focusing on Assessment and Accountability (A & A) Indicators 2.1 – 2.4

FEBRUARY

- Team Meeting
- Finalize element scores for C & I Indicators 1.6 – 1.9
- Report progress/results on work regarding A & A Indicators 2.1 – 2.4
- Continue any needed small group work relative to A & A Indicators 2.1 – 2.4
- Assign small group work – focusing on Leadership Indicators 3.1 – 3.4

MARCH

- Team Meeting
- Finalize element scores for A & A Indicators 2.1 – 2.4
- Report progress/results on work regarding Leadership Indicators 3.1 – 3.4
- Continue any needed small group work relative to Leadership Indicators 3.1 – 3.4
- Assign small group work – focusing on Leadership Indicators 3.5 – 3.7

APRIL

- Team Meeting
- Finalize element scores for Leadership 3.1 – 3.4
- Report progress/results on work regarding Leadership Indicators 3.5 – 3.7
- Continue any needed small group work relative to Leadership Indicators 3.5 – 3.7

MAY

- Team Meeting
- Finalize element scores for Leadership 3.5 – 3.7
- Complete NCCAT-S Summary Report Template

JUNE

- Submit the NCCAT-S Summary Report to NDE by June 1st.

APPENDIX C

SUGGESTED NCCAT-S PACING CALENDAR

For 2010/11 and beyond

MONTH 1 (e.g., July or August)

- Identify and notify Audit Team Members
- Select 1st Meeting Date

MONTH 2

- Conduct 1st Meeting
- Assign small group work – focusing on Curriculum and Instruction Indicators 1.1 – 1.5

MONTH 3

- Team Meeting
- Report progress/results on work regarding Curriculum and Instruction (C & I) Indicators 1.1 – 1.5
- Continue any needed small group work relative to C & I Indicators 1.1 – 1.5
- Assign small group work – focusing on C & I Indicators 1.6 – 1.9

MONTH 4

- Team Meeting
- Report progress/results on work regarding C & I Indicators 1.6 – 1.9
- Review all work on C & I Indicators 1.1 – 1.9
- Assign any necessary follow-up work on C & I Indicators 1.1 – 1.9 (e.g., verification of scores, collection of any additional evidence still needed, etc.)

MONTH 5

- Team Meeting
- Finalize element scores for C & I Indicators 1.1 – 1.9

MONTH 6

- Team Meeting
- Assign small group work – focusing on Assessment and Accountability (A & A) Indicators 2.1 – 2.4

MONTH 7

- Team Meeting
- Report progress/results on work regarding A & A Indicators 2.1 – 2.4
- Continue any needed small group work relative to A & A Indicators 2.1 – 2.4
- Assign small group work – focusing on Leadership Indicators 3.1 – 3.4

MONTH 8

- Team Meeting

- Finalize element scores for A & A Indicators 2.1 – 2.4
- Report progress/results on work regarding Leadership Indicators 3.1 – 3.4
- Continue any needed small group work relative to Leadership Indicators 3.1 – 3.4
- Assign small group work – focusing on Leadership Indicators 3.5 – 3.7

MONTH 9

- Team Meeting
- Finalize element scores for Leadership 3.1 – 3.4
- Report progress/results on work regarding Leadership Indicators 3.5 – 3.7
- Continue any needed small group work relative to Leadership Indicators 3.5 – 3.7

MONTH 10

- Team Meeting
- Finalize element scores for Leadership 3.5 – 3.7
- Complete NCCAT-S Summary Report Template

JUNE

- Submit the NCCAT-S Summary Report to NDE by June 1st.

APPENDIX D

Addressing the Challenges of Self-Assessment

Challenge 1: Overestimation

The most consistent challenge associated with self-assessment is the overestimation of skills, abilities, and dispositions. This type of inflation usually means that people rate themselves and their peers higher than an outsider would based on the same evidence. How might the district assist schools to avoid this common pitfall?

- **Enlist outside assistance in conducting the audit**
- **Require specific evidence for the rating of an element**
- **Focus on “school improvement” rather than “accountability”**
- **More than one person/team collecting evidence and establishing a rating for a particular element**
- **Conduct a root cause analysis**

Challenge 2: Bias based on team composition

Another common challenge comes from the “lenses” of the particular team members being used to bias their perceptions. For example, when a team has counselors or social workers on it, many of the findings and solutions appear to be influenced from that way of looking at the world, emphasizing instruction less and environment more. When the team has only teachers of reading/language arts and mathematics, the emphasis either tends to be in those areas rather than looking at the school as a whole or tends to be more favorable to some subject areas and less favorable to others. How might the district assist schools to avoid this common pitfall?

- **Ensure the team has a variety of different backgrounds and/or roles at the school or district**
- **Provide the school/district with a suggested list of membership on the review team**
- **Provide a facilitator to oversee the process**

Challenge 3: Friendships

Teams from districts and schools working in their own arena often do not want to step on the toes of their friends. This makes them reticent to acknowledge shortcomings from people they know well. Teachers oftentimes do not want to surface anything that will make a principal suspicious of a fellow faculty member (or sometimes, just the opposite, picking on someone they don't like!). How might the district assist schools to avoid this pitfall?

- **Rely on data as evidence, not unsubstantiated and perhaps biased reports**

- **Stress the process as one of assessment to determine where the school is (potential solutions) rather than as an evaluation (negative connotation)**

Challenge 4: Politics

Some teams find it politically difficult to say anything but “we are great.” Thus they undermine the evidence and credibility of the process by only considering certain types of data or interpreting data in more positive ways than the data deserve or providing excuses (e.g., oh, that was an off year because the teacher had family issues or it’s just that one difficult kid, without him, everything would be fine.) How might the district assist schools to avoid this common pitfall?

- **Stress the importance of evidence**
- **Identify barriers up front**
- **Share Doug Reeves’ research around 100/100/100 schools**
- **Identify what the school has control over and what it doesn’t, and then move on to address what the school can control**

Challenge 5: Data interpretation-1

Challenges can emerge when team members really do not understand what exemplary practice looks like. For example, if team members are unfamiliar with best practice in differentiated instruction, they may not know how to collect and interpret the classroom observation and the interview data they receive. Likewise, team members may not have the background or training to engage in data analysis as a team, and may find it difficult to understand the complexity of this process. How might the district assist schools to avoid this pitfall?

- **Provide training using videos or other models of effective teaching strategies**
- **Provide training to improve inter-rater reliability**
- **Provide guiding questions to develop analytic thinking**
- **Have specialized personnel from the district assist in specific areas (a data analyst or curriculum director)**

Challenge 5: Data interpretation-2

Team members may not know the appropriate ways to weight the data. For example, should they “trust” the point-in-time classroom observations more than the focus group responses? Should they rely more on student perceptions or teacher perceptions when these perceptions disagree? Are there requirements that could be put in place that will help schools undertaking this process to ensure they address this challenge?

- **Stress triangulation of data to support conclusions**
- **Have specialized personnel from the district assist in specific areas (a data analyst or curriculum director)**
- **Have external entity do the audit**

State Indicators of Science and Mathematics Education 2005

State-by-State Trends and National Indicators



CCSSO

THE COUNCIL OF CHIEF STATE
SCHOOL OFFICERS

The Council of Chief State School Officers
One Massachusetts Avenue, NW, Washington, DC

COUNCIL OF CHIEF STATE SCHOOL OFFICERS

The Council of Chief State School Officers (CCSSO) is a nonpartisan, nationwide, nonprofit organization of public officials who head departments of elementary and secondary education in the states, the District of Columbia, the Department of Defense Education Activity, and five U.S. extra-state jurisdictions. CCSSO provides leadership, advocacy, and technical assistance on major educational issues. The Council seeks member consensus on major educational issues and expresses their views to civic and professional organizations, federal agencies, Congress, and the public.

DIVISION OF STATE SERVICES AND TECHNICAL ASSISTANCE

The Division of State Services and Technical Assistance supports state education agencies in developing standards-based systems that enable all children to succeed. Initiatives of the division support improved methods for collecting, analyzing and using information for decision-making; development of assessment resources; creation of high-quality professional preparation and development programs; emphasis on instruction suited for diverse learners; and the removal of barriers to academic success.

STATE EDUCATION INDICATORS

The state science and mathematics indicators were developed through collaboration of CCSSO's indicators program with all of the state departments of education, the National Science Foundation, and the U.S. Department of Education. The indicators were selected and designed to provide valid, comparable state-by-state and national data on the condition of science and mathematics education in elementary and secondary schools. Data are reported every two years using a consistent set of indicators.

2005

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COUNCIL OF CHIEF STATE SCHOOL OFFICERS

**State Indicators of
Science and
Mathematics
Education
2005**

*State-by-State Trends
and National Indicators*

*Rolf K. Blank
Doreen Langesen*



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State Indicators of Science and Mathematics Education

In cooperation with the state departments of education, federal agencies, and professional organizations, the Council of Chief State School Officers (CCSSO) developed, manages, and reports a system of state-by-state indicators of the quality of science and mathematics education in public schools. The present report on trends in science and math education as of 2005 is the latest in a series of biennial reports on state and national indicators that were initiated in 1991. The reports are intended for use by policymakers, educators, and researchers.

Introduction

CCSSO's efforts to develop and report a set of comparable, reliable indicators of science and mathematics education have been supported by the state departments of education and by the National Science Foundation and National Center for Education Statistics of the U.S. Department of Education. State education leaders, researchers, and professional organizations made major contributions in development of the indicators system through advice on selection of indicators, collecting and reporting data from schools, and disseminating the indicators within states. The Council places high priority on advocating for improving the quality and comparability of assessments and data that can produce reliable indicators of the health of our elementary and secondary schools. The development of the 2005 report was supported by Texas Instruments, Incorporated.

In this edition of the indicator series, state-by-state indicators of course enrollments and teacher quality are reported for the 2003-04 school year, and trends are reported since 1995-96 based on data reported to CCSSO from state education information systems. States collect data from districts and schools annually including in many states course offerings, number of students taking each course, and the assignments of current teachers by subject or field. State aggregate figures are compiled by CCSSO every two years through cooperation with the state departments of education and managers of state education information systems. The state systems vary in capacity for reporting current data by state certification, degrees, and teacher demographics. To view the status of data for each state and this report online, see the CCSSO project website http://www.ccsso.org/projects/Science_and_Mathematics_Education_Indicators/.

Rationale for State Science and Mathematics Indicators

The science and mathematics indicators developed and reported by CCSSO and the states meet at several priority needs:

- **Measure Progress:** Reliable, comparable indicators, by state, to assess progress toward state and national goals for improving schooling;
- **Analyze Policies:** A range of measures that are useful for analyzing the effects of state education policies and reform initiatives;
- **Assess Needs and Plan:** Indicators, addressing the quality of science and mathematics instruction and teachers, that are useful to policymakers for evaluating programs, identifying problems, and recommending new initiatives.

The CCSSO state science and math indicators system provides a model for state policymakers and researchers to use in selecting indicators and comparable data sources for analyzing educational trends, and evaluating policy and program initiatives. For example, all state education agencies now administer the federally funded Math and Science Partnership Program aimed toward improving quality of teachers and teaching in schools. The state science and math indicators can be instrumental in identifying the needs for improving teaching practices and improving the quality of the teaching force. Importantly, as policymakers consider programs to increase the supply of qualified teachers, the indicators provided in the CCSSO reports offer statistics on the demographic characteristics of the teaching force by state, the rate of new teachers entering science and mathematics, and the current areas of teacher shortage, as well as the level of preparation of current teachers in their assigned fields.

The science and mathematics indicators have other practical applications. State administrators have used course enrollment data to analyze differences in the level of course-taking in their states, as compared with states in their region and states with similar demographic characteristics. Policymakers have been able to compare the proportion of science and mathematics teachers with a degree in their teaching field with recommended and proposed standards for teacher preparation. Educators have identified teacher shortages by science specialization and by gender and race to target teacher recruitment and professional development programs.

The indicators of state science and math education were selected by CCSSO using three primary criteria: a) based on quality, reliable, comparable data from state to state, b) policy relevance and usefulness, and c) using a research-based model of education systems giving evidence on the relationship between an indicator and desired school outcomes.

I. Indicators of Science and Mathematics Course Enrollment

CCSSO has reported indicators of student course-taking in science and mathematics by state since 1990. The present report focuses on state-by-state indicators as of 2003-04 school year, and trends analysis from 1995-96 to 2003-04. We also cite some of the major changes in course taking patterns over 15 years.

Key Question: Are more students taking challenging math and science courses in high school and middle school?

Educators and leaders find that having data that allows tracking trends in enrollments of higher level, challenging courses in science and mathematics are critical information for analysis. Several reasons are cited:

- **Relationship to achievement.** Extensive research on differences in student achievement has consistently shown that the number and level of secondary courses completed by students explain the degree of student achievement.¹
- **Analysis of student progress by state.** Comparable, reliable course-taking indicators allow states, districts, and professional groups to assess how far our students are progressing through the school science and math curriculum. The rates of course enrollments in Algebra 2, Trigonometry, and Precalculus in math, and science rates in Chemistry, Physics, and Advanced Life Science provide a state-by-state indicator of the proportion of students being offered more challenging math and science content in high schools.²
- **Effects of state policies.** Course-taking patterns can be analyzed in relation to state high school graduation requirements, which have shown significant increases since the mid-1980s.
- **Closing the achievement gap.** Course enrollments by state are useful for tracking how states and schools are progressing in providing opportunities for science and math to students from all race/ethnic groups and for female and male students.

High School Mathematics

- **As of 2004, 50 percent of U.S. high school graduates took Four Years of high school math.** Rates of high school math enrollment vary widely by state. Data as of 2003-04 school year show that nine states had over 50 percent of high school students take Trigonometry or Pre-Calculus by their graduation, which indicates the percent of students taking four years of high school math (with Algebra 1 the first year).
- **In the U.S., 72 percent of graduates took Three Years of high school math.** As of 2003-04 school year, 17 states had over 70 percent of students take Algebra 2 or Integrated Math 3 by graduation, and seven states had over 80 percent at this level.

¹ Many studies show the relationship between course-taking and achievement (Husen, 1967; Jones, L.R., Mullis, Raizen, Weiss, & Weston, 1992; Jones, L.V., Davenport, Bryson, Bekhuis, & Zwick, 1986; Rock, Braun, & Rosenbaum, 1985; Sebring, 1987; Walberg, 1984). Analyses of recent NAEP results show high mathematics proficiency correlates strongly with level of mathematics courses students completed (Mullis et al., 1993; Shaughnessy, et al., 1998; Wilson & Blank, 1999). Course-taking rates and levels in math and science vary widely across U.S. schools, and level of courses completed correlate with the socioeconomic status of students in our schools (Goodlad, 1984; Horn & Hafner, 1992; McKnight et al., 1987; Oakes, 1990; Lee, Bryk, & Smith, 1993; Weiss, 1994).

² Recent analyses by Education Trust show students taking more challenging courses have higher achievement scores regardless of prior achievement scores or students SES (Barth & Haycock, Education Trust, 2003).

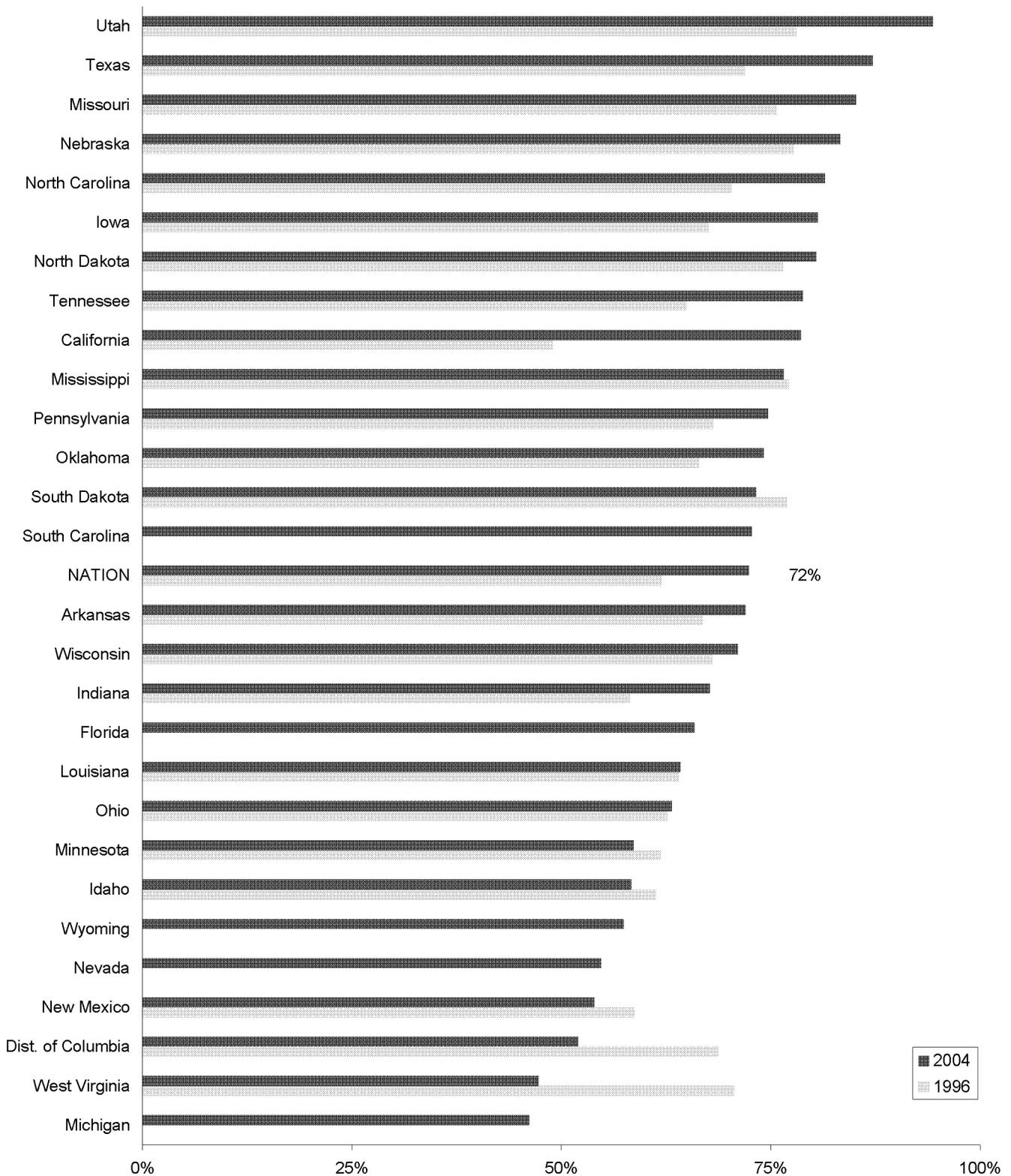
- **Significant increases in higher level mathematics course taking.** Over the past eight years, most states showed significant increases in the percent of students taking math at higher levels. From 1996 to 2004, the percent of graduating students in the U.S. completing four years of high school math increased 13 percentage points, and the percent of students taking three years of math increased 10 percentage points. In 1990, when CCSSO began tracking these indicators, 49 percent of students took Algebra 2 and 29 percent took Trigonometry/precalculus by their graduation.

A majority of states have set three or four years of high school mathematics as a requirement for graduation, and two or three years of high school science as a requirement (CCSSO, Key State Education Policies, 2004). Research on course-taking and achievement show that it is critical to determine the level or difficulty of courses completed, not just the number of credits completed, and this is the approach with the CCSSO course indicators.

Figure 1.1 displays a histogram showing trends for each state from 1996 to 2004 in the percentage of high school students that took three years of high school math by graduation, indicated by enrollment in Algebra 2 or Integrated Math 3. The percentage of students taking three years of high school mathematics varies from over 80 percent (North Carolina, Texas, Nebraska, Iowa, North Dakota, Utah, Missouri) to less than 50 percent (Michigan, West Virginia). Pennsylvania, North Carolina, and South Carolina had over 70 percent of students taking Trigonometry or pre-Calculus in 2004. Trends are shown for those states with consistent data reported over the period.

Table 1.1 shows the percentage of high school students by state that took Trigonometry/Pre-calculus, Algebra 2/Integrated Math 3, Geometry/Integrated Math 2, and Algebra 1/Integrated Math 1 by graduation in 2004, and the change in enrollments at each level from 1996 to 2004. The state-by-state figures for enrollments in Algebra 1 as compared to students taking Integrated Math 1 as a percentage of grade 9 students are shown in Table 1.2.

Figure 1.1 Percent of High School Students Taking Algebra 2 or Integrated Mathematics 3 Prior to Graduation, 1996 to 2004



See Table 1.1

Source: State Departments of Education, Data on Public Schools, 2003-04.

Council of Chief State School Officers, State Services and Technical Assistance, Washington, DC, 2005.

**Table 1.1 Students Taking High School Mathematics Courses Prior to Graduation, 2004;
Change 1996 to 2004**

STATE	Trigonometry/ Pre-Calculus (Level 4)		Algebra 2/ Integrated Math 3 (Level 3)		Geometry/ Integrated Math 2 (Level 2)		Algebra 1/ Integrated Math 1 (Level 1)	
	% 2004	Change 1996 to '04	% 2004	Change 1996 to '04	% 2004	Change 1996 to '04	% 2004	Change 1996 to '04
Pennsylvania	80	+19	75	+6	78	+8	95+	0
North Carolina	78	+9	81	+11	95+	0	95+	0
South Carolina	70	—	73	—	64	—	64	—
Texas	63	+24	87	+15	95+	+22	91	-4
Nebraska	61	+13	83	+6	87	-3	95+	0
Nevada	55	—	55	—	86	—	95+	—
Wisconsin	54	+8	71	+3	95+	0	95+	0
Iowa	54	+17	81	+13	82	+5	95+	+6
Ohio	51	+13	63	+1	95+	+21	95+	0
NATION	50	+13	72	+10	81	+9	95+	0
North Dakota	47	-5	80	+4	78	-4	95+	0
Utah	46	-6	94	+16	95+	+2	95+	0
South Dakota	46	+7	73	-4	83	-1	95+	+1
Michigan	40	—	46	—	45	—	71	—
Missouri	40	+8	85	+9	76	+5	95+	0
Arkansas	40	+9	72	+5	79	+7	95+	0
Indiana	40	+5	68	+10	72	+6	95+	+4
Mississippi	38	-2	77	-1	85	+10	80	-15
Oklahoma	37	+9	74	+8	86	+19	95+	0
Minnesota	37	-4	59	-3	73	+5	95+	+14
Idaho	33	+4	58	-3	70	+4	95+	0
West Virginia	33	-18	47	-23	45	-39	95+	0
Wyoming	33	—	57	—	66	—	95+	—
Tennessee	32	+9	79	+14	87	+19	95+	0
California	31	+6	79	+30	72	+15	95+	0
Florida	31	—	66	—	70	—	66	—
Louisiana	30	+0.1	64	0	83	-5	95+	0
New Mexico	23	-2	54	-5	57	+1	94	-1
Dist. of Columbia	16	-5	52	-17	64	-31	78	-17

Example: 68% of Indiana students took Algebra 2 or Integrated Math 3 (3rd year of high school math) prior to graduation, based on data from 2003-04 school year. This represents an increase of ten percentage points since the 1995-96 school year.

— Data not available.

Note on course estimates by graduation: Each state percent is a statistical estimate of course taking of public high school students by the time they graduate based on the total course enrollment in grades 9-12 in fall 2002 divided by the estimated number of students in a grade cohort during four years of high school. The statistical estimating method is imprecise above 95%. Nation = Percent of all public high school students estimated to take each course, including imputation for nonreporting states.

Course categories and definitions: See online report at http://www.ccsso.org/projects/Science_and_Mathematics_Education_Indicators/

Source: State Departments of Education, Data on Public Schools, 2003-04.

Council of Chief State School Officers, State Services and Technical Assistance, Washington, DC, 2005.

Table 1.2 Algebra 1 and Integrated Math 1 Enrollments as a Percentage of Grade 9 Students, 2004

State	Algebra 1 % of Grade 9*	Integrated Math 1 % of Grade 9
California	85	5
District of Columbia	71	—
DoDEA	78	—
Florida	29	29
Guam	56	—
Idaho	78	5
Indiana	84	3
Iowa	120	0
Michigan	52	1
Minnesota	40	40
Mississippi	69	—
Missouri	79	—
Nebraska	82	—
Nevada	93	3
New Mexico	72	2
North Carolina	80	—
North Dakota	89	—
Ohio	77	21
Pennsylvania	86	11
South Carolina	40	—
South Dakota	78	7
Tennessee	98	1
Texas	83	0.01
Utah	150	—
Virgin Islands	83	—
West Virginia	70	2
Wisconsin	91	22
Wyoming	72	11

*Percent of grade 9 can exceed 100% if students in all grades 9-12 are taking Algebra 1, or if a two-year Algebra 1 course sequence is used in high schools.

Course categories and definitions: See online report at http://www.ccsso.org/projects/Science_and_Mathematics_Education_Indicators/

Source: State Departments of Education, Data on Public Schools, 2003-04; NCES, CCD Fall Membership 2002. Council of Chief State School Officers, *State Services and Technical Assistance*, Washington, DC, 2005.

High School Science

- **One-fourth of Students Took Physics in High School.** In 2004, five states (of 30 reporting) had more than 30 percent of students take Physics by graduation, while thirteen states had less than 20 percent of students take Physics. Enrollment change varies by state—enrollments increased by one point nationally but declined in a majority of states reporting for 2004.
- **Chemistry Enrollments Increased.** In 2004, ten states had more than 60 percent of their students take Chemistry by graduation. Chemistry enrollments increased by five points from 1996 to 2004, and enrollments increased more than 10 percentage points in four states.
- **Significant Increase in High School Science Course Taking.** In 2004, 60 percent of students took Chemistry by high school graduation as compared to 55 percent in 1996 and only 45% in 1990, an increase of 15 percentage points.¹ National trends show less increase in Physics course, with one percentage point increase from 1996 to 2004, while in 1990 only 20 percent of students took Physics.

In Figure 1.2, states are ordered by the percentage of students taking Chemistry by graduation in 2004, and trends are tracked from 1996. CCSSO has consistently used the percent of students taking first-year chemistry as a trend indicator. In many states and districts, Chemistry is the second or third course taken for high school credit. The bar graph display allows each state to analyze the progress of its schools, and compare each state's improvement in course enrollments to rates for other states and to the Nation.

The trends for course taking in Chemistry show significant increases in Texas, Nebraska, Iowa, Utah, and Tennessee. Nationally, in 2004, 60 percent of students were taking Chemistry by graduation as compared to 45 percent in 1990.

Table 1.3 shows the percentage of high school students in each state that took a first-year course in Chemistry, Physics, Biology, and Earth Science by graduation. The table also shows the change in enrollments from 1996 to 2004. State data on science courses show that in most states almost all high school students take Biology by their high school graduation. Across the states, 28 percent of students take a high school Earth Science course.

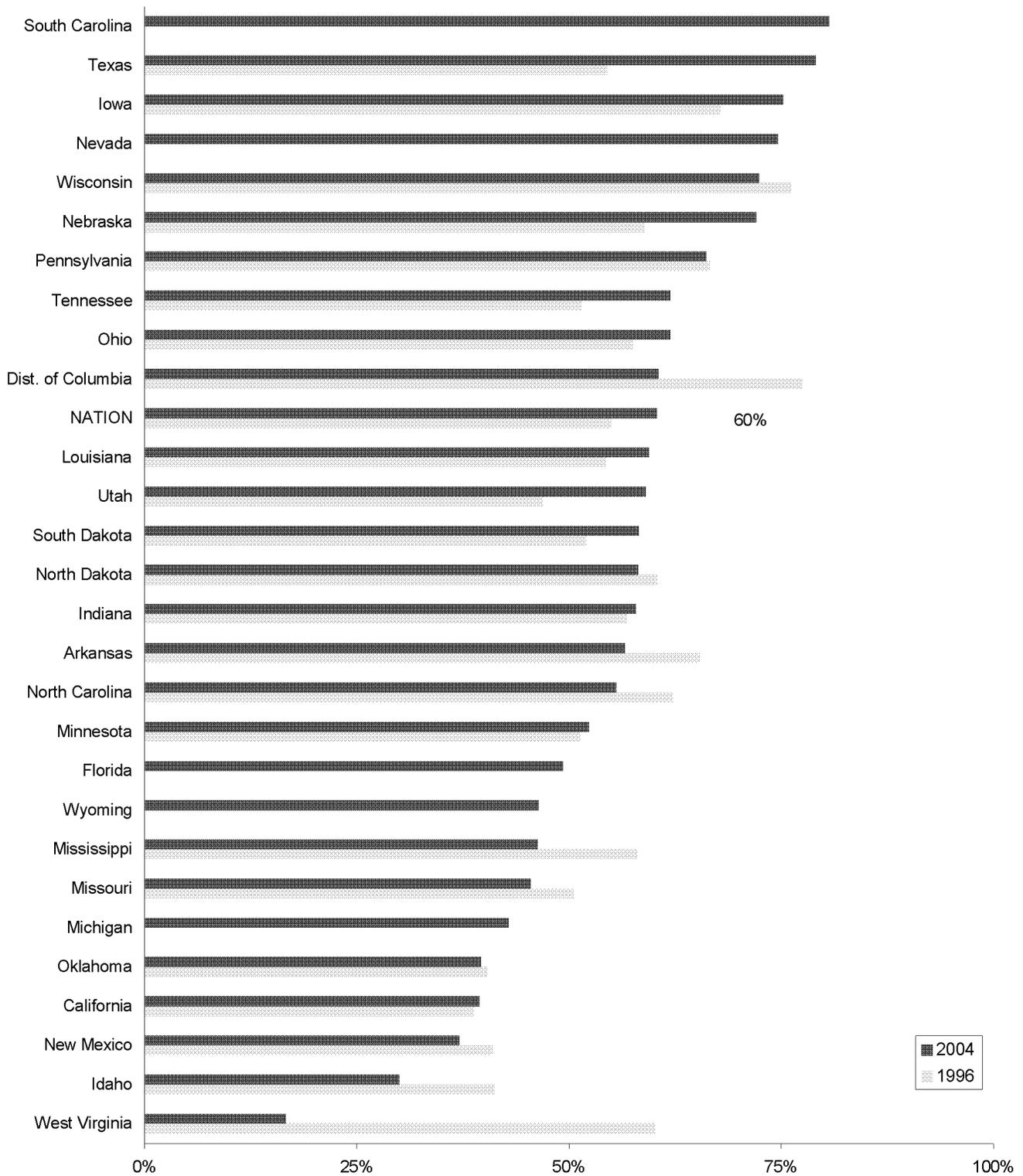
Additional Detailed Data on Course Taking on the Web, including Advanced Courses

http://www.ccsso.org/projects/Science_and_Mathematics_Education_Indicators/

On the CCSSO website we provide additional tables with more detailed data on science and mathematics course enrollments by state, including enrollments in “general” versus “applied” Biology, Chemistry, and Physics; data on all levels of high school mathematics courses; and enrollments by state in advanced/second-year courses and Advanced Placement (AP) courses. Also See Appendix on the web for a complete list of the course categories collected by state.

¹ National trends on course-taking based on states data can be compared with results from national sample surveys of high school transcripts, from studies conducted by NCES from 1982 to 2001, and statistics from the two sources are very similar (NCES, *High School Transcript Study Tabulations, 2001*).

Figure 1.2 Percent of High School Students Taking Chemistry Prior to Graduation, 1996 to 2004



See Table 1.3

Source: State Departments of Education, Data on Public Schools, 2003-04.

Council of Chief State School Officers, State Services and Technical Assistance, Washington, DC, 2005.

**Table 1.3 Students Taking High School Science Courses Prior to Graduation, 2004;
Change 1996 to 2004**

STATE	Chemistry 1st Year		Physics 1st Year		Biology 1st Year		Earth Science 1st Year
	% 2004	Change 1996 to '04	% 2004	Change 1996 to '04	% 2004	Change 1996 to '04	% 2004
South Carolina	81	—	24	—	92	—	4
Texas	79	+25	32	+14	95+	0	2
Iowa	75	+7	31	-1	95+	0	31
Nevada	75	—	18	—	95+	—	33
Wisconsin	72	-4	31	-5	95+	0	21
Nebraska	72	+13	32	+1	95+	0	34
Pennsylvania	66	0	37	-2	94	-1	55
Tennessee	62	+10	11	-2	95+	+3	5
Ohio	62	+4	25	+2	95+	0	31
Dist. of Columbia	61	-17	18	-9	93	-2	14
NATION	60	+5	25	+1	95+	0	28
Louisiana	59	+5	22	-4	95+	0	4
Utah	59	+12	28	-3	95+	0	95+
South Dakota	58	+6	23	-5	95+	+4	6
North Dakota	58	-2	22	-4	95+	0	1
Indiana	58	+1	22	-2	95+	0	42
Arkansas	57	-9	20	-22	95+	0	4
North Carolina	56	-7	13	-7	95+	0	90
Minnesota	52	+1	21	-5	95+	0	14
Florida	49	—	17	—	76	—	27
Wyoming	46	—	16	—	89	—	19
Mississippi	46	-12	12	-6	92	-3	2
Missouri	46	-5	14	-4	95+	0	11
Michigan	43	—	21	—	75	—	21
Oklahoma	40	-1	9	-2	93	-2	13
California	39	+1	18	+1	72	-6	13
New Mexico	37	-4	10	-2	78	-17	4
Idaho	30	-11	9	-6	76	-19	38
West Virginia	17	-43	11	-6	17	-38	3

— Data not available.

West Virginia: Percentages do not include Coordinated and Thematic Science (CATS 9 = 95+%, CATS 10 = 95+%, CATS 11 & 12 = 17% by graduation).

See note on course estimates by graduation, Table 1.1.

Course categories and definitions: See online report at http://www.ccsso.org/projects/Science_and_Mathematics_Education_Indicators/

Source: State Departments of Education, Data on Public Schools, 2003-04.

Council of Chief State School Officers, State Services and Technical Assistance, Washington, DC, 2005.

State Policies in Relation to Math and Science Enrollments

Since 1990 when the CCSSO science and math indicators reports were initiated, we have documented the role of increasing state-level requirements for graduation in relation to student course-taking.

As of 2004:

- **21 states require 3 three high school course credits of mathematics and 6 require four credits;**
- **20 states require 3 three credits of science and 3 require four credits.**

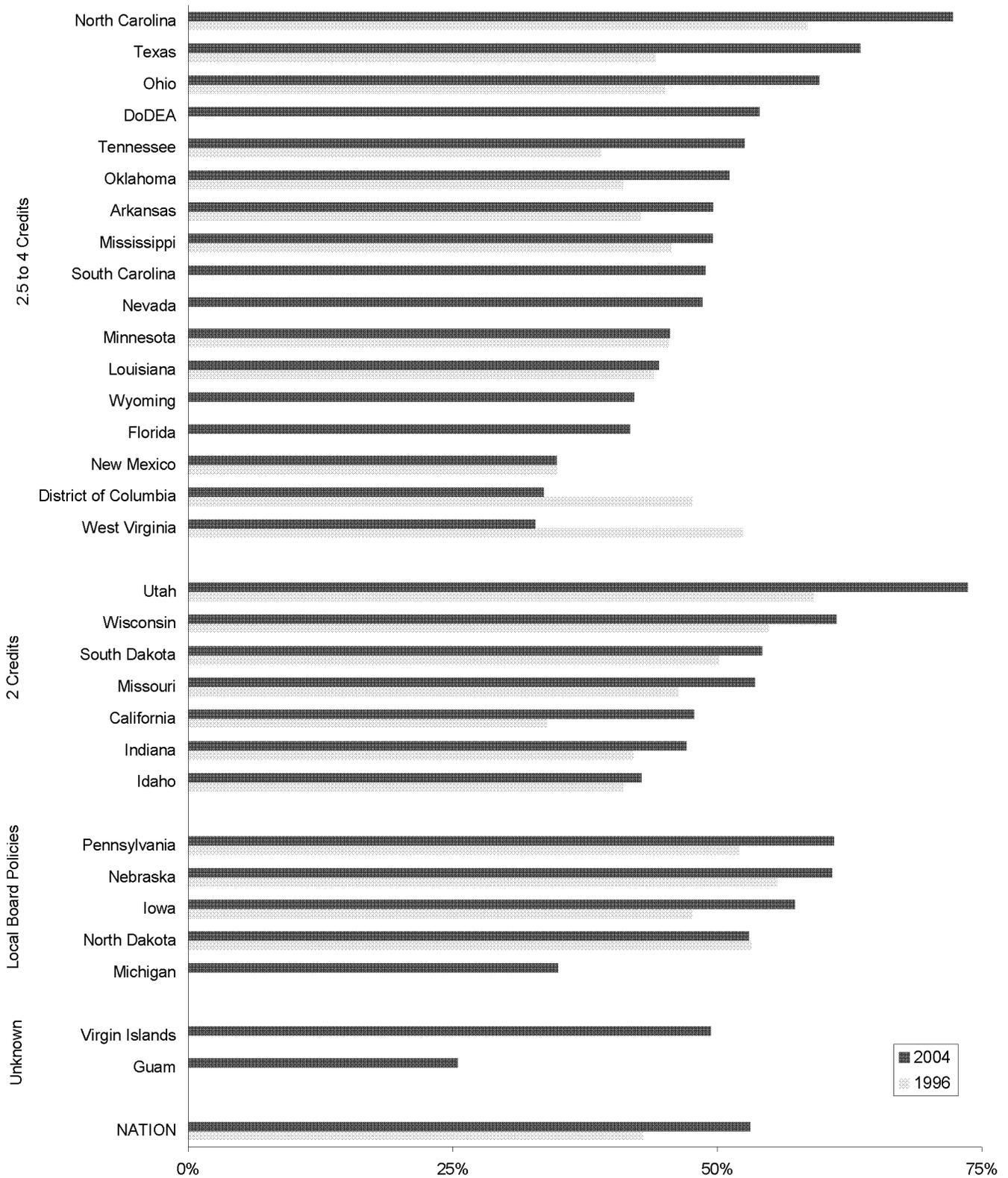
Policy Issues:

- * **Have enrollments in higher-level courses increased since many states raised graduation requirements?**
- * **Do states with policies setting higher course requirements for graduation have higher rates of course-taking in science and mathematics?**

In the 1990s and continuing since 2000, over 40 states raised the number of credits required for graduation in science and mathematics, and recently additional requirements have been added. In total 42 states now require at least two years of math and science (and a majority three or more), while in the mid-1980s, only nine states had even this requirement. As of 1992, only 13 states required 3 or more credits of math and six states required 3 or more credits in science.

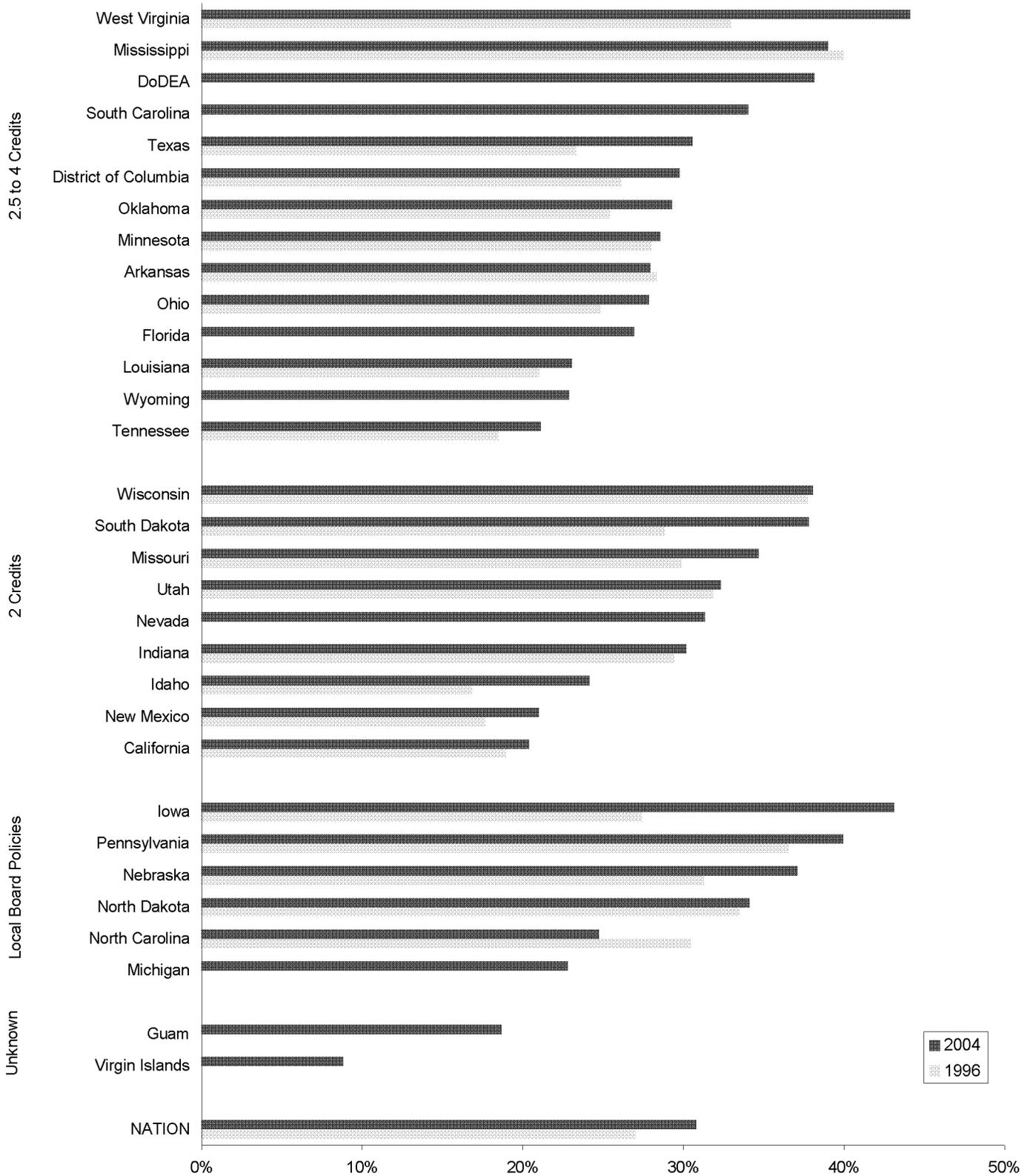
Current efforts toward improving science and math education at the secondary level are aimed toward increasing enrollments in challenging courses that are more likely to meet state and national content standards for student learning. One method of analyzing trends at the state level is to track enrollment levels in higher level challenging courses by state course credit requirements. This analysis allows us to analyze the question of whether higher requirements do in fact increase student enrollments in higher level, academically challenging courses. (see CCSSO, Key State Policies for PK-12 Education, 2004; <http://www.ccsso.org/KeyState2004.pdf>).

Figure 1.3 Higher-Level Mathematics Enrollments by Mathematics Credits Required for Graduation, 1996 to 2004



Higher-level math courses = Formal Math, Level 2, 3, 4, or 5 (e.g. Geometry, Algebra 2, Trigonometry, Calculus).
 Source: State Departments of Education, Data on Public Schools, 2003-04.
 Council of Chief State School Officers, State Services and Technical Assistance, Washington, DC, 2005.

Figure 1.4 Higher-Level Science Enrollments by Science Credits Required for Graduation, 1996 to 2004



Higher-level science courses = Chemistry, Physics, or Advanced Life or Physical Science.

Source: State Departments of Education, Data on Public Schools, 2003-04.

Council of Chief State School Officers, State Services and Technical Assistance, Washington, DC, 2005.

- **In higher-level Mathematics, almost all states had significant increases and 9 of the 30 reporting states increased their enrollments in higher-level courses by 10 or more percentage points from 1996 to 2004.**

Among the states with highest requirements (2.5 to 4 credits), five states were among those with the highest rate of increase in math higher-level course taking. Arkansas, Mississippi, North Carolina, Ohio, Oklahoma, Tennessee, and Texas had over 50 percent of grade 9-12 students taking a higher-level math course in 2003-04 (i.e., Geometry, Algebra 2, Trigonometry, or higher).

At the same time, several states with lower requirements also had over 50 percent taking higher-level courses, including Wisconsin, Missouri, Utah, South and North Dakota, Iowa, Nebraska, and Pennsylvania.

- **In Science, rates of increase in higher-level courses were smaller than in Mathematics, and only five states increased their rate more than seven percentage points from 1996 to 2004.**

The states with highest percentages of students taking higher level science courses (chemistry, physics, or advanced life, physical, or earth sciences) as of 2004 were: West Virginia, Missouri, Mississippi, Iowa, Wisconsin, South Dakota, Nebraska, and Pennsylvania.

- **Nationally**, 48 percent of high school students were taking a higher-level Math course during the 2003-04 school year, a substantial increase of 10 points from 1996. In science, 31 percent were taking a higher level course, an increase of 4 points since 1996.

The state course data provide a method of assessing change in course enrollments in relation to an individual state's requirements for graduation. Tables 1.4 and 1.5 show the percent of grade 9-12 students that were taking a higher-level course in math and in science in 2003-04 school year, and the increase or decrease from 1996 to 2004. These statistics confirm that many states and school districts have placed emphasis on students increasing study in math and science at more advanced levels. The far right column in each table shows the overall student enrollments in high school math and science during 2003-04. There is no clear pattern of increased course taking at the state level of analysis related to higher state graduation requirements, partly because the n is too small. This type of analysis could be carried out at the district level to study change related to state policy increases.

Table 1.4 Change in Higher-Level Mathematics Enrollments by State Graduation Requirements, 1996 to 2004

State (By Requirements)	PERCENT OF GRADES 9-12 STUDENTS		
	% Students Taking Math at Geometry Level or Higher		% Students Taking Math (any course)
	2004	Change 1996 to 2004	2004
<i>2.5 to 4 Credits (as of 2004)</i>			
Arkansas	50	+7	90
District of Columbia	34	-14	64
DoDEA	54	—	94
Florida	42	—	99
Louisiana	45	+1	87
Minnesota	46	0	75
Mississippi	50	+4	88
Nevada	49	—	99
New Mexico	35	0	81
North Carolina	72	+14	99
Ohio	60	+15	98
Oklahoma	51	+10	87
South Carolina	49	—	98
Tennessee	53	+14	85
Texas	64	+19	90
West Virginia	33	-20	71
Wyoming	42	—	76
<i>2 Credits (as of 2004)</i>			
California	48	+14	86
Idaho	43	+2	79
Indiana	47	+5	85
Missouri	54	+7	92
South Dakota	54	+4	87
Utah	74	+15	99
Wisconsin	61	+6	96
<i>Local Board Policies</i>			
Iowa	57	+10	99
Michigan	35	—	68
Nebraska	61	+5	99
North Dakota	53	0	92
Pennsylvania	61	+9	99
<i>Requirements Unknown</i>			
Guam	25	—	72
Virgin Islands	49	—	78
NATION	53	+10	—

Example: 50 percent of Arkansas students in grades 9-12 in 2003-04 school year were taking a high school math course in Geometry, Algebra 2, Trigonometry, Calculus, or other higher-level math course at level 2, 3, 4 or 5.

Minnesota, Texas: 1996 data=1994-95 data.

Source: State Departments of Education, Data on Public Schools, 2003-04; NCES, CCD Fall Membership 2002; Guam, Fall 2001.

Council of Chief State School Officers, *State Services and Technical Assistance*, Washington, DC, 2005.

Table 1.5 Change in Higher-Level Science Enrollments by State Graduation Requirements, 1996 to 2004

State (By Requirements)	PERCENT OF GRADES 9-12 STUDENTS		
	% Students Taking Chemistry, Physics, or Advanced Science		% Students Taking Science (any course)
	2004	Change 1996 to 2004	2004
<i>2.5 to 4 Credits (as of 2004)</i>			
Arkansas	28	0	86
District of Columbia	30	+4	71
DoDEA	38	—	85
Florida	27	—	76
Louisiana	23	+2	89
Minnesota	29	+1	74
Mississippi	39	-1	91
Ohio	28	+3	99
Oklahoma	29	+4	91
South Carolina	34	—	94
Tennessee	21	+3	78
Texas	31	+7	86
West Virginia	44	+11	99
Wyoming	23	—	79
<i>2 Credits (as of 2004)</i>			
California	20	+1	61
Idaho	24	+7	71
Indiana	30	+1	77
Missouri	35	+5	92
Nevada	31	—	95
New Mexico	21	+3	66
South Dakota	38	+9	95
Utah	32	0	99
Wisconsin	38	0	99
<i>Local Board Policies</i>			
Iowa	43	+16	99
Michigan	23	—	64
Nebraska	37	+6	99
North Carolina	25	-6	99
North Dakota	34	+1	88
Pennsylvania	40	+3	99
<i>Requirements Unknown</i>			
Guam	19	—	65
Virgin Islands	9	—	40
NATION	31	+4	—

Higher-level science courses = Chemistry, Physics, Advanced Life, Physical, or Earth Sciences.

National % for Chemistry Applied 1st Year, Earth Science Applied 1st Year, and Other Science not available.

Minnesota, Texas: 1996 data=1994-95 data; Virgin Islands: partial data.

Source: State Departments of Education, Data on Public Schools, 2003-04; NCES, CCD Fall Membership 2002; Guam, Fall 2001.

Council of Chief State School Officers, *State Services and Technical Assistance*, Washington, DC, 2005.

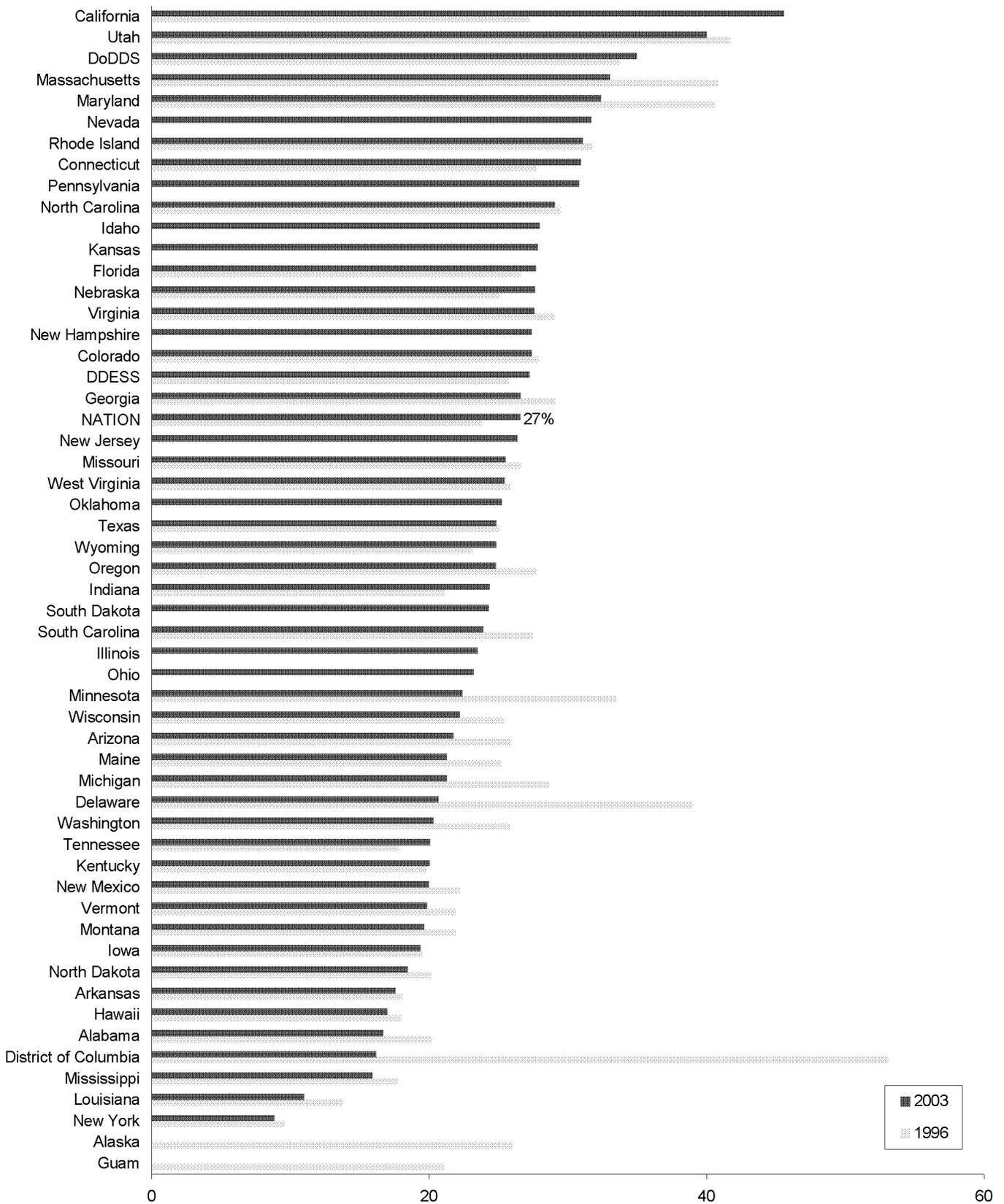
Challenging Mathematics in Middle Grades: Algebra 1 Enrollment as Key Indicator

- In 2003, 27 percent of grade 8 students took Algebra 1 for high school credit, which represents an increase of 3 percentage points from the rate in 1996.
- In 9 states over 30 percent of students reported taking Algebra 1 in grade 8 as of 2003; and a majority of states had over 25 percent taking Algebra.

CCSSO obtained data on course taking for grade 8 students from the NAEP mathematics assessment for 2003 and 1996. NAEP assessments and surveys were administered to representative samples of students every four years (in 2003 NAEP math assessments became biennial) (National Center for Education Statistics, *NAEP Report Card*). The percentage of eighth grade students taking Algebra 1 is a key indicator for several reasons. Many states and districts are moving toward a grade 8 curriculum with greater emphasis on algebra for all students, based on state and national professional standards (NCTM, 2000). Additionally, higher level high school science and math courses often require algebra completion as a prerequisite. Algebra 1 enrollments in grade 8 indicate the proportion of students that enter high school more prepared to take higher level courses.

The percent of grade 8 students taking Algebra 1 in 2003 varied from 40 percent in California and Utah to 10 percent in New York and Louisiana. (The percentages have a standard errors from 3 to 5 percent per state per year, based on school level sampling.) The focus on Algebra 1 percentages does not account for students that are enrolled in other courses such as Integrated or Unified Math, which include significant course content in algebra and are typically offered in high schools in New York state. Thus, this indicator is more accurate for tracking student enrollments in some states than in others.

Figure 1.5 Percentage of Students Who Reported Taking Algebra 1 in Grade 8, 1996 to 2003 NAEP



Source: NAEP Mathematics Report Card, National Center for Educational Statistics (see for standard errors). Council of Chief State School Officers, State Services and Technical Assistance, Washington, DC, 2005.

Table 1.6 Percentage of Students Who Reported Taking Algebra 1 in Grade 8 by Race/Ethnicity, 1996 to 2003 NAEP

State	White		Black		Hispanic		Asian/ Pacific Islander		American Indian	
	2003	Change '96-'03	2003	Change '96-'03	2003	Change '96-'03	2003	Change '96-'03	2003	Change '96-'03
Alabama	17	-5	16	-1	#	—	*	—	*	—
Alaska	#	—	#	—	#	—	#	—	#	—
Arizona	28	0	18	+1	15	-6	*	—	17	-1
Arkansas	19	+2	13	-7	13	—	*	—	*	—
California	51	+20	39	+20	40	+20	50	+10	*	—
Colorado	30	+1	27	-5	17	-2	36	—	*	—
Connecticut	35	+5	24	+4	14	+1	39	0	*	—
Delaware	26	-16	12	-16	12	—	*	—	*	—
District of Columbia	*	—	14	-39	15	-26	*	—	*	—
DoDEA/DDESS	32	+1	16	-2	27	+1	*	—	*	—
DoDEA/DoDDS	39	0	28	+12	34	+6	33	-8	*	—
Florida	34	+2	20	+4	17	-4	54	—	*	—
Georgia	32	+1	19	-5	23	—	31	—	*	—
Guam	—	—	—	—	—	—	—	—	—	—
Hawaii	23	+2	*	—	14	0	16	-3	*	—
Idaho	30	—	*	—	14	—	*	—	*	—
Illinois	27	—	19	—	12	—	38	—	*	—
Indiana	26	+4	17	+5	10	—	*	—	#	—
Iowa	21	+1	6	—	8	—	*	—	*	—
Kansas	30	—	15	—	21	—	26	—	*	—
Kentucky	21	+2	12	-9	*	—	*	—	*	—
Louisiana	12	-3	9	-3	*	—	*	—	*	—
Maine	21	-4	*	—	*	—	*	—	#	—
Maryland	38	-4	20	-16	24	—	49	-14	*	—
Massachusetts	36	-7	22	-10	14	-8	51	-2	#	—
Michigan	25	-6	11	-9	14	—	*	—	*	—
Minnesota	24	-10	16	-10	9	—	22	-14	*	—
Mississippi	20	0	11	-4	*	—	*	—	#	—
Missouri	27	+2	16	-23	*	—	*	—	*	—
Montana	20	-2	*	—	*	—	*	—	19	-1
Nebraska	29	+3	22	+7	16	+7	*	—	*	—
Nevada	34	—	29	—	24	—	45	—	*	—
New Hampshire	28	—	*	—	*	—	*	—	#	—
New Jersey	32	—	13	—	14	—	34	—	*	—
New Mexico	29	+1	11	—	17	-2	*	—	7	-8
New York	11	+2	5	-9	6	-1	6	-1	*	—
North Carolina	34	0	22	+2	16	—	38	—	5	—
North Dakota	19	-2	*	—	*	—	*	—	13	+6
Ohio	25	—	17	—	10	—	*	—	*	—
Oklahoma	27	—	20	—	22	—	*	—	22	—
Oregon	26	-2	22	—	14	-2	31	-12	*	—
Pennsylvania	34	—	17	—	21	—	*	—	#	—
Rhode Island	33	0	28	+5	21	-1	42	-8	*	—
South Carolina	31	-2	14	-6	*	—	*	—	*	—
South Dakota	25	—	*	—	*	—	*	—	15	—
Tennessee	23	+5	11	-5	*	—	*	—	*	—
Texas	30	-1	14	-4	20	+2	61	+28	*	—
Utah	42	-1	*	—	22	-7	44	—	*	—
Vermont	20	-2	*	—	*	—	*	—	*	—
Virginia	32	-2	18	+3	18	—	41	+2	*	—
Washington	21	-6	11	-1	15	+4	25	-8	10	-3
West Virginia	26	0	14	0	*	—	*	—	#	—
Wisconsin	24	-1	10	-15	17	—	13	—	*	—
Wyoming	26	+2	*	—	15	+2	*	—	8	0
NATION	29	+3	17	-2	24	+5	39	—	17	—

Percentage rounds to zero; * Sample size is insufficient to permit a reliable estimate; — not available.

Caution: Standard error per group varies from 2 to 5%.

Source: NCES, National Assessment of Educational Progress (NAEP) 1996, 2003 Mathematics Assessments.

Council of Chief State School Officers, State Services and Technical Assistance, Washington, DC, 2005.

Middle Grades Science Courses

The **Science** courses and curriculum taught in grades 7-8 vary widely across the states, as shown in Table 1.7. The percentages by course indicate that states have taken different approaches to structuring the middle grades science curriculum. The national averages show that 47 percent of grades 7 and 8 students took a General Science course, which represents an increase since 1996. Life Science was the course taken by 14 percent of students, which indicates a decline over eight years. Earth Science courses in the middle grades included an average of 13 percent of students, and Physical Science included 10 percent. Integrated or Coordinated Science has the highest percentage of grade 7-8 science enrollments in six states.

Table 1.7 Middle Grades Science Enrollments by Course Type, Grades 7-8

PERCENT OF GRADES 7-8 STUDENTS

State	General Science		Life Science		Earth Science		Physical Science		Integrated or Coordinated Science	
	%	Change	%	Change	%	Change	%	Change	%	Change
	2004	1996 to '04	2004	1996 to '04	2004	1996 to '04	2004	1996 to '04	2004	1996 to '04
California	51	-4	8	+2	1	-0.4	7	+1	—	—
District of Columbi	5	—	38	-3	1	—	36	-1	—	—
DoDEA	—	—	1	—	—	—	—	—	89	—
Florida	77	—	6	—	1	—	5	—	0.1	—
Guam	—	—	—	—	—	—	—	—	78	—
Idaho	36	+32	—	—	27	+11	6	-17	—	—
Indiana	97	+1	0.1	-0.3	0.04	-1	0.03	-0.2	1	+1
Louisiana	17	+7	22	-1	16	-5	—	—	13	—
Michigan	33	—	8	—	6	—	9	—	17	—
Minnesota	—	—	45	+20	29	+8	7	-2	4	—
Mississippi	—	—	—	—	—	—	—	—	98	+72
Missouri	50	+11	24	-7	17	-7	3	-0.2	—	—
Nebraska	71	+59	10	-3	11	+3	4	-7	—	—
Nevada	15	—	11	—	66	—	42	—	0.3	—
New Mexico	5	-16	17	-14	33	+9	16	0	23	—
North Carolina	—	—	0.04	+0.04	1	+1	0.3	-0.2	3	-45
North Dakota	—	—	48	-1	49	-0.5	—	—	—	—
Ohio	94	+46	2	-8	1	-11	2	-7	2	—
Oklahoma	11	+4	—	—	10	-8	3	0	66	+1
Pennsylvania	36	+6	23	+2	29	+7	21	-6	8	—
South Carolina	—	—	—	—	—	—	—	—	87	—
South Dakota	48	-41	12	—	12	—	6	—	26	—
Tennessee	97	-7	—	—	—	—	—	—	—	—
Texas	—	—	—	—	—	—	—	—	100	—
Utah	—	—	—	—	—	—	—	—	63	+40
Virgin Islands	50	—	—	—	—	—	—	—	—	—
West Virginia	—	—	0.04	-1	0.2	-1	0	-0.01	100	+5
Wisconsin	46	+7	19	-4	17	-1	7	-3	3	—
Wyoming	22	—	25	—	29	—	6	—	10	—
NATION	47	+9	14	-6	13	-2	10	0	30	—

— Data not available. Percentages may sum over 100%, indicating enrollments reported for more than one subject, e.g. semester courses. In some states data from self-contained classrooms are not included in the totals. Denominator is total student membership in grades 7 and 8. Virgin Islands: partial data.

Too few states reporting to impute national percent.

* Interpret national average with caution given small number of states.

Source: State Departments of Education, Data on Public Schools, 2003-04; NCES, CCD Fall Membership 2002; Guam, Fall 2001.

Council of Chief State School Officers, *State Services and Technical Assistance*, Washington, DC, 2005.

Course Enrollments by Race/Ethnicity

Reforms in science and math education aim to increase opportunities among female and male students, and among minority and white students. States are trying to improve the knowledge and skills of all students in mathematics and science, and to raise student confidence by helping them reach challenging levels of course work. The goal of efforts toward equity is to prepare students for further study or to apply knowledge in careers. Evidence of progress by minority students in math and science courses is important because we know that course achievement is a strong predictor of student learning in mathematics and science.

Policy Issues:

- Are minority students increasing their participation in higher-level science and mathematics?
- Is the gender gap closing in higher-level science and mathematics?

Higher-Level Mathematics and Science for Minority Students

- **For 2003-04, 15 states reported course enrollments by student race/ethnic group.** All of these states reported growth in higher-level math and science enrollments for all race/ethnic groups. However, African American and Hispanic student enrollments continue to lag behind enrollments for whites and Asians in most states.
- **The states of North Carolina, Texas, and Utah show the greatest gains for African American students in higher-level math and science enrollments.** Gains for Hispanic students were highest in Texas and Utah.

Several states showed significant increases in minority Chemistry enrollments, as shown in Table 1-8: Texas and Utah. For Algebra 2, several states made significant gains in minority enrollments in Table 1-8: Texas and Utah.

The percentages shown in these tables are weighted according to the overall demographics of the student population. The rates of course taking are adjusted according to the proportion of students in each race/ethnic group in the state K-12 membership. (Total student enrollments by group are shown in the online appendix to this report).

Change percentages should be viewed cautiously for states with small minority group enrollment.

Higher Level Enrollments by Student Gender. See the data on course enrollments by student gender by state in the electronic Appendix on the CCSSO website.

Table 1.8 Race/Ethnicity Differences in Students Taking Chemistry and Algebra 2/Integrated Math 3 by Graduation, 1996 to 2004

PERCENT OF HIGH SCHOOL STUDENTS TAKING CHEMISTRY BY GRADUATION

State	White		African-American		Hispanic		Asian		Am. Indian	
	% 2004	Change 1996 to '04	% 2004	Change 1996 to '04	% 2004	Change 1996 to '04	% 2004	Change 1996 to '04	% 2004	Change 1996 to '04
Arkansas	61	-9	48	-1	33	-32	87	+22	47	-2
District of Columbia	72	-6	60	-16	54	-24	99	0	0	0
Florida	53	—	39	—	47	—	84	—	45	—
Idaho	32	-11	19	-22	15	-3	37	-4	6	-15
Michigan	45	—	39	—	24	—	64	—	19	—
Mississippi	52	—	41	—	27	—	73	—	31	—
Nevada	83	—	76	—	44	—	99	—	44	—
New Mexico	52	—	30	—	29	—	83	—	27	—
North Carolina	61	-7	49	+3	27	-35	96	-3	43	-19
Ohio	66	+6	42	-4	39	-19	93	-6	46	-12
South Carolina	94	—	63	—	49	—	99	—	61	—
South Dakota	64	—	35	—	32	—	55	—	17	—
Texas	91	+26	73	+27	68	+29	99	0	71	+16
Utah	60	+11	59	+50	48	+29	84	+37	60	+36
Wyoming	50	—	22	—	23	—	60	—	23	—

PERCENT OF HIGH SCHOOL STUDENTS TAKING ALGEBRA 2/INTEGRATED MATH 3 BY GRADUATION

State	White		African-American		Hispanic		Asian		Am. Indian	
	% 2004	Change 1996 to '04	% 2004	Change 1996 to '04	% 2004	Change 1996 to '04	% 2004	Change 1996 to '04	% 2004	Change 1996 to '04
Arkansas	77	+6	62	+6	41	-26	99	+32	72	+22
District of Columbia	76	-23	50	-17	49	-8	99	0	50	+50
Florida	71	—	51	—	62	—	99	—	66	—
Idaho	62	-1	40	-59	29	-6	88	+27	42	+11
Michigan	53	—	24	—	32	—	66	—	24	—
Mississippi	87	—	67	—	46	—	99	—	49	—
Nevada	58	—	53	—	34	—	79	—	26	—
New Mexico	72	—	42	—	45	—	93	—	40	—
North Carolina	84	+8	81	+27	46	-24	99	0	63	-7
Ohio	67	—	42	—	39	—	87	—	42	—
South Carolina	85	—	57	—	42	—	99	—	64	—
South Dakota	80	—	50	—	44	—	77	—	28	—
Texas	99	+17	78	+6	77	+24	99	0	84	+12
Utah	99	+18	74	+58	57	+26	99	+60	78	+39
West Virginia	47	—	35	—	67	—	99	—	39	—
Wyoming	61	—	33	—	35	—	55	—	31	—

Note: Each state percent by race/ethnicity is a statistical estimate of course taking of students in the group by the time they graduate based on data from 2003-04 school year. — Data not available.

Example: 77% of Arkansas white students took Algebra 2/Integrated Math 3 (i.e., three years of high school math) prior to graduation, based on data from 2003-04 school year. This represents an increase of 6 percentage points since the 1995-96 school year.

Source: State Departments of Education, Data on Public Schools, 2003-04 school year; NCES, CCD, Fall 2002.

II. Indicators of Teacher Supply and Quality

The CCSSO Science and Math Education indicators system provides state-level comparative measures and trends over time on the supply of mathematics and science teachers in public schools. The indicators address trends by state in the quality of preparation of teachers in each state.

Key Question: What are trends in supply and demand for teachers and the quality of teachers of science and mathematics in U.S. schools?

Indicators of teacher supply and quality of teacher preparation are critical information at state, national, and local levels. Currently teacher quality indicators are needed to help us address at least three major issues for improving the science and math teaching force in U.S. schools: (a) Standards for learning require improved teaching in science and math, (b) Skills demanded by 21st century jobs, and (c) Increased student enrollments.

National professional standards in mathematics and science, as well as state teacher standards and state standards for student learning, point to the need for improving preparation of teachers in order to produce high quality teaching. Standards call for change in teaching to emphasize active learning by students, deep understanding of concepts, and developing skills in problem-solving and reasoning (NCTM, 2000; AAAS, 1993; NRC, 1995; CCSSO, Key State Policies for PK-12 Education, 2004, www.ccsso.org/projects). These same kinds of problem-solving, reasoning, and analytical skills are called for in new jobs being created and expanded in the technology-driven U.S. labor market of the 21st century (Partnership for 21st Century Skills, 2004).

One implication of challenging standards of learning in science and math for all students is a need for more teachers with in-depth knowledge and understanding of their assigned field and skills in effective instructional methods for mathematics and science. At the same time, the demand for well-qualified teachers increases and more students enroll in science and math courses, and large groups of veteran science and math teachers prepare to retire (National Commission on Teaching and America's Future, 2002; U.S. Department of Education, Secretary's report, 2003; Science Indicators, National Science Foundation, 2004). Course enrollment trends show that secondary schools' course enrollments in science and math have increased significantly over the past decade, and currently more than 60 percent of students are taking upper-level courses in math and science in high school by graduation.

Research confirms that investments in teacher preparation pay off. Recent studies consistently show a strong positive relationship between amount of teacher course preparation in math and science and the level of student achievement in these subjects (Kilpatrick, et al., NRC/MSEB, 2001; Darling-Hammond, 2000; Ferguson, et al., 1993; Fetler, 1999; Monk, 1994).

Issues of teacher quality are critical for every state, including the quality of teacher preparation and adequate supply of teachers being hired in school systems to meet increasing needs. Current federal policy under NCLB requires states to ensure that all teachers in core subjects are highly qualified and to annually report on the percent of classes taught by teachers that are highly qualified (vs. percent of classes with non-highly qualified teachers).¹

For this report, CCSSO state-level indicators focus on: (a) trends in the numbers of teachers by math and science assignment, and (b) trends in the percent of assigned teachers that are fully certified by the state.

Trends in High School Mathematics and Science Teachers

- **Trend data from states show significant increases in number of high school Math teachers in the past decade and smaller increases in number of high school Science teachers (1996 to 2004).** The number of teachers with their main assignment in math in grades 9-12 increased significantly from 1996 to 2004 in a majority of states. For the nation in 2004, 117,000 teachers had Math as main assignment, as compared to 61,000 in 1990 and 93,000 in 1996. In Science, 97,000 teachers had their main assignment in one of the science subjects in 2004, as compared to 51,000 in 1990 and 84,000 in 1996.
- **Increases/Decreases by State.** In high school Mathematics, 18 of 25 states with trend data from 1996 to 2004 showed increases in teachers with the main assignment in math. In Science, 15 of 25 states had increased numbers of teachers with main assignment in science. Other states trends either were constant or showed slight declines in teacher numbers.

Figure 2.1 shows the change in the numbers of high school (9-12) Math teachers by state with their *main assignment* (i.e., *primary assignment—more than 50 percent of time*) in mathematics. Table 2.1 reports total data by state for main assignment and Table 2.2 reports totals for all teachers by state.

There are notable changes in the size of the Math teaching force with *main assignment* in math from 1996 to 2004 in several states. The states of California, Texas, Ohio, Illinois, and North Carolina had major increases in their high school math teaching force over the eight years—Texas gained over 3,000 teachers and California gained over 4,000 teachers. States such as Indiana, Wisconsin, Colorado, Mississippi, and West Virginia also had significant increases in high school math teachers over the period. A few states, such as Louisiana, Nebraska, and Utah had slight declines in high school teachers with main assignment in math. However, numbers of teachers with secondary assignment may have increased (see Table 2.2 showing all teachers with math assignments).

¹ By 2005-06 school year, states must guarantee that all teachers of core subjects (e.g., math, science, language arts, social studies, foreign language, special education, etc.) meet the highly qualified definition, including:

·Have completed a bachelor's degree;

·Hold full state certification;

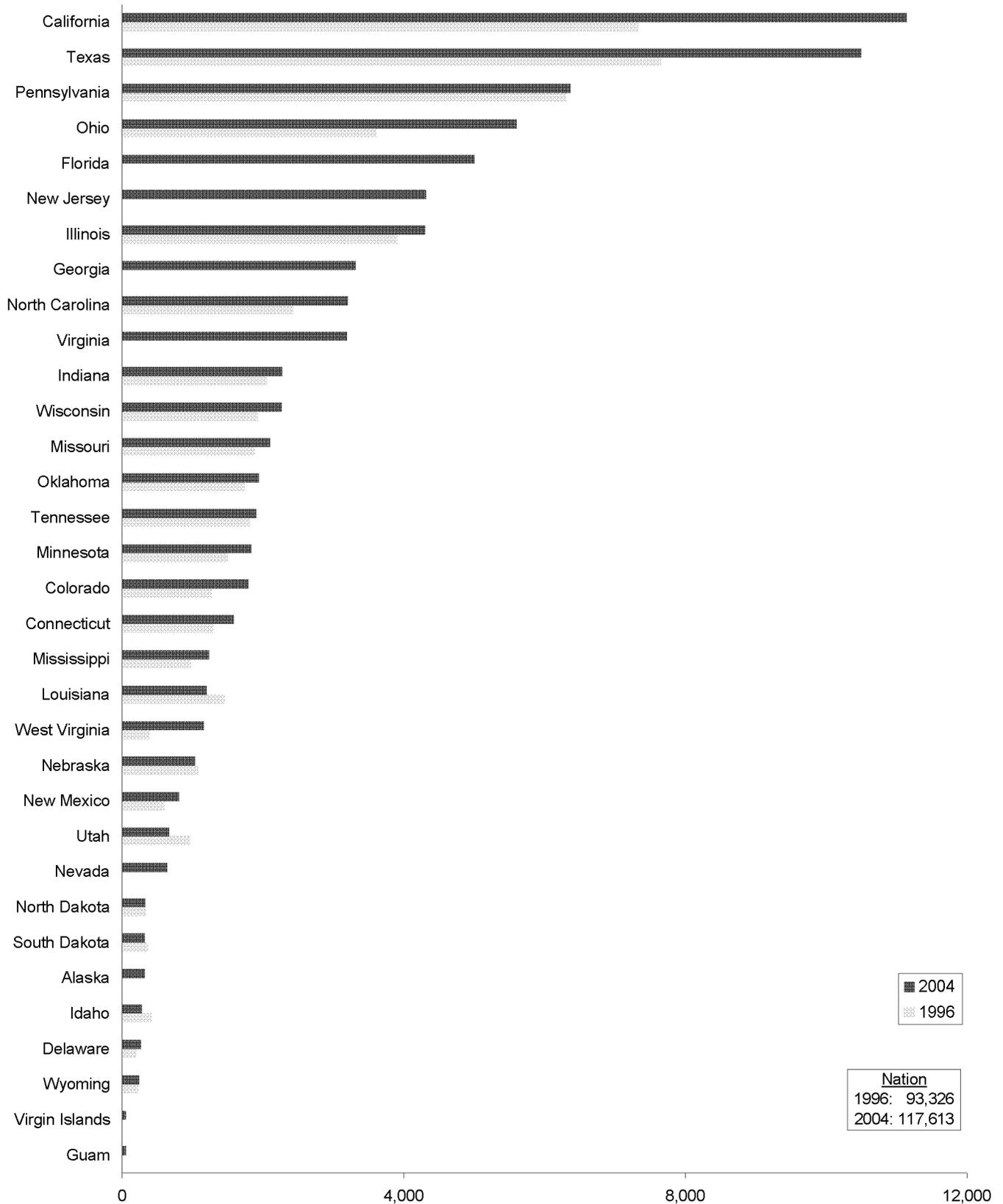
·Pass rigorous subject content and pedagogy tests to demonstrate competence in assigned subject;

·Middle and high school teachers may demonstrate competence in their assigned subject(s) by holding a degree major in the assigned subject.

For current teachers only, state may propose another method of evaluating and reporting on competence of teachers in their assigned subject(s).

(NCLB, Section 1111(h); CCSSO, 2002, pp.44-45).

Figure 2.1 Teachers with Main Assignment in Mathematics, Grades 9-12, 1996 to 2004

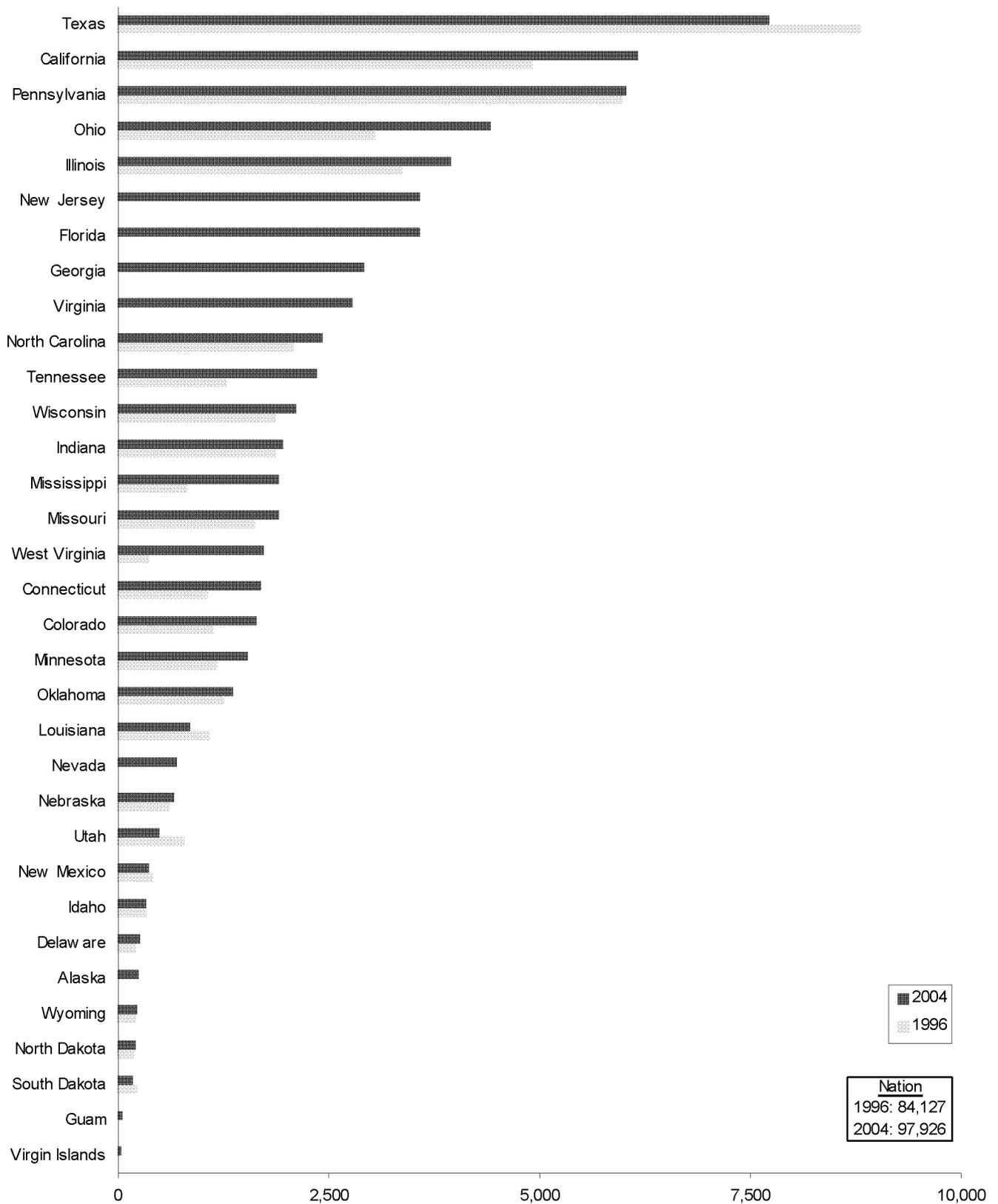


Main Assignment = 50% or more time assigned to subject.

Source: State Departments of Education, Data on Public Schools, 2003-04.

Council of Chief State School Officers, State Services and Technical Assistance, Washington, DC, 2005.

Figure 2.2 Teachers with Main Assignment in Science, Grades 9-12, 1996 to 2004



Main Assignment = 50% or more time assigned to subject.

Source: State Departments of Education, Data on Public Schools, 2003-04.

Council of Chief State School Officers, State Services and Technical Assistance, Washington, DC, 2005.

Figure 2.2 shows the change in the numbers of high school (9-12) Science teachers by state with their *main assignment* (i.e., *primary assignment—more than 50 percent of time*) in science.

In Science, the large states—California, Ohio, Illinois, and North Carolina—increased the numbers of Science teachers from 1996 to 2004, while Texas science teachers declined during the period. Other states with significant increases in Science teachers were: Tennessee, Mississippi, Connecticut, Colorado, and Minnesota.

What accounts for increases across states? Total student enrollments at the secondary level went up during this period, but it is notable that several states had increases in math and science teachers that are greater than expected based only on numbers of students—such as Ohio, Indiana, Mississippi, and West Virginia. Certainly, other factors are increases in state requirements, increased course offerings in schools, and greater local attention to math and science.

Detailed Trend Data on Teachers by State

Further detailed data on High School and Middle grades Math and Science teachers by specific assignment (main vs. secondary assignment), by specific field of science, and trends analysis from 1996 to 2004 are available in the Appendix to this report on the CCSSO website http://www.ccsso.org/projects/Science_and_Mathematics_Education_Indicators/.

Middle Grades Mathematics and Science Teachers

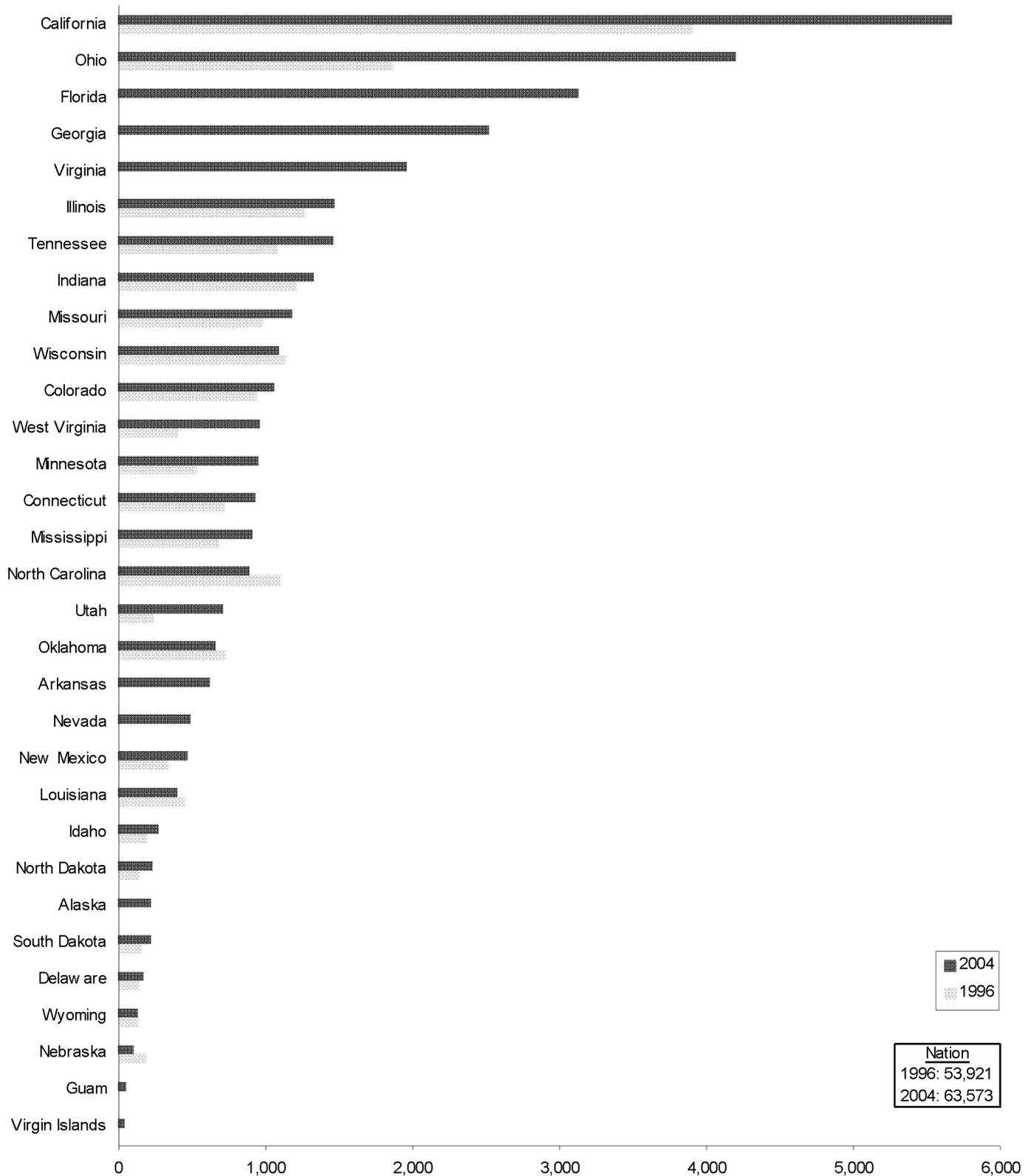
- **Number of Teachers in Grades 7-8 increased in most states in Math and Science.** The number of teachers with their main assignment in Math grades 7-8 increased significantly from 1996 to 2004, as well as in Science, as shown in Figures 2.3. and 2.4. Nationally, the number of 7-8 teachers with main assignment in Math increased from 54,000 in 1996 to over 63,000 in 2004. In Science, the total number of middle grades teachers increased from 46,000 to 54,000 over the 8-year period.

Several states had major increases in the number of Math middle grades teachers including: Ohio, California, Florida, Tennessee, West Virginia, Minnesota, Utah, and Mississippi.

In Science, states with significant increases in teachers with main assignment in science were: California, Florida, Missouri, Tennessee, Connecticut, Minnesota, and Utah.

Further details on middle grade teachers by state are displayed in Tables 2.3 and 2.4.

Figure 2.3 Teachers with Main Assignment in Mathematics, Grades 7-8, 1996 to 2004

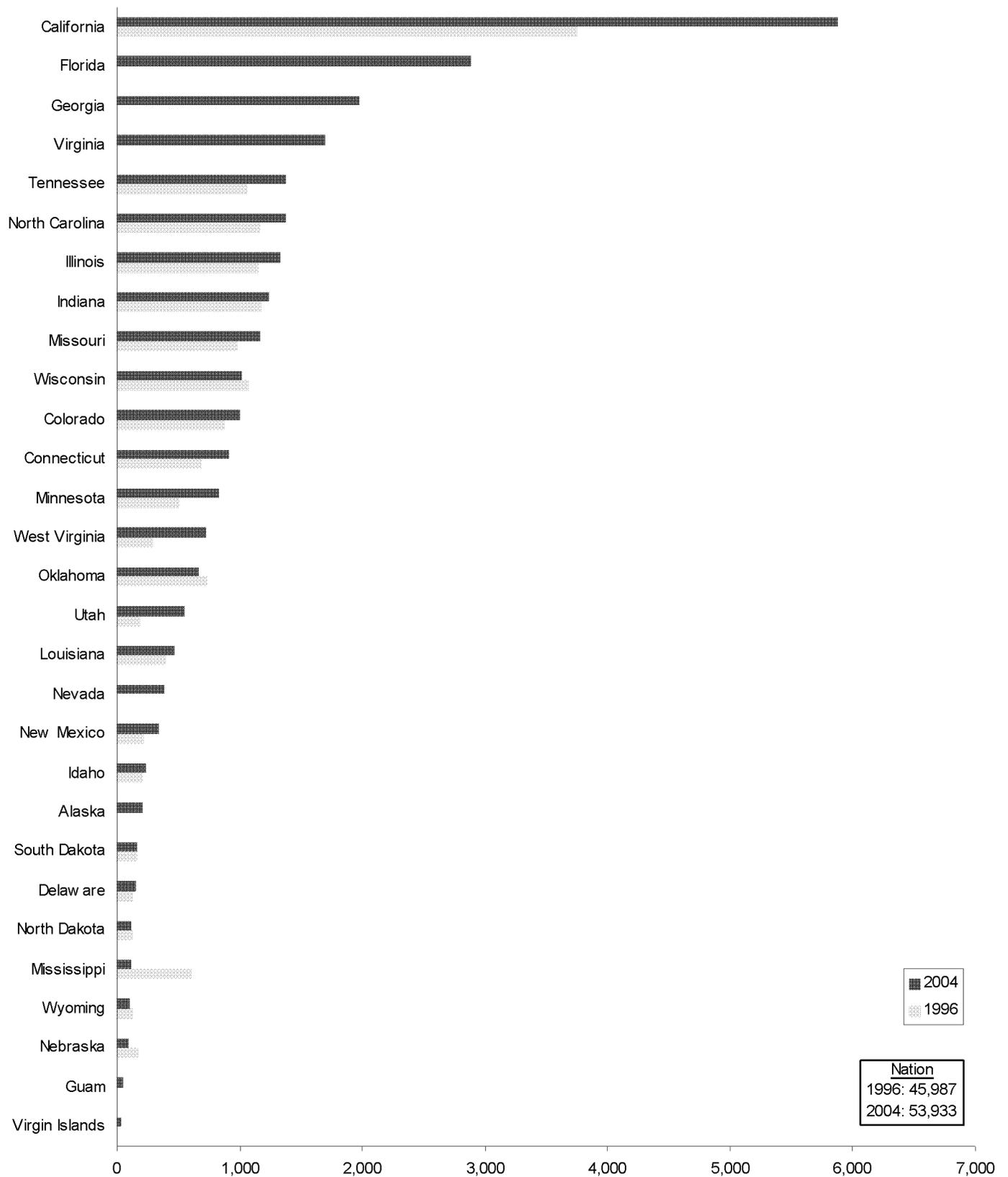


Main Assignment = 50% or more time assigned to subject.

Source: State Departments of Education, Data on Public Schools, 2003-04.

Council of Chief State School Officers, State Services and Technical Assistance, Washington, DC, 2005.

Figure 2.4 Teachers with Main Assignment in Science, Grades 7-8, 1996 to 2004



Main Assignment = 50% or more time assigned to subject.

Source: State Departments of Education, Data on Public Schools, 2003-04.

Council of Chief State School Officers, State Services and Technical Assistance, Washington, DC, 2005.

Table 2.1 High School Teachers with Main Assignment in Mathematics or Science, 1996 and 2004

State	MAIN ASSIGNMENT TEACHERS			
	Number 9-12 Math		Number 9-12 Science	
	2004	1996	2004	1996
Alabama	—	1,453	—	1,200
Alaska	319	—	253	—
Arizona	—	—	—	—
Arkansas	—	719	—	645
California	11,144	7,324	6,163	4,908
Colorado	1,791	1,271	1,637	1,138
Connecticut	1,588	1,300	1,702	1,070
Delaware	270	206	255	213
District of Columbia	—	306	—	222
DoDEA	—	—	—	—
Florida	5,006	—	3,576	—
Georgia	3,315	—	2,913	—
Guam	53	—	44	—
Hawaii	—	586	—	315
Idaho	283	418	335	327
Illinois	4,302	3,908	3,959	3,381
Indiana	2,271	2,061	1,966	1,866
Iowa	—	—	—	—
Kansas	—	—	—	—
Kentucky	—	1,461	—	1,196
Louisiana	1,199	1,456	859	1,085
Maine	—	—	—	—
Maryland	—	—	—	—
Massachusetts	—	2,318	—	2,217
Michigan	—	—	—	—
Minnesota	1,835	1,491	1,534	1,170
Mississippi	1,230	972	1,909	816
Missouri	2,101	1,884	1,899	1,618
Montana	—	390	—	210
Nebraska	1,031	1,085	665	615
Nevada	639	—	699	—
New Hampshire	—	—	—	—
New Jersey	4,318	—	3,591	—
New Mexico	803	597	374	425
New York	—	6,054	—	9,553
North Carolina	3,204	2,421	2,432	2,077
North Dakota	327	331	205	186
Ohio	5,602	3,611	4,423	3,035
Oklahoma	1,940	1,735	1,370	1,257
Oregon	—	980	—	905
Pennsylvania	6,369	6,301	6,036	5,980
Puerto Rico	—	1,727	—	1,164
Rhode Island	—	694	—	421
South Carolina	—	—	—	—
South Dakota	320	360	177	225
Tennessee	1,907	1,820	2,365	1,292
Texas	10,496	7,654	7,720	8,806
Utah	669	962	488	791
Vermont	—	—	—	—
Virgin Islands	55	—	39	—
Virginia	3,191	—	2,774	—
Washington	—	—	—	—
West Virginia	1,161	389	1,728	367
Wisconsin	2,262	1,923	2,124	1,877
Wyoming	241	231	222	207
NATION	117,613	93,326	97,926	84,127

—Data not available. Main Assignment = 50% or more time assigned to subject.

Science = sum biology, chemistry, physics, earth science, general science, physical science, integrated science.

Texas: methodology change; Virgin Islands: partial data (science).

1996 data: District of Columbia (1993-94 data), Minnesota (1994-95 data), Pennsylvania: grades 7-12.

National totals include imputation for nonreporting states (except for Integrated Science).

Source: State Departments of Education, Data on Public Schools, 2003-04.

Council of Chief State School Officers, State Services and Technical Assistance, Washington, DC, 2005.

Table 2.2 Number of Mathematics and Science Teachers, Grades 9-12, 2004

State	Math	Biology	Chemistry	Physics	Earth Science	General Science	Physical Science	Integrated Science	Other Science
Alabama	—	—	—	—	—	—	—	—	—
Alaska	555	186	76	45	75	186	92	—	25
Arizona	—	—	—	—	—	—	—	—	—
Arkansas	1,485	640	414	91	—	—	—	—	—
California	13,212	4,729	2,255	1,325	1,055	470	1,458	1,450	1,077
Colorado	1,902	—	—	—	—	1,724	—	—	—
Connecticut	1,643	794	452	251	190	354	100	33	26
Delaware	270	74	47	33	12	87	2	—	—
District of Columbia	—	—	—	—	—	—	—	—	—
DoDEA	319	117	74	80	44	—	—	31	0
Florida	8,099	2,720	997	486	1,671	—	945	1,316	610
Georgia	3,430	1,458	—	—	—	—	1,782	—	—
Guam	53	13	7	2	—	5	17	—	9
Hawaii	—	—	—	—	—	—	—	—	—
Idaho	708	318	141	112	138	23	169	16	36
Illinois	4,502	1,968	1,346	824	460	967	—	—	141
Indiana	2,534	1,170	637	385	416	0	403	98	4
Iowa	1,346	631	443	344	165	—	368	127	301
Kansas	1,569	576	436	323	56	190	275	—	626
Kentucky	—	—	—	—	—	—	—	—	—
Louisiana	1,301	523	204	91	18	11	329	23	103
Maine	—	—	—	—	—	—	—	—	—
Maryland	—	—	—	—	—	—	—	—	—
Massachusetts	—	—	—	—	—	—	—	—	—
Michigan	—	—	—	—	—	—	—	—	—
Minnesota	2,148	1,003	545	353	171	—	580	30	226
Mississippi	1,237	804	295	205	336	—	290	—	339
Missouri	2,355	1,357	687	406	199	172	811	—	172
Montana	—	—	—	—	—	—	—	—	—
Nebraska	1,171	558	338	281	209	252	303	—	0
Nevada	664	305	144	71	119	99	38	65	42
New Hampshire	611	279	103	58	32	70	59	—	—
New Jersey	4,452	1,507	812	—	—	—	—	—	—
New Mexico	1,005	371	170	98	98	55	191	33	150
New York	—	—	—	—	—	—	—	—	—
North Carolina	5,736	1,494	656	344	1,382	—	920	—	376
North Dakota	426	259	175	118	25	8	218	—	6
Ohio	6,096	2,330	1,256	836	799	—	1,212	1,533	912
Oklahoma	2,108	1,110	509	214	132	20	638	—	373
Oregon	—	—	—	—	—	—	—	—	—
Pennsylvania	6,384	1,933	1,086	630	545	1,571	253	34	130
Puerto Rico	—	—	—	—	—	—	—	—	—
Rhode Island	—	—	—	—	—	—	—	—	—
South Carolina	—	—	—	—	—	—	—	—	—
South Dakota	492	273	167	125	39	41	200	—	3
Tennessee	2,070	825	497	259	120	—	822	—	—
Texas	14,669	5,381	3,179	1,694	485	—	4,582	4	1,250
Utah	906	381	190	136	167	—	0	52	0
Vermont	—	—	—	—	—	—	—	—	—
Virgin Islands	55	16	7	3	0	10	3	—	0
Virginia	3,305	1,318	645	426	1,003	—	—	28	254
Washington	—	—	—	—	—	—	—	—	—
West Virginia	1,161	305	148	152	242	—	34	847	95
Wisconsin	2,362	1,040	585	378	143	492	280	—	31
Wyoming	271	119	68	43	42	95	46	—	—
NATION	138,388	52,697	27,947	16,301	15,611	13,813	25,499	5,720	7,317

Number of Teachers=Assigned to teach course/subject one or more periods.

— Data not available.

Texas: methodology change; Virgin Islands: partial data (science).

National totals include imputation for nonreporting states (except Integrated Science and Other Science).

Source: State Departments of Education, Data on Public Schools, 2003-04.

Council of Chief State School Officers, State Services and Technical Assistance, Washington, DC, 2005.

Table 2.3 Middle Grades Teachers with Main Assignment in Mathematics or Science, 1996 and 2004

State	MAIN ASSIGNMENT TEACHERS			
	Number 7-8 Math		Number 7-8 Science	
	2004	1996	2004	1996
Alabama	—	954	—	909
Alaska	223	—	209	—
Arizona	—	—	—	—
Arkansas	617	—	—	—
California	5,674	3,901	5,877	3,751
Colorado	1,056	942	1,009	871
Connecticut	931	715	913	693
Delaware	170	143	151	134
District of Columbia	—	272	—	130
DoDEA	—	—	—	—
Florida	3,132	—	2,883	—
Georgia	2,522	—	1,980	—
Guam	46	—	42	—
Hawaii	—	84	—	82
Idaho	272	193	235	212
Illinois	1,465	1,257	1,336	1,157
Indiana	1,332	1,206	1,238	1,182
Iowa	—	—	—	—
Kansas	—	—	—	—
Kentucky	—	877	—	808
Louisiana	399	451	462	396
Maine	—	—	—	—
Maryland	—	—	—	—
Massachusetts	—	1,321	—	1,224
Michigan	—	—	—	—
Minnesota	950	534	826	515
Mississippi	910	678	113	604
Missouri	1,178	983	1,172	977
Montana	—	170	—	162
Nebraska	95	193	96	173
Nevada	491	—	380	—
New Hampshire	—	—	—	—
New Jersey	—	—	—	—
New Mexico	468	335	335	224
New York	—	4,489	—	3,593
North Carolina	894	1,103	1,378	1,171
North Dakota	234	140	122	133
Ohio	4,195	1,864	260	1,758
Oklahoma	656	725	666	733
Oregon	—	600	—	552
Pennsylvania	—	—	—	—
Puerto Rico	—	1,309	—	717
Rhode Island	—	234	—	243
South Carolina	—	—	—	—
South Dakota	221	161	159	163
Tennessee	1,458	1,082	1,384	1,062
Texas	—	6,277	—	4,333
Utah	711	240	548	183
Vermont	—	—	—	—
Virgin Islands	37	—	36	—
Virginia	1,957	—	1,695	—
Washington	—	—	—	—
West Virginia	963	413	725	296
Wisconsin	1,091	1,140	1,019	1,070
Wyoming	130	129	111	129
NATION	63,573	53,921	53,933	45,987

— Data not available; Main Assignment = 50% or more time assigned to subject.

Virgin Islands: partial data (science).

Source: State Departments of Education, Data on Public Schools, 2003-04.

Council of Chief State School Officers, State Services and Technical Assistance, Washington, DC, 2005.

Table 2.4 Number of Mathematics and Science Teachers, All Assignments (Main or Other), Grades 7-8, 2004

State	Mathematics	Science
Alabama	—	—
Alaska	459	370
Arizona	—	—
Arkansas	874	—
California	8,440	7,577
Colorado	1,234	1,142
Connecticut	994	954
Delaware	171	151
District of Columbia	—	—
DoDEA	281	200
Florida	6,344	5,786
Georgia	2,783	2,125
Guam	46	42
Hawaii	—	—
Idaho	559	404
Illinois	1,654	1,495
Indiana	1,559	1,402
Iowa	—	—
Kansas	1,075	1,030
Kentucky	—	—
Louisiana	493	561
Maine	—	—
Maryland	—	—
Massachusetts	—	—
Michigan	—	—
Minnesota	1,269	1,081
Mississippi	914	114
Missouri	1,489	1,430
Montana	—	—
Nebraska	99	98
Nevada	514	391
New Hampshire	294	164
New Jersey	—	—
New Mexico	702	607
New York	—	—
North Carolina	3,821	2,942
North Dakota	407	351
Ohio	4,456	—
Oklahoma	1,250	1,210
Oregon	—	—
Pennsylvania	—	—
Puerto Rico	—	—
Rhode Island	—	—
South Carolina	—	—
South Dakota	710	456
Tennessee	1,467	1,392
Texas	—	—
Utah	961	651
Vermont	—	—
Virgin Islands	37	36
Virginia	2,132	1,836
Washington	—	—
West Virginia	963	725
Wisconsin	1,305	1,161
Wyoming	167	147
NATION	85,111	68,331

Number of Teachers=Assigned to teach course/subject one or more periods.

— Data not available.

Virgin Islands: partial data (science).

National totals include imputation for nonreporting states.

Source: State Departments of Education, Data on Public Schools, 2003-04.

Council of Chief State School Officers, State Services and Technical Assistance, Washington, DC, 2005.

State Certified Teachers in Science and Mathematics

State certification in the assigned teaching field indicates that teachers have met the core state requirements for preparation in the subject they are teaching. CCSSO requested that states apply teacher personnel files and current assignment data for all teachers in order to determine which current teachers had full certification in each of subjects of science and math they were assigned.

The proportion of teachers who are certified in the subjects they are teaching is an important policy indicator for state and local educators because state certification is often used as a basic, but essential measure of teacher qualification and as an indicator of teacher supply and shortage. It is not, however, a wholly adequate measure of quality of teacher preparation, particularly in cross-state comparisons, because of the differing state standards for certification (Ingersoll, 2003). Now, NCLB requires that states report on the proportion of teachers that meet a separate criterion of subject knowledge in the assigned field/subject—i.e., either passing a teacher assessment in the field or hold a major in assigned field (USED, 2003). State certification requirements are tracked by CCSSO every two years for secondary, middle grades, and elementary teachers, and they are reported in *Key State Education Policies on PK-12 Education* (www.ccsso.org/keystate_policies2004).

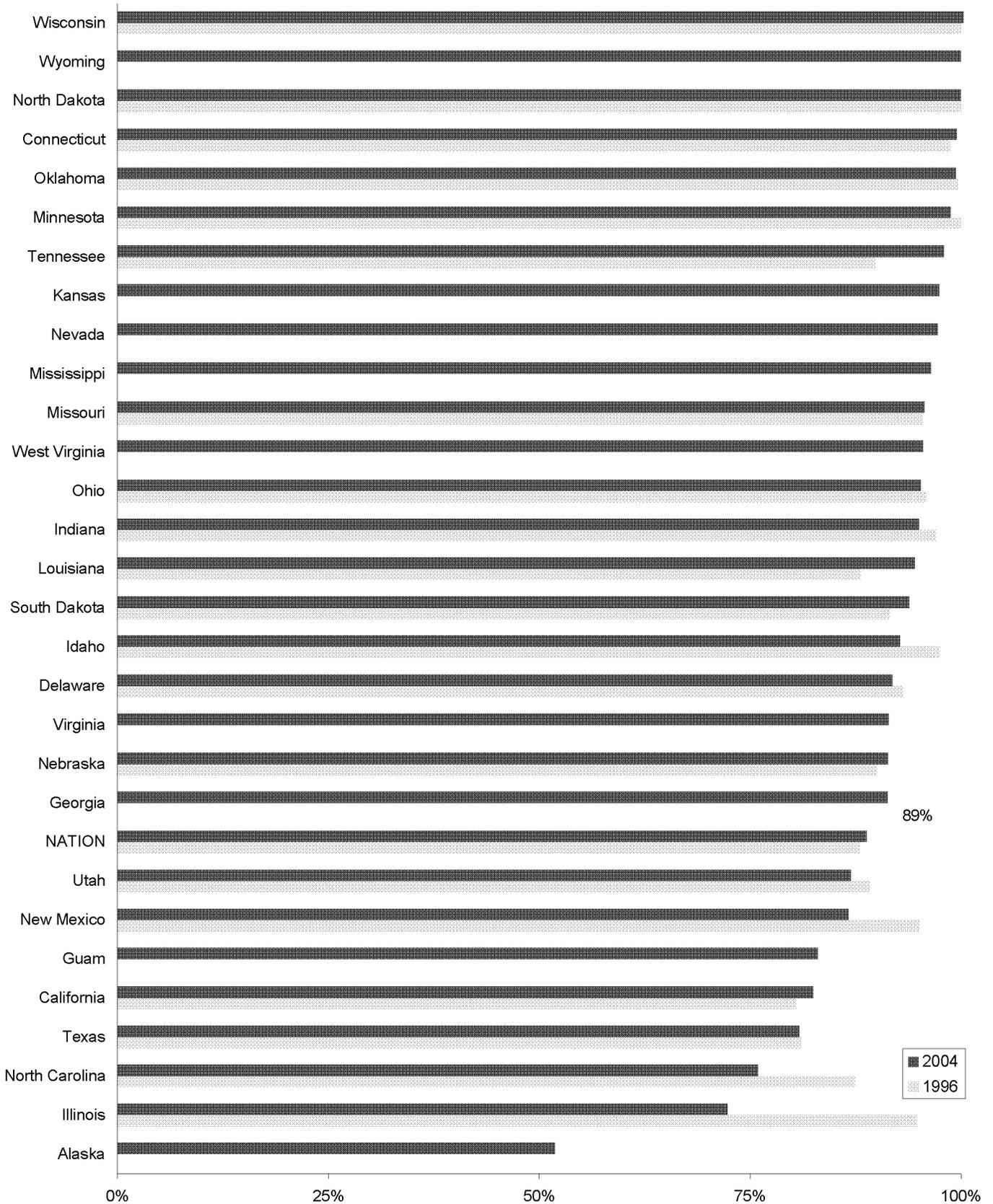
In the following analysis, “certification” in a field means the teacher holds a state’s regular, standard, advanced, or probationary certificate in the assigned field/subject. In science, the teacher holds a “specific-field” certification (e.g., biology) or a “broad-field” certification (multiple fields of science). “Not certified” means the teacher holds an emergency or temporary certificate or holds a certification in a field other than the assigned field.

High School Teachers Certified in Field

- **Mathematics Certification rate constant since 1996:** As of 2003-04, 89 percent of all high school teachers were certified in their assigned field, and in 1996 the rate was 88 percent. The rates of certification varied widely across states. Of 30 reporting states, 11 had *over 95 percent* of high school math teachers certified in their assigned field, while six states had *less than 75 percent* certified.
- **Science Teacher Certification rates declined slightly since 1996:** The percentages of teachers certified in their assigned fields of Biology, Chemistry, Physics, and Earth Science have each dropped about 5 percent nationally since 1996. Of the 30 reporting states, 20 states had *over 90 percent* of teachers in Biology and Chemistry certified in field, and five had *less than 80 percent* certified. In Physics and Earth Science, 13 states had *less than 80 percent* of teachers certified in one field or both fields.

Figure 2.5 shows the trends in certification rates for high school math teachers, and Table 2.5 shows the percentages of high school teachers certified in four fields of teaching in science. Based on the certification rates, several patterns emerge. First, shortages of teachers vary by region — states in the Midwest show higher rates of certified teachers than other regions. Second, states with high enrollment growth such as California and Texas have lower rates of certified high school teachers. Higher student enrollment growth translates to rapid increases in students taking high school math and science courses and increased demand for growth in the teaching force, and some states have higher less well-qualified teachers to meet the demand.

Figure 2.5 Certification of Mathematics Teachers, Grades 9-12, 2004 and 1996



Percent of all 9-12 teachers assigned one or more period to math that are fully certified to teach math.

Source: State Departments of Education, Data on Public Schools, 2003-04.

Council of Chief State School Officers, State Services and Technical Assistance, Washington, DC, 2005.

Table 2.5 Certification of High School Science Teachers in Grades 9-12, 2004

State	Percent of Teachers Certified			
	Biology	Chemistry	Physics	Earth Science
Alaska	68	57	53	47
California	84	81	83	59
Connecticut	99	97	93	98
Delaware	84	83	58	58
Georgia	92	—	—	—
Guam	85	71	100	—
Idaho	99	100	100	99
Illinois	53	68	62	35
Indiana	97	98	95	95
Kansas	94	94	89	88
Louisiana	96	89	81	67
Minnesota	98	98	97	91
Mississippi	96	93	73	92
Missouri	93	92	84	86
Nebraska	92	79	71	69
Nevada	99	99	100	99
New Mexico	94	96	93	93
North Carolina	81	82	80	73
North Dakota	100	100	100	100
Ohio	87	95	97	77
Oklahoma	100	99	97	91
South Dakota	98	98	96	100
Tennessee	98	97	66	79
Texas	74	78	79	56
Utah	87	88	91	62
Virgin Islands	19	—	—	—
Virginia	93	92	85	73
West Virginia	98	94	94	95
Wisconsin	100	100	100	100
Wyoming	100	100	100	100
NATION	87	88	83	78

— Data not available.

Certified = Teacher assigned to subject one or more period and has state certification in subject.

Texas: methodology change; Virgin Islands: partial data. National totals include imputation for nonreporting states.

Source: State Departments of Education, Data on Public Schools, 2003-04.

Council of Chief State School Officers, State Services and Technical Assistance, Washington, DC, 2005.

Trends Show Increased Numbers and Increased Demand for Certified Teachers

In 2003-04, 89 percent of high school teachers of Mathematics were certified (i.e., teachers assigned one or more math classes). Figure 2.5 shows the states of Alaska, Illinois, North Carolina, Texas, and California have substantial shortages of certified teachers in math.

In high school Science in 2004, a majority of states had over 90 percent certified teachers in *Biology* and *Chemistry*. A majority of states had less than 80 percent certified in *Physics* and *Earth Science*. The certification rate includes teachers certified in the specific field as well as “broad-field” science certification. The states of Alaska, Delaware, Illinois, Missouri, North Carolina, California, and Texas had the greatest shortages in certified high school science teachers.

Trends in High School Teachers Certified in Assigned Field: 1990 to 2004

	<u>Math</u>	<u>Biology</u>	<u>Chemistry</u>	<u>Physics</u>	<u>Earth Science</u>
1990	90%	92%	92%	88%	n.a.
1994	88	90	92	86	81
1996	88	86	89	86	68
2000	86	88	88	85	82
2004	89	87	88	83	78

Source: State Department of Education

A major factor in the decline in certified teachers is the problem of increased demand and insufficient supply of well-prepared teachers. Since 1996, the number of high school teachers of mathematics with main assignment in math went up over 20 percent. The number of high school teachers of science also increased by 20 percent. Table 2.6 compares the rate of increase in numbers of teachers (all assignments) over the past decade with the percent of teachers certified in math. Course enrollment increases have produced increased demand for teachers. In many states the numbers of certified teachers have increased but the high demand for teachers has kept the rate of certified teachers about the same or a slight decrease.

Table 2.6 Change in Number of Mathematics Teachers Compared to Percent Certified in Mathematics, Grades 9-12, 1996 to 2004

State	Number of Mathematics Teachers (9-12)*		Teachers Certified in Mathematics
	2004	% Change 1996 to '04	% Change 1996 to '04
California	13,212	+36	+2
Connecticut	1,643	+8	+1
Delaware	270	+31	-1
Idaho	708	-20	-5
Illinois	4,502	+7	-22
Indiana	2,534	+8	-2
Louisiana	1,301	-15	+6
Minnesota	2,148	+14	-1
Missouri	2,355	+5	0
Nebraska	1,171	-8	+1
New Mexico	1,005	+36	-8
North Carolina	5,736	+30	-11
North Dakota	426	-7	0
Ohio	6,096	+27	-1
Oklahoma	2,108	+11	0
South Dakota	492	-14	+2
Tennessee	2,070	-9	+8
Utah	906	-35	-2
Wisconsin	2,362	+6	0
NATION	138,388	-2	+1

Note: Number of math teachers with main assignment in math increased in the period by 20 percent (Table 2.1).

*Number of Teachers=Assigned to teach course/subject one or more periods.

— Data not available.

Minnesota: 1996 data=1994-95.

National totals include imputation for nonreporting states.

Source: State Departments of Education, Data on Public Schools, 2003-04.

Council of Chief State School Officers, *State Services and Technical Assistance*, Washington, DC, 2005.

Middle-Level Teachers Certified in Field

- **Only 61 percent of middle grades Mathematics teachers are certified in math.** Since 1996, the proportion of middle grades teachers that are certified teachers in math declined slightly, showing there is a national shortage of certified math teachers. Nationally, 25 percent of middle-level math teachers were certified with elementary certification, and 14 percent of all math teachers were not certified.
- **In Science, 63 percent of grade 7-8 Science teachers are certified in science.** The percent of science teachers at middle grades level was stable since 1996. Of the total, 23 percent are elementary certified, and 14 percent of all science teachers were not certified in 2004.

Many states find that the trends on certification of middle school science and mathematics teachers shown in Table 2.7 are key statistics for gauging teacher preparation and supply. Middle grades classes are often where students develop strong interests and aspirations in science and mathematics or where interests fall off, and well-prepared teachers are likely to be key to building student interest. Secondly, middle grades are often where states, districts, and schools find it is difficult to fill positions with well-qualified teachers in science and mathematics. The statistics in Table 2.7 highlight the differences among states in teachers certified in elementary vs. teachers certified in a specific subject they are assigned in middle level teaching. NCLB now requires that middle grades teachers be “highly-qualified” in the assigned subject(s) of teaching.

States have widely differing levels of certified teachers in middle grades math and science. Table 2.7 shows that of the 30 states reporting certification data for grade 7-8 teachers, nine states have 90 percent or more of their middle grades teachers certified in math, while 10 states have less than 60 percent certified in math.

Only eight of the 30 states reporting data on middle grades science teachers have 90 percent or more certified middle school science teachers, while 10 states have less than 60 percent certified in science. States with mainly elementary certified teachers are Georgia, Idaho, Nevada, New Mexico, Ohio, North Dakota, and Oklahoma.

For Teacher Demographics by subject and state—including Race/ethnicity, Age, and Gender of Math and Science Teachers, go to the electronic Appendix.

**Table 2.7 Certification of Middle Grades Mathematics and Science Teachers, 2004;
Change 1996 to 2004**

State	MATHEMATICS				SCIENCE			
	% Certified Math	Change % Certified Math 1996 to '04	% Certified Elementary	% Not Certified	% Certified Science	Change % Certified Science 1996 to '04	% Certified Elementary	% Not Certified
Alaska	26	—	7	67	22	—	4	74
Arkansas	81	—	11	7	—	—	—	—
California	55	+5	38	7	59	+15	34	7
Connecticut	62	+14	37	1	62	+9	34	4
Delaware	71	-6	13	16	75	-6	12	13
Georgia	12	—	65	—	14	—	60	—
Guam	48	—	33	20	55	—	21	24
Idaho	99	+45	0	1	77	+3	22	0.5
Illinois	51	+51	26	23	56	+56	18	25
Indiana	90	0	7	3	93	0	4	3
Kansas	61	—	35	5	63	—	28	9
Louisiana	94	+9	0	6	92	+18	0	8
Minnesota	99	-1	—	1	98	-2	—	2
Mississippi	64	+25	0	36	96	+50	0	4
Missouri	90	+7	0	10	89	+13	0	11
Nebraska	86	-7	0	14	91	+18	0	9
Nevada	53	—	46	1	63	—	35	2
New Mexico	31	-18	0.3	69	43	-2	1	56
North Carolina	63	-2	1	36	56	-4	1	43
North Dakota	54	-6	46	0	35	-34	65	0
Ohio	28	—	50	20	43	—	66	13
Oklahoma	68	+19	32	1	59	-2	41	0.2
South Dakota	72	-25	26	2	87	-6	12	1
Tennessee	96	0	0	4	86	-6	0	14
Utah	86	+6	14	0	78	+8	22	0.5
Virgin Islands	8	—	3	89	3	—	0	97
Virginia	90	—	—	—	89	—	—	—
West Virginia	94	—	0	6	92	—	0	8
Wisconsin	100	—	—	—	100	—	—	—
Wyoming	81	—	19	0	90	—	10	0
NATION	61	-4	25	14	63	0	23	14

— Data not available.

Certified Math/Science = Teacher assigned to subject one or more period and has state certification in secondary math/science or middle grades math/science. Certified Elementary = Certification in elementary education, general secondary/middle education, or subject not assigned.

National totals include imputation for nonreporting states.

Source: State Departments of Education, Data on Public Schools, 2003-04.

Council of Chief State School Officers, State Services and Technical Assistance, Washington, DC, 2005.

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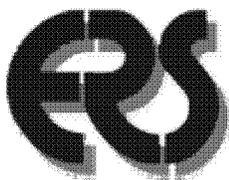
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Improving Teaching and Learning with Data-Based Decisions: Asking the Right Questions and Acting on the Answers

Nancy Protheroe

“Data-based decisions”—the phrase has become a buzzword in education over the last few years. However, it does make sense that using information to help clarify issues, identify alternative solutions to problems, and target resources more effectively will lead to better decisions. The real question should not be *whether* to integrate the use of data in decision making, but *how*. Finding good data and using it effectively is actually a complex process—one that many schools and districts are just beginning to address.

One specific type of data-based decision making that shows promise for helping schools dramatically increase student achievement is the use of assessment data to drive instructional improvement. In 1994, Glaser and Silver envisioned a future where:

Testing is seen as being less about sorting and selecting and more about offering information on which students and teachers can build. As assessment and instruction are more closely linked, achievement measurement will be integral to learning rather than imposed by some external shaper of students' fates (1994, 26).

Today, assessment and instruction *are* becoming more closely linked in many schools. However, it is interesting that much of the current movement toward using assessment data to shape instruction actually first focused on assessments “imposed by some external shaper of students' fates”—the state-required accountability tests. Student performance on these tests, in addition to being used to rank schools and students, is increasingly being incorporated into schools' instruction improvement efforts.

Evidence that Data Can Improve Instruction

There is a growing body of evidence that the use of high-quality, targeted assessment data, in the hands of school staff trained to use it effectively, can improve instruction. For example:

- Schools demonstrating success with “closing the gap,” profiled by the North Carolina Department

of Public Instruction in a 2000 study, were more likely than others to assess students periodically for diagnostic purposes and to disaggregate the data (Evaluation Section, Division of Accountability Services, North Carolina Department of Public Instruction 2000).

- In a study of four school districts (each serving high percentages of students who would typically be characterized as at-risk) that significantly increased student performance on state-mandated tests, Cawelti and Protheroe identified as a central finding of the study the following:

Large gains in test scores require: 1) extensive efforts to align instruction with test content; 2) detailed analysis of student responses to the tests or assessments designed to parallel these; and 3) the provision of immediate and appropriate corrective instruction for individual students as indicated by that analysis (2001, 3).

All four of these districts began their improvement efforts by carefully reviewing test data, a process that has grown significantly more sophisticated over time.

- “Using data to drive improvement” was identified as a key to success in a report developed by the National Education Goals Panel after a series of hearings designed to find examples of successful schools and to understand why those schools were succeeding. Specifically, the successful schools “use performance information to determine where they were succeeding and where they needed to direct their efforts for improvement” (Rothman 2000, i).
- In a study of Maryland elementary schools, Schafer et al. (undated) found that in schools they characterized as more successful, “principals are involved with assessment of student improvement and make classroom decisions based on these assessments.”

A key element observed in all these successful schools and districts was a well-organized approach to using assessment data. This did not happen overnight. Typically, it was an evolutionary process that may have included some false starts.

Asking the Right Questions

In any school or district using data to make decisions, a key step should be developing the right questions. While these questions should be tailored to fit the needs of the school, Hibbard and Yakimowski (1997) suggest that school staff begin with five “guiding questions” as they start discussions about their use of assessment data for decision making:

- What should students know, and how should they be able to use what they know?
- How well should students perform?
- What will we do to assess student performance?
- How well do students actually perform?
- What will we do to improve student performance?

In their view, these questions should lead teachers and other staff members to “purposeful conversations...about improving student performance” (67-68).

It’s also important to consider assessment in broad terms, from standardized tests required by the state to teacher-developed approaches that may be quite informal. In its *Guide to Classroom Assessment* (see Figure 1), the North Carolina Department of Public Instruction (1999) provides some examples of questions that can be addressed using a variety of sources of assessment data.

Figure 1: Examples of Links between Purposes and Methods of Assessment

Purpose	Primary Users	Typical Questions	Type of Information Needed	Possible Assessment Methods
Program Evaluation	<ul style="list-style-type: none"> • Superintendent • Local boards • Principals • State policymakers 	<ol style="list-style-type: none"> 1. Are our programs producing student learning? 2. Which schools need more assistance? 	<ul style="list-style-type: none"> • Periodic assessment of group achievement 	<ul style="list-style-type: none"> • Multiple-choice tests • Performance tests/tasks
Instructional Leadership	<ul style="list-style-type: none"> • School administrators 	<ol style="list-style-type: none"> 1. Are teachers and instructional strategies in given areas producing results? 2. What kinds of professional development would help? 3. How shall we spend building resources in support of instruction? 4. What does this teacher need to ensure student competence? 	<ul style="list-style-type: none"> • Periodic Assessment of group achievement • Examination of student work (synthesis of group results) • Continuing assessment of group achievement 	<ul style="list-style-type: none"> • Multiple-choice tests • Possible: open-ended tests; performance tasks; portfolios
Instruction: Classroom	<ul style="list-style-type: none"> • Teachers 	<ol style="list-style-type: none"> 1. Are my teaching strategies working? 2. What do these students need help with? 3. What do students understand and what can they apply? 	<ul style="list-style-type: none"> • Continuous assessment of group achievement & performance • Continuous assessment of individual performance summarized over time 	<ul style="list-style-type: none"> • Multiple means: multiple-choice, open-ended, performance • Multiple means as above, plus observation and class discussion
Instruction & Diagnosis: Individual	<ul style="list-style-type: none"> • Teachers 	<ol style="list-style-type: none"> 1. What does this student need help with? 2. What misconceptions/strengths does he/she have? 	<ul style="list-style-type: none"> • Continuous assessment of individual mastery/performance 	<ul style="list-style-type: none"> • Multiple means: analysis of student work, conversations, observations

While all these sample questions provide a place to start, schools and districts need to develop their own particular focus. Often, that focus can provide the key to effective improvement. Consider the example of the Brazosport Independent School District. When nine of its 18 schools were designated as low-performing on the state-mandated assessment, the district knew that it had to take aggressive action. One piece of the initial, and very intensive, analysis of assessment results was an effort to identify

particularly effective teachers.

The instructional process used by one of these teachers—which included periodic assessments routinely used to diagnose which students had mastered objectives and which students needed more instruction—was used as a model to educate other teachers. The first school in which the model was piloted, which had received a “warning” based on its students’ scores, received a significant gains award from the state after one year and “Recognized” status after two years (Cawelti and Protheroe 2001).

Collecting and Analyzing the Data

The Importance of Good Data—

Identifying the key questions is only a first step. The next step, data analysis, requires the availability of high-quality, targeted data in a format that helps to address the questions. Districts and schools making intensive use of data from state-mandated assessments stress how important it is to have data available that:

- can be easily disaggregated not only by school but by classroom and specific groups of students; and
- provide a detailed analysis of results by objective or skill in addition to overall scores.

Although much of the current emphasis on using assessment data began with data from high-stakes tests, schools and districts that are the most effective users of assessment data have begun to recognize and capitalize on the power of classroom assessment. Damian urges teachers and school leaders to embed assessment in “every aspect of our planning, thinking, and doing” instead of viewing assessment as a “once-a-year crisis” (2000, 16).

Niyogi highlights the special characteristics of high-quality classroom-based assessments that make them potentially powerful tools:

Assessment should be used not simply to judge how much kids know but to illuminate the nature of their knowledge and understandings in order to help kids learn...Common sense tells us that on-going, classroom-based assessment can serve this purpose. Teachers interacting with students will observe the nuances of their cognitive growth and development over time, their individual strengths and weaknesses in ways that would be extremely difficult, if not impossible, to capture through standardized or conventional testing alone (1995, 3).

Responding to What the Data Tell Us

Aligning the Curriculum—

Many districts that have made effective use of assessment data found early on that what was needed as a first step was an intensive review of their curriculum. They compared what was taught to state standards and the content of state-mandated assessments. In addition, they carefully reviewed the curriculum across grades. For example, teachers from kindergarten through 12th grade, with the assistance of central-office staff, would meet repeatedly to talk about the desired sequence of mathematics skills and then make changes in the sequence and timing of instructional objectives. Cromey and Hansen found that, in the schools they studied:

alignment began with a detailed analysis of the local curriculum. This analysis required reflecting on several other sources of data, including the state content standards and results from state and local assessments for each subject area and grade, K-12. Therefore, schools with good assessment

systems integrated their own history of assessment performance into the alignment and development process. The specific approach to this work varied, but four common activities [curriculum analysis, realignment of the local curriculum, alignment of the local assessment system, and reflection on data from the curriculum analysis and from results of state and local assessments] tended to drive the process (2000).

Improving Teaching Strategies—

Meyers and Rust stress the importance of helping teachers learn how to “assess their own work and its impact on their students” (2000, 34). To be successful, school leaders need to engage in conversations with teachers, using assessment data to diagnose strengths as well as areas in which the teachers need to modify their instruction. In addition, providing the opportunity for teacher collaboration and discussion about practice, using assessment data as a springboard, has been a powerful tool for improvement.

For example, the Barbour County School District in West Virginia uses class-based profiles generated from SAT-9 data that include information about the performance of individual students on each concept tested. These data sheets are analyzed to identify areas of strength and weakness for individual students as well as for groups of students:

The data not only help teachers see specific areas of difficulty for each student, it also helps teachers and principals to pinpoint objectives that either need to be covered more thoroughly or taught in a different way. Teachers can then be given support—staff development, assistance from a master teacher, etc.—with either content or instructional approaches to improve their teaching (Cawelti and Protheroe 2001).

Providing Special Instruction for Students Who Need It—

While use of assessment data can help to identify students who are not mastering particular objectives—or who are just generally below grade level—that knowledge is meaningless without providing support for these students. In their study of “high-performance districts,” Cawelti and Protheroe found that a common characteristic was the districts’ recognition of the need for:

instructional processes that enable teachers to accomplish three things on a daily and weekly basis: (1) organizing instruction to regularly administer interim assessments of skills taught before moving on to new material, (2) providing tutoring or extra help for those students who fail to master the skills taught and enrichment learning activities for those who have mastered the skills, [emphasis added] and (3) providing frequent practice throughout the year to ensure retention for students who have initially mastered the skills needed (2000, 98).

The provision of these services was handled in a variety of ways—through tutorials, afterschool programs, summer school, etc. Often, it required very detailed efforts to create school and grade-level schedules that made it possible to group students by skill level for parts of every day. Instruction was typically provided in small groups, with opportunities available to help teachers refine the skills they needed to work with students who needed additional help to achieve mastery. The efforts required leadership on the part of the school principal, commitment from the entire school staff, and a highly organized and flexible system—but results in the form of higher student achievement proved the value of the efforts.

Providing Support for Staff

Stiggins (2001) views two conditions as essential to schools’ efforts to integrate assessment into the teaching and learning process:

1. To assess student achievement accurately, teachers and administrators must understand the

achievement targets their students are to master. They cannot assess (let alone teach) achievement that has not been defined... Meeting this condition would require, for example, that schools and districts review the curriculum and define a path for students to move along towards competence.

2. The second condition is an assessment-literate faculty. Assessment literacy comprises two skills: first is the ability to gather dependable and quality information about student achievement; second is the ability to use that information effectively to maximize student achievement (19-20).

This second element has been addressed head-on by schools and districts that have incorporated the use of data in their improvement efforts. Opportunities to learn how to analyze assessment data have typically been provided in a variety of ways, including:

- staff development focused on how to “read” and analyze reports of assessment results;
- presentations by central-office staff or principals to school staff, followed by a discussion of possible next steps;
- one-on-one sessions of a principal, assistant principal, or lead teacher with a teacher to review and discuss results from that teacher’s classes and students; and
- training of an in-school data expert, typically a teacher, who works with grade-level or subject-area teams of teachers to analyze the data.

In addition, a key component of effective systems is the provision of time on a continuing basis for teachers to discuss the data and to work together to develop “solutions.” Teachers view this time as an opportunity both to develop their skills in data analysis and to brainstorm and share effective instructional strategies. While common planning time is often difficult to provide, Cromey and Hanson describe the specific systems used in four schools they visited (see Figure 2).

Figure 2: Scheduling Approaches for Teacher Collaboration

	School A	School B	School C	School D
Time and Planning Strategies	<ol style="list-style-type: none"> 1. Once every month, the school day begins two hours later—teachers meet during this time to engage in the activities described below. School makes up this accumulated time by extending the school year. 	<ol style="list-style-type: none"> 1. School staff are released early from school once per week for at least 45 minutes. This time is added to other days throughout the week. 2. Entire staff meets once a week for one hour before school. Staff decreased the “nuts and bolts” of the meetings and prioritized work related to assessment. 	<ol style="list-style-type: none"> 1. Same-grade teachers meet informally during weekly planning periods and formally every six weeks. To accommodate these planning periods, students in entire grades are sent to “specials” (e.g., gym, art classes). Time is also allotted at regularly scheduled staff meetings. 2. Teachers are released from teaching duties several days each year and are replaced by substitute teachers. 3. Teachers meet with principal up to three times each year. 	<ol style="list-style-type: none"> 1. Teachers request time to meet with each other during school hours; substitutes are hired to support this. In addition, teachers meet after school. 2. Teachers meet in “within-grade” and “subject-area” teams during their planning hours once per week.

Activities	<p>a. School staff rewrite district standards and realign the assessments they use accordingly.</p> <p>b. School staff continuously re-evaluate this work, and discuss and plan changes as needed.</p>	<p>a. Schools use allotted time to align curriculum across grades and with the state standards. This process is driven by student assessment data.</p> <p>b. School staff continuously re-evaluate this work and discuss and plan changes as needed.</p>	<p>a. Staff discuss students' progress according to the "developmental continuums" written by school staff.</p> <p>b. Teachers administer individual assessments to students.</p> <p>c. Staff discuss reports on assessment data from district research department.</p>	<p>a. Staff share knowledge gained from professional development activities that addressed curriculum and assessment. They also discuss student mastery of standards and other outcomes and possible intervention strategies.</p>
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Summary

Aldersebaes, Potter, and Hamilton speak of "using data to ignite change" (2000, 20), with school staff using "meaningful" data to:

- uncover needs, priorities, and resources;
- build a school profile to better understand the school's strengths and weaknesses;
- develop intrinsic motivation through identifying a need for change;
- create a focused direction for change accompanied by realistic goals; and
- establish a baseline against which to measure progress and design a plan to evaluate programs or practices.

Educators across the country who have learned how to effectively use assessment data have indeed ignited change and achieved positive results at the district, school, classroom, and student levels. The preceding discussion has identified essential elements of effective use of data to improve instruction. These include: 1) good data; 2) staff expertise with collection and analysis of data; 3) sufficient time structured into the schedule for staff to analyze the information; and 4) carefully designed changes in curriculum and instruction in that address the needs identified by the analysis.

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Inside the Black Box

Raising Standards Through Classroom Assessment

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The Black Box

Raising the standards of learning that are achieved through school education is an important national priority. Governments have been vigorous in the last ten years in making changes in pursuit of this aim. National curriculum testing, the development of the GCSE, league tables of school performance, initiatives to improve school planning and management, target setting, more frequent and thorough inspection; these are all means to the end. But the sum of all of these doesn't add up to an effective policy because something is missing.

Learning is driven by what teachers and pupils do in classrooms. Here, teachers have to manage complicated and demanding situations, channelling the personal, emotional and social pressures amongst a group of 30 or so youngsters in order to help them to learn now, and to become better learners in the future. Standards can only be raised if teachers can tackle this task more effectively—what is missing from the policies is any direct help with this task.

In terms of systems engineering, present policy seems to treat the classroom as a **black box**. Certain *inputs* from the outside are fed in or make demands—pupils, teachers, other resources, management rules and requirements, parental anxieties, tests with pressures to score highly, and so on. Some *outputs* follow, hopefully pupils who are more knowledgeable and competent, better test results, teachers who are more or less satisfied, and more or less exhausted. But what is happening inside? How can anyone be sure that a particular set of new inputs will produce better outputs if we don't at least study what happens inside?

The answer usually given is that it is up to teachers—they have to make the inside work better. This answer is not good enough for two reasons. First, it is at least possible that some changes in the inputs may be counter-productive—making it harder for teachers to raise standards. Secondly, it seems strange, even unfair, to leave the most difficult piece of the standards-raising task entirely to teachers. If there are possible ways in which policy makers and others can give direct help and support to the everyday classroom task of achieving better learning, then surely these ways ought to be pursued vigorously.

None of the reform items mentioned in the first paragraph is aimed at direct help and support. To be sure, inspections do look inside classrooms, and insofar as they focus on what is happening there they draw attention to important issues. But they are not designed to give help and support, recommendations being in very general terms.

This paper is about the inside of the black box. It is focused on one aspect of teaching—formative assessment, but the argument that we develop is that this feature is at the heart of effective teaching.

The argument

We start from the self-evident proposition that teaching and learning have to be interactive. Teachers need to know about their pupils' progress and difficulties with learning so that

they can adapt their work to meet their needs—needs which are often unpredictable and which vary from one pupil to another. Teachers can find out what they need in a variety of ways — from observation and discussion in the classroom, and from written work of pupils whether done as homework or in class.

In this paper, the term ‘assessment’ refers to all those activities undertaken by teachers, *and by their students in assessing themselves*, which provide information to be used as feedback to modify the teaching and learning activities in which they are engaged. *Such assessment becomes ‘formative assessment’ when the evidence is actually used to adapt the teaching work to meet the needs.*

There is nothing new about this. All teachers make assessments in every class they teach. But there are three important questions about this process which this paper sets out to answer. These are:

First Is there evidence that improving formative assessment raises standards?

Second Is there evidence that there is room for improvement?

Third Is there evidence about how to improve formative assessment?

In setting out to answer these questions, we have conducted an extensive survey of the research literature. This has involved checking through many books, through the issues of over 160 journals for the past nine years, and studying earlier reviews of research. This process yielded about 580 articles or chapters to study. Out of this we have prepared a lengthy review, which uses material from 250 of these sources. The review has been published in the journal “Assessment in Education” (Black and Wiliam, 1998) together with comments on our work by leading educational experts from Australia, France, Hong Kong, Southern Africa and the USA.

The conclusion we reach from the full review is that the answer to each of the above three questions is a clear ‘Yes’. The three main sections of this present paper will outline the nature and force of the evidence which justifies this conclusion. However, we are presenting here a summary, so that our text will appear strong on assertions and weak on the details of their justification. Our position is that these assertions are all backed by evidence, and that this backing is set out in full detail in the lengthy review on which this present paper is based.

We believe that our three sections establish a strong case—a case that government, its agencies, and the teaching profession should study very carefully if they are seriously interested in raising standards in education. However, we also acknowledge widespread evidence that fundamental educational change can only be achieved slowly — through programmes of professional development that build on existing good practice. Thus, we are not concluding that, in formative assessment, we have yet another ‘magic bullet’ for education. The issues involved are too complex and too closely linked to both the difficulties of classroom practice and the beliefs that drive public policy. In a fourth and final section we confront this complexity and try to sketch out a strategy for acting on our evidence.

Is there evidence that improving formative assessment raises standards ?

A review published in 1986, concentrating—but not exclusively—on classroom assessment work for children with mild handicaps, surveyed a large number of innovations from which 23 were selected (Fuchs and Fuchs, 1986). This group all satisfied the condition that quantitative evidence of learning gains was obtained, both for those involved in the innovation, and for a similar group not so involved. Since then, many more papers have been published describing

similarly careful quantitative experiments. Our own review has selected at least 20 more such studies—the number depends on how rigorous a set of selection criteria are applied. All of these studies show that innovations which include strengthening the practice of formative assessment produce significant, and often substantial, learning gains. These studies range over ages (from 5-year olds to university undergraduates), across several school subjects, and over several countries.

For research purposes, learning gains of this type are measured by comparing (a) the average improvements in pupils' scores on tests with (b) the range of scores that are found for typical groups of pupils on these same tests. The ratio of (a) divided by (b) is known as the *effect size*. The formative assessment experiments produce typical *effect sizes* of between 0.4 and 0.7 : such effect sizes are larger than most of those found for educational interventions. The following examples illustrate some practical consequences of such large gains:

- An effect size of 0.4 would mean that the average pupil involved in an innovation would record the same achievement as a pupil just in the top 35% of those not so involved.
- A gain of effect size 0.4 would improve performances of pupils in GCSE by between one and two grades.
- A gain of effect size 0.7, if realised in the recent international comparative studies in mathematics (TIMSS—Beaton et al., 1996), would raise England from the middle of the 41 countries involved to being one of the top 5.

Some of these studies exhibit another important feature. *Many of them show that improved formative assessment helps the (so-called) low attainers more than the rest, and so reduces the spread of attainment whilst also raising it overall.* One very recent study is entirely devoted to low attaining students and students with learning disabilities, and shows that frequent assessment feedback helps both groups enhance their learning (Fuchs et al. 1997). Any gains for such pupils could be particularly important, for any 'tail' of low educational achievement is clearly a portent of wasted talent. Furthermore, pupils who come to see themselves as unable to learn usually cease to take school seriously—many of them will be disruptive within school, others will resort to truancy. Given the habits so developed, and the likelihood that they will leave school without adequate qualifications, such pupils are likely to be alienated from society and to become the sources and the victims of serious social problems.

So it seems clear that very significant learning gains could lie within our grasp. The fact that such gains have been achieved by a variety of methods which have, as a common feature, enhanced formative assessment indicates that it is this feature which accounts, at least in part, for the successes. However, it does not follow that it would be an easy matter to achieve such gains on a wide scale in normal classrooms. The reports which we have studied bring out, between and across them, other features which seem to characterise many of the studies, namely:

- All such work involves new ways to enhance feedback between those taught and the teacher, ways which require new modes of pedagogy—which will require significant changes in classroom practice.
- Underlying the various approaches are assumptions about what makes for effective learning—in particular that students have to be actively involved.
- For assessment to function formatively, the results have to be used to adjust teaching and learning—so a significant aspect of any programme will be the ways in which teachers do this.
- The ways in which assessment can affect the motivation and self-esteem of pupils, and the benefits of engaging pupils in self-assessment, both deserve careful attention.

Is there evidence that there is room for improvement ?

A poverty of practice

There is a wealth of research evidence that the everyday practice of assessment in classrooms is beset with problems and short-comings, as the following quotations indicate:

“Marking is usually conscientious but often fails to offer guidance on how work can be improved. In a significant minority of cases, marking reinforces under-achievement and under-expectation by being too generous or unfocused. Information about pupil performance received by the teacher is insufficiently used to inform subsequent work.”

(*OFSTED general report on secondary schools 1996, p.40.*)

“Why is the extent and nature of formative assessment in science so impoverished?”

(*UK secondary science teachers—Daws and Singh, 1996 UK*)

“The criteria used were ‘virtually invalid by external standards’”

(*French primary teachers—Grisay, 1991*)

“Indeed they pay lip service to it but consider that its practice is unrealistic in the present educational context”

(*Canadian secondary teachers—Dassa, Vazquez-Abad and Ajar, 1993*).

The most important difficulties, which are found in the UK, but also elsewhere, may be briefly summarised in three groups. The first is concerned with *effective learning* : -

- Teachers’ tests encourage rote and superficial learning; this is seen even where teachers say they want to develop understanding—and many seem unaware of the inconsistency.
- The questions and other methods used are not discussed with or shared between teachers in the same school, and they are not critically reviewed in relation to what they actually assess.
- For primary teachers particularly, there is a tendency to emphasise quantity and presentation of work and to neglect its quality in relation to learning.

The second group is concerned with *negative impact* : -

- The giving of marks and the grading functions are over-emphasised, while the giving of useful advice and the learning function are under-emphasised.
- Use of approaches in which pupils are compared with one another, the prime purpose of which appears to them to be competition rather than personal improvement. In consequence, assessment feedback teaches pupils with low attainments that they lack ‘ability’, so they are de-motivated, believing that they are not able to learn.

The third group focuses on *the managerial role* of assessments

- Teachers’ feedback to pupils often seems to serve social and managerial functions, often at the expense of the learning functions.
- Teachers are often able to predict pupils’ results on external tests—because their own tests imitate them—but at the same time they know too little about their pupils’ learning needs.
- The collection of marks to fill up records is given greater priority than the analysis of pupils’ work to discern learning needs; furthermore, some teachers pay no attention to the assessment records of previous teachers of their pupils.

Of course, not all of these descriptions apply to all classrooms, and indeed there will be many schools and classrooms to which they do not apply at all. Nevertheless, these general conclusions have all been drawn by authors in several countries, including the UK, who have collected evidence by observation, interviews and questionnaires from many schools.

The empty commitment

The changes in England and Wales since the 1988 Education Reform Act have had powerful effects on assessment. The statements of policy which preceded that Act, the recommendations of the TGAT (Task Group on Assessment and Testing, DES 1988) report, and all subsequent statements of government policy, have emphasised the importance of formative assessment by teachers. However, most of the available resources, and public and political attention, have been concentrated on the tests which are given at the end of the Key Stages to yield overall levels or grades, and whilst teachers' contributions to these 'summative' assessments have been given some formal status, hardly any attention is paid to them. Moreover, the problems of the relationship between teachers' formative and their summative roles have received no attention.

There is indeed a very sharp contrast between these formal commitments, to the central importance of formative assessment, and the actual priority given to it. The clearest evidence of this is in the detailed account—written by one of its members—of the work of the Schools Examinations and Assessment Council between its foundation in 1988 and 1993 (Daugherty, 1995). During that time, teachers' assessments appeared as an explicit item on that Council's agenda on only two occasions, each time because the government department (then the Department of Education and Science) had addressed a specific question about summative aspects, whilst the formative aspects of teachers' assessments were never given serious attention. Thus the body charged to carry out government policy on assessment had no strategy either to study or to develop the formative assessment of teachers, and did no more than devote a tiny fraction of its resources to publications concerned with such work.

The political commitment to external testing of teachers and schools in order to promote competition through league tables had a central priority, whilst the commitment to formative assessment was probably a marginal feature. As researchers the world over have found, external tests, such as our the National Curriculum tests and the GCSEs, which function, to use the American phrase, as 'high stakes' tests, always dominate both teaching and assessment. In particular, because of their constraints and their function to provide overall summaries of achievement rather than helpful diagnosis, they give teachers poor models for formative assessment.

It is also possible that many of the commitments were stated in the belief that formative assessment was not problematic—that it already happened all the time and it needed no more than formal acknowledgement of its existence. Some attempts were made, by the School Examinations and Assessment Council (SEAC) and subsequently by its successor the School Curriculum and Assessment Authority (SCAA) to support teachers assessments by producing general guides to procedures, and by publishing examples of pupils' work with guidance on how these concrete examples would be assessed. The general guides were not found to be helpful, and they could not be, given that they were not based on serious study of practical problems. The materials for exemplification have been valuable, but being guides to the interpretation of national curriculum criteria in the marking of pupils' work, they do not constitute a significant contribution to the development of formative work, and indeed might enhance the summative rather than the formative roles of teachers' assessment work.

Given this, it is hardly surprising that numerous research studies of the implementation of the UK's educational reforms have found that formative assessment is, as one put it, "seriously in need of development" (Russell *et al.* 1995). However, more recent research studies have found some improvement in formative practice in primary schools (Gipps *et al.* 1996), and over the past two years, the DfEE have allocated in-service (GEST) funds to the specific purpose of developing teacher assessment at Key Stage Two, and this has made it possible for some LEAs

to begin to improve formative assessment through in-service training. Such developments are welcome, but as yet they do not begin to redress the effects of neglect and of lost opportunities.

With hindsight, it can be seen that the failure, to perceive the need for substantial support for formative assessment and to take responsibility for developing such support, was a serious error. Even in relation to the needs of the education system before 1988, formative assessment was weak. Given the new and mountainous burdens of the National Curriculum changes, it should have been clear that existing good practice could hardly have survived, let alone have risen to the challenge of a far more demanding set of requirements.

Is there evidence about how to improve formative assessment?

The self-esteem of pupils

“... a number of pupils ... are content to ‘get by’ ... Every teacher who wants to practice formative assessment must reconstruct the teaching contracts so as to counteract the habits acquired by his pupils”

(Perrenoud, 1991 talking of pupils in Switzerland)

The ultimate user of assessment information which is elicited in order to improve learning is the pupil. Here there are two aspects—one negative, one positive. The negative is illustrated by the above quotation. Where the classroom culture focuses on rewards, ‘gold stars’, grades or place-in-the-class ranking, then pupils look for the ways to obtain the best marks rather than at the needs of their learning which these marks ought to reflect. One reported consequence is that where they have any choice, pupils avoid difficult tasks. They also spend time and energy looking for clues to the ‘right answer’. Many are reluctant to ask questions out of fear of failure. Pupils who encounter difficulties and poor results are led to believe that they lack ability, and this belief leads them to attribute their difficulties to a defect in themselves about which they cannot do a great deal. So they ‘retire hurt’, avoid investing effort in learning which could only lead to disappointment, and try to build up their self-esteem in other ways. Whilst the high-achievers can do well in such a culture, the overall result is to enhance the frequency and the extent of under-achievement.

The positive aspect is that such outcomes are not inevitable. What is needed is a culture of success, backed by a belief that all can achieve. Formative assessment can be a powerful weapon here if it is communicated in the right way. Whilst it can help all pupils, it gives particularly good results with low achievers where it concentrates on specific problems with their work, and gives them both a clear understanding of what is wrong and achievable targets for putting it right. Pupils can accept and work with such messages, provided that they are not clouded by overtones about ability, competition and comparison with others. In summary, the message can be stated as follows:

- **Feedback to any pupil should be about the particular qualities of his or her work, with advice on what he or she can do to improve, and should avoid comparisons with other pupils.**

Self-assessment by pupils.

However, there is a further dimension. Many of the successful innovations have developed self- and peer-assessment by pupils as ways of enhancing formative assessment, and such work has achieved some success with pupils from age five upwards. This link of formative assessment to self-assessment is not an accident—it is indeed inevitable.

To explain this, it should first be noted that the main problem that those developing self-assessment encounter is not the problem of reliability and trustworthiness: it is found that

pupils are generally honest and reliable in assessing both themselves and one another, and can be too hard on themselves as often as they are too kind. The main problem is different—it is that pupils can only assess themselves when they have a sufficiently clear picture of the targets that their learning is meant to attain. Surprisingly, and sadly, many pupils do not have such a picture, and appear to have become accustomed to receiving classroom teaching as an arbitrary sequence of exercises with no overarching rationale. It requires hard and sustained work to overcome this pattern of passive reception. When pupils do acquire such overview, they then become more committed and more effective as learners: their own assessments become an object of discussion with their teachers and with one another, and this promotes even further that reflection on one's own ideas that is essential to good learning.

What this amounts to is that self-assessment by pupils, far from being a luxury, is in fact an essential component of formative assessment. Where anyone is trying to learn, feedback about their efforts has three elements—the *desired goal*, the evidence about their *present position*, and some understanding of a *way to close the gap* between the two (Sadler, 1989). All three must to a degree be understood by anyone before they can take action to improve their learning.

Such argument is consistent with more general ideas established by research into the way that people learn. New understandings are not simply swallowed and stored in isolation—they have to be assimilated in relation to pre-existing ideas. The new and the old may be inconsistent or even in conflict, and the disparities have to be resolved by thoughtful actions taken by the learner. Realising that there are new goals for the learning is an essential part of this process.

- **For formative assessment to be productive, pupils should be trained in self-assessment so that they can understand the main purposes of their learning and thereby grasp what they need to do to achieve.**

The Evolution of Effective Teaching

The research studies referred to in the first part of this paper show very clearly that effective programmes of formative assessment involve far more than the addition of a few observations and tests to an existing programme. They require careful scrutiny of all of the main components of a teaching plan. As the argument develops it becomes clear that instruction and formative assessment are indivisible.

To begin at the beginning, the choice of tasks for class and home work is important. Tasks have to be justified in terms of the learning aims that they serve, and they can only work well if opportunities for pupils to communicate their evolving understanding are built into the planning. Discussion, observation of activities, marking of written work, can all be used to provide the opportunities, but it is then important to look at, or listen carefully to, the talk, the writing, the actions through which pupils develop and display the state of their understanding.

- **Opportunities for pupils to express their understanding should be designed into any piece of teaching, for this will initiate the interaction whereby formative assessment aids learning.**

Discussions, in which pupils are led to talk about their understanding in their own ways, are important aids to improved knowledge and understanding. Dialogue with the teacher provides the opportunity for the teacher to respond to and re-orient the pupil's thinking. However, there are clearly-recorded examples of such discussions where teachers have, quite unconsciously, responded in ways that would inhibit the future learning of a pupil. What the examples have in common is that the teacher is looking for a particular response and lacks the flexibility or the confidence to deal with the unexpected. So the teacher tries to direct the pupil towards giving the expected answer. In manoeuvring the conversation in this way, the teacher seals off any unusual, often thoughtful but unorthodox, attempts by the pupils to work out their own answers. Over time the pupils get the message—they are not required to think out their own answers. The object of the exercise is to work out, or guess, what answer the teacher expects to see or hear, and then express it so that the teaching can proceed.

A particular feature of the talk between teacher and pupils is the asking of questions by the teacher. This natural and direct way of checking on learning is often un-productive. One common problem is that teachers do not allow enough quiet time so that pupils can think out and offer an answer. Where, as often happens, a teacher answers her or his own question after only two or three seconds, and where a minute (say) of silent thought is not tolerable, there is no possibility that a pupil can think out what to say. There are then two consequences. One is that, because the only questions that can produce answers in such a short time are questions of fact, these predominate. The other is that pupils don't even try to think out a response—if you know that the answer, or another question, will come along in a few seconds, there is no point in trying. It is also common that only a few pupils in a class answer teachers' questions. The rest then leave it to these few, knowing that they cannot respond as quickly and being unwilling to risk making mistakes in public. So the teacher, by lowering the level of questions and by accepting answers from a few, can keep the lesson going but is actually out of touch with the understanding of most of the class—the question-answer dialogue becomes a ritual, one in which all connive and thoughtful involvement suffers.

There are several ways to break this particular cycle. They involve giving pupils time to respond, asking them to discuss their thinking in pairs or in small groups so that a respondent is speaking on behalf of others, giving pupils a choice between different possible answers and asking them to vote on the options, asking all to write down an answer and then reading out a selected few, and so on. What is essential is that any dialogue should evoke thoughtful reflection in which all pupils can be encouraged to take part, for only then can the formative process start to work.

- **The dialogue between pupils and a teacher should be thoughtful, reflective, focused to evoke and explore understanding, and conducted so that all pupils have an opportunity to think and to express their ideas.**

Class tests, and tests or other exercises set for homework, are also important means to promote feedback. A good test can be a learning as well as a testing occasion. It is better to have frequent short tests than infrequent and longer ones. Any new learning should first be tested within about a week of first encounter, but tests more frequent than this are counter-productive. The quality of the test items, i.e. their relevance to the main learning aims and their clear communication to the pupil, needs scrutiny. Good questions are hard to generate and teachers should collaborate, and draw—critically—on outside sources, to collect such questions.

Given questions of good quality, it is then essential to ensure the quality of the feedback. Research studies have shown that if pupils are given only marks or grades, they do not benefit from the feedback on their work. The worst scenario is one in which some pupils get low marks this time, they got low marks last time, they expect to get low marks next time, and this is accepted as part of a shared belief between them and their teacher that they are just not clever enough. Feedback has been shown to improve learning where it gives each pupils specific guidance on strengths and weaknesses, preferably without any overall marks. Thus, the way in which test results are reported back to pupils so that they can identify their own strengths and weaknesses is a critical feature. Pupils must be given the means and opportunities to work with evidence of their difficulties. Thus, for formative purposes a test at the end of a block or module of teaching is pointless in that it is too late to work with the results.

- **Tests and homework exercises can be an invaluable guide to learning, but the exercises must be clear and relevant to learning aims. The feedback on them should give each pupil guidance on how to improve, and each must be given opportunity and help to work at the improvement.**

All these points make clear that there is no one simple way to improve formative assessment. What is common to them is that a teacher's approach should start by being realistic—confronting the question “Do I really know enough about the understanding of my pupils to be able to help each of them?”.

Much of the work needed can give rise to difficulties. Some pupils will resist attempts to change accustomed routines, for any such change is threatening, and emphasis on the challenge to think for yourself (and not just work harder) can be disturbing to many. Pupils cannot be expected to believe in the value of changes for their learning before they have experienced the benefits of change.

Many of the initiatives that are needed take more class time, particularly when a central purpose is to change the outlook on learning and the working methods of pupils. Thus, teachers have to take risks in the belief that such investment of time will yield rewards in the future, whilst 'delivery' and 'coverage' with poor understanding are pointless and even harmful.

Underlying such problems will be two basic issues. The one is *the nature of each teacher's beliefs about learning*. If the assumption is that knowledge is to be transmitted and learnt, that understanding will develop later, and that clarity of exposition accompanied by rewards for patient reception are the essentials of good teaching, then formative assessment is hardly necessary. If however, teachers accept the wealth of evidence that this transmission model does not work, even by its own criteria, then the commitment must be to teaching through interaction to develop each pupil's power to incorporate new facts and ideas into his or her understanding. Then formative assessment is an essential component—but one that is built in with other features which are also needed to secure the responsible and thoughtful involvement of all pupils. This is not meant to imply that individualised one-on-one teaching is the only solution, rather that what is needed is a classroom culture of questioning and deep thinking in which pupils will learn from shared discussions with teachers and from one another.

The other issue is *the beliefs that teachers hold about the potential to learn of all of their pupils*. To sharpen the contrast by overstating it, there is on the one hand the 'fixed IQ' view—a belief that each pupil has a fixed, inherited, intelligence, so that little can be done apart from accepting that some can learn quickly and others can hardly learn at all. On the other hand, there is the 'un-tapped potential' view, prevalent in other cultures, which starts from the assumption that so-called 'ability' is a complex of skills that can be learnt. Here, the underlying belief is that all pupils can learn more effectively if one can clear away, by sensitive handling, the obstacles set up by previous difficulties, be they of cognitive failures never diagnosed, or of damage to personal confidence, or a combination of the two. Clearly the truth lies between these two extremes, *but the evidence is that ways of managing formative assessment which work with the assumptions of 'un-tapped potential' do help all pupils to learn and can give particular help to those who have previously fallen behind*.

Policy and Practice

Changing the policy perspective

The assumptions driving our national policy for assessment have been changing since 1988. Initially, it was promoted as an important component for establishing the competitive market in education. This now has lower priority, with a shift towards emphasis on target setting for all, with assessment providing the touchstone to help check pupils' attainments. This is a more mature position, *but we would argue that there is a need now to move further, to focus on the inside of the 'black box' and so to explore the potential of assessment to raise standards directly as an integral part of each pupil's learning work*.

It follows from this view that several changes are needed. First and foremost policy ought to start with a recognition that the prime locus for raising standards is the classroom, so that the over-arching priority has to be to promote and support change within the classroom. Attempts to raise standards by reform of the inputs and outputs to and from the black box of the classroom can be helpful, but they cannot be adequate on their own, and whether or not they are helpful can only be judged in the light of their effects in classrooms.

The evidence we have presented here establishes that a clearly productive way to start implementing a classroom-focused policy would be to improve formative assessment. This same evidence also establishes that to do this would not be to concentrate on some minor or idiosyncratic aspect of the whole business of teaching and learning. *Rather it would be concentrate on several essential elements, namely the quality of teacher-pupil interactions, the stimulus and help for pupils to take active responsibility for their own learning, the particular help needed to move pupils out of the 'low-attainment' trap, and the development thereby of the habits needed by all if they are to become capable of life-long learning.* Improvements in formative assessment which are within reach can contribute substantially to raising standards in all of these aspects.

Four steps to implementation

If the above argument is accepted, then what needs to be done? Here of course we have to go beyond the evidence about assessment and call on more general sources for guidance (Black & Atkin 1996, Fullan 1991).

At one extreme, one might call for more research to find out how best to carry out such work, at the other one could call for an immediate and large-scale programme, with new guides, perhaps even rules, that all teachers should put into practice. Neither of these alternatives is sensible: the apparent paradox is that whilst the first is unnecessary because enough is known from the results of research, the second would be unjustified because not enough is known about classroom practicalities within the context of this country's schools.

Thus the improvement of formative assessment cannot be a simple matter. There is no 'quick fix' that can be added to existing practice with promise of rapid reward. *On the contrary, if the substantial rewards of which the evidence holds out promise are to be secured, this will only come about if each teacher finds his or her own ways of incorporating the lessons and ideas that are set out above into her or his own patterns of classroom work. This can only happen relatively slowly, and through sustained programmes of professional development and support. This does not weaken the message here—indeed, it should be a sign of its authenticity, for lasting and fundamental improvements in teaching and learning can only happen in this way. A recent international study of innovation and change in education encompassing twenty-three projects in thirteen member countries of the OECD has arrived at exactly the same message in framing advice to the member countries about effective policies for change (Black and Atkin 1996).*

Such arguments lead us to propose a four-point scheme for development, as follows.

1. Learning from development

Teachers will not take up attractive sounding ideas, albeit based on extensive research, if these are presented as general principles which leave entirely to them the task of translating them into everyday practice—their classroom lives are too busy and too fragile for this to be possible for all but an outstanding few. What they need is a variety of living examples of implementation, by teachers with whom they can identify and from whom they can both derive conviction and confidence that they can do better, and see concrete examples of what doing better means in practice.

So the programme development cannot start with an extensive programme of training for all—that could only be justified if it could be claimed that there exist enough 'trainers' who know what to do, which is not the case. The essential first step is to set up a small number of local groups of schools, some primary, some secondary, some inner city, some from outer suburbs, some rural, with each committed both to a school based development of formative assessment and to collaboration within their local group. In such a process, the teachers in their classrooms

will be working out the answers to many of the practical questions that the evidence presented here cannot answer, and reformulating the issues, perhaps in relation to fundamental insights, and certainly in terms which can make sense to their peers in ordinary classrooms. It would also be essential to carry out such development in a range of subject areas—the research reports of those developing mathematics education are significantly different from those in language, and different again from those working in the creative arts (to quote only three examples).

The schools involved would need extra support, both to give their teachers time to plan the initiative in the light of existing evidence, to reflect on their experience as it develops, and to advise on training work for others in the future. In addition, there would be a need to support external evaluators to work with the teachers to help their development of the work, and to collect evidence about its effectiveness. Such evidence would both help guide policy implementation and to disseminate findings to others. Video studies of classroom work would be an essential component for this latter purpose.

2. *Dissemination*

This dimension of the implementation would be in low key at the outset—giving no more than general encouragement, with explanation of some of the relevant evidence that schools might consider in the light of their existing practices. It would become more pro-active when results and resources became available from the development programme. Then strategies for wider dissemination would have to be pursued, for example through ear-marking of funding for relevant in-service programmes.

It has to be emphasised that this will inevitably be a slow development. *To repeat what was said above, if the substantial rewards of which the evidence holds out promise are to be secured, this will only come about if each teacher finds his or her own ways of incorporating the lessons and ideas that are set out above into his or her own patterns of classroom work. Even with optimum training and support, this will take time.*

3. *Reducing obstacles*

“Most of the teachers in this study were caught in conflicts among belief systems, and institutional structures, agendas, and values. The point of friction among these conflicts was assessment, which was associated with very powerful feelings of being overwhelmed, and of insecurity, guilt, frustration, and anger... This study suggests that assessment, as it occurs in schools, is far from a merely technical problem. Rather, it is deeply social and personal.”

(US secondary language teachers—Johnston et al., 1995)

All features in the educational system which actually obstruct the development of effective formative assessment should be examined to see how their negative effects can be reduced. The outstanding influence here is that of short external tests. Such tests can dominate teachers' work, and insofar as they encourage drilling to produce right answers to short out-of-context questions, this dominance can draw teachers away from the paths to effective formative work. They can thereby constrain teachers to act against their own better judgement about the best ways to develop the learning of their pupils. This is not to argue that all such tests are unhelpful, and indeed they have an important role to play in securing public confidence in the accountability of schools. For the immediate future, what is needed is that in the evaluation of such tests, and in any development programme for formative assessment, the interactions between the two be studied with care to see how the models of assessment that external tests can provide could be made more helpful.

All teachers have to undertake some summative assessment, for example to report to parents, and to produce end-of-year reports as classes are due to move on to new teachers. However, the task of assessing pupils summatively for external purposes is clearly different from the task

of assessing on-going work to monitor and improve progress. Some argue that these two roles are so different that they should be kept apart. We do not see how this can be done, given that teachers must have some share in responsibility for the former and must take the leading responsibility for the latter. Indeed, from the information that teachers gather for formative purposes, they should, with selection and re-interpretation, be in a strong position to contribute to a fair summative report on each pupil (William and Black, 1996). However, there are clearly difficult problems for teachers in reconciling their formative with their summative roles, and it is also evident from several evaluation studies of teachers' assessment practices in the UK in recent years that confusion in teachers' minds between the roles has impeded progress.

The role of teachers' assessment in GCSE and A-level examinations is a particular issue here. John Major's thoughtless intervention in 1991 (quoted in Daugherty 1995 p.137), when he declared that the contribution of teachers' assessments of course-work to public examination results should be reduced, limited this role, and so set back the very substantial progress made over many years in developing the procedures to enhance the quality of such contributions. If that set-back could be reversed and new priority given to solving the problems attendant on such contributions, this could be helpful in enhancing and in giving impetus to the development of assessment skills by teachers. More significantly, it could raise the status of teachers' assessments and help them in resolving what the above quotation refers to as the 'deeply social and personal' problems that many teachers have about their roles in assessment.

As already pointed out, enhancing the quality of learning through improved formative feedback takes classroom time, and is in conflict where teachers feel under pressure to 'cover' a statutory curriculum. An important contribution here would be a reduction in the content of that curriculum when it is revised for the years 2000.

4. Research

It is not difficult to set out a list of research questions which would justify further research in this area. The underlying reason for this is that, despite the many and varied reports of successful innovations, they fail to give clear accounts on one or other of the important details, for example about the actual classroom methods used, or about the motivation and experience of the teachers, or about the nature of the tests used as measures of success, or about the outlooks and expectations of the pupils involved.

However, whilst there is ample justification for proceeding with carefully formulated projects, we do not judge that everything should wait on these. Enough is known to provide a basis for active development work, and some of the most important questions can only be answered in a programme of practical implementation.

Examples of research questions for the future could be a study of the ways in which teachers understand and deal with the relationship between their formative and summative roles, or a comparative study of the predictive validity of teachers' summative assessments compared with external test results. Many more examples could be formulated, and it would be important for future development that some of the many problems should be tackled by basic research. At the same time, experienced researchers would also have a vital role to play in the evaluation of the development programmes proposed above.

Are we serious about raising standards ?

We believe that our findings should be studied immediately by a variety of responsible agencies, such as the new Qualifications and Curriculum Authority, OFSTED, LEAs, the Teacher Training Agency, research and training institutions, the range of other INSET providers, school-based development programmes and so on. The programme outlined above would have implications for all of them, although it would be for government to give a lead. It would be premature and out of order for us to try to consider their relative roles in such a programme, although clearly success would depend on their mutual co-operation.

The main plank of our argument is that standards are raised only by changes which are put into direct effect by teachers and pupils in classrooms. There is a body of firm evidence that formative assessment is an essential feature of classroom work and that development of it can raise standards. We know of no other way of raising standards for which such a strong prima facie case can be made on the basis of evidence of such large learning gains.

Our education system has been subjected to many far-reaching initiatives which, whilst taken in reaction to concerns about existing practices, have been based on little evidence about their potential to meet those concerns. In our study of formative assessment there can be seen, for once, firm evidence that indicates clearly a direction for change which could improve standards of learning. Our plea is that national policy will grasp this opportunity and give a lead in this direction.

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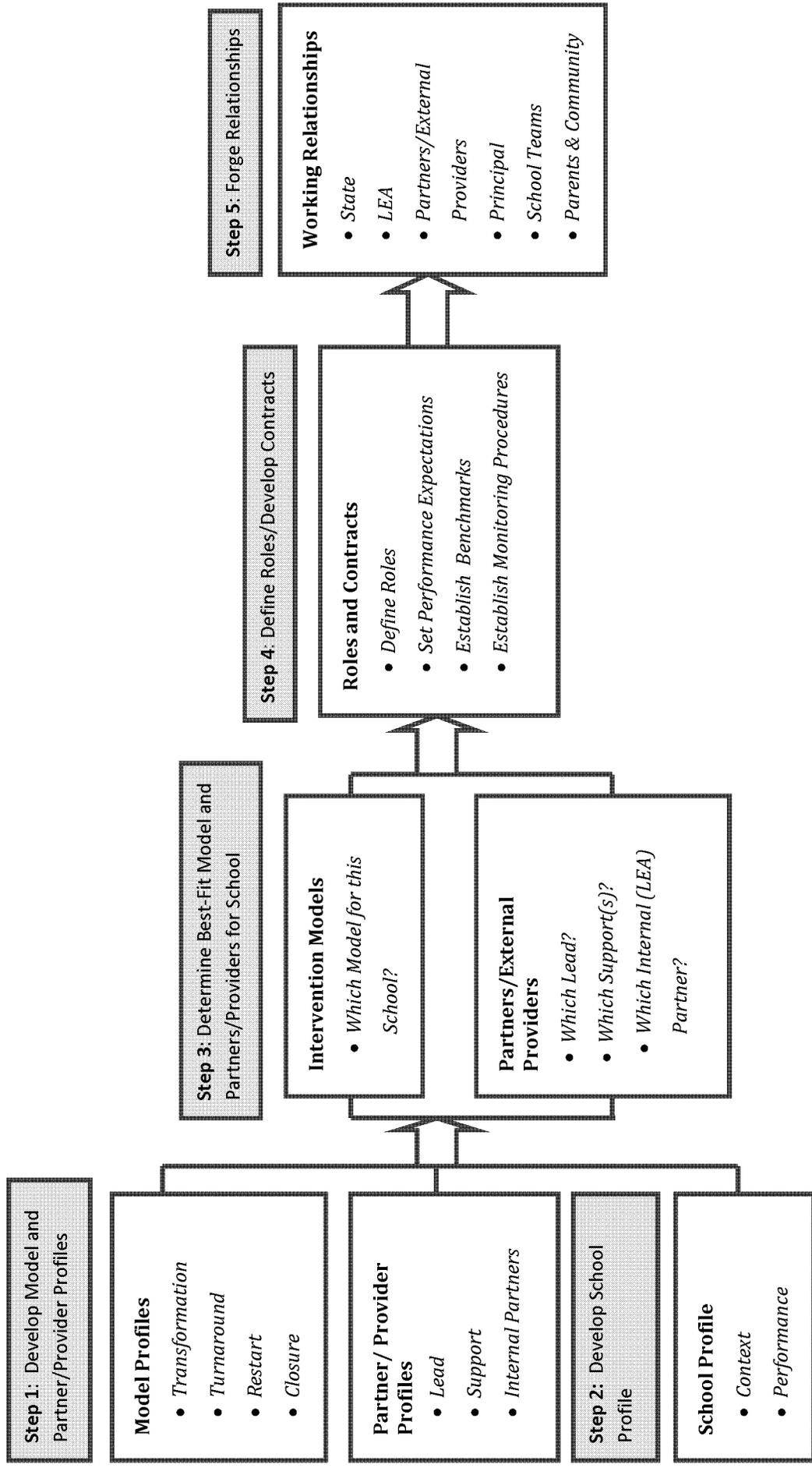
Successful School Restructuring: A Report to the Public and Educators. Madison, WI: Center on Organization and Restructuring of Schools, Wisconsin Center for Education Research.. Summary of main findings from qualitative and quantitative research in more than 1500 schools from 1990 to 1995.

Selecting the Intervention Model and Partners/Providers for a Low-Achieving School

A Decision-Making and Planning Tool for the Local Education Agency

Center on Innovation & Improvement www.centerii.org

This tool aids the LEA in assembling the necessary information and considering the essential questions to select an intervention model that has the greatest potential to dramatically improve outcomes for students attending a low-achieving school. The tool also helps the LEA select the strongest partners and service providers and take the first steps in setting performance expectations and implementing the intervention. The information compiled in Step 1 *may* be applicable to all schools in the LEA, while steps 2-5 are school-specific.



This tool is predicated on the following assumptions:

- the intervention model that is selected is suitable for the school, given factors such as past achievement results, past improvement efforts, and community context
- the intervention model that is selected is suitable in terms of access to the external partners/providers that will be needed for successful implementation
- the intervention model that is selected is suitable in terms of the district's policy environment, its contextual factors (e.g., availability of staff replacement, availability of schools to receive students of a school that closes) and the district's ability to fully support the implementation and provide effective oversight
- the district chooses one or more intervention models for its school(s) with the recognition of the demands on its capacity to support multiple intervention models

Intervention Model Descriptions

There are four allowable intervention models: Transformation, Turnaround, Restart, and Closure.

1. Transformation

The LEA replaces the principal with a highly capable principal with either a track record of transformation or clear potential to successfully lead a transformation (although the LEA may retain a recently hired principal where a turnaround, restart, or transformation was instituted in past two years and there is tangible evidence that the principal has the skills necessary to initiate dramatic change); implements a rigorous staff evaluation and development system; rewards staff who increase student achievement and/or graduation rates and removes staff who have not improved after ample opportunity; institutes comprehensive instructional reform; increases learning time and applies community-oriented school strategies; and provides greater operational flexibility and support for the school.

2. Turnaround

The LEA replaces the principal with a highly capable principal with either a track record of turnaround or clear potential to successfully lead a turnaround (although the LEA may retain a recently hired principal where a turnaround, restart, or transformation was instituted in past two years and there is tangible evidence that the principal has the skills necessary to initiate dramatic change) and rehiring no more than 50% of the staff; gives greater principal autonomy; implements other prescribed and recommended strategies.

3. Restart

The LEA converts or closes and reopens a school under a charter/performance contract with a charter school governing board, charter management organization, or education management organization.

4. Closure

The LEA closes the school and enrolls the students in other schools in the LEA that are higher achieving.

Step 1-A: Develop Profiles of Available Intervention Models

Transformation

1. State statutes and policies that address transformation, limit it, create barriers to it, or provide support for it and how:
2. District policies that address transformation, limit it, create barriers to it, or provide support for it and how:
3. District contractual agreements, including collective bargaining, that affect transformation and how:

Turnaround

1. State statutes and policies that address turnaround, limit it, create barriers to it, or provide support for it and how:
2. District policies that address turnaround, limit it, create barriers to it, or provide support for it and how:
3. District contractual agreements, including collective bargaining, that affect turnaround and how:

Restart

Charter Schools

1. State statutes and policies that address the formation of charter schools, limit it, create barriers to it, or provide support for it and how:
2. District policies that address the formation of charter schools, limit it, create barriers to it, or provide support for it and how:

3. District contractual agreements, including collective bargaining, that affect the formation of charter schools and how:

Education Management Organizations (including Charter Management Organizations)

1. State statutes and policies that address district contracts with EMOs to operate schools , limit them, create barriers to them, or provide support for them and how:
2. District policies that address district contracts with EMOs to operate schools , limit them, create barriers to them, or provide support for them and how:
3. District contractual agreements, including collective bargaining, that affect district contracts with EMOs to operate schools , limit them, create barriers to them, or provide support for them and how:

Closure

1. State statutes and policies that address school closures , limit them, create barriers to them, or provide support for them and how:
2. District policies that address school closures , limit them, create barriers to them, or provide support for them and how:

3. District contractual agreements, including collective bargaining, that affect school closures, limit them, create barriers to them, or provide support for them and how:
4. Higher achieving schools available to receive students and number of students that could be accepted at each school:

Step 1-B: Develop Profiles of Available Partners/External Providers

Transformation

The LEA replaces the principal with a highly capable principal with either a track record of transformation or clear potential to successfully lead a transformation (although the LEA may retain a recently hired principal where a turnaround, restart, or transformation was instituted in past two years and there is tangible evidence that the principal has the skills necessary to initiate dramatic change); implements a rigorous staff evaluation and development system; rewards staff who increase student achievement and/or graduation rates and removes staff who have not improved after ample opportunity; institutes comprehensive instructional reform; increases learning time and applies community-oriented school strategies; and provides greater operational flexibility and support for the school.

External partners/providers available to assist with transformation and brief description of services they provide and their track record of success.				
Partner Organization/External Provider	Lead Y/N	Support Y/N	Services Provided	Experience (Types of Schools and Results)

Turnaround

The LEA replaces the principal with a highly capable principal with either a track record of turnaround or clear potential to successfully lead a turnaround (although the LEA may retain a recently hired principal where a turnaround, restart, or transformation was instituted in past two years and there is tangible evidence that the principal has the skills necessary to initiate dramatic change) and rehiring no more than 50% of the staff; gives greater principal autonomy; implements other prescribed and recommended strategies.

External partners/providers available to assist with turnaround and brief description of services they provide and their track record of success.				
Partner Organization/External Provider	Lead Y/N	Support Y/N	Services Provided	Experience (Types of Schools and Results)

Restart

The LEA converts or closes and reopens a school under a charter/performance contract with a charter school governing board, charter management organization, or education management organization.

Charter governing boards, charter management organizations, and potential charter school operating organizations available to start a charter school and brief description of services they provide and their track record of success.				
Charter Organization	Lead Y/N	Support Y/N	Services Provided	Experience (Types of Schools and Results)

Closure

The LEA closes the school and enrolls the students in other schools in the LEA that are higher achieving.

External partners/external providers available to assist district with school closures and brief description of services they provide and their track record of success.				
Partner Organization/External Provider	Lead Y/N	Support Y/N	Services Provided	Experience (Types of Schools and Results)

Step 2: Develop a Profile of the School's Context and Performance

Name of School:

Context

1. Grade levels (e.g., 9-12):
2. Total Enrollment:
3. % Free/Reduced Lunch:
4. % Special Education Students:
5. % English Language Learners:
6. Home Languages of English Language Learners (list up to 3 most frequent):
7. Briefly describe the school's enrollment area (neighborhoods, communities served):

8. List the feeder schools and/or recipient schools that supply or receive most of this school's students:

9. Briefly describe the background and core competencies (particular skills, expertise) of the school's current key administrators and indicate the number of years they have held the position and the number of years they have been employed in the school and LEA.

Position	Background and Core Competencies	Years in Position	Years in School	Years in LEA

12. Briefly summarize the process by which teachers are evaluated. By whom? How frequently?

13. Is teacher absenteeism a problem in this school? Please explain.

14. Briefly summarize previous and current reform and improvement efforts, within the last 5 years, and what impeded their success.

For example:

- Adopted a model and curriculum to raise reading scores but was not able to implement with fidelity.
- District provided instructional coach but coach was not able to have an impact due to only visiting school twice per quarter.
- Adopted a block schedule for math and reading but inadequate PD funds limited ability for teachers to change instructional approach and fully utilize longer instructional blocks.

Performance

Note: This information may also be provided by attaching the aggregate school report cards with the same information.

1. Enter the percentage of all students who tested as proficient or better on the state standards assessment test for each subject available.

Subject	2006	2007	2008	2009	2010 (if available)
Reading/Language/English					
Mathematics					
Science					
Social Studies					
Writing					

2. For the most recent year available, enter the percentage of students in each subgroup who tested proficient or better on the state standards assessment test for each subject available. Test Year:

Subject	White, non-Hispanic	Black, non-Hispanic	Hispanic	Asian, Pacific Island	Native American	English Language Learners	Special Education
Reading/Language/English							
Mathematics							
Science							
Social Studies							
Writing							

3. For the most recent year available, enter the percentage of students at each grade level in this school who tested proficient or better on the state standards assessment test for each subject available. Test Year:

Subject	1 st Gr.	2 nd Gr.	3 rd Gr.	4 th Gr.	5 th Gr.	6 th Gr.	7 th Gr.	8 th Gr.	9 th Gr.	10 th Gr.	11 th Gr.	12 th Gr.
Reading/Language/English												
Mathematics												
Science												
Social Studies												
Writing												

4. Average daily attendance percentage for last complete school year: Year:

5. Student mobility rate for last complete school year: Year:

6. Graduation rate for all students:

7. Graduation rate-percentage (high schools only).

All Students	White, non-Hispanic	Black, non-Hispanic	Hispanic	Asian, Pacific Island	Native American	English Language Learners	Special Education

8. Explain how the graduation rate was calculated.

Key Questions

1. Which student groups are experiencing the lowest achievement?
2. Which student groups are experiencing the lowest graduation rates, if applicable?
3. In which subjects are students experiencing the lowest achievement?
4. What characteristics of the student demographics should be taken into account in selecting a model and external partners/providers?
5. What, if any, idiosyncratic characteristics of the enrollment area should be taken into account in selecting a model and external partners/providers?
6. What characteristics of administrators and faculty should be taken into account in selecting a model and external partners?
7. What characteristics of past experience with reform efforts should be taken into account in selecting a model and external partners?

Step 3-A: Determine Best-Fit Model for School

The chief question to answer in determining the most appropriate intervention model is: What improvement strategy will result in the most immediate and substantial improvement in learning and school success for the students now attending this school **given the existing capacity in the school and the district?** There is no “correct” or “formulaic” answer to this question. Rather, relative degrees of performance and capacity should guide decision making. The following table outlines key areas and characteristics of performance and school, district, and community capacity that should be considered as part of your decision making. In the first column, check the boxes that accurately describe the school. The checks in the right four columns indicate that if this characteristic is present, the respective intervention model could be an option.

Characteristics of Performance and Capacity				
CHARACTERISTIC	INTERVENTION MODEL			
	TURNAROUND	TRANSFORMATION	RESTART	CLOSURE
School Performance				
<input type="checkbox"/> All students experiencing low achievement/graduation rates	✓		✓	✓
<input type="checkbox"/> Select sub-groups of students experiencing low-performance		✓		
<input type="checkbox"/> Students experiencing low-achievement in all core subject areas	✓		✓	✓
<input type="checkbox"/> Students experiencing low-achievement in only select subject areas		✓		
School Capacity				
<input type="checkbox"/> Strong existing (2 yrs or less) or readily available turnaround leader	✓	✓	✓	
<input type="checkbox"/> Evidence of pockets of strong instructional staff capacity		✓		
<input type="checkbox"/> Evidence of limited staff capacity	✓		✓	✓
<input type="checkbox"/> Evidence of negative school culture	✓		✓	✓
<input type="checkbox"/> History of chronic-low-achievement	✓		✓	✓
<input type="checkbox"/> Physical plant deficiencies				✓
<input type="checkbox"/> Evidence of response to prior reform efforts	✓	✓		
District Capacity				
<input type="checkbox"/> Willing to negotiate for waivers of collective bargaining agreements related to staff transfers and removals	✓		✓	✓
<input type="checkbox"/> Capacity to negotiate with external partners/providers			✓	
<input type="checkbox"/> Ability to extend operational autonomy to school	✓		✓	✓
<input type="checkbox"/> Strong charter school law			✓	

<input type="checkbox"/>	Experience authorizing charter schools			✓
<input type="checkbox"/>	Capacity to conduct rigorous charter/EMO selection process			✓
<input type="checkbox"/>	Capacity to exercise strong accountability for performance			✓
Community Capacity				
<input type="checkbox"/>	Strong community commitment to school	✓		✓
<input type="checkbox"/>	Supply of external partners/providers			✓
<input type="checkbox"/>	Other higher performing schools in district			✓

1. Based on the Characteristics of Performance and Capacity table above, rank order the intervention models that seem the best fit for this school. This is only a crude estimation of the best possible model, but it is a place to start.

Best Fit Ranking of Intervention Models

- A. Best Fit:
- B. Second Best Fit:
- C. Third Best Fit:
- D. Fourth Best Fit:

2. Now answer the questions below for the model you consider the best fit and the model you consider the second best fit. Review the questions for the other two models. Change the rankings if answering and reviewing the questions raises doubts about the original ranking.

The Transformation Model

1. How will the LEA select a new leader for the school, and what experience, training, and competencies will the new leader be expected to possess?
2. How will the LEA enable the new leader to make and sustain strategic staff replacements?
3. What is the LEA's own capacity to support the transformation, including the implementation of required, recommended, and diagnostically determined strategies?

4. What changes in decision making policies and mechanisms (including greater school-level flexibility in budgeting, staffing, and scheduling) must accompany the transformation?
5. How will the district support the new leader in determining the changes in operational practice (including classroom instruction) that must accompany the transformation, and how will these changes be brought about and sustained?

The Turnaround Model

1. How will the LEA begin to develop a pipeline of effective teachers and leaders to work in turnaround schools?
2. How will the LEA select a new leader for the school, and what experience, training, and competencies will the new leader be expected to possess?
3. How will the LEA support the school leader in recruiting and retaining highly effective teachers to the lowest achieving schools?
4. How will staff replacement be executed—what is the process for determining which staff remains in the school, which are assigned to another school, and which should leave the profession (or at least the district)?
5. How will the language in collective bargaining agreements be negotiated to ensure the most talented teachers and leaders remain in the school and underperformers leave?
6. What supports will be provided to staff selected for re-assignment to other schools?
7. What are the budgetary implications of retaining surplus staff within the LEA if that is necessary?

8. What is the LEA's own capacity to execute and support a turnaround? What organizations are available to assist with the implementation of the turnaround model?
9. What changes in decision-making policies and mechanisms (including greater school-level flexibility in budgeting, staffing, and scheduling) must accompany the infusion of human capital?
10. How will the district support the new leader in determining the changes in operational practice (including classroom instruction) that must accompany the turnaround, and how will these changes be brought about and sustained?

The Restart Model

1. Are there qualified (track record of success with similar schools) charter management organizations (CMOs) or education management organizations (EMOs) interested in a performance contract with the LEA to start a new school (or convert an existing school) in this location?
2. Are there strong, established community groups interested in initiating a homegrown charter school? The LEA is best served by cultivating relationships with community groups to prepare them for operating charter schools.
3. Based on supply and capacity, which option is most likely to result in dramatic student growth for the student population to be served—homegrown charter school, CMO, or EMO?
4. How can statutory, policy, and collective bargaining language relevant to the school be negotiated to allow for closure of the school and restart?
5. How will support be provided to staff that are selected for re-assignment to other schools as a result of the restart?

6. What are the budgetary implications of retaining surplus staff within the LEA if that is necessary?
7. What role will the LEA play to support the restart and potentially provide some centralized services (e.g., human resources, transportation, special education, and related services)?
8. How will the SEA assist with the restart?
9. How will the LEA hold the charter governing board, CMO, or EMO accountable for specified performance benchmarks?
10. Is the LEA (or other authorizer) prepared to terminate the contract if performance expectations are not met and are the specifics for dissolution of the charter school outlined in the charter or management contract?

School Closure Model

1. What are the criteria to identify schools to be closed?
2. What steps are in place to make certain closure decisions are based on tangible data and readily transparent to the local community?
3. How will the students and their families be supported by the LEA through the re-enrollment process?
4. Which higher-achieving schools have the capacity to receive students from the schools being considered for closure?

5. How will the receiving schools be staffed with quality staff to accommodate the increase in students?
6. How will current staff be reassigned—what is the process for determining which staff members are dismissed and which staff members are reassigned?
7. Does the statutory, policy, and collective bargaining context relevant to the school allow for removal of current staff?
8. What supports will be provided to recipient schools if current staff members are reassigned?
9. What safety and security considerations might be anticipated for students of the school to be closed and the receiving school(s)?
10. What are the budgetary implications of retaining surplus staff within the LEA if that is necessary?
11. How will the LEA track student progress in the recipient schools?
12. What is the impact of school closure to the school's neighborhood, enrollment area, or community?
13. How does school closure fit within the LEA's overall reform efforts?

Step 3-B: Determine Best-Fit Partners/Providers for School and Intervention Model

Intervention Model	Recommended Intervention Model and External Partners/Providers
	Rationale for Selecting Model
Lead Partner/Provider (if applicable)	Rationale for Selecting Lead Partner/Provider
Internal Partner (District Staff)	Rationale for Selecting Internal Partner/Provider
Supporting Partner/Provider	Rationale for Selecting Supporting Partner/Provider
Supporting Partner/Provider	Rationale for Selecting Supporting Partner/Provider

Step 4: Define Roles and Develop Contracts

1. Briefly describe the role of each of the following groups or Partners/Providers relative to the implementation of the intervention model

Group/Partner/Provider	Role with this School in Implementation of Intervention Model
State Education Agency	
Local Education Agency	
Internal Partner/Provider (LEA staff):	
Lead Partner/Provider:	
Support Partner/Provider:	
Support Partner/Provider:	
Support Partner/Provider:	
Principal:	
School Teams	
Parents & Community	

2. Determine the performance expectations for the lead partner/provider and supporting partners/providers, with quarterly benchmarks.

Note: Developing performance expectations and benchmarks to include in the contract with each partner/provider is one of the LEA's most important responsibilities. Please see the links to web resources below to assist in making these decisions and in developing the appropriate contracts. Also engage LEA legal counsel in this process.

3. Describe how the LEA's will monitor implementation of the intervention model. Who will do what and when?

Step 5: Forge Working Relationships

Describe how the LEA will promote the working relationships among the groups and partners/providers committed to this intervention—the state, the LEA, the lead partner/provider, the support partners/providers, the internal partner/provider, the principal, school teams, and the parents and community.

Resources

See the *Handbook on Effective Implementation of School Improvement Grants* at www.centerii.org.

Also see resources below, which are also referenced in the *Handbook*.

Selecting and Contracting with External Partners/Providers

- Arizona State Board for Charter Schools. (n.d.) *Charter contract between Arizona State Board for Charter Schools and John Doe*. Retrieved from <http://www.asbcs.az.gov/pdf/sample%20transfer%20contract.pdf>
- Center for Comprehensive School Reform and Improvement (CCSRI). (2009). *School restructuring under No Child Left Behind: What works when? A guide for education leaders*. Washington, DC: Learning Point Associates. Retrieved from http://www.centerforsri.org/files/School_Restructuring_Guide.pdf
- Chicago Public Schools. (2009). *Request for proposals/Questions for open applicants*. Chicago: Author. Retrieved from http://www.ren2010.cps.k12.il.us/docs/RFP_Open_Questions.pdf
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- Miron, G., & Urschel, J. (2009). *Profiles of non-profit education management organizations: 2008-2009*. Boulder and Tempe: Education and the Public Interest Center & Education Policy Research Unit. Retrieved from <http://epicpolicy.org/publication/profiles-nonprofit-emos-2008-09>
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- National Association of Charter School Authorizers. (2009, February). *The terms of the deal: A Quality charter school contract defined*. Retrieved from http://www.qualitycharters.org/files/public/issue_Brief_18_Authorizing_The_Deal_FIN.pdf
- National Association of Charter School Authorizers. (2009). *Authorizing policy guides and issue briefs*. Retrieved from <http://www.qualitycharters.org/i4a/pages/Index.cfm?pageID=3375>
- National Association of Charter School Authorizers. (2009, September). *The charter school application process*. Retrieved from http://www.qualitycharters.org/files/public/Charter_School_Application_Process.pdf
- National Association of Charter School Authorizers. (2009, September). *Charter school performance accountability*. Retrieved from http://www.qualitycharters.org/files/public/Performance_Accountability.pdf

National Association of Charter School Authorizers. (2009, September). *Charter school contracts*. Retrieved from http://www.qualitycharters.org/files/public/Charter_School_Contracts.pdf

National Association of Charter School Authorizers. (2007, November). *GOOD to GOVERN: Evaluating the capacity of charter school founding boards*. Retrieved from <http://www.qualitycharters.org/files/public/IssueBriefNo15.pdf>

National Association of Charter School Authorizers. (2007, November). *School districts choosing to charter*. Retrieved from <http://www.qualitycharters.org/files/public/IssueBriefNo6.pdf>

National Center on School Choice, <http://www.vanderbilt.edu/schoolchoice/research-home.html>

National Charter School Research Project, <http://www.crpe.org/cs/crpe/view/projects/1>

U.S. Charter Schools. (n.d.). *Document library: Contracts/Legal Agreements*. Retrieved from http://www.uscharterschools.org/pub/uscs_docs/r/menu_auth.htm#contract

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Section F:

General Selection Criteria

NRS 387.121 Legislative declaration; Nevada Plan.

The Legislature declares that the proper objective of state financial aid to public education is to ensure each Nevada child a reasonably equal educational opportunity. Recognizing wide local variations in wealth and costs per pupil, this State should supplement local financial ability to whatever extent necessary in each school district to provide programs of instruction in both compulsory and elective subjects that offer full opportunity for every Nevada child to receive the benefit of the purposes for which public schools are maintained. Therefore, the quintessence of the State's financial obligation for such programs can be expressed in a formula partially on a per pupil basis and partially on a per program basis as: State financial aid to school districts equals the difference between school district basic support guarantee and local available funds produced by mandatory taxes minus all the local funds attributable to pupils who reside in the county but attend a charter school or a university school for profoundly gifted pupils. This formula is designated the Nevada Plan.

(Added to NRS by 1967, 889; A 1973, 1419; 1997, 1859; 2007, 1199)

NRS 387.122 Establishment of basic support guarantees.

For making the apportionments of the State Distributive School Account in the State General Fund required by the provisions of this title, the basic support guarantee per pupil for each school district and the basic support guarantee for each special education program unit maintained and operated during at least 9 months of a school year are established by law for each school year.

(Added to NRS by 1967, 889; A 1969, 337, 1172; 1971, 951; 1973, 1420; 1975, 1373; 1977, 9, 699; 1979, 1586; 1987, 420)

NRS 387.1235 Local funds available for public schools; reserve of net proceeds of minerals.

1. Except as otherwise provided in subsection 2, local funds available are the sum of:

(a) The amount of one-third of the tax collected pursuant to subsection 1 of NRS 387.195 for the school district for the concurrent school year; and

(b) The proceeds of the local school support tax imposed by chapter 374 of NRS, excluding any amounts required to be remitted pursuant to NRS 360.850 and 360.855. The Department of Taxation shall furnish an estimate of these proceeds to the Superintendent of Public Instruction on or before July 15 for the fiscal year then begun, and the Superintendent shall adjust the final apportionment of the current school year to reflect any difference between the estimate and actual receipts.

2. The amount computed under subsection 1 that is attributable to any assessed valuation attributable to the net proceeds of minerals must be held in reserve and may not be considered as local funds available until the succeeding fiscal year.

(Added to NRS by 1977, 705; A 1979, 1243, 1588; 1983, 1906; 1999, 2925; 2003, 2941; 2005, 2080, 2375; 2007, 1560)



Augenblick, Palaich
and Associates, Inc.

Estimating the Cost of an Adequate Education in Nevada

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August, 2006

EXECUTIVE SUMMARY

In today's world of No Child Left Behind (NCLB), increased accountability for student, school and district performance, and a steady growth in high-stakes testing, there is ever-increasing pressure on education systems to ensure that all students leave school with the tools and skills they need to succeed in life. Such increased pressure can have a positive influence on performance, but only if policymakers and education leaders also have the capacity to answer what might appear to be a simple question: Do schools and districts have the resources they need to meet performance expectations?

Many state education finance systems have not addressed this question of "adequate" education funding. In many states, for instance, policymakers have developed academic standards and timetables to achieve performance expectations. And they have created accountability systems with consequences for schools and districts when expectations are not met. Most often, however, these expectations and consequences are created without understanding what it costs for schools and districts to meet desired outcomes.

This "funding adequacy" report is designed to help address this issue in Nevada and to develop a supportable means for policy makers and other education leaders to estimate what it will cost for each district in the state to achieve the performance that is expected of them. Furthermore, this report is designed to address both what it costs to meet **present-day standards** as well as **future standards**, where 100 percent of students are required to be meeting proficiency by both the federal and state government in 2013-14.

This report – prepared by Augenblick, Palaich and Associates, Inc. (APA), a Denver-based consulting firm that has worked with state policy makers on school funding issues for more than 20 years – focuses on determining two key cost elements:

- 1) A base, per-student cost adjusted by size of district; and
- 2) Additional cost "weights" (which are applied to the base cost) for students with special needs, including: children who are:
 - In special education;
 - At-risk of failing in school (based on the number of students receiving free or reduced-price lunches);
 - English language learners (ELL); and
 - In career and technical education (CTE) programs.

APA's experience conducting funding adequacy studies in other states, however, has revealed the importance of addressing a variety of additional factors. In Nevada's case, APA also examines the cost impacts of career and technical

education (CTE) as well as specific school and district characteristics such as: size, geographic location, and inflation. In conjunction with the base cost and added weights for special need students, these characteristics can be used to more accurately estimate the cost of adequacy.

In conducting its work, APA uses a combination of well established data gathering and analysis techniques: 1) a “successful school” (SS) approach; 2) a “professional judgment” (PJ) approach; 3) evidence-based research findings to strengthen our PJ work; and 4) statistical analysis to understand how inflation, cost of living, and district size impact Nevada education costs.

Under the SS approach a base, per-student cost is determined by examining the spending of schools that successfully meet **current** academic performance standards (118 schools were identified as successful for purposes of this study). The SS approach offers an important view on the present-day spending of successful schools. It does not, however, provide information about the added cost adjustments required for special education, ELL, at-risk, or CTE students.

The PJ approach relies on panels of experienced educators and education service experts – informed by education research – to specify the resources needed for different size schools and districts to educate their students to meet the much higher state and federal performance expectations set in the future. Panelists, for instance, review current state and federal academic standards and requirements and are asked to outline the resources they believe are needed to meet those requirements in large, medium and small K-12 districts. In contrast to the successful school analysis, the professional judgment approach is particularly useful in identifying special need student costs and in examining the **future** costs of districts in meeting state and federal performance standards.

The combination of the SS, PJ, evidence-based, and statistical work produce a powerful set of data that APA can use to develop recommendations for how Nevada might ensure that all schools and districts meet rapidly escalating academic performance expectations.

It is important to note that capital, transportation, food services, adult education, and community services were *excluded* from consideration and therefore not included in cost estimates.

Key Findings

Comparing and integrating the findings from all of APA’s analyses provides a clearer picture of the resources needed for Nevada schools and districts to succeed. Through this work, APA identified **two equally important figures**:

- **A “starting” cost.** Drawn primarily from the SS analysis using 2003-04 data, this cost offers Nevada policymakers a launching point from which to

begin addressing the needs of districts that currently do not receive adequate funds to meet state and federal performance standards. According to our SS work, 12 Nevada districts need an additional \$79.6 million, or \$231 per student on average, to bring them up to the successful schools adequacy level. In total Nevada would need to spend \$2,295.5 million annually to meet the 2003-04 successful schools adequacy level, plus an additional \$15.3 million in hold harmless money for the 5 districts currently spending over adequacy (if the state decides to continue funding them at previous levels initially).

- This “starting” cost would provide adequate funds to meet **present-day performance standards**. For the purposes for this study, present-day standards the AYP performance targets for 2008-09. In most test subject areas, these targets require **just over half** of all students to be proficient.
 - This figure must also be adjusted for inflation, and APA provides a process within this report to make such an adjustment. Nevada could choose to also adjust this figure to account for regional cost differences between different Nevada districts. To provide this option, APA creates a statistically-based “Location Cost Metric” (LCM) that calculates a regional cost adjustment.
- A **“goal” cost**. This cost is drawn primarily from the professional judgment group analysis, represents the full cost of educating students (including the base cost and added weights for CTE and students with special needs) to reach **future performance standards**. These future standards, as specified by the state and federal government, include the goal of nearly **100 percent student proficiency** in 2013-14. Including the LCM to account for regional cost differences, the PJ-produced end-point would be \$3,551.3 million or \$1,320.8 more than 2003-04 spending (\$3,579 per student), not allowing for hold harmless money.
 - This figure also needs to be adjusted for inflation.
 - The significance of this funding increase is directly related to the significant new resources that research and education experts indicate are needed to reach the much higher 2013-14 goal of nearly 100 percent of students being proficient.
 - The “goal” cost includes several universal recommendations by the PJ panels where are:
 - Small class sizes: through either a lower teacher to pupil ratio, or additional support personnel for larger classes;
 - Full-day kindergarten;
 - Before/after school, summer school, and Saturday school programs to help struggling students;
 - Additional funding for equipment and consumable materials to be used in career and technical education programs;

- Support staff, such as instructional aides, to address the needs of English language learners and at-risk students and supplement their regular classroom education;
- Increased professional development for teachers, this includes five days in addition to those in existing contracts specifically for professional development and \$500 per teacher for other associated costs such as travel, supplies, presentation costs, and conference fees.

One caveat, the purpose of the PJ work is not to specify exactly how funding should be spent, but instead to estimate the level of funding necessary to provide programs and resources such as the ones mentioned above. The intent is that schools and districts would have the power to decide how to use the funds once available.

Given the scope of costs involved, it should not be expected that the state will be able to reach the goal overnight. Instead, the state can and should pursue other alternatives designed to achieve the goal gradually over time. This incremental approach could be accomplished in two ways:

- (1) The increase could be based on the annual percentage change needed to move from the lower costs to the higher costs; or
- (2) The increase could be based on the annual constant amount that would be needed to move from the lower costs to the higher costs.

Regardless of the approach chosen to increase funding to schools and districts, the gaps between current spending and the amount needed to reach the starting point and ultimate funding goal indicate there is significant work to be done. And yet, this work is certainly achievable. The conclusions reached here do not suggest that the overall structure of Nevada's school finance system is flawed. Rather, the knowledge gained through this report could be used to modify the state's existing aid system so that it guarantees every school district has sufficient revenue to successfully meet existing performance expectations.

In closing, it is important to note that APA's analysis focuses on the total amount of funding required to raise school districts in Nevada to an adequate funding level. The report does not discuss where needed revenues might come from, but all funds do not necessarily need to come from state aid. Instead the costs identified here can be paid through a combination of federal, state, and local revenue sources.

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INTRODUCTION

This report was prepared by Augenblick, Palaich and Associates, Inc. (APA), a Denver-based consulting firm that has worked with state policy makers on school funding issues for more than 20 years. Over this time, the firm has evaluated school finance systems in more than 20 states and has helped to create the school finance systems in Colorado, Kansas, Louisiana, Maryland, Mississippi, New Hampshire, Ohio, and South Dakota.

The report was prepared at the request of Nevada's Legislative Committee on School Financing Adequacy (the Committee). In late 2005 the Committee released a request for proposals (RFP) seeking to identify contractors interested in helping Nevada study its school finance system. A competitive bidding process was held in which several firms responded to the state's RFP. In early 2006, APA was selected by the Committee to conduct the work that produces this report. As part of this work, APA met several times with the committee and conducted two outreach meetings (one in Las Vegas and one in Reno) which were open to the public and were designed to receive feedback and to help explain and clarify the process APA would use in developing the current report.

The purpose of this report is to estimate the cost of an "adequate" education in Nevada. As used here, "adequacy" means the cost of meeting state and federal resource requirement and student performance expectations, including those in Nevada's education accountability system and the state's federally-approved plan to comply with the No Child Left Behind Act (NCLB). By defining the cost of adequacy, this report can therefore help school districts, taxpayers, and policy makers understand the revenues schools need to produce the student results that are expected of them. To accomplish this work, APA focuses on two key costs:

- 1) A base cost, per-student (including the cost of plant operation and maintenance, but excluding costs of student transportation, food services, community services, adult education, capital costs, and debt service costs) adjusted for the size of the district; and
- 2) Additional cost "weights" for students with special needs (including at-risk students, special education students, English language learners, and career and technical education).

APA also looked at the cost impacts of the geographic location of districts, and possible inflation adjustments.

As discussed in greater detail in the next chapter, APA combined several approaches to help determine the base cost and additional cost weights for special need students. These included the professional judgment approach, the

successful schools approach, and aspects of the evidence based and statistical approaches.

APA also for the first time created an in-state panel to help us understand Nevada's unique fiscal, policy, and education environment. Working with the Committee, three people were identified who have a great deal of Nevada-specific, school funding knowledge to be on this panel. This team served several roles: (1) as a source of background information; (2) as a statewide panel to review the work of the school-level, district-level, and special needs professional judgment panels (described in Chapter III of this report); and (3) to discuss finance system options. We talked with members of the team on several occasions and met as group in Carson City. The team also helped us to understand the fiscal data collected by the state, develop prices used in costing out the resources identified by the professional judgment panels, and create a school finance model sensitive to the characteristics of the state and its school districts.

The remaining chapters of this report are organized as follows:

- Chapter I offers a discussion on what it means to examine the cost of an “adequate” education. It provides a background on adequacy, outlines the four main approaches used to conduct adequacy studies, and describes the experiences of three states that have used such studies in the past.
- Chapter II describes the successful school approach and the base, per-student cost figures it produced.
- Chapter III describes the professional judgment approach and the results it produced, including base cost figures and added costs for students with special needs.
- Chapter IV describes the statistical analyses APA conducted to create base cost and funding formula adjustment factors. These statistical analyses address the cost impact of three factors: 1) school and district size; 2) regional cost differences; and 3) inflation.
- Chapter V discusses how APA used its analyses to estimate the cost of adequacy for school districts and individual schools with various demographic characteristics.
- Chapter VI compares the cost of adequacy with actual spending in Nevada's school districts.
- Chapter VII provides an overview of Nevada's existing school finance system and compares this system to several other states.

- Chapter VIII discusses how Nevada's school finance system can be designed to deliver both equitable and adequate levels of state aid to all schools and districts.

I. WHAT DOES “ADEQUACY” MEAN?

For purposes of this report “adequate revenues,” or “adequacy,” mean: sufficient funding so that schools and districts have a reasonable chance to meet state and federal student performance expectations. Such performance expectations are reflected in Nevada’s state education accountability system, the state’s federally-approved plan to comply with the No Child Left Behind Act (NCLB), and other requirements.

There are two primary reasons to determine the cost of adequacy:

- (1) To understand the cost implications associated with meeting state and federal requirements/expectations; and
- (2) To estimate needed adjustments to existing state school finance formulas.

With regard to meeting state and federal requirements, the fact is that most states (including Nevada) and the federal government have decided that standards-based reform is the best way to improve the elementary and secondary education system in this country. Under standards-based reform, the role of the state is to: (1) set standards for students, teachers, schools, and/or school districts (in terms of both “inputs”, such as teacher qualifications, course offerings, or service requirements, and “outcomes”, such as attendance and student performance on achievement tests); (2) measure how well students, teachers, schools, and/or school districts are doing (which may mean developing assessment procedures specifically tied to the standards); and (3) hold students, teachers, schools, and/or school districts accountable for their performance (sometimes associated with consequences either for meeting or not meeting standards).

At the outset of the standards-based reform movement, starting with the reform of the Kentucky education system in 1990, most states and the federal government did not attempt to estimate the costs that every school or district would incur in order to meet state/federal performance standards. Determining such costs has therefore become an essential missing piece that state policy makers need in order to understand what resources are required for schools and districts to succeed. Once these costs are determined, state policy makers also need to be able to properly incorporate them into the state’s school finance system.

Nevada, like many states, uses a “foundation-type” formula as the basis for allocating a majority of the state’s aid to school districts. Under a foundation approach, the state typically determines a “target” amount of revenue per student (combining a fixed, base amount – the foundation level – with added amounts for students with special needs). Districts are required to make a state-calculated

amount of local tax effort to help meet the foundation level. In Nevada, that amount is based on property wealth and Local School Support Tax (LSST) revenues. Due to differences in property values and LSST revenues, however, the same local tax effort can raise varying amounts of funds from district to district. To help level the playing field between wealthy and poor districts, the state makes up the difference between the amount of revenue generated by the property taxes and LSST and the amount guaranteed as the foundation target.

In some states the foundation level is calculated based on the amount of revenue needed for a student with no special needs attending school in an average size school district. In other states, student weights are used to help reflect the added cost of serving students with special, high cost needs. Weights can also be used to reflect the added cost of providing services in districts that face uncontrollable cost pressures – often related to a district’s size or regional cost differences. In many states – including Nevada – however, the determination of the foundation level does not take into account the state (and federal) expectations for district and school performance. Such a method for determining the foundation does not reflect the level of resources needed to fully implement standards-based reform.

Approaches to Estimating the Cost of Adequacy

In the past few years, states have begun to develop approaches that can calculate a cost that reflects a particular level of desired student performance. These efforts are designed to create a base cost that has meaning beyond simply reflecting available state revenue. Four approaches have emerged as ways to determine such a base cost:

- (1) The successful school approach;
- (2) The professional judgment approach;
- (3) The evidence-based approach; and
- (4) The statistical approach.

Each of these methodologies has strengths and weaknesses. They differ in their underlying philosophies, the amounts of information they require, the types of information they produce, the number of states in which they have been used, and the magnitude of the parameters that they estimate.

APA has come to believe that the successful school approach provides a reasonable estimate of the base cost in relation to what school districts are accomplishing at present. Under this approach a “base cost” is determined by examining the basic spending of districts that meet current state standards. The base cost applies to students with no special needs attending schools in districts that do not face unusual cost pressures.

We have found that the professional judgment approach provides a reasonable estimate of the base cost for a level of performance expected in the future. It

also provides information about the additional costs of serving students with special needs or of serving students in districts that vary in size. The approach relies on the views of experienced educators and education service providers to specify the resources needed for schools and districts to achieve a set of specified performance objectives. Once the services have been specified (with a focus on numbers of personnel, regular school programs, extended-day and extended-year programs, professional development, and technology), costs are attached and a per pupil cost is determined.

APA has found that the statistical approach – which is based on understanding those factors that statistically explain differences in spending across school districts while controlling for student performance – cannot be used effectively in many states due to a lack of available information. In particular, there is often a lack of needed fiscal data at the school level. We have found the evidence-based approach – which seeks to use information gleaned from research to define the resource needs of a hypothetical school district – to also be limited in its usefulness. This limited usefulness is driven by the limited findings that current education research offers. For instance, existing research speaks only to limited kinds of resources, primarily teachers and some of the staff who support them – and studies even in these areas can offer conflicting or unclear results. In addition, research says nothing about many critical resources that schools utilize such as librarians, counselors, plant operation and maintenance, and school district administration.

Drawing on our experience, APA therefore recommended – and subsequently conducted – an adequacy analysis for Nevada based primarily upon both the successful school and professional judgment approaches. The use of both is advantageous to policy makers because it allows for a more thorough examination that can better account for inherent differences among approaches.

However, APA also integrated aspects of both the statistical and evidence based approaches. The evidence based work was used to guide and strengthen our professional judgment panels. We relied on two national experts to inform these panels of the types of resources which research shows may be needed for improving student performance. With regard to the statistical approach, our work (as described in Chapter IV) was made possible by the availability of school level data in Nevada and helps provide a much more thorough cost picture that takes into account inflation as well as cost differences based on school/district size and location differences. We believe that, by integrating the best aspects of the statistical and evidence based analyses into our professional judgment and successful school work, APA provides the strongest possible set of analyses for Nevada.

How Adequacy Studies Are Used: Case Studies in Three States

This section describes the experience of three states (Kansas, Maryland, and Mississippi) that have conducted studies designed to understand the cost of an adequate education. Each state's unique context and circumstances result in different stories for how the adequacy studies are used and implemented by policymakers.

Kansas

Kansas is an interesting example of the interaction between a state's constitution, its legislature, and its courts in terms of education adequacy. The Kansas constitution (1966) requires that the "legislature shall make suitable provision for finance of the educational interests of the state." In 1994, the Kansas Supreme Court upheld the recently enacted school finance system (the School District Finance and Quality Performance Act). In 2002 APA released its study, which was commissioned by the state Legislature. The study estimated the factors that could be used to estimate the cost of a "suitable" education. APA, however, never used the factors to make a district by district estimate of such costs. Instead, the state, through the state Department of Education, did its own analysis and determining that the cost was \$726 million over the \$1.95 billion that was being spent in school districts at the time.

In 2003, a state district court declared the school finance system to be unconstitutional and gave the legislature until the end of the 2004 session to fund the system at an appropriate level. The legislature did not modify funding that year and in 2005 the Kansas Supreme Court found the school finance system to be in violation of the state constitution cited above.

During the 2005 legislative session, the legislature developed a plan to increase education funding by \$141 million and to do so by phasing-in new funds over time. The Kansas Supreme Court required the legislature to add \$143 million to the \$141 million already provided, and this was accomplished before the 2005-06 school year began. During the 2005 session the legislature also required that the Legislative Division of Post Audit (LDPA) conduct an independent study of the costs of a suitable education. A driving factor behind the legislature's request for the LDPA study was a statement made by the Supreme Court that the only information it had to guide its thinking about cost was the 2002 APA study.

The study by the LDPA was released in 2006 and recommended total spending that was consistent with the state's interpretation of the APA study. In 2006, the legislature added additional funding for education and established a plan to phase in additional funding over the next eight years. The Kansas Supreme Court is reviewing the legislature's work and is expected to issue a ruling soon about whether the school finance system is in compliance with the state constitution.

Maryland

Maryland is an example of a state taking the lead in identifying and providing the adequate cost of education. In 1999, Maryland established the Commission on Education Finance, Equity, and Excellence (Thornton Commission). The Thornton Commission first looked at the overall structure of the state's school finance system and then began to examine the adequacy of the system. One of the big reasons the commission turned to adequacy was Maryland's strong accountability system and the commission's belief that districts needed to be assured of having the resources necessary to meet the standards.

The Thornton Commission relied on APA, then Augenblick & Myers, to conduct both the Successful Schools and Professional Judgment approaches. The approaches created two base costs and a number of adjustments for students with special needs. The Thornton Commission's final report suggested using the Successful Schools base number as a starting point with district's having the ability to get to the Professional Judgment base. The adjustments for students with special needs were also adjusted to be in line with the number of students who would fall into more than one category.

The legislature took the Thornton Commission's recommendations and passed them in legislation in 2002. There was a six year phase in of a \$1.1 billion dollar increase in funding for schools. The phase-in continues today and is nearing full implementation.

Mississippi

Mississippi is an example of a state that has used the successful school (in this case focusing on districts) approach as the basis for developing the base cost figure it uses in its school finance system (the Mississippi Adequate Education Program, or MAEP). MAEP was adopted in 1996, replacing a system that had been based on numbers of personnel and a statewide teacher salary schedule. Both MAEP and its predecessor are foundation-type systems, which require the state to specify the revenue needs of each school district.

At the time MAEP was enacted, the legislature was looking for a way to determine how much school districts needed to spend in order to meet state school district accreditation requirements. The MAEP base, developed by APA, is therefore composed of four accreditation components – instruction, administration, plant operation and maintenance (M&O), and ancillary (primarily student and staff support). APA created a procedure to identify districts that were "successful" in terms of meeting specific criteria associated with each component. First school districts that met the highest level of school district accreditation were selected. Then, within each component, efficiency criteria were specified to identify districts that had personnel ratios that were not too far

from the statewide average. So, for example, with instruction, the per student expenditure figures of districts that both met accreditation standards at the highest level and did not have unusually low student-teacher ratios were used to create a statewide average figure for instruction. Figures for the other components were combined with instruction to create a base cost.

In 2005 APA was asked to help the legislature update the figures in light of student performance information (which had not been available earlier) and new efficiency criteria. The legislature adopted the new procedure in 2006 and student performance criteria now play a central role in the state's accreditation standards. It should be noted that the legislature has not made changes in the ways it provides support for students with special needs, some of which are based on student weights. Additional analysis, using an approach other than the successful school approach would be required to make such adjustments.

II. IMPLEMENTING THE SUCCESSFUL SCHOOLS APPROACH IN NEVADA

The successful schools (SS) approach examines the actual spending of schools or districts that successfully meet state and federal performance expectations. The base spending of identified successful districts or schools is then used to help determine an overall adequate base funding level. The selection of successful schools is impartial and is based solely on whether identified performance criteria are met. At the same time, it is not correct to label those districts or schools that do not meet the criteria as “unsuccessful.” Such schools may, in fact, be doing very well with their students, they simply do not meet the specific criteria established by the SS approach.

Using the Successful Schools Approach in Nevada

As mentioned above, the SS approach looks at the performance of either high-performing districts or high-performing schools to calculate a base cost figure. The approach does not generally look at both districts and schools but focuses instead on one or the other. In the case of Nevada, it was readily apparent that the level of analysis should be the school level. This was largely because Nevada has such a small number of school districts (17). Such a small number of districts does not lend itself well to conducting the SS approach at the district level. APA therefore decided to focus on the school level.

In order to undertake the SS approach APA requires spending data for each school in the state. The spending data must be organized in such a manner that APA can isolate the base spending (spending for students without special needs) for each school. In many states, such school level data is simply unavailable. In Nevada, however, the state pays for the collection of In\$ite® data, which offers school level information. In\$ite® is a registered trademark of EdMin.Com (referred to hereinafter as In\$ite). This In\$ite data provided APA with all the spending data needed to undertake the SS approach at the school level.

With this school level data in hand APA identified the process described in the following sections for running an SS analysis in Nevada. This process includes:

- 1) Selecting successful schools using two primary criteria.
- 2) Identifying the base spending for the successful schools.
- 3) Using the base spending data to apply efficiency screens that exclude schools that are inefficient in their spending.
- 4) Identifying an overall base cost.

Selecting Successful Schools

When selecting schools for the SS approach, APA picked criteria that would identify Nevada schools which are on their way to meeting future state and federal student performance standards. In other words, the criteria were not

designed simply to identify those schools doing better on today’s tests. Instead, we sought to identify those showing rates of performance improvement needed to meet the escalating future standards.

The strength of this approach is that it does not simply identify schools that are doing well today and who may enroll students who are already likely to meet performance expectations. Instead, the approach identifies schools that either consistently attained performance levels called for in the future, or show an improvement in performance that trended toward meeting those future goals. APA also wanted the criteria to measure success with a broad range of students, not just success with the average student. The testing systems allow this by breaking out performance results for different types of students. To be selected as a successful school, APA therefore examined two criteria:

1. 2008-09 English and math general student population performance objectives; and
2. 2004-05 English and math test scores for students with special needs.

The first criteria focused on Nevada’s No Child Left Behind (NCLB) Annual Yearly Progress standards for the 2008-09 school year. The standard differed by grade level as seen in the following table. APA used performance data for each school from the 2002-03, 2003-04 and 2004-05 school years to see if the school was on target to meet the 2008-09 objectives. We did this by regressing the proportion of students making adequate yearly progress against time for each school and using the resulting formula to predict the school’s 2008-09 performance. If the school was on target to meet the 2008-09 objectives they were deemed successful.

Nevada	Elementary		Middle School		High School	
AYP Objectives,	<i>ELA</i>	<i>Math</i>	<i>ELA</i>	<i>Math</i>	<i>ELA</i>	<i>Math</i>
2008-2009	52%	56%	58%	55%	82%	62%

The second criteria focused on how well schools were doing with their special student populations. The populations APA looked at were special education, at-risk pupils, and English language learners. We then looked at reading and math tests for each of those three populations. This gave us six tests to examine for each school. APA looked at the performance on the 2004-05 tests and set the standard as the 2004-05 objectives, which are shown in the following table.

Nevada	Elementary		Middle School		High School	
AYP Objectives,	<i>ELA</i>	<i>Math</i>	<i>ELA</i>	<i>Math</i>	<i>ELA</i>	<i>Math</i>
2004-2005	40%	45%	48%	43%	78%	52%

To be considered “successful” for our purposes, a school who met the first criteria (based on the 2008-09 AYP targets) also had to meet the 2004-05 objective for two of the six special population tests. By using this combination of

criteria, 118 schools were identified as successful. The list of successful schools is shown in Table II-1.

Identifying Base Spending for Successful Schools

Once successful schools were identified, the next step was to identify the base spending amount for each successful school. As mentioned earlier in the section, Nevada uses the In\$ite data collection system. This provides data for every school in the state and breaks down such data by different types of spending. For the SS approach, we needed to identify the base spending for every school. This spending excludes spending for at-risk students, special education students, ELL students, transportation, food service and capital. To get this base spending data APA worked with the contractor for Nevada’s In\$ite data.

APA was provided with In\$ite data that included general education spending for three different areas: 1) Instruction; 2) Administration; and 3) Building Operations and Maintenance. The table below shows the categories of spending within each of these three areas.

Instruction	
	Instructional Teachers
	Substitutes
	Instructional Paraprofessionals
	Pupil-Use Technology & Software
	Instructional Materials, Trips & Supplies
	Guidance & Counseling
	Library & Media
	Extracurricular
	Student Health & Services
	Curriculum Development
	In-Service, Staff Development & Support
	Sabbaticals
	Program Development
	Therapists, Psych, Eval, Pers Att. & Soc Workers
	Safety
Administration	
	Business Operations
	Principals & Assistant Principals
	School Office
Building Operations and Maintenance	
	Building Upkeep, Utilities & Maintenance

Applying Efficiency Screens

Once APA identified the base spending for each successful school, we then looked to apply efficiency screens in each of the three spending areas (instruction, administration, and operations and maintenance). The screens are designed to exclude schools whose spending in any one of the areas is out of line with the other schools. The screens measure efficiency in two ways: 1) For instruction and administration APA looked at the number of personnel per 1,000 students; 2) For buildings operations and maintenance, personnel data was not available, so spending per pupil was used for the efficiency screen.

The personnel data for instruction and administration was collected from the state. For instruction, APA looked at the number of teachers per 1,000 pupils in each school. We then excluded any school that had a teacher-per-1,000 pupil figure one standard deviation above the mean or higher. The administration efficiency screen relied on the number of administrators per 1,000 pupils and again excluded those schools with a figure higher than one standard deviation above the mean. Finally for building maintenance and operations, APA excluded any school whose spending per pupil in the category was one standard deviation above the mean or higher. In each of the three categories some data was missing for a few schools and these schools were excluded from the calculation of base spending in that area. The list of schools used for each spending area can be seen in Tables II-2A through II-2C listed at the end of this chapter.

Identifying the Overall Base Cost

Once the efficiency screens were applied, APA was left with 101 schools for instruction, 93 schools for administration and 98 schools for building maintenance and operations. We examined per pupil spending for each of these sets of schools in the three different categories and came up with the following base costs for each area:

- 1) Instruction weighted average base cost is \$3,277;
- 2) Administration weighted average base cost is \$429; and
- 3) Building maintenance and operations weighted average base cost is \$556.

APA next needed to add in district costs to the school level base spending. We again used In\$ite data for this information. Through the work done for the statistical approach we were able to identify the district level costs associated with the base cost figures described above. The district costs were \$398. This creates an SS base cost of \$4,660. This figure will be comparable to the large district figure developed in the PJ work. The size adjustment developed using the PJ approach will also need to be applied to the SS base to create an SS base cost for every district.

TABLE II - 1
SCHOOLS MEETING THE SUCCESSFUL SCHOOLS APPROACH CRITERIA

01-202	Northside Elementary School	03-209	Pinon Hills Elementary School
01-204	West End Elementary School	03-301	Carson Valley Middle School
01-301	Churchill County Junior High School	03-302	Pau Wa Lu Middle School
02-103	Lundy Elementary School	03-501	Douglas High School
02-126	David Cox Elementary School	03-502	Whittell High School
02-136	King Martha Elementary School	04-209	Mountain View Elementary School
02-137	Bartlett Elementary School	04-210	Spring Creek Elementary School
02-138	Bendorf Elementary School	04-211	Sage Elementary School
02-141	Lummis Elementary School	04-503	Elko Junior High School
02-148	Richard Bryan Elementary School	04-504	Spring Creek Middle School
02-154	Vanderburg Elementary School	04-505	Jackpot Junior High School
02-156	Bryan Roger Elementary School	04-606	Spring Creek High School
02-162	Morrow Elementary School	08-301	Battle Mountain Junior High School
02-174	Rogers Elementary School	08-601	Battle Mountain High School
02-176	Twitchell Elementary School	09-202	Panaca Elementary School
02-178	Alamo Elementary School	09-203	Pioche Elementary School
02-202	Hoggard Elementary School	09-302	Pahrnagat Valley Middle School
02-225	Cahlan Elementary School	09-601	Pahrnagat Valley High School
02-230	Taylor Glen Elementary School	10-208	Dayton Intermediate
02-235	Red Rock Elementary School	10-302	Yerington Intermediate
02-246	Bracken Elementary School	10-303	Fernley Intermediate
02-271	Bilbray Elementary School	10-602	Smith Valley High School
02-272	Frias Elementary School	12-108	Johnson Elementary School
02-280	Bass Elementary School	12-206	Mt Charleston Elementary School
02-283	Ober Elementary School	12-313	Round Mountain Middle School
02-286	Staton Elementary School	12-315	Gabbs Middle School
02-296	Marion Earl Elementary School	12-316	Amargosa Valley Middle School
02-298	McDoniel Elementary School	13-302	Eagle Valley Middle School
02-303	Hyde Park Middle School	14-301	Pershing Middle School
02-309	Knudson Middle School	05-301	Virginia City Middle School
02-318	Garrett Middle School	16-207	Beck Elementary School
02-320	Sandy Valley Middle School	16-210	Melton Elementary School
02-321	Laughlin High School	16-212	Double Diamond Elementary School
02-323	Johnson Middle School	16-215	Corbett Elementary School
02-324	Greenspun Middle School	16-216	Gomm Elementary School
02-326	White Middle School	16-222	Maxwell Elementary School
02-327	Becker Middle School	16-223	Drake Elementary School
02-328	Sawyer Middle School	16-227	Lincoln Park Elementary School
02-329	Lyon Middle School	16-229	Brown Elementary School
02-334	Silvestri Middle School	16-235	Verdi Elementary School
02-337	Lawrence Middle School	16-257	Lenz Elementary School
02-338	Bob Miller Middle School	16-261	Caughlin Ranch Elementary School
02-339	Rogich Middle School	16-262	Hidden Valley Elementary School
02-347	Fertitta Middle School	16-267	Moss Elementary School
02-349	Canarelli Middle School	16-268	Desert Heights Elementary School
02-412	SNVTC	16-274	Hunsberger Elementary School
02-418	Las Vegas Academy	16-301	Clayton Middle School
02-420	Advanced Technologies Academy	16-306	Dilworth Middle School
02-421	Silverado High School	16-309	Incline Middle School
02-422	Community College East	16-310	Billinghurst Middle School
02-423	Community College West	16-311	Mendive Middle School
02-601	Boulder City High School	16-313	Gerlach Middle School
02-607	Centennial High School	16-315	Damonte Ranch Middle School
02-608	Foothill High School	16-503	Sparks High School
02-611	Sierra Vista High School	17-101	Lund Elementary School
02-612	Coronado High School	17-601	Lund High School
03-205	Meneley Elementary School		Dyer Elementary School
03-207	Scarselli Elementary School		Silver Peak Elementary School
03-208	Kingsbury Middle School		Eureka High School

TABLE II - 2A
SCHOOLS USED TO CALCULATE THE SUCCESSFUL SCHOOL
INSTRUCTION AMOUNT PER PUPIL

01-202	Northside Elementary School	02-608	Foothill High School
01-204	West End Elementary School	02-611	Sierra Vista High School
01-301	Churchill County Junior High School	02-612	Coronado High School
02-103	Lundy Elementary School	03-205	Meneley Elementary School
02-126	David Cox Elementary School	03-207	Scarselli Elementary School
02-136	King Martha Elementary School	03-208	Kingsbury Middle School
02-137	Bartlett Elementary School	03-209	Pinon Hills Elementary School
02-138	Bendorf Elementary School	03-301	Carson Valley Middle School
02-141	Lummis Elementary School	03-302	Pau Wa Lu Middle School
02-148	Richard Bryan Elementary School	03-501	Douglas High School
02-154	Vanderburg Elementary School	03-502	Whittell High School
02-156	Bryan Roger Elementary School	04-209	Mountain View Elementary School
02-162	Morrow Elementary School	04-210	Spring Creek Elementary School
02-174	Rogers Elementary School	04-211	Sage Elementary School
02-176	Twitchell Elementary School	04-503	Elko Junior High School
02-202	Hoggard Elementary School	04-504	Spring Creek Middle School
02-225	Cahlan Elementary School	04-606	Spring Creek High School
02-230	Taylor Glen Elementary School	08-301	Battle Mountain Junior High School
02-235	Red Rock Elementary School	08-601	Battle Mountain High School
02-271	Bilbray Elementary School	10-208	Dayton Intermediate
02-272	Frias Elementary School	10-302	Yerington Intermediate
02-280	Bass Elementary School	10-303	Fernley Intermediate
02-283	Ober Elementary School	10-602	Smith Valley High School
02-286	Staton Elementary School	12-108	Johnson Elementary School
02-296	Marion Earl Elementary School	12-206	Mt Charleston Elementary School
02-298	McDoniel Elementary School	13-302	Eagle Valley Middle School
02-303	Hyde Park Middle School	14-301	Pershing Middle School
02-309	Knudson Middle School	16-207	Beck Elementary School
02-318	Garrett Middle School	16-210	Melton Elementary School
02-320	Sandy Valley Middle School	16-212	Double Diamond Elementary School
02-321	Laughlin High School	16-215	Corbett Elementary School
02-323	Johnson Middle School	16-216	Gomm Elementary School
02-324	Greenspun Middle School	16-222	Maxwell Elementary School
02-326	White Middle School	16-223	Drake Elementary School
02-327	Becker Middle School	16-227	Lincoln Park Elementary School
02-328	Sawyer Middle School	16-229	Brown Elementary School
02-329	Lyon Middle School	16-235	Verdi Elementary School
02-334	Silvestri Middle School	16-257	Lenz Elementary School
02-337	Lawrence Middle School	16-261	Caughlin Ranch Elementary School
02-338	Bob Miller Middle School	16-262	Hidden Valley Elementary School
02-339	Rogich Middle School	16-267	Moss Elementary School
02-347	Fertitta Middle School	16-268	Desert Heights Elementary School
02-349	Canarelli Middle School	16-274	Hunsberger Elementary School
02-412	SNVTC	16-301	Clayton Middle School
02-418	Las Vegas Academy	16-306	Dilworth Middle School
02-420	Advanced Technologies Academy	16-310	Billinghurst Middle School
02-421	Silverado High School	16-311	Mendive Middle School
02-422	Community College East	16-503	Sparks High School
02-423	Community College West	17-601	Lund High School
02-601	Boulder City High School		Dyer Elementary School
02-607	Centennial High School		

TABLE II - 2B

**SCHOOLS USED TO CALCULATE THE SUCCESSFUL SCHOOL
ADMINISTRATION AMOUNT PER PUPIL**

01-202	Northside Elementary School	02-611	Sierra Vista High School
01-204	West End Elementary School	02-612	Coronado High School
01-301	Churchill County Junior High School	03-205	Meneley Elementary School
02-126	David Cox Elementary School	03-207	Scarselli Elementary School
02-136	King Martha Elementary School	03-209	Pinon Hills Elementary School
02-137	Bartlett Elementary School	03-301	Carson Valley Middle School
02-138	Bendorf Elementary School	03-302	Pau Wa Lu Middle School
02-141	Lummis Elementary School	03-501	Douglas High School
02-148	Richard Bryan Elementary School	04-209	Mountain View Elementary School
02-154	Vanderburg Elementary School	04-210	Spring Creek Elementary School
02-156	Bryan Roger Elementary School	04-211	Sage Elementary School
02-162	Morrow Elementary School	04-503	Elko Junior High School
02-174	Rogers Elementary School	04-504	Spring Creek Middle School
02-176	Twitchell Elementary School	04-606	Spring Creek High School
02-178	Alamo Elementary School	08-301	Battle Mountain Junior High School
02-202	Hoggard Elementary School	08-601	Battle Mountain High School
02-230	Taylor Glen Elementary School	09-202	Panaca Elementary School
02-235	Red Rock Elementary School	09-601	Pahranagat Valley High School
02-271	Bilbray Elementary School	10-208	Dayton Intermediate
02-272	Frias Elementary School	10-302	Yerington Intermediate
02-280	Bass Elementary School	10-303	Fernley Intermediate
02-283	Ober Elementary School	12-108	Johnson Elementary School
02-286	Staton Elementary School	12-206	Mt Charleston Elementary School
02-296	Marion Earl Elementary School	13-302	Eagle Valley Middle School
02-298	McDoniel Elementary School	14-301	Pershing Middle School
02-303	Hyde Park Middle School	16-207	Beck Elementary School
02-309	Knudson Middle School	16-210	Melton Elementary School
02-318	Garrett Middle School	16-212	Double Diamond Elementary School
02-323	Johnson Middle School	16-215	Corbett Elementary School
02-324	Greenspun Middle School	16-216	Gomm Elementary School
02-326	White Middle School	16-222	Maxwell Elementary School
02-327	Becker Middle School	16-223	Drake Elementary School
02-328	Sawyer Middle School	16-227	Lincoln Park Elementary School
02-334	Silvestri Middle School	16-229	Brown Elementary School
02-337	Lawrence Middle School	16-235	Verdi Elementary School
02-338	Bob Miller Middle School	16-257	Lenz Elementary School
02-339	Rogich Middle School	16-261	Caughlin Ranch Elementary School
02-347	Fertitta Middle School	16-262	Hidden Valley Elementary School
02-412	SNVTC	16-267	Moss Elementary School
02-418	Las Vegas Academy	16-268	Desert Heights Elementary School
02-420	Advanced Technologies Academy	16-274	Hunsberger Elementary School
02-421	Silverado High School	16-301	Clayton Middle School
02-422	Community College East	16-306	Dilworth Middle School
02-423	Community College West	16-310	Billingshurst Middle School
02-601	Boulder City High School	16-311	Mendive Middle School
02-607	Centennial High School	16-503	Sparks High School
02-608	Foothill High School		

TABLE II - 2C

**SCHOOLS USED TO CALCULATE THE SUCCESSFUL SCHOOL
MAINTENANCE AND OPERATIONS AMOUNT PER PUPIL**

01-202	Northside Elementary School	02-612	Coronado High School
01-204	West End Elementary School	03-205	Meneley Elementary School
01-301	Churchill County Junior High School	03-207	Scarselli Elementary School
02-126	David Cox Elementary School	03-209	Pinon Hills Elementary School
02-136	King Martha Elementary School	03-301	Carson Valley Middle School
02-137	Bartlett Elementary School	03-302	Pau Wa Lu Middle School
02-138	Bendorf Elementary School	03-501	Douglas High School
02-141	Lummis Elementary School	04-209	Mountain View Elementary School
02-148	Richard Bryan Elementary School	04-210	Spring Creek Elementary School
02-154	Vanderburg Elementary School	04-211	Sage Elementary School
02-156	Bryan Roger Elementary School	04-503	Elko Junior High School
02-162	Morrow Elementary School	04-504	Spring Creek Middle School
02-174	Rogers Elementary School	04-606	Spring Creek High School
02-176	Twitchell Elementary School	08-301	Battle Mountain Junior High School
02-178	Alamo Elementary School	08-601	Battle Mountain High School
02-202	Hoggard Elementary School	09-202	Panaca Elementary School
02-225	Cahlan Elementary School	09-203	Pioche Elementary School
02-230	Taylor Glen Elementary School	09-302	Pahrnagat Valley Middle School
02-235	Red Rock Elementary School	10-208	Dayton Intermediate
02-246	Bracken Elementary School	10-302	Yerington Intermediate
02-271	Bilbray Elementary School	10-303	Fernley Intermediate
02-272	Frias Elementary School	12-108	Johnson Elementary School
02-280	Bass Elementary School	12-206	Mt Charleston Elementary School
02-283	Ober Elementary School	12-316	Amargosa Valley Middle School
02-286	Staton Elementary School	13-302	Eagle Valley Middle School
02-296	Marion Earl Elementary School	14-301	Pershing Middle School
02-298	McDoniel Elementary School	16-207	Beck Elementary School
02-303	Hyde Park Middle School	16-210	Melton Elementary School
02-309	Knudson Middle School	16-212	Double Diamond Elementary School
02-318	Garrett Middle School	16-215	Corbett Elementary School
02-323	Johnson Middle School	16-216	Gomm Elementary School
02-324	Greenspun Middle School	16-222	Maxwell Elementary School
02-326	White Middle School	16-223	Drake Elementary School
02-327	Becker Middle School	16-227	Lincoln Park Elementary School
02-328	Sawyer Middle School	16-229	Brown Elementary School
02-334	Silvestri Middle School	16-235	Verdi Elementary School
02-337	Lawrence Middle School	16-257	Lenz Elementary School
02-338	Bob Miller Middle School	16-261	Caughlin Ranch Elementary School
02-339	Rogich Middle School	16-262	Hidden Valley Elementary School
02-347	Fertitta Middle School	16-267	Moss Elementary School
02-349	Canarelli Middle School	16-268	Desert Heights Elementary School
02-412	SNVTC	16-274	Hunsberger Elementary School
02-418	Las Vegas Academy	16-301	Clayton Middle School
02-420	Advanced Technologies Academy	16-306	Dilworth Middle School
02-421	Silverado High School	16-309	Incline Middle School
02-601	Boulder City High School	16-310	Billinghurst Middle School
02-607	Centennial High School	16-311	Mendive Middle School
02-608	Foothill High School	16-315	Damonte Ranch Middle School
02-611	Sierra Vista High School	16-503	Sparks High School

III. IMPLEMENTING THE PROFESSIONAL JUDGMENT APPROACH IN NEVADA

The professional judgment (PJ) approach relies on the assumption that experienced educators can specify the resources hypothetical schools need in order to meet state standards, and that the costs of such resources can be determined based on a set of prices specific to those resources. Identified resources are typically divided into two groups:

- (1) Those associated with a “base cost” that applies to all students; and
- (2) Those associated with students who have special needs.

For example, thinking about the base cost, a PJ panel of experienced educators might find that, for a hypothetical school with 200 students, ten teachers would be needed so that students can meet state academic standards. If the statewide average salary and benefits of a teacher were \$40,000, then the cost per student based on the professional judgment panel’s input would be \$2,000 (10 teachers times \$40,000/teacher divided by 200 students). Based on the panel’s judgments, other costs might also need to be incurred such as those associated with teacher aides, school principals, supplies and materials, and so on. Together, these costs could be added to determine the total “base” cost of providing an adequate education.

In the case of this study, APA also examined whether base costs should vary by such factors as school district size. Professional judgment panels were also asked to separately estimate the resources needed to serve students with special needs. Students with special needs include:

- Those in special education programs (for which students require individual education plans [IEPs]);
- Those with language difficulties (who we refer to as English language learners [ELL students]);
- Those who are at risk of failing in school (the count for which we estimate based on a generally accepted proxy measure – which is eligibility for free or reduced-price lunch – rather than on a direct measure of student performance)
- Students in career and technical education (CTE) programs.

Using the PJ approach, the additional cost of serving students with such special needs can be expressed through student “weights” relative to the base cost.¹

¹ Pupil weights are factors used to express the added cost of serving students with special needs. Every student, regardless of special needs, is counted as 1.00 student. In order to determine the base cost of a district, the number of students enrolled in the district is multiplied by 1.00 and that product is then multiplied by the base cost figure. If the *added* cost of serving a student with a special need were determined to be 60 percent of the base cost, then the weight applied to such a student would be .60 (for a total weight of 1.60). Additional weighting might be applied to all students in a district to account for certain district characteristics (such as size) that can impact per student costs.

The ability to identify resources for such special needs students distinguishes the professional judgment approach from the successful school approach discussed in Chapter II of this report. This is because the successful school approach only allows for an examination of base, per-student costs.

Creating Hypothetical Schools

Hypothetical schools are ones designed to act as a proxy to reflect statewide average characteristics of school districts. To the extent that all of the schools within a state would be reasonably well represented by a single set of hypothetical schools, a single PJ panel would be sufficient to estimate funding adequacy. Due to the existing variations among Nevada school districts, however, APA needed to use multiple PJ panels, each focused on hypothetical schools and/or districts of different configuration and size.

As shown in Table III-1, some 369,023 students attended public, non-charter schools in Nevada in 2003-04. Those students attended schools in 17 districts. Among these 17 districts, 8 school districts have fewer than 1,500 students, 7 districts have between 1,501 and 49,999 students, and 2 districts have over 50,000 students. The 8 districts with fewer than 1,500 students enroll less than 1 percent of all students. The 2 largest districts (with more than 50,000 students) enroll 86 percent of all students.

Based on these variations, we divided Nevada's school districts into three groups based on size: 1) "small"; 2) "moderate"; and 3) "large". APA then determined the average characteristics of each group and developed a set of hypothetical schools and districts based on these averages. The characteristics of the hypothetical groups are shown in Table III-2. For example, the small K-12 hypothetical district had 780 students who attended one small elementary school with 70 students, two large elementary schools with 175 students each, one middle school with 120 students, and one high school with 240 students.

To address the added cost of students with special needs in hypothetical schools APA similarly looked at the average characteristics in existing schools in Nevada and developed enrollment levels for each of the three hypothetical district sizes (shown in Table III-2). Special education percentages were kept constant across the three district groups; 9.5 percent are mild special education students, 3.5 percent are moderate, and 1 percent are severe². At-risk and English language learner (ELL) percentages differed to mirror the populations found in existing school districts. For instance, in the hypothetical small size district, 48 percent of students are identified as at-risk, which is higher than the 29 percent seen in moderate and large districts. This is not unusual as small, rural districts often

² Mild Special Education includes Learning Disabilities and Speech; Moderate includes Mentally, Aurally, Visually, Emotionally, and Orthopedically Handicapped/Impaired, Other Health Impairments, and Developmentally Delayed; Severe includes Deaf/Blind, Autistic, Multiple Disabilities, and Traumatic Brain Injury.

have higher concentrations of at-risk students than their larger counterparts. ELL percentages vary conversely with district size; 4 percent of students in small districts are ELL, while 9 percent are ELL in the hypothetical moderate and large districts.

By approaching cost evaluation for special needs students in this way, APA's analysis gains several advantages. First, the numbers more closely resemble those found in actual schools across Nevada. Second, the use of more realistic numbers means that the PJ panelists were better able to relate to the hypothetical schools and districts that they were attempting to create.

Professional Judgment Panel Design

Based on APA's previous experience using the PJ approach in other states, we felt that it was best to continue using multiple levels of professional judgment panels as we have done before. There are several reasons to use multiple panels: (1) it allows for the separation of school-level resources (which include such things as teachers, supplies, materials, and professional development) from district-level resources (which include such things as facility maintenance and operation, insurance, and school board activities); (2) multiple panels can study schools and districts of varying sizes so that APA can determine whether size has an impact on cost; and (3) APA believes strongly in the importance of having each panel's work reviewed by another panel.

Building on the multiple panel format APA took a unique approach in Nevada and added two additional student population-specific panels. These two panels focused on special needs populations and Career and Technical Education (CTE). By convening these two additional panels, APA believes the needs of these specific sub-groups were more accurately identified and addressed than in any previous work.

Overall, the PJ panel structure in Nevada was designed as follows:

- (1) First round panels. Two panels were convened to address school-level needs in three hypothetical K-12 school districts (small, moderate, and large). Schools in moderate and large districts were addressed in a single moderate/large panel. Both the small panel, and the moderate/large panel "built" hypothetical elementary, middle, and high schools designed to accomplish a specific set of performance objectives and standards (which are described later in this chapter in the section on "Professional Judgment Panel Procedures").
 - The moderate/large panel created several different sized schools of various grade configurations. The resulting input was then later used to build two separate districts. The moderate/large panel also looked at school-level resources needed for "regular" education

students, at-risk and ELL students, but not special education students (these were addressed in the second round panels).

- The small panel looked at school-level resources for “regular” education students and all special needs student populations, including special education, as well as district-level resources for all students.

(2) Second round panels. Three panels were held at this stage: one district-level panel, a panel for special needs populations, and a panel for CTE.

- Moderate and large districts were handled by the district-level panel which reviewed the work of the first round, school-level panel, then looked at additional district-level resources necessary.
- The special needs panel reviewed the resources identified by the first round small district panel. The special needs panel then added in resources needed for special needs students in moderate and large districts.
- The CTE panel examined additional resources needed in all districts to run such a program.

(3) Final in-state panel. This panel reviewed previous panel work, discussed resource prices, examined preliminary cost figures and attempted to resolve some of the inconsistencies that arose across panels.

First and second round panels each had 6-8 participants, including a combination of classroom teachers, principals, personnel who provide services to students with special needs, superintendents, and school business officials. The in-state panel had three members. A total of 39 panelists participated in the three rounds of panels. A list of panel members is provided in Appendix A to this report.

APA did not select the panel members, they were selected through a nomination process that included the:

- School superintendents
- Superintendent of public instruction
- Nevada Manufacturers Association
- Nevada State Education Association
- Nevada Association of School Boards
- Nevada Association of School Administrators
- Commission on Educational Excellence

In order to set the panels, APA did however provide a list of the job titles we were looking for, as well as some suggestions for selection criteria such as: (1) participants should be from districts that fit within the size range of the panels they would be serving on, i.e. for the small district panel participants were asked to be from districts of less than 1,500 students, (2) participants should be experienced and, if possible had received recognition for excellence, and (3) school-level personnel should be from schools identified as successful (based on

our use of the successful school approach as discussed in Chapter II) to the extent that it is possible. This request was made to help assure that panelists based their recommendations on experiences in school districts that are already performing comparatively well.

Nominated panelists were then contacted by APA with panel details. Observers were invited to watch panel discussions. One individual chose to attend the first day of panel discussion during the second round of panels. This observer did not participate in any discussions, but was able to freely move from room to room and to watch and listen to all discussions.

The first round of panels met for two days in Las Vegas in late March 2006; the second round met for two days in Carson City at the end of April; and the overview panel met in Carson City for a day in mid-May, 2006.

Identifying the “Standard”: State and Federal Accountability Requirements in Nevada

Prior to the commencement of any PJ panel discussions, all panelists first met jointly with APA staff to review a specific set of background materials and instructions. These background materials were prepared by APA. In particular, panelists were instructed that their task was to identify what constitutes an “adequate” level of resources for hypothetical schools and districts. To accomplish this task, it was therefore necessary for panelists to understand the state’s academic performance standards as described in this chapter. Panelists were instructed to focus on this standard in order to appropriately estimate the resources that schools and districts need to be successful.

To identify the appropriate standard, APA collected information about accountability requirements that school districts in Nevada must adhere to according to state and federal law. This information was used to guide the discussion and allocation of resources in the professional judgment panels. From the Nevada Department of Education’s website, APA accessed information about Nevada’s statewide assessments, content standards and performance criteria, graduation requirements, high school completion indicators, NCLB targets, recent results on the statewide assessments, high school completion rates, and the state’s progress towards meeting adequate yearly progress. In addition to the website, APA accessed the Nevada legislature’s homepage to find information about state statutes that mandate the use of resources in particular ways (e.g., minimum number of days of instruction per year, student/teacher ratios).

Following the collection of all of these data, APA synthesized the information and summarized it in a draft form. The draft was distributed to the committee overseeing the study. The committee then shared it with others, including the Nevada Department of Education. Comments APA received back from the

reviewers were incorporated into the final version of the standard that was used in the professional judgment panels.

APA reviewed the standard with the professional judgment panelists and said that the information contained within the standard was a summary of key accountability requirements within Nevada and federal law. Panelists were instructed to use the standard, as well as their knowledge of other critical education policies and practices in Nevada, to guide the allocation of resources needed in order to increase the number of students meeting or exceeding the standards. A copy of the standard used in the professional judgment panels is shown in Appendix B.

Using the Evidence-Based Approach to Strengthen PJ Work

In a number of states, the evidence-based approach to adequacy has been used to fully cost out an adequate education. APA feel's that this work treats a state exactly like any other state creating generic, one-sized fits all recommendations. To avoid this, but to still incorporate research evidence, APA convened two national researchers (a third dropped out at the last minute)³ to identify the resources needed to meet Nevada's specific goals for its children. This panel was familiar with current research – and could apply their knowledge of the research to Nevada's specific demographic characteristics and performance expectations.

The national expert group's job was to set the initial "research-based" resource levels for consideration by the Nevada professional judgment panelists. The national expert group was given both the Nevada standard and hypothetical school characteristics to estimate initial resource needs.

The actual instructions for the expert group were written as follows:

- Please review the description of the attached Nevada standards that has been provided. The resources you identify should all be associated with meeting this standard.
- The following assumptions should be made while completing this exercise.
 - It is assumed that you can attract and retain highly qualified personnel for any position you need.
 - It is assumed that your facilities can handle any programming you create.
 - For the purpose of this exercise, the source of the money to pay for the needed resources does not matter.

³ The two national experts were Dr. C. Kent McGuire, Dean of the School of Education at Temple University and Dr. David Conley, Professor of Education at the University of Oregon.

- Please use the accompanying template to record the resources you think each school (elementary, middle and high school) needs to help their students reach the above standards. For each school there are three separate columns that need to be filled in.
 - The first is the “Regular” education column. Assume that the schools total student population has no identifiable special needs (at-risk, limited English proficient or special education) and identify the resources the school needs to help these students meet the above standards.
 - Second is the At-Risk column. This second column assumes that the school has the same total population, but a specified number of students are identified as being at-risk. The task is to specify what additional resources would be needed to help these students to meet the standard.
 - Finally, the last column is focused on the resources for the LEP students. This third column assumes that the school has the same total population, but a specified number of students are identified as being limited English proficient. The task is to specify what additional resources would be needed to help these students to meet the standard.

The following tables summarize the initial personnel resources identified by the national expert group. The estimates were made based on Nevada standards and school characteristics, expert experiences, and the selected references listed in Appendix C. As shown in the following tables, the “instructional facilitator” position provides mentoring and professional development for teachers. A teacher tutor works directly with students to provide one on one tutoring.

ELEMENTARY SCHOOL RESOURCE MODEL			
600 TOTAL PUPILS, 100 PER GRADE, 200 AT-RISK, 54 ESL			
Personnel	K-5	At Risk	ESL
	Regular Ed		
Classroom Teachers	27.8	5.0	2.8
Other Teachers	7.8		
Librarians/Media Specialists	2.0		
Technology Specialist	0.3		
Pupil Support Staff	5.8	5.0	
Counselors	2.4		
Nurses	0.0		
Psychologists	0.8		
Instructional Aides	6.8		
Clerical/Data Entry	1.1		
Principal	1.0		
Assistant Principal	0.7		
Instructional Facilitators	0.7		
Teacher Tutor	5.1		
Substitutes	1.3		

MIDDLE SCHOOL RESOURCE MODEL			
750 TOTAL PUPILS, 250 PER GRADE, 250 AT-RISK, 135 ESL			
Personnel	6-8	At Risk	ESL
	Regular Ed		
Classroom Teachers	32.6	2.8	2.9
Other Teachers	8.2		
Librarians/Media Specialists	2.0		
Technology Specialist	0.5		
Pupil Support Staff	7.9	4.4	
Counselors	3.0		
Nurses	0.5		
Psychologists	1.0		
Instructional Aides	14.9		
Clerical/Data Entry	4.3		
Principal	1.0		
Assistant Principal	1.0		
Instructional Facilitators	1.2		
Teacher Tutor	0.7		
Substitutes	1.8		

HIGH SCHOOL RESOURCE MODEL			
1,250 TOTAL PUPILS, 312 PER GRADE, 412 AT-RISK, 225 ESL			
Personnel	9-12	At Risk	ESL
	Regular Ed		
Classroom Teachers	62.0	10.0	5.0
Other Teachers		5.0	1.0
Librarians/Media Specialists	2.0		
Technology Specialist	4.0		
Pupil Support Staff			
Counselors	7.0		
Nurses	1.0		
Psychologists	1.0		
Instructional Aides		5.0	
Clerical/Data Entry	10.0		
Principal	1.0		
Assistant Principal	1.0	1.0	
Instructional Facilitators	4.0		1.0
Teacher Tutor			
Substitutes	3.0	2.0	

It is important to note that the expert group did not specify resources needed for every size of school. The expert group also did not look at school-level personnel categories beyond the list above (such as custodians), district-level personnel, or other non-personnel costs (supplies and materials, technology, etc). As such, the work of the expert panel cannot be used as is to cost out the needs of a school district. Instead, APA used the expert panel's work as a starting point to stimulate discussion within the professional judgment panels.

Professional Judgment Panel Procedures

Once panelists were provided with a performance standard to guide their efforts (as described previously) the PJ panels were convened. All panels followed a specific procedure in doing their work.

Individual panels examined the following types of resources:

- 1) Personnel, including classroom teachers, other teachers, psychologists, counselors, librarians, teacher aides, administrators, nurses, etc.
- 2) Supplies and materials, including textbooks and consumables.
- 3) Non-traditional programs and services, including before-school, after-school, pre-school, full day kindergarten, and summer-school programs.
- 4) Technology, including hardware, software, and licensing fees.
- 5) Other personnel costs, including the use of substitute teachers and time for professional development.

- 6) Other costs, including security, extra-curricular programs, insurance, facilities operation and maintenance, etc.

As described in the previous section, APA provided panelists with research-based figures, based on the work of the expert group, to use as a starting point in their discussion. Since the expert group did not specify what resources would be needed for every size of school, the figures provided to the panel were increased or decreased in relation to the size of the hypothetical school the individual panel was building. For example, the elementary resource list from the expert group shows 27.8 teachers needed for a school of 600. If the panel is instead being asked to look at an elementary school of 400, the research-based starting figure would be 18.5 teachers. Similarly, if the panel was working with an elementary school of 800 the research-based starting figure would be increased to 37.1 teachers.

Thus, in the categories of personnel (teachers, principals, instructional aides, teacher tutors) where research-based figures were given panelists reviewed and adjusted these figures to better fit the hypothetical school they were looking at. Panelists then added additional personnel in the categories without research-based figures (like custodians, clinical aides, superintendents, or directors) as needed to meet standards.

It is important to note that capital, transportation, food services, adult education, and community services were *excluded* from consideration. For a variety of reasons, these elements pose data gathering difficulties and are generally too cost-specific to the characteristics of an individual district to be usefully included in a PJ adequacy analysis.

For each panel, the figures recorded by APA represented a consensus agreement among members. At the time of the meetings, no participant (either panel members or APA staff) had a precise idea of the costs of the resources that were being identified. Instead, the costing of resources by APA took place at a later date. This is not to say that panel members were unaware that higher levels of resources would produce higher base cost figures or weights. But without specific price information and knowledge of how other panels were proceeding, it would have been impossible for any individual, or panel, to suggest resource levels that would have led to a specific base cost figure or weight, much less a cost that was relatively higher or lower than another.

Once the panels completed their work, APA gathered salary data to cost out the personnel component of resources. To calculate these costs, we used statewide average salaries provided by the state, which were also reviewed by the final in-state panel.

Professional Judgment Results

This section reviews the results produced by the professional judgment groups in Nevada including some of the “raw” resources they identified, the prices that were attached to those resources, and the costs that were produced by combining resource quantities and resource prices. Specifically the section:

1. Discusses the resource needs identified by the professional judgment groups for hypothetical schools and districts to meet academic standards.
2. Identifies associated prices for the resources.
3. Applies the prices to the identified resources to generate a series of school-level, district-level, and total base costs and added costs for students with special needs.

It should be noted that the resources identified by the PJ panels here are examples of how funds might be used to organize programs and services in hypothetical situations. APA cannot emphasize strongly enough that the resources identified are not the only way to organize programs and services to meet state standards.

In fact, there is no one best way to provide services and no member of our panels would suggest that resources be deployed precisely in the way the panels did for the purpose of estimating cost in each individual school district.

Instead, the purpose of the exercise is to estimate the overall cost of adequacy – not to determine the best way to organize schools and districts. This is particularly true when the circumstances in an actual district differ from those associated with the hypothetical ones. With this in mind, the box offers a series of caveats for the reader to consider when reviewing this chapter.

Caveats to the Professional Judgment Approach in Nevada

1. The purpose of the exercise is to estimate the cost of adequacy, not to determine the best way to organize schools and school districts.
2. Figures are in full-time equivalent personnel terms and assume that schools can employ people on a part-time basis.
3. APA asked a specific special needs panel to distinguish the extra resources that students with special needs require.
4. APA also asked another specific panel to look at the extra resources needed for CTE students.
5. We asked panels to be as precise as they could, but panel members sometimes found it difficult to precisely link resources to performance expectations.
6. APA treated each group of students with special needs as if they were independent while, in reality, there may be cross-over among groups that leads to some double counting of resources (for example, some ESL students might also be eligible for free/reduced-price lunch).
7. Some resources, such as custodians, do not appear at the school level because they are accounted for at the district level.
8. The cost estimates do not include transportation, food services, adult education or capital outlay and debt service related to facilities. **Some panelists noted that existing facilities might not be able to accommodate the programs they designed** for hypothetical schools.

Resource Needs Identified by the Professional Judgment Panels

While panels varied in the resources they identified as necessary for an adequate education, several key recommendations were seen across panels:

- Small class sizes: through either a lower teacher to pupil ratio, or additional support personnel for larger classes;
- Full-day kindergarten;
- Before/after school, summer school, and Saturday school programs to help struggling students;
- Additional funding for equipment and consumable materials to be used in career and technical education programs;
- Support staff, such as instructional aides, to address the needs of English language learners and at-risk students and supplement their regular classroom education;
- Increased professional development for teachers, this includes five days in addition to those in existing contracts specifically for professional development and \$500 per teacher for other associated costs such as travel, supplies, presentation costs, and conference fees.

It is important to note that the purpose of the PJ work is not to specify exactly how funding should be spent, but instead to estimate the level of funding necessary to provide programs and resources such as the ones mentioned above. The intent is that schools and districts would have the power to decide how to use the funds once available.

The panels addressed additional resources in areas such as Personnel, Supplies/Materials, Student Programs, and Teacher Services which may be different or needed on higher level than currently seen in Nevada school districts. For example in the area of Personnel, panelists may have suggested additional teachers to create smaller class sizes, or added pupil support staff positions that may not currently be present in Nevada schools, such as reading specialists or teacher tutors. The following table lists these areas and possible resources discussed by the PJ panels, including the recommendations listed above.

**RESOURCES SUGGESTED BY THE PROFESSIONAL
JUDGMENT APPROACH THAT MAY BE HIGHER THAN
THOSE USED BY SUCCESSFUL SCHOOLS OR BY SCHOOL
DISTRICTS ON AVERAGE**

Personnel

- Regular classroom teachers
- Other teachers, including Reading and Math specialists
- Counselors
- Librarians
- Technology specialists
- Teacher tutors
- Social workers
- School-parent liaisons
- Clerical Staff

Supplies/Materials

- Computer hardware and software (instructional, data analysis, or other)
- Materials for students with special needs
- Equipment and materials for CTE programs
- Assessment materials

Student Programs

- Pre-school
- Full-day kindergarten
- Before/after school programs
- Summer school programs

Teacher Services

- Professional development

Moving on to the work of specific PJ panels, the figures shown in Tables III-3A, 3B, and 3C indicate in detail the personnel needs of hypothetical elementary, middle, and high schools in different size school districts.

For example, looking at Table III-3B (the moderate size K-12 district), the panel identified the need for 35 classroom teachers and 3 instructional aides for 600 elementary students (a pupil teacher ratio of 15:1 for K-3, and 25:1 for 4-5) and that 5 other teachers were also needed (to cover topics such as art, music, or language while providing classroom teachers with planning time). In addition, other personnel were needed to serve students with special needs (for example, two teachers and two instructional aides to serve 21 students with moderate special education needs and three teachers to provide assistance to the 174 at-risk students).

As discussed previously, the research-based figures created by the expert group were used as a starting point by the PJ panels. Panelists could then decide to modify those figures as they saw fit. The following tables show how the research-based figures were modified by PJ panelists participating in the Moderate panel:

Elementary School Resources, Research-based Starting Figures vs. PJ Panel End Figures for Regular Education (All Students) 600 Total Pupils, 100 per grade		
Personnel	K-5 Regular Ed	
	Research-based	PJ
Classroom Teachers	27.8	35.0
Other Teachers	7.8	5.0
Librarians/Media Specialists	2.0	1.0
Technology Specialist	0.3	1.0
Pupil Support Staff	5.8	
Counselors	2.4	1.0
Nurses	0.0	1.0
Psychologists	0.8	0.4
Instructional Aides	6.8	6.0
Clerical/Data Entry	1.1	3.0
Principal	1.0	1.0
Assistant Principal	0.7	1.0
Instructional Facilitators	0.7	3.0
Teacher Tutor	5.1	1.0
Substitutes	1.3	7 sub days/tch.

Middle School Resources, Research-based Starting Figures vs. PJ Panel End Figures for Regular Education (All Students) 750 Total Pupils, 250 per grade		
Personnel	6-8 Regular Ed	
	Research-based	PJ
Classroom Teachers	32.6	30.0
Other Teachers	8.2	6.0
Librarians/Media Specialists	2.0	1.0
Technology Specialist	0.5	1.0
Pupil Support Staff	7.9	
Counselors	3.0	2.0
Nurses	0.5	1.0
Psychologists	1.0	0.4
Instructional Aides	14.9	4.0
Clerical/Data Entry	4.3	4.0
Principal	1.0	1.0
Assistant Principal	1.0	1.0
Instructional Facilitators	1.2	3.0
Teacher Tutor	0.7	3.0
Substitutes	1.8	7 sub days/tch.

High School Resources, Research-based Starting Figures vs. PJ Panel End Figures for Regular Education (All Students) 1,250 Total Pupils, 312 per grade		
Personnel	9-12 Regular Ed	
	Research-based	PJ
Classroom Teachers	62.0	65.0
Other Teachers		
Librarians/Media Specialists	2.0	1.0
Technology Specialist	4.0	3.0
Pupil Support Staff		
Counselors	7.0	4.0
Nurses	1.0	1.0
Psychologists	1.0	0.5
Instructional Aides		4.0
Clerical/Data Entry	10.0	10.0
Principal	1.0	1.0
Assistant Principal	1.0	3.0
Instructional Facilitators	4.0	4.0
Teacher Tutor		2.0
Substitutes	3.0	7 sub days/tch.

In order to make it easier to compare the resource needs of different size schools/districts, we took some of the information shown in the Table III-3 series of tables and “normed” them so that figures could be shown in terms of “personnel per 1,000 students.” For example, in Tables III-4A, 4B, and 4C the number of teachers, counselors, librarians, and principals (among others) are shown in such terms. Standardizing the personnel data in this way facilitates a better understanding of the relationship between personnel needs and district/school size.

Aside from personnel needs, the figures in Tables III-5A, 5B, and 5C show other resources needed in schools, including those associated with instructional supplies and materials, equipment, assessment, student activities (sports, extracurricular activities, field trips, etc.) professional development, and curriculum adoption. Many of these costs were standardized by the final in-state overview panel after reviewing the various approaches different panels took to develop their estimates.

One item which is shown separately is professional development. The attention to this particular cost area reflects the strong opinion of most panels that one of the most important contributors to the future success of schools is the assurance that teachers have time to: become familiar with their students, form strong working relationships with their colleagues, participate in enrichment programs,

visit other schools, take part in training sessions, and improve their knowledge of curriculum, technology, and research.

APA's experience is that, as standards-based reform has become the approach most states have embraced to improve schools, educators and policy makers have concluded that teachers and other school personnel need many more opportunities, and much more time, to engage in serious professional development. Such development is needed in education perhaps even more than other professions and opportunities need to go well beyond what is traditionally provided. In the case of Nevada, panelists found it was necessary to add five additional days for professional development in addition to any days already stipulated in existing teacher contracts, plus \$500 per teacher for other associated costs such as travel, supplies, presentation costs, and conference fees. This was true across small, moderate, and large districts.

Tables III-6A, 6B, and 6C indicate other kinds of services – such as a preschool program for at-risk students – the panels felt were needed to assure schools could meet state and federal performance expectations. Many of these programs are designed with the belief that investments made early, even before kindergarten, would alleviate the need for some services later on. Other programs are designed to supplement services in higher grades, particularly for at-risk students, or to comply with service requirements for special education students.

The technology needs of elementary, middle, and high schools are shown in Tables III-7A, 7B, and 7C. In order to develop the technology needs, panels were given a standard list of equipment, based on recommendations of the Education Commission of the States (an interstate policy consortium of states to which Nevada belongs). The panels modified this list as necessary. In most cases, panelists called for an array of technology available in classrooms, computer labs, media centers, and for teachers and administrative staff.

Resource Prices

The primary prices needed to cost out the resources specified above are the *salaries and benefits of personnel* and the prices assigned to different kinds of *technology equipment* (see Table III-8). For personnel salaries, we used statewide average salaries for different personnel categories. These salaries were then reviewed by the in-state overview panel. A benefit rate of 33 percent was applied to all salaries to account for the costs associated with contributions to retirement programs and health care programs. In determining technology costs, we assumed equipment would be replaced every four years.

School and District-Level Costs

School Level Costs

Tables III-9A, 9B, and 9C show the school-level costs that result from applying the prices discussed above to the resources specified by the PJ panels. Per student figures were calculated for regular students and for students with special needs by multiplying numbers of resources (such as personnel or technology equipment) by prices and dividing either by the number of students in each hypothetical school or by the number of students with a particular special need.

In looking at the tables, we have divided the information into two categories: (1) figures related to base, per-student spending; and (2) figures related to spending for students with special needs. Within the first category, we divided figures for regular programs (services available to all students, the costs of which include personnel, annually consumed supplies and materials, and ancillary school-based costs such as professional development), technology, and other programs.

For all figures we show school-level costs and then combine costs across levels to calculate a district-wide figure based on an assumed distribution of students. In small districts where there were two different sized elementary schools, the distribution was assumed to be 9.0% in the small elementary school, 45.0% in the large elementary schools, 15.0% in middle school, and 31.0% in high school. In the moderate and large districts the distribution was 46.1% in elementary schools, 23.1% in middle schools, and 30.8% percent in high schools.

For example, looking at moderate size schools in K-12 districts (Table III-9B), we found that the total base cost per student would include: (1) \$5,823 for basic instruction, support, and administration; and (2) \$176 for technology. Other programs for students with no special needs, like summer school, added \$243 per student. These elements produce a total of \$6,242 at the school level for every student. In addition, the added costs per student for students with particular special needs would be: (1) \$4,425 for students with mild special education needs; (2) \$7,557 for students with moderate special education needs; (3) \$17,320 for students with severe special education needs; (4) \$1,726 per at-risk student; (7) \$3,854 for ELL students; and (8) \$444 for CTE students.

One should be careful in drawing conclusions based on school level costs since such costs exclude district level costs and different panels included different costs at the school and district levels. It is really the combination of school and district costs that reflect the true, total cost of providing services and that permit the most appropriate comparison across school districts of different size.

District Level Costs

Complete cost figures for school districts of different size are shown in Table III-10. District costs are for central services, some of which affect all students – such as administration and facilities maintenance and operation (M&O). Other costs affect only students with special needs. The figures in Table III-10 indicate that district-level administration costs are between about \$719 and \$1,431 per student. Plant maintenance and operation costs range between \$431 and \$641. Other costs (\$254 to \$625 per student) include such items as insurance, legal expenditures, textbooks purchased centrally, and so on. In the end, district-level costs are between 19-24% of total base costs (excluding added costs for special need students).

There are some district costs associated with students with special needs, that may reflect a specialized facility, such as an alternative school in moderate and large districts (which would be attributable to the costs for at-risk students), central services for special education (including diagnostic services or services that are shared across schools), and the cost of language interpreters (attributable to the cost of ELL students). In the case of special education, it was impossible to distinguish which district-level costs were associated with mild, moderate, or severe levels of special education.

Table III-10 also shows total spending after combining school and district spending. For example, in moderate size K-12 districts, combined school-level and district-level base costs are \$7,868 per student. In addition, students with mild special education needs add \$6,918, students with moderate special education needs add \$10,050, and students with severe special education needs add \$19,813. At-risk students add \$2,256, ELL students add \$4,426 per student, and CTE students require an additional \$568.

While this is the basic information produced by the PJ analysis, *it is impossible to use this information in the form in which it has been presented to estimate the cost of an adequate education in districts that have different characteristics from the hypothetical districts shown in this chapter.* The purpose of Chapter V is to explain how the information gained from both the professional judgment and successful school approaches can be used to estimate costs in Nevada school districts of any size and with any proportion of special education students, at-risk students, and ELL students.

TABLE III-1

**NUMBER AND SIZE DISTRIBUTION OF DISTRICTS THAT PROVIDE
ELEMENTARY AND SECONDARY EDUCATION SERVICES IN NEVADA**

WITHOUT CHARTERS

	Small < 1,500	Moderate 1,500 - 49,999	Large > 50,000	Total
# of Districts	8	7	2	17
# of Students	5,789	45,260	317,974	369,023

TABLE III-2

**CHARACTERISTICS OF HYPOTHETICAL DISTRICTS
AND SCHOOLS USED IN THE PROFESSIONAL
JUDGMENT ANALYSIS IN NEVADA**

	Small	Moderate	Large
Total Enrollment	780	6,500	50,000
Number of Schools			
Elementary	3	5	25
Middle	1	2	8
High	1	2	6
Size of School			
Elementary (K-5)	-	600	900
Elementary (K-6)	70 or 175	-	-
Middle (6-8)	-	750	1,500
Middle (7-8)	120	-	-
High (9-12)	240	1,250	2,500
Proportion of Special Needs Students			
<i>Special Education</i>			
Mild	9.5%	9.5%	9.5%
Moderate	3.5%	3.5%	3.5%
Severe	1.0%	1.0%	1.0%
<i>At-Risk</i>	48.0%	29.0%	29.0%
<i>English Language Learners</i>	4.0%	9.0%	9.0%

TABLE III-3A

PERSONNEL NEEDED BY ELEMENTARY, MIDDLE AND HIGH SCHOOLS IN SMALL K-12 DISTRICTS TO MEET ACCOUNTABILITY STANDARDS IN NEVADA

Small Elementary	All Students	Mild Special Ed	Mod. Special Ed	Severe Special Ed	ELL	At-Risk
# of Students in Category	70	7	3	1	3	34
<u>Personnel</u>						
Classroom Teachers	7.0	0.5	0.5	0.5		
Other Teachers	0.5				0.2	1
Librarians/Media Specialists	0.3					
Technology Specialists	0.2					
Pupil Support Staff						
- Counselors	0.5					
- Nurses	0.2					
- Psychologists	0.1					
Instructional Aides	1.5	0.2	0.4	0.6	1	0.5
Clerical/Data Entry	1.0					
Principal	1.0					
Assistant Principal						
Instructional Facilitator	0.1					
Teacher Tutor						
Clinical Aide	1.0					

Large Elementary	All Students	Mild Special Ed	Mod. Special Ed	Severe Special Ed	ELL	At-Risk
# of Students in Category	175	17	6	2	7	84
<u>Personnel</u>						
Classroom Teachers	11.0	1	1	0.6	0.6	3
Other Teachers	1.5					
Librarians/Media Specialists	1.0					
Technology Specialists	0.5					
Pupil Support Staff						
- Counselors	0.5					
- Nurses	0.5					
- Psychologists	0.2					
Instructional Aides	3.5	0.5	1	0.5	1	1
Clerical/Data Entry	1.5					
Principal	1.0					
Assistant Principal						
Instructional Facilitator	0.2					
Teacher Tutor						
Clinical Aide	1.0					0.5

TABLE III-3A Continued

Middle School	All Students	Mild Special Ed	Mod. Special Ed	Severe Special Ed	ELL	At-Risk
# of Students in Category	120	11	4	1	5	58
<u>Personnel</u>						
Classroom Teachers	6.0	1	0.5	0.5		
Other Teachers	2.0				1	3
Librarians/Media Specialists	1.0					
Technology Specialists	0.5					
Pupil Support Staff						
- Counselors	0.5					
- Nurses	0.2					
- Psychologists	0.1					
Instructional Aides	2.0	0.5	0.5	0.5		
Clerical/Data Entry	1.0					
Principal	1.0					
Assistant Principal						
Instructional Facilitator	0.2					
Teacher Tutor						
Clinical Aide	1.0					
High School	All Students	Mild Special Ed	Mod. Special Ed	Severe Special Ed	ELL	At-Risk
# of Students in Category	240	23	8	2	10	115
<u>Personnel</u>						
Classroom Teachers	13.0	2.0	1.0	0.5		
Other Teachers	4.0				1.0	5.0
Librarians/Media Specialists	1.0					
Technology Specialists	1.0					
Pupil Support Staff						
- Counselors	1.5					0.5
- Nurses	0.1				0.1	0.1
- Psychologists	0.1	0.1				
Instructional Aides	1.0	1.0	0.5	1.5	2.0	
Clerical/Data Entry	2.0					
Principal	1.0					
Assistant Principal	0.5		0.2			0.3
Instructional Facilitator	0.4					0.2
Teacher Tutor						
Clinical Aide	1.0					1.0
SRO	0.5					

Note: Panel also recommended 7 Substitute days per teacher

TABLE III-3B

**PERSONNEL NEEDED BY ELEMENTARY, MIDDLE AND HIGH
SCHOOLS IN MODERATE K-12 DISTRICTS TO MEET
ACCOUNTABILITY STANDARDS IN NEVADA**

Elementary	All Students	Mild Special Ed	Mod. Special Ed	Severe Special Ed	ELL	At-Risk
# of Students in Category	600	57	21	6	54	174
<u>Personnel</u>						
Classroom Teachers	35.0	3.0	2.0	1.0		
Other Teachers	5.0				2.0	3.0
Librarians/Media Specialists	1.0					
Technology Specialists	1.0	0.1				
Pupil Support Staff						
- Counselors	1.0					1.0
- Nurses	1.0					
- Psychologists	0.4					
Instructional Aides	6.0	1.0	2.0	1.0	1.0	
Clerical/Data Entry	3.0					
Principal	1.0					
Assistant Principal	1.0					
Instructional Facilitator	3.0				0.3	0.8
Teacher Tutor	1.0	0.2				0.2
Parent Liason					0.5	0.5
Clinical Aide	1.0		0.4	0.3		0.3

Middle School	All Students	Mild Special Ed	Mod. Special Ed	Severe Special Ed	ELL	At-Risk
# of Students in Category	750	71	26	8	68	218
<u>Personnel</u>						
Classroom Teachers	30.0	3.5	2.0	1.5		
Other Teachers	6.0				2.0	2.0
Librarians/Media Specialists	1.0					
Technology Specialists	1.0	0.5				
Pupil Support Staff						
- Counselors	2.0					1.0
- Nurses	1.0					
- Psychologists	0.4	0.2	0.1	0.1		
Instructional Aides	4.0	1.0	1.0	1.0	3.0	
Clerical/Data Entry	4.0					
Principal	1.0					
Assistant Principal	1.0					
Dean	1.0					
Instructional Facilitator	3.0				0.3	0.8
Teacher Tutor	3.0	0.5				
Parent Liason					0.5	1.0
Librarian Aide	1.0					
Clinical Aide	1.0		0.4	0.3		0.3

TABLE III-3B Continued

High School	All Students	Mild Special Ed	Mod. Special Ed	Severe Special Ed	ELL	At-Risk
# of Students in Category	1250	119	44	12	113	363
<u>Personnel</u>						
Classroom Teachers	65.0	5.5	3.0	2.0	4.0	
Other Teachers						
Librarians/Media Specialists	1.0					
Technology Specialists	3.0	0.5				
Pupil Support Staff						
- Counselors	4.0					
- Nurses	1.0					
- Psychologists	0.5	0.3	0.1	0.1		
Instructional Aides	4.0	1.0	1.0	2.0	3.0	1.0
Clerical/Data Entry	10.0	0.5	0.3	0.2		
Principal	1.0					
Assistant Principal	3.0					
Deans	3.0					
Instructional Facilitator	4.0				0.3	0.8
Teacher Tutor	2.0	1.0				2.0
Parent Liaison					0.5	1.0
Library Aides	2.0					
Clinical Aide	1.0		0.4	0.3		0.3
Truancy Officer	0.5					0.5

Note: Panel also recommended 7 Substitute days per teacher

TABLE III-3C

**PERSONNEL NEEDED BY ELEMENTARY, MIDDLE AND HIGH
SCHOOLS IN LARGE K-12 DISTRICTS TO MEET
ACCOUNTABILITY STANDARDS IN NEVADA**

Elementary	All Students	Mild Special Ed	Mod. Special Ed	Severe Special Ed	ELL	At-Risk
# of Students in Category	900	86	32	9	81	261
<u>Personnel</u>						
Classroom Teachers	52.0	5.0	3.0	1.0		
Other Teachers	7.5				3.0	6.0
Librarians/Media Specialists	1.0					
Technology Specialists	1.0	0.1				
Pupil Support Staff						
- Counselors	1.5					1.5
- Nurses	1.0					
- Psychologists	0.0					
Instructional Aides	9.0	2.0	3.0	2.0	2.0	
Clerical/Data Entry	5.0	0.2	0.1	0.1		
Principal	1.0					
Assistant Principal	1.0					1.0
Dean	1.0				0.3	0.8
Instructional Facilitator	3.0					0.4
Teacher Tutor	2.0	0.4				
Parent Liason						1.0
Librarian Aide	1.0					
Clinical Aide			0.4	0.3		0.3

Middle School	All Students	Mild Special Ed	Mod. Special Ed	Severe Special Ed	ELL	At-Risk
# of Students in Category	1500	143	53	15	135	435
<u>Personnel</u>						
Classroom Teachers	60.0	8.0	4.0	2.0		
Other Teachers	12.0	0.5			4.0	6.0
Librarians/Media Specialists	1.0					
Technology Specialists	2.0	0.3	0.1	0.1		
Pupil Support Staff						
- Counselors	4.0					1.0
- Nurses	1.0					
- Psychologists		0.2	0.2	0.1		
Instructional Aides	8.0	2.0	2.0	2.0	4.0	
Clerical/Data Entry	8.0					
Principal	1.0					
Assistant Principal	2.0	0.3	0.1	0.1		
Dean	2.0	0.3	0.1	0.1		0.5
Instructional Facilitator	4.0				0.5	1.5
Teacher Tutor	6.0					
Parent Liason						1.0
Librarian Aide	2.0					
Clinical Aide	1.0		0.4	0.3	0.3	

TABLE III-3C Continued

High School	All Students	Mild Special Ed	Mod. Special Ed	Severe Special Ed	ELL	At-Risk
# of Students in Category	2500	238	88	25	225	725
<u>Personnel</u>						
Classroom Teachers	130.0	13.0	6.0	4.0		
Other Teachers					6.0	7.0
Librarians/Media Specialists	1.0					
Technology Specialists	3.0	0.3	0.1	0.1		
Pupil Support Staff						
- Counselors	8.0					
- Nurses	2.0					
- Psychologists	1.0	0.6	0.2	0.2		
Instructional Aides	8.0	2.0	2.0	4.0	4.0	3.0
Clerical/Data Entry	12.0					
Principal	1.0					
Assistant Principal	4.0	0.6	0.2	0.2		
Deans	4.0					1.0
Instructional Facilitator	6.0				0.3	0.8
Teacher Tutor	4.0					4.0
Parent Liaison					1.0	2.0
Library Aides	3.0					
Clinical Aide	1.0		0.4	0.3		0.3
Truancy Officer	1.0					1.0

Note: Panel also recommended 7 Substitute days per teacher

TABLE III-4A

**ELEMENTARY SCHOOL PERSONNEL PER 1,000 STUDENTS FOR
SMALL, MODERATE AND LARGE SIZE K-12 DISTRICTS**

		<u>Size of School District</u>			
		<u>Small</u>		<u>Mod.</u>	<u>Large</u>
		Small Elem.	Large Elem.		
(1)	<u>Teaching Staff</u>				
	Classroom Teacher	100.0	62.8	58.3	57.7
	Other Teacher	7.1	8.6	8.3	8.3
	Instructional Facilitator	1.4	1.1	5.0	3.3
	Instructional Aide	21.4	20.0	10.0	10.0
(2)	<u>Pupil Support Staff</u>				
	Guidance Counselor	7.1	2.9	1.7	1.7
	Nurse	2.9	2.9	1.7	1.1
	Psychologist	1.4	1.1	0.7	0.0
(3)	<u>Other Staff</u>				
	Librarian/Media Spec.	4.3	5.7	1.7	1.1
	Technology Spec.	2.9	2.9	1.7	1.1
(4)	<u>Administration</u>				
	Principal	14.3	5.7	1.7	1.1
	Asst. Principal	0.0	0.0	1.7	1.1
	Clerical	14.3	8.6	5.0	5.6

TABLE III-4B

**MIDDLE SCHOOL PERSONNEL PER 1,000 STUDENTS FOR
SMALL, MODERATE AND LARGE SIZE K-12 DISTRICTS**

		<u>Size of School District</u>		
		<u>Small</u>	<u>Mod.</u>	<u>Large</u>
(1)	<u>Teaching Staff</u>			
	Classroom Teacher	50.0	40.0	40.0
	Other Teacher	16.7	8.0	8.0
	Instructional Facilitator	1.7	4.0	2.7
	Instructional Aide	16.7	5.3	5.3
(2)	<u>Pupil Support Staff</u>			
	Guidance Counselor	4.2	2.7	2.7
	Nurse	1.7	1.3	0.7
	Psychologist	0.8	0.5	0.0
(3)	<u>Other Staff</u>			
	Librarian/Media Spec.	8.3	1.3	0.7
	Technology Spec.	4.2	1.3	1.3
(4)	<u>Administration</u>			
	Principal	8.3	1.3	0.7
	Asst. Principal	0.0	1.3	1.3
	Clerical	8.3	5.3	5.3

TABLE III-4C

**HIGH SCHOOL PERSONNEL PER 1,000 STUDENTS FOR
SMALL, MODERATE AND LARGE SIZE K-12 DISTRICTS**

		<u>Size of School District</u>		
		<u>Small</u>	<u>Mod.</u>	<u>Large</u>
(1)	<u>Teaching Staff</u>			
	Classroom Teacher	54.2	52.0	52.0
	Other Teacher	16.7	0.0	0.0
	Instructional Facilitator	1.7	3.2	2.4
	Instructional Aide	4.2	3.2	3.2
(2)	<u>Pupil Support Staff</u>			
	Guidance Counselor	6.3	3.2	3.2
	Nurse	0.4	0.8	0.8
	Psychologist	0.4	0.4	0.4
(3)	<u>Other Staff</u>			
	Librarian/Media Spec.	4.2	0.8	0.4
	Technology Spec.	4.2	1.6	0.8
(4)	<u>Administration</u>			
	Principal	4.2	0.8	0.4
	Asst. Principal	2.1	2.4	1.6
	Clerical	8.4	8.0	4.8

TABLE III-5A

**NON-PERSONNEL COSTS NEEDED FOR A
HYPOTHETICAL ELEMENTARY SCHOOL IN SMALL,
MODERATE AND LARGE K-12 DISTRICTS**

		Size of School District			
		<u>Small</u>		<u>Mod.</u>	<u>Large</u>
		Small Elem.	Large Elem.		
(1)	Instructional Supplies/Materials/ Equipment	\$375/stu.	\$375/stu.	\$250/stu.	\$250/stu.
(2)	Student Activities	\$20/stu.	\$20/stu.	\$20/stu.	\$20/stu.
(3)	Professional Development	\$500/tch.+ 5 extra days	\$500/tch.+ 5 extra days	\$500/tch.+ 5 extra days	\$500/tch.+ 5 extra days

TABLE III-5B

**NON-PERSONNEL COSTS NEEDED FOR A
HYPOTHETICAL MIDDLE SCHOOL IN SMALL,
MODERATE AND LARGE K-12 DISTRICTS**

		<u>Size of School District</u>		
		<u>Small</u>	<u>Mod.</u>	<u>Large</u>
(1)	Instructional Supplies/Materials/ Equipment	\$450/stu.	\$300/stu.	\$300/stu.
(2)	Student Activities	\$40/stu.	\$60/stu.	\$60/stu.
(3)	Professional Development	\$500/tch.+ 5 extra days	\$500/tch.+ 5 extra days	\$500/tch.+ 5 extra days

TABLE III-5C

**NON-PERSONNEL COSTS NEEDED FOR A
HYPOTHETICAL HIGH SCHOOL IN SMALL,
MODERATE AND LARGE K-12 DISTRICTS**

		<u>Size of School District</u>		
		<u>Small</u>	<u>Mod.</u>	<u>Large</u>
(1)	Instructional Supplies/Materials/ Equipment	\$675/stu.	\$450/stu.	\$450/stu.
(2)	Student Activities	\$560/stu.	\$300/stu.	\$250/stu.
(3)	Professional Development	\$500/tch.+ 5 extra days	\$500/tch.+ 5 extra days	\$500/tch.+ 5 extra days

TABLE III-6A

**PERCENT OF STUDENTS PARTICIPATING IN OTHER PROGRAMS
NEEDED AT HYPOTHETICAL ELEMENTARY SCHOOLS IN SMALL,
MODERATE, AND LARGE K-12 DISTRICTS**

		Size of School District			
		<u>Small</u>		<u>Mod.</u>	<u>Large</u>
		Small Elem.	Large Elem.		
(1)	<i>Pre-School*</i>				
	All Students				
	At-Risk Students	100%	100%	100%	100%
	Special Education	100%	100%	58%	52%
(2)	<i>After School</i>				
	All Students	25%	25%	25%	25%
	At-Risk Students				
	Special Education				
(3)	<i>Summer School</i>				
	All Students	20%	20%	20%	20%
	At-Risk Students				
	Special Education				
(4)	<i>Extended School Year</i>				
	All Students				
	At-Risk Students				
	Special Education	50%	48%	36%	36%

Note: Regular Pre-School costs are not included in school or district level cost totals, but Special Ed Pre-School costs are included

TABLE III-6B

PERCENT OF STUDENTS PARTICIPATING IN OTHER PROGRAMS
NEEDED AT HYPOTHETICAL *MIDDLE* SCHOOLS
IN SMALL, MODERATE, AND LARGE K-12 DISTRICTS

		<u>Size of School District</u>		
		<u>Small</u>	<u>Mod.</u>	<u>Large</u>
(1)	<i>After School</i>			
	All Students	10%	20%	20%
	At-Risk Students			
	Special Education			
(2)	<i>Saturday School</i>			
	All Students	10%	3%	3%
	At-Risk Students			
	Special Education			
(3)	<i>Summer School</i>			
	All Students	20%	20%	20%
	At-Risk Students			
	Special Education			
(4)	<i>Extended School Year</i>			
	All Students			
	At-Risk Students			
	Special Education	48%	14%	17%

TABLE III-6C

PERCENT OF STUDENTS PARTICIPATING IN OTHER PROGRAMS
NEEDED AT HYPOTHETICAL *HIGH* SCHOOLS IN
SMALL, MODERATE, AND LARGE K-12 DISTRICTS

		Size of School District		
		Small	Mod.	Large
(1)	<i>Saturday School</i>			
	All Students	8%		
	At-Risk Students			
	Special Education			
(2)	<i>Dual Credit</i>			
	All Students	10%	20%	20%
	At-Risk Students			
	Special Education			
(3)	<i>Credit Recovery</i>			
	All Students			
	At-Risk Students	17%	17%	18%
	Special Education			
(4)	<i>Summer School</i>			
	All Students	20%	20%	20%
	At-Risk Students			
	Special Education			
(5)	<i>Extended School Year</i>			
	All Students			
	At-Risk Students			
	Special Education	30%	20%	15%

TABLE III-7A

TECHNOLOGY NEEDS OF HYPOTHETICAL ELEMENTARY SCHOOLS IN SMALL, MODERATE AND LARGE K-12 DISTRICTS

	<u>Size of School District</u>			
	<u>Small</u>		<u>Mod.</u>	<u>Large</u>
	Small Elem.	Large Elem.		
(1) <u>Classroom</u>				
Computers	7	11	95	139
Printers (Inkjet)	7	11	35	52
LCD Projectors	7	11	35	52
Smartboards	7	11	-	-
ELMOs (Opaque Projectors)	-	-	35	52
Scanners	7	11	-	-
(2) <u>Computer Lab (Standing and Mobile)</u>				
Computers	-	-	50	50
Laptops	30	90	-	-
Scanners	-	-	2	2
Printers (Laser)	-	-	2	2
(3) <u>Media Center</u>				
Computers	5	10	10	15
Dig. Video Cam.	2	4	2	2
Digital Cameras	2	13	2	2
Vid. Edit Comp.	1	1	1	1
(4) <u>Admin./Support/Other Staff</u>				
Computers	3	5	6	8
Printers (Laser)	2	3	3	4
Copiers	1	2	-	-
Scanners	1	1	-	-
(5) <u>Other</u>				
Faculty Laptops	11	19	51	71
Servers	1	1	2	2
Mobile Smartboards	2	2	-	-

TABLE III-7B

**TECHNOLOGY NEEDS OF HYPOTHETICAL MIDDLE
SCHOOLS IN SMALL, MODERATE AND LARGE K-12 DISTRICTS**

		<u>Size of School District</u>		
		<u>Small</u>	<u>Mod.</u>	<u>Large</u>
(1)	<u>Classroom</u>			
	Computers	6	150	300
	Printers (Inkjet)	6	30	60
	LCD Projectors	6	30	60
	Smartboards	6	-	
	ELMOs (Opaque Projectors)	-	30	60
	Scanners	6	-	-
(2)	<u>Computer Lab (Standing and Mobile)</u>			
	Computers	25	-	-
	Laptops	40	100	150
	Scanners	1	4	6
	Printers (Laser)	1	4	6
	Smartboards	1	-	-
(3)	<u>Media Center</u>			
	Computers	8	10	10
	Dig. Video Cam.	4	2	2
	Digital Cameras	9	2	2
	Vid. Edit Comp.	1	1	1
(4)	<u>Admin./Support/Other Staff</u>			
	Computers	5	10	16
	Printers (Laser)	3	5	8
	Copiers	2	-	-
	Scanners	1	-	-
(5)	<u>Other</u>			
	Faculty Laptops	14	48	94
	Servers	1	2	3

TABLE III-7C

**TECHNOLOGY NEEDS OF HYPOTHETICAL HIGH
SCHOOLS IN SMALL, MODERATE AND LARGE K-12 DISTRICTS**

		<u>Size of School District</u>		
		<u>Small</u>	<u>Mod.</u>	<u>Large</u>
(1)	<u>Classroom</u>			
	Computers	26	325	650
	Printers (Inkjet)	13	65	130
	LCD Projectors	13	65	130
	Smartboards	13	-	-
	Scanners	13	-	-
(2)	<u>Computer Lab (Standing and Mobile)</u>			
	Computers	60	75	125
	Laptops	30	100	150
	Scanners	4	7	11
	Printers (Laser)	4	7	11
	Smartboards	2	-	-
(3)	<u>Media Center</u>			
	Computers	15	30	30
	Dig. Video Cam.	6	2	2
	Digital Cameras	18	2	2
	Vid. Edit Comp.	2	1	1
	Smartboards	2	-	-
(4)	<u>Admin./Support/Other Staff</u>			
	Computers	7	20	20
	Printers (Laser)	3	10	10
	Copiers	3	-	-
	Scanners	1	-	-
(5)	<u>Other</u>			
	Faculty Laptops	27	80	166
	Servers	2	3	3

TABLE III-8
PRICES FOR HYPOTHETICAL
SCHOOL AND DISTRICT RESOURCES IN 2003-04

Resource Element

(1) Average Salaries and Benefits

<u>School Level</u>	<u>Salary</u>	<u>Salary + 33% Benefit Rate</u>
Classroom Teachers	\$44,721	\$59,479
Other Teachers (incl. Teacher Tutor, Inst. Facilitator, Parent Liason)	\$44,721	\$59,479
Librarians/Media Specialists	\$47,632	\$63,350
Technology Specialists	\$46,092	\$61,302
Counselors/ Social Workers	\$52,043	\$69,217
Nurses	\$52,043	\$69,217
Psychologists/ Therapists	\$52,043	\$69,217
Aides (Instructional, Library, Clinical)	\$16,250	\$21,613
Clerical/Data Entry	\$24,773	\$32,948
Principal	\$75,967	\$101,036
Assistant Principal	\$63,504	\$84,460
Dean	\$63,504	\$84,460
Truancy Officer	\$31,000	\$41,230
School Resource Officer	\$44,721	\$59,479
Custodian	\$32,000	\$42,560
<u>District Level</u>		
Superintendent	\$109,460	\$145,582
Assistant Superintendent	\$102,370	\$136,152
Director	\$80,812	\$107,480
Coordinator	\$80,812	\$107,480
Supervisor	\$80,812	\$107,480
Specialists/Trainers	\$52,043	\$69,217
Interpreters	\$20,000	\$26,600

(2) Technology

	<u>Cost Per Item</u>
Computer	\$1,000
Printer (Basic Laser)	\$455
Printer (Quality Laser)	\$650
Copier	\$2,259
Scanner	\$100
Digital Video Camera	\$600
Digital Camera	\$400
Video Editing Complex	\$5,500
Laptop	\$1,400
Server	\$5,000
LCD Projector	\$1,849
Smart Board	\$1,599
ELMO (Opaque Projector)	\$1,815

Note: All salary figures provided by the state and reviewed by in-state panel.
 Technology figures gathered independently and reviewed by in-state panel.

TABLE III-9A

**SCHOOL-LEVEL COSTS FOR SMALL K-12
SCHOOL DISTRICTS BASED ON THE WORK OF THE
NEVADA PROFESSIONAL JUDGMENT PANELS IN 2003-04**

	<u>Small Elem. School</u>	<u>Large Elem. School</u>	<u>Middle School</u>	<u>High School</u>	<u>Total</u>
(1) <u>Enrollment</u>	70	175	120	240	-
(2) <u>Base Spending</u>					
Regular*	\$11,049	\$7,401	\$7,668	\$7,944	\$7,937
Technology	\$464	\$359	\$352	\$308	\$350
Other Programs for Students with <u>No Special Needs:</u>	\$357	\$401	\$421	\$220	\$343
(3) <u>Added Spending for Special Student Populations**</u>					
<u>Special Education:</u>					
- <i>Mild</i>	\$5,601	\$4,696	\$7,178	\$7,111	\$5,899
- <i>Moderate</i>	\$14,097	\$14,678	\$11,291	\$12,021	\$13,294
- <i>Severe</i>	\$46,468	\$26,338	\$44,269	\$37,720	\$34,368
<u>At-Risk Students:</u>	\$2,308	\$2,766	\$3,376	\$4,222	\$3,268
<u>ELL Students:</u>	\$11,750	\$8,812	\$12,798	\$11,081	\$10,378
<u>CTE Students:</u>	-	-	-	\$892	\$892

* Basic base spending includes school level personnel salaries and benefits, supplies and materials, and other expenditures.

** Costs are shown per student in the program.

Note: All combined figures, except CTE, are based on the following proportions of students: small elementary schools, 9.0%, large elementary schools, 45.0%, middle schools, 15.0%, and high schools, 31.0%. The CTE figure is based on the following: high school, 100% (panelists did not identify a CTE program in elementary or middle schools).

TABLE III-9B

**SCHOOL-LEVEL COSTS FOR MODERATE K-12
SCHOOL DISTRICTS BASED ON THE WORK OF THE
NEVADA PROFESSIONAL JUDGMENT PANELS IN 2003-04**

	<u>Elem. School</u>	<u>Middle School</u>	<u>High School</u>	<u>Total</u>
(1) <u>Enrollment</u>	600	750	1,250	-
(2) <u>Base Spending</u>				
Regular*	\$6,053	\$5,111	\$6,013	\$5,823
Technology	\$175	\$175	\$177	\$176
Other Programs for Students with <u>No Special Needs:</u>	\$276	\$354	\$112	\$243
(3) <u>Added Spending for Special Student Populations**</u>				
<u>Special Education:</u>				
- <i>Mild</i>	\$4,238	\$4,691	\$4,505	\$4,425
- <i>Moderate</i>	\$8,961	\$6,766	\$6,007	\$7,557
- <i>Severe</i>	\$17,218	\$18,176	\$16,827	\$17,320
<u>At-Risk Students:</u>	\$2,168	\$1,568	\$1,182	\$1,726
<u>ELL Students:</u>	\$3,939	\$3,850	\$3,729	\$3,854
<u>CTE Students:</u>	-	\$298	\$531	\$444

* Basic base spending includes school level personnel salaries and benefits, supplies and materials, and other expenditures.

** Costs are shown per student in the program.

Note: All combined figures, except those for CTE, are based on the following proportions of students: elementary schools, 46.1%, middle schools, 23.1%, and high schools, 30.8%. The CTE figure is based on the following: middle school, 33.3%, and high school, 66.7% (panels did not identify a CTE program in elementary school).

TABLE III-9C

**SCHOOL-LEVEL COSTS FOR LARGE K-12
SCHOOL DISTRICTS BASED ON THE WORK OF THE
NEVADA PROFESSIONAL JUDGMENT PANELS IN 2003-04**

	<u>Elem. School</u>	<u>Middle School</u>	<u>High School</u>	<u>Total</u>
(1) <u>Enrollment</u>	900	1,500	2,500	-
(2) <u>Base Spending</u>				
Regular*	\$5,838	\$4,745	\$5,359	\$5,438
Technology	\$159	\$159	\$161	\$159
Other Programs for Students with <u>No Special Needs:</u>	\$296	\$271	\$100	\$229
(3) <u>Added Spending for Special Student Populations**</u>				
<u>Special Education:</u>				
- <i>Mild</i>	\$4,756	\$4,491	\$4,339	\$4,567
- <i>Moderate</i>	\$8,766	\$6,721	\$5,865	\$7,403
- <i>Severe</i>	\$14,933	\$15,302	\$17,456	\$15,793
<u>At-Risk Students:</u>	\$2,968	\$1,270	\$1,666	\$1,704
<u>ELL Students:</u>	\$3,581	\$3,162	\$2,935	\$3,286
<u>CTE Students:</u>	-	\$299	\$532	\$454

* Basic base spending includes school level personnel salaries and benefits, supplies and materials, and other expenditures.

** Costs are shown per student in the program.

Note: All combined figures, except those for CTE, are based on the following proportions of students: elementary schools, 46.1%, middle schools, 23.1%, and high schools, 30.8%. The CTE figure is based on the following: middle school, 33.3%, and high school, 66.7% (panels did not identify a CTE program in elementary school).

TABLE III-10

DISTRICT-LEVEL COSTS BASED ON THE WORK OF THE NEVADA PROFESSIONAL JUDGMENT PANELS IN 2003-04

	<u>Small</u>	<u>Mod.</u>	<u>Large</u>
(1) <u>Enrollment</u>	780	6,500	50,000
(2) <u>District Level Spending</u>			
<u>Basic</u>			
Administration	\$1,431	\$833	\$719
Plant M & O	\$641	\$500	\$431
Other*	\$625	\$293	\$254
<u>Special Needs</u>			
<i>Special Education**</i>	\$5,883	\$2,493	\$1,906
<i>At-Risk Students</i>	\$270	\$530	\$382
<i>ELL Students</i>	\$3,313	\$572	\$123
(3) <u>Total Spending</u>			
<u>Base Spending</u>			
School Level	\$8,630	\$6,242	\$5,826
District Level	\$2,697	\$1,626	\$1,403
Total Base Cost	\$11,327	\$7,868	\$7,229
Added Cost of			
<u>Spec. Need Student</u>			
<u><i>Special Education</i></u>			
<i>Mild</i>	\$11,781	\$6,918	\$6,472
<i>Moderate</i>	\$19,177	\$10,050	\$9,309
<i>Severe</i>	\$40,250	\$19,813	\$17,699
<i>At-Risk Students</i>	\$3,538	\$2,256	\$2,558
<i>ELL Students</i>	\$13,691	\$4,426	\$3,409
<i>CTE Students</i>	\$1,622	\$568	\$176

* Includes legal, insurance, central office technology, and other items placed at the district level (textbooks and tuition, in some cases).

** Special Education district costs include Special Ed Pre-School program costs

IV. STATISTICAL ANALYSES: INFLATION, SIZE, AND REGIONAL COST OF LIVING

As mentioned earlier, APA used the statistical approach to strengthen our work and focused on an examination of three factors:

- 1. Inflation impacts.**
- 2. Cost impacts based on school and district size differences.**
- 3. Regional cost of living differences.**

Our experience working on school finance issues over the past 20 years tells us that these are three factors which districts cannot control, but which can have significant cost impacts. Much of our statistical analyses of these three factors was made possible through the availability in Nevada of In\$ite's school-level data.

Understanding Inflation Cost Differences

Understanding how inflation affects costs in Nevada is an important consideration as the state implements any adequacy-based funding changes to its school finance system. In fact, failure to properly account for the impact of inflation could, over time, alter the impact of any funding changes which are made. APA was asked to create a possible inflation adjustment as part of our contract with Nevada. We developed the following approach that fulfills that obligation.

APA believes the key goal in any inflation analysis is to identify a process which Nevada can use regularly to identify year to year inflation adjustments. Our discussion in this section is therefore designed to describe how such a process could be used by Nevada. Nevada can use the process we describe with data from subsequent years to create year to year inflation adjustments. Such adjustments can then be accurately applied to the state's school funding formula to ensure that districts have the actual purchasing power intended by the state.

The basic process used to identify state-level inflation rates is:

- 1) Identify an overall, nationwide inflation rate; and
- 2) Gather state data to compare with the nationwide rate and extrapolate whether state inflation is higher or lower than the rest of the country.

For the first step above, the most widely used measure of nationwide inflation is the Consumer Price Index (CPI) provided by the U.S. Department of Labor. The CPI is a measure of the average change over time in the prices paid by

consumers for a set of goods and services.⁴ Because the CPI is reliable and regularly updated, APA recommends its use for Nevada's inflation analysis.

For the second step above, state level consumer price data is often available from the federal government. This federal data typically focuses on the price changes taking place in large urban areas within a state. Federal data in Colorado, for instance, focuses on the Denver area, and this data can then be extrapolated to approximate price changes and inflation rates for the state as a whole.

In Nevada, however, such localized federal data is not available. Therefore, APA used data from the Council for Community and Economic Research (ACCRA).⁵ ACCRA provides data for three specific urban areas in Nevada: 1) Las Vegas; 2) Reno; and 3) Carson City. When combined, these three areas make up the large majority of the state's population and therefore offer an effective means of approximating inflation changes for the state as a whole. To generate a more accurate inflation adjustment, the ACCRA data should be weighted to reflect the differences in population represented by each urban area. APA's calculations indicate the following weights should be applied: Las Vegas (80.0%), Reno = (17.5%), and Carson City = (2.5%).

The table on the next page outlines five steps for how Nevada can use both CPI and ACCRA data to determine a statewide Inflation Adjustment Factor. For illustrative purposes, the table carries out calculations using 2003-04 data to generate a 2005 Inflation Adjustment Factor. However, Nevada can use the outlined approach in any given year to calculate an updated adjustment factor. The resulting adjustment factor can be applied to the state's school finance system in order to increase funding to Nevada schools and districts as necessary to keep up with inflation.

⁴ For more information, visit the Department of Labor Web site at <http://www.bls.gov/cpi/cpifaq.htm>.

⁵ For more information, visit the ACCRA Web site at <http://www.accra.org/index.asp>.

Calculating a Year to Year Inflation Adjustment Factor for Nevada

Step	Description of Calculation
1.0	Identify national CPI Increase in past year (CPI increase from 2003 to 2004 was 3.4%)
2.0	Identify the cost of living for Las Vegas, Reno, and Carson City for two years using ACCRA data and weighting each city's figure by population: (Las Vegas = 80.0%, Reno = 17.5%, and Carson City = 2.5%)
3.0	Calculate: Nevada Cost of Living This Year/Nevada Cost of Living Last Year (relative to national average of 1.00) Using 2003-04 data, this calculation looks like this: $1.127/1.081 = 1.0426$
4.0	Calculate inflation adjustment factor: Step 3 result times (1 + national CPI increase) minus 1 For example, the 2005 adjustment for Nevada would be: $1.0426(1 + .034) - 1 = 0.078$
5.0	Therefore, for 2005, Nevada's Inflation Adjustment Factor would be .078 or 7.8%.

Creating a School and District Size Adjustment

The idea that size can impact a district's cost in delivering education services is supported by years of research, including many APA studies conducted in other states. These studies consistently show that cost differences exist across different size districts. Determining the extent of these differences in Nevada is therefore an important step to ensure that resources are properly allocated in the state's education funding formula.

Other states have taken notice of size-related cost differences and have made adjustments to their school finance formulas to account for such differences. For instance, states such as Colorado, Kansas, Montana, and Nebraska all now include size adjustments in their school funding formulas. In many of these states, geographic separation and other factors mean that many school districts are small by necessity. District consolidation is, therefore, not a viable option.

There are three basic principles which apply to the cost impacts of school and district size:

- a) Fixed cost. Schools and districts all have an initial, fixed operating cost that will be incurred to establish and run any school or district, regardless of its enrollment.
- b) Added per student cost. There is an added cost for every student that is added to the school or district's enrollment.
- c) Economies of scale. There is also a cost savings for every student added to a school or district's enrollment. This savings grows exponentially as the number of students increase and greater economies of scale are realized.

To understand how size truly impacts cost in Nevada, APA created a quadratic formula based on the three principles described above. Where "a" represents the fixed cost, "b" represents the added cost for educating each student, "c"

represents economies of scale, and “x” represents the number of students enrolled, APA’s quadratic formula looks like this:

$$a + b(x) - c(x^2)$$

With this formula in hand, APA examined the per-student spending of different sized Nevada schools and districts. To conduct our analysis, we used In\$ite data and definitions of school and district spending.⁶ Since In\$ite addresses actual spending, APA’s analysis was also focused on actual spending. The numbers shown in this section are not, therefore, reflective of the spending level that might be necessary for adequacy purposes. In other words, the numbers shown here do not necessarily reflect the level of resources school and districts might need to meet state and federal performance standards.

School-level Size Adjustment

At the school level, APA used In\$ite data to graph the relationship between actual spending data and school size. The parameters of the lines of best fit for that data using the quadratic equation described above are shown below.

<u>Level</u>	School-Level Actual Spending		
	<u>Fixed</u>	<u>Student</u>	<u>Student²</u>
<i>elementary</i>	\$78,709	\$5,711	-\$2.016
<i>middle</i>	\$224,515	\$5,000	-\$0.754
<i>high school</i>	\$727,957	\$4,241	-\$0.175

The numbers in the “fixed,” “student,” and “student squared” columns above can be respectively plugged into the “a,” “b,” and “c” variables in our quadratic formula. Once this is accomplished, we can generate per-student, actual costs for schools of all different types and sizes. For instance, for the elementary level, our calculations are based on the following: Total cost = \$78,709 + (\$5,711 X students) - (\$.2.016 X students²). Results are shown in the table below. As expected, the costs reflect that smaller schools – with fewer students to absorb and spread out the same fixed costs – are more expensive per student. Conversely, the largest schools – with greater economies of scale – have the lowest per-student costs.

⁶ Nevada pays In\$ite to collect a variety of education spending data, including school-level spending data. In\$ite has its own method of defining school and district spending (for instance, maintenance and operations spending is allocated to the school level).

School-Level Cost by Size and Grade Span

<u>Level</u>	<u>Size</u>	<u>Cost per Student</u>
<i>Elementary</i>	100	\$6,296
	300	\$5,369
	500	\$4,860
	700	\$4,412
<i>Middle</i>	300	\$5,522
	600	\$4,922
	900	\$4,571
	1200	\$4,282
<i>High School</i>	300	\$6,615
	600	\$5,349
	1,200	\$4,638
	1,800	\$4,330
	2,400	\$4,124

District-level Size Adjustment

Our district-level size analysis was conducted in a similar way to the school level analysis shown above. APA graphed the relationship between actual spending data and district size. The parameters of the line of best fit for that data using the quadratic equation described above is shown below.

District-Level Actual Spending

<u>Fixed</u>	<u>Student</u>	<u>Student²</u>
\$338,204	\$387	\$0.00014

Again, the numbers in the “fixed,” “student,” and “student squared” columns above can be respectively plugged into the “a,” “b,” and “c” variables in our quadratic formula. This results in the following calculation: Total cost = \$338,204 + (\$387 X students) - (\$.00014 X students²). Results are shown below.

District-Level Cost by Size

<u>District Size</u>	<u>Per Student Cost</u>
100	\$3,769
500	\$1,063
1,000	\$725
4,000	\$471
8,000	\$428
60,000	\$384
280,000	\$349

Understanding Regional Cost of Living Differences

In this section, APA analyzes adjustment factors which can be included in Nevada's education funding formula that take into account geographic cost of living differences across school districts. The purpose of this analysis is to:

- 1) Identify if there are cost of living differences between districts in different parts of Nevada that impact the cost of delivering education services; and
- 2) Create a "Location Cost Metric" (LCM) which is a factor that can be included in Nevada's school funding formula to adjust the amount of state aid districts receive.

The rationale for conducting such an analysis is well established. In fact, it is now widely recognized that cost of living differences can have a significant impact on the ability of districts to provide equivalent education services. This is especially true with regard to labor. To retain teachers and other employees, school districts must be able to offer compensation that is competitive with other employers, and employee compensation must be sufficient to purchase goods at local prices.

A few states around the country have developed a procedure to quantify cost of living differences. These states use a variety of approaches. Some, such as Ohio, focus on wage differences among districts. Others, such as Florida, have fewer school districts and look at the cost of delivering a wide range of education goods and services in order to identify differences among districts.

In Nevada, our analysis focuses specifically on the cost of living issue. We do not, therefore, seek to address any differences between districts or regions that might affect their "attractiveness" to potential employees. Such an attractiveness analysis would need to address a myriad of subjective factors (for example, recreational opportunities and overall quality of life) that we believe are not useful (or easily quantified) for inclusion in a state education funding formula.

APA's approach to studying cost of living differences in Nevada is to focus on the cost of providing labor. We chose this focus because, as in most states, labor in Nevada represents approximately 80 percent of all district operating costs. This makes it by far the most important driver of district cost differences. Because the remaining 20 percent of district costs are very difficult to quantify, APA holds this 20 percent constant across districts in its LCM formula: $.20 + (.80 \times \text{Cost of Living Indicator})$.

With this focus on labor costs in mind, the main focus of APA's work to develop an LCM for Nevada was to identify a Cost of Living Indicator. This indicator is comprised of the primary costs which employees face. To identify such costs, APA reviewed data from the Council for Community and Economic Research

(ACCRA)⁷ and the Economic Policy Institute. The most significant findings which this data yielded were:

- Cost of living variances in Nevada are largely based on housing cost differences.
- Areas across the state can be separated into high cost housing areas and lower cost housing areas.
- Aside from housing, other living costs do not significantly vary in Nevada (available data showed non-housing costs across the state ranged only from \$2,112 to \$2,196 per month).

Based on these findings, APA decided that the LCM's Cost of Living Indicator should be based on Nevada's housing cost differences and that the housing cost analysis should be separated into lower cost areas and high cost areas. The counties considered high cost areas include Carson City, Clark, Douglas, Lyon, Nye, Storey, and Washoe. The Cost of Living Indicator receives a higher weight (29 percent of cost) in these counties. All remaining areas in the state are considered lower cost. For these counties, the Cost of Living Indicator receives a slightly lower weight (25 percent of cost).

Once the decision was made to focus on housing costs, APA next created a Housing Index. This index, which is weighted to reflect county population differences, is expressed as a ratio of each county's median housing sale price⁸ to the statewide average price.⁹ The index is shown in the table below.

Nevada's Housing Index

<u>County</u>	<u>Median Price</u>	<u>Index</u>
Carson City	\$305,000	94.2
Churchill	\$192,500	59.5
Clark	\$329,612	101.8
Douglas	\$390,000	120.5
Elko	\$151,500	46.8
Esmeralda	\$65,940	20.4
Eureka	\$61,760	19.1
Humboldt	\$136,900	42.3
Lander	\$68,825	21.3
Lincoln	\$79,000	24.4
Lyon	\$241,500	74.6
Mineral	\$42,009	13.0
Nye	\$249,000	76.9
Pershing	\$71,000	21.9
Storey	\$300,000	92.7
Washoe	\$368,287	113.8
White Pine	\$52,981	16.4

⁷ For more information, visit the ACCRA Web site at <http://www.accra.org/index.asp>.

⁸ Based on median sales price as of June 30, 2005. Data availability required the median price to be imputed based on a regression analysis for Esmeralda, Eureka, and White Pine Counties.

⁹ The statewide average price was \$323,649.

It is not surprising that, since the Housing Index weights each county by population, Clark County's index value of 101.8 is not far above the statewide average (which would be represented as 100 in the index). Since Clark County represents a large portion of the state's overall population, it necessarily also has a large impact on the state sales price average.

Once the Housing Index was calculated, APA was able to plug the resulting data into its Cost of Living Indicator for both high cost and low cost areas. These indicators could then be included into the overall Location Cost Metric to generate an LCM index for each county in the state. The index, shown below, can be applied to each school district's base cost when building Nevada's school finance formula.

Nevada's LCM Index

<u>County</u>	<u>LCM</u>
Carson City	98.6
Churchill	91.8
Clark	100.3
Douglas	104.7
Elko	89.3
Esmeralda	84.0
Eureka	83.7
Humboldt	88.4
Lander	84.2
Lincoln	84.8
Lyon	98.3
Mineral	82.5
Nye	94.6
Pershing	84.3
Storey	98.4
Washoe	103.1
White Pine	83.2

V. ESTIMATING THE COST OF ADEQUACY IN NEVADA

This chapter discusses how APA used the successful school and professional judgment analyses to estimate the cost of adequacy for school districts and individual schools with various demographic characteristics.

Alternative Base Cost Figures

The successful school and professional judgment approaches produce data and information that is specific to successful schools with specific characteristics or to hypothetical districts. That information, however, needs to be translated so it can be applied to schools and districts with any set of demographic characteristics. For these purposes, several specific questions need to be addressed:

- (1) What do the differences in the base cost (the cost of educating a student with no special needs) produced by the successful school (SS) and professional judgment (PJ) approaches mean?
- (2) Does the base cost differ by district size?
- (3) How can the costs of serving students with special needs be used to create student weights?

Once we respond to these questions, it becomes possible to estimate costs for each of the 17 Nevada districts. The two approaches we used to study the cost of adequacy produced two different base cost results. The base cost from the PJ approach is \$7,229. The base cost from the SS approach is \$4,660, which is approximately 64.4 percent of the PJ base.

It is important to note that the SS and PJ approaches really address two different standards. In some sense, the SS base cost represents what districts are spending today (2003-04 figures) to be successful. The PJ base figures represent the resources that panels of educators felt are necessary for districts of varying size to get students to meet higher performance expectations by 2013. This higher performance expectation explains the higher cost associated with the PJ base.

Developing Formulas for Base Cost Adjustment Factors: Size and Special Need Students

Although we obtained base cost figures from both the successful school (SS) and professional judgment (PJ) approaches, only the PJ produced base cost figures for K-12 districts of *varying size*. Also, only the PJ approach could provide APA with information needed to generate a series of weights regarding the cost of *serving special need students*. As discussed at the beginning of Chapter III, such student weights are designed to reflect the cost of serving students with special needs relative to the base cost. APA developed the size and student

need formulas described below and applied them to both the \$7,229 and \$4,660 base cost figures identified by the PJ and SS approaches.

The PJ-derived figures shown in Table V-1 indicate that the per-student base cost for K-12 districts vary based on school district size. They also indicate the different levels of cost involved with adequately educating special need students. As shown in the table, the total base cost per student is highest in small districts. This is not surprising, since these districts have fewer students across which to spread a variety of fixed education costs. Conversely, the base cost drops as district size increases and economies of scale are realized. The table also generally shows that the cost of serving students with special needs drops as district size increases and districts are able to provide more centralized services.

Table V-1					
District Level Costs Including Adjustments for					
Size and Special Need Students					
(Based on PJ Panel Work)					
School Size			Small	Moderate	Large
	Enrollment		780	6,500	50,000
	Total Base Cost		\$11,327	\$7,868	\$7,229
Added Cost of Special Need Students					
	Special Education				
	<i>Mild</i>		\$11,781	\$6,918	\$6,472
	<i>Moderate</i>		\$19,177	\$10,050	\$9,309
	<i>Severe</i>		\$40,250	\$19,813	\$17,699
	At-Risk Students		\$3,538	\$2,256	\$2,558
	ELL Students		\$13,691	\$4,426	\$3,409
	CTE Students		\$1,622	\$568	\$176

Based on the figures in Table V-1, APA generated a series of cost weights to help reflect the cost impact of different special need students in different sized districts. These weights were generated simply by dividing the added cost figure for each category by the total base cost. So, for instance, to generate a mild special education student weight for small districts, one would divide \$11,781 by the base cost of \$11,327. This yields a cost weight of 1.04. Using this process, all the resulting student weights are shown in Table V-2 below.

APA used the cost weights shown in Table V-2 to generate a series of formulas to calculate the full PJ cost of an adequate education (including both the base and any adjustments for district size and special need students). These are shown in the box on the following page. It is important to note that it was not feasible to run an individual PJ panel for every existing district size in Nevada.

APA's PJ-derived data was therefore limited to a range of 780 students (at the small district end) and 50,000 students (at the large district end).

Table V-2				
Special Need Student Cost Weights by District Size				
(Based on PJ Panel Work)				
School Size		Small	Moderate	Large
Enrollment		780	6,500	50,000
Total Base Cost		\$11,327	\$7,868	\$7,229
Added Cost Weight for Special Need Students				
Special Education				
	Mild	1.04	.88	.89
	Moderate	1.69	1.28	1.29
	Severe	3.55	2.52	2.44
	At-Risk Students	.31	.29	.35
	ELL Students	1.21	.56	.47
	CTE Students	.14	.05	.04

To address districts larger than 50,000, APA examined In\$ite actual spending data and identified the ratio of spending differences between Nevada's largest districts. We used this data to create a cost "floor" below which no district could go. We applied this ratio to the \$7,229 based cost figure to obtain a \$6,966 floor using PJ figures (similarly we obtained a \$4,486 cost floor using the SS figures).

To address districts smaller than 780 students, APA used its statistical size analysis (discussed in Chapter IV of this report). This statistical analysis indicated a specific data line tracking the differences in cost as one moves from small to large districts. Importantly, the statistical analysis was able to identify the cost differences even for Nevada's very smallest districts. Our statistical analysis, however, relied on In\$ite data and definitions of school and district spending. Since In\$ite addresses only actual spending, the data produced do not reflect the level of spending that might be necessary for adequacy purposes. In other words, the data do not reflect the level of resources school and districts might need to meet state and federal performance standards.

While the statistical size analysis data did not reflect the level of spending required for adequacy purposes, the data line it produced was parallel to that of the data generated by our adequacy-based PJ work. APA was therefore able to use the same slope of the line produced by the statistical work to develop a formula for districts smaller than 780 students for both the PJ and SS.

FORMULAS TO DETERMINE BASE COST AND WEIGHTS FOR SIZE AND STUDENT NEED IN SCHOOL DISTRICTS

Base Cost

Professional Judgment

Conditions

Less than 780 students

781 – 6,500 students

More than 6,500 students

Note: the minimum is \$6,966.

Formulas for Base Cost

$\$16,101 + (\text{Students } X (-6.120))$

$\$11,799 + (\text{Students } X (-.6047))$

$\$7,961 + (\text{Students } X (-.0144))$

Successful Schools

Conditions

Less than 780 students

781 – 6,500 students

More than 6,500 students

Note: the minimum is \$4,486.

Formulas for Base Cost

$(\$16,101 + (\text{Students } X (-6.120))) \times .644$

$(\$11,799 + (\text{Students } X (-.6047))) \times .644$

$(\$7,961 + (\text{Students } X (-.0144))) \times .644$

Special Education

Mild

Conditions

All size districts

Note: the minimum weight is .89 and
the maximum weight is 1.04.

Formula for Mild Special Ed Weight

$(\text{Students } X (-0.00005)) + 1.0605$

Moderate

Conditions

All size districts

Note: the minimum weight is 1.29 and
the maximum weight is 1.69.

Formula for Mod. Special Ed Weight

$(\text{Students } X (-0.00007)) + 1.7445$

Severe

Conditions

Less than 780 students

781 – 6,500 students

More than 6,500 students

Note: the minimum weight is 2.44.

Formula for Severe Special Ed Weight

3.55

$(\text{Students } X (-0.0002)) + 3.6905$

$(\text{Students } X (-0.000002)) + 2.532$

At-Risk (number of students eligible for free/reduced price lunch)

Conditions

All size districts

Note: the minimum weight is .30 and
the maximum weight is .35.

Formulas for At-Risk Weight

$(\text{Students } X (0.000001)) + .2925$

English Language Learners (ELL)

Conditions

Less than 780 Students

781 – 6,500 Students

More than 6,500 Students

Note: the minimum weight is 0.47.

Formulas for ELL Weight

1.21

$(\text{Students } X (-0.0001)) + 1.2986$

$(\text{Students } X (-0.000002)) + .5734$

Career-Technical Education (CTE)

Conditions

All size districts

Note: the minimum weight is 0.05 and
the maximum weight is .14.

Formulas for CTE Weight

$(\text{Students } X (-.00002)) + 0.1523$

Note: In all formulas, students refers to the number of students in the district.

In cases where the weights were almost identical, APA blended them together into a single weight. For instance, there was a minimal difference in mild special education student weights between the moderate and large size district (.88 and .89 respectively). In its formula therefore, APA selected the .89 weight as the overall minimum for mild special education students.

A major advantage to the formulas APA created is that they produce gradual changes in projected costs based on enrollment differences. Such gradual change is preferable because it helps avoid the creation of perverse incentives for school districts to gain or shed a few students in order to reach a specific formula-driven plateau that would provide them with a significantly higher level of funding. With APA's formulas, no such plateaus exist and districts therefore have no incentive to artificially alter their student counts.

Examples of How APA's Formulas Work

A) If a Nevada K-12 district had 200 students, 27 of whom were in special education programs (18 mild, 7 moderate, and 2 severe); 80 were at-risk; 10 were in ELL programs; and 15 in career and technical education (CTE) programs; the cost of adequacy would be calculated as follows:

1. Base cost = 200 X \$14,877 or \$2,975,400
2. At-risk = 80 X .30 X \$14,877 or \$357,048
3. ELL = 10 X 1.21 X \$14,877 or \$180,012
4. CTE = 15 X .14 X \$14,877 or \$31,242
5. Special Education
 - Mild* = 18 X 1.04 X \$14,877, or \$278,497
 - Moderate* = 7 X 1.69 X \$14,877, or \$175,995
 - Severe* = 2 X 3.55 X \$14,877, or \$105,627

DISTRICT TOTAL: \$4,103,821

TOTAL PER STUDENT: \$4,103,821 divided by 200 = \$20,519

B) For a larger Nevada district (with 50,000 students) that has 6,750 children in special education (4,500 mild, 1,750 moderate, and 500 severe); 20,000 at-risk; 2,500 in ELL programs; and 3,750 in CTE; the calculation would be as follows:

1. Base cost = 50,000 X \$7,241 or \$362,050,000
2. At-risk = 20,000 X .3425 X \$7,241, or \$49,600,850
3. ELL = 2,500 X .4734 X \$7,241, or \$8,569,724
4. CTE = 3,750 X .05 X \$7,241, or \$1,357,688
5. Special Education
 - Mild* = 4,500 X .89 X \$7,241, or \$29,000,205
 - Moderate* = 1,750 X 1.29 X \$7,241, or \$16,346,558
 - Severe* = 500 X 2.44 X \$7,241, or \$8,834,020

DISTRICT TOTAL: \$475,759,045

TOTAL PER STUDENT: \$475,759,045 divided by 50,000 = \$9,515

Calculating Funding Adequacy In an Individual School

Another set of formulas can also be developed to estimate the cost of adequacy at an individual school, recognizing that per student costs may differ between schools based on the grades served. There is a separate formula to determine the school-level cost of elementary, middle, and high schools. However, one formula is used to determine district-level costs for each school regardless of type, and the same weights as seen at the district-level are applied to every school. The formulas based upon the PJ approach are as follows:

FORMULAS TO DETERMINE SCHOOL AND DISTRICT-LEVEL BASE COSTS IN AN INDIVIDUAL SCHOOL

School-level Base Cost

Elementary

Conditions

Less than 175 students

176- 600 students

More than 600 students

Note: the minimum is \$5,664.

Formulas for School-level Base Cost

$\$1,434 + (\text{Students } X \text{ } (-35.324))$

$\$8,843 + (\text{Students } X \text{ } (-3.8988))$

$\$6,926 + (\text{Students } X \text{ } (-0.7033))$

Middle

Conditions

Less than 750 students

More than 750 students

Note: the minimum is \$4,658.

Formulas for School-level Base Cost

$\$8,975 + (\text{Students } X \text{ } (-4.446))$

$\$6,105 + (\text{Students } X \text{ } (-0.62))$

High School

Conditions

Less than 1,250 students

More than 1,250 students

Note: the minimum is \$5,508.

Formulas for School-level Base Cost

$\$8,988 + (\text{Students } X \text{ } (-2.1485))$

$\$6,984 + (\text{Students } X \text{ } (-0.5456))$

District-level Base Cost

All School Types

Conditions

Less than 6,500 students

More than 6,500 students

Note: the minimum is \$1,307.

Formulas for School-level Base Cost

$\$2,843 + (\text{Students } X \text{ } (-0.1872))$

$\$1,659 + (\text{Students } X \text{ } (-0.0051))$

Note: Minimums for the school-level base costs were set at 90% of the lowest per pupil figure from the PJ panel work for each of the three school types. The minimum for the district-level costs was set using the same rationale as described in an earlier chapter.

SS base figures could then be calculated as 64.4 percent of PJ figures (since the SS base is 64.4 percent of the PJ base) as seen when formulas were applied at the district level. To illustrate the application of these formulas, using an example of a 200 student school:

- If it was an **elementary school**, the school-level PJ base cost would be \$8,064 per student and the SS school-level base would be \$5,193.
- If it was a **middle school** the school-level PJ base cost would be \$8,085 per student, and the SS school-level base would be \$5,207.
- If it was a **high school** the school-level PJ base cost would be \$8,558 per student, and the SS school-level base would be \$5,511.

Once the school-level base cost was determined, a district level-base cost would be added depending on the size of district the school was in. Using the same example of a 200 student school, regardless of type:

- If it was in a **district of 500**, the added PJ district-level base cost would be \$2,749 per student, the SS district-level base cost would be \$1,771.
- If it was in a **district of 5,000**, the added PJ district-level base cost would be \$1,907 per student, the SS district-level base cost would be \$1,228.
- If it was in a **district of 50,000**, the added PJ district-level base cost would be \$1,404 per student, the SS district-level base cost would be \$904.

The two figures (school-level and district-level costs) would then be combined to determine the total base cost to which the previously discussed weights would be applied.

Table V-3 identifies 20 example schools for which the cost of adequacy was calculated. The selected schools were chosen so there would be a relatively even mix of elementary, middle, and high schools from different sized districts. An effort was also made to have at least one school from each district represented. Individual schools were then chosen at random from those in a given district.

Table V-3 also provides the demographics of each school, including total enrollment and the number of students in each special needs subgroup as reported by InSite for 2003-04. The final two columns in Table V-3 show the cost of adequacy using the SS and PJ base costs for each school.

TABLE V-3

ESTIMATING THE COST OF ADEQUACY FOR SELECT NEVADA SCHOOLS USING BOTH
 THE SUCCESSFUL SCHOOLS AND PROFESSIONAL JUDGMENT BASES IN 2003-04

District	School	School Enrollment	Mild Special Ed	Moderate Special Ed	Severe Special Ed	At-Risk	ELL	CTE	SS Adequacy per pupil	PJ Adequacy per pupil
Esmeralda	Dyer Elem	43	3	0	0	30	0	0	\$13,675	\$21,235
Eureka	Eureka HS	91	16	2	0	26	0	46	\$11,916	\$18,503
Storey	Virginia City HS	137	18	4	1	0	0	65	\$10,954	\$17,009
Mineral	Schurz Elem	79	11	3	1	65	0	0	\$15,955	\$24,775
Pershing	Pershing County Middle	218	32	10	0	94	41	0	\$12,634	\$19,619
Lincoln	Lincoln County Sr. High	191	5	3	0	76	6	96	\$9,627	\$14,948
Lander	Eleanor Lemaire Elem	273	19	3	1	69	0	0	\$8,565	\$13,299
White Pine	White Pine Middle	299	37	6	2	83	0	0	\$9,501	\$14,753
Humboldt	Albert M. Lowery HS	987	113	29	3	259	238	494	\$9,719	\$15,091
Churchill	Numa Elem	544	53	18	2	257	71	0	\$8,703	\$13,514
Nye	Rosemary Clark Middle	1,045	152	63	7	566	20	0	\$7,703	\$11,962
Douglas	George Whitell HS	228	10	3	1	34	28	101	\$8,238	\$12,792
Lyon	Silver Springs Elem	416	21	9	2	252	0	0	\$7,678	\$11,922
Carson City	Carson Middle	1,220	136	38	6	439	120	0	\$6,580	\$10,218
Elko	Elko Sr. High	1,217	90	16	3	49	14	609	\$6,269	\$9,734
Washoe	Mamie Towles Elem	393	36	14	2	84	22	0	\$7,716	\$11,981
Washoe	Reno HS	1,831	108	43	6	109	48	655	\$5,831	\$9,055
Clark	Jim Thorpe Elem	579	70	23	6	168	56	0	\$7,669	\$11,909
Clark	Charles West Middle	1,215	163	53	13	1,021	223	0	\$7,648	\$11,876
Clark	Western HS	2,190	215	69	17	898	400	1,095	\$7,080	\$10,994

VI. COMPARING ADEQUACY COSTS WITH ACTUAL SPENDING IN NEVADA SCHOOL DISTRICTS

Tables VI-1A, B, C and D, compare the cost of adequacy to actual, comparable spending in 2003-04, excluding capital, transportation, and food service, for the 17 districts in Nevada not including charter schools. Figures are disaggregated into three size categories of districts: (1) Small, which includes districts below 1,500 students; (2) Moderate, which includes districts with 1,501- 49,999 students; and (3) Large, which includes districts above 50,000.

The tables are organized into two categories:

- Tables **VI-1A and VI-1B** focus on the **Successful School (SS) approach** adequacy figures. Table VI-1A shows adequacy figures without using the Location Cost Metric (LCM), and Table VI-1B shows adequacy figures to which the LCM has been applied.
- Tables **VI-1C and VI-1D** focus on the **Professional Judgment (PJ) approach** adequacy figures. Table VI-1C shows figures without the LCM, and Table VI-1D shows the figures with the LCM.

All figures in the tables are in 2003-04 dollars.

Section I of Tables VI-1A, B, C, and D shows the 2003-04 demographic characteristics of Nevada school districts. There were 8 small districts, 7 moderate size districts, and 2 large districts. Of the 369,023 students enrolled in the 17 districts, 5,789 students were in small districts, 45,260 students were in moderate districts, and 317,974 students were in large districts.

Section II of Tables VI-1A, B, C, and D indicates the total cost of adequacy for the state as a whole in 2003-04 based on the SS approach (in Tables VI-1A and VI-1B), and the PJ approach (in Tables VI-1C and VI-1D). For example, in Table VI-1A, using the SS approach base cost without LCM, the total cost of an adequate education in 2003-04 would have been about \$2,295.5 million. The cost of providing base services to all students would have been \$1,714.4 million. The added cost to serve students with special needs would have been: \$226.5 million to serve special education students; \$206.0 million to serve at-risk students; \$132.7 million to serve ELL students; and \$15.9 million to serve CTE students. Taken together, these costs equate to \$6,221 per student (as shown in Section III of Table VI-1A).

Section IV of Tables VI-1A, B, C, and D display actual, comparable spending in 2003-04. In the example of Table VI-1A, using the SS approach without LCM, for the given year, the 17 school districts spent \$2,231.3 million, or \$6,046 per student. These figures suggest that school districts would have needed to spend

\$64.2 million more than what they were spending in order to reach an SS-adequate level of spending.

To gain a better understanding of variations in resources currently available to districts, it is important to examine separately those districts that appear to be spending above adequate levels and those spending below adequate levels. Section V of Tables VI-1A, B, C and D shows districts spending above than the amount estimated to be adequate in 2003-04. Using the same example of Table VI-1A, of the 17 districts, 5 were spending above SS-adequate levels. Those districts, which enrolled 23,975 students, spent \$15.3 million over SS adequacy, or \$640 per student, on average. The districts that were spending above adequacy fell into the small and moderate size categories. Section VI of Tables VI-1A, B, C, and D show which districts were spending below the adequacy level estimated by the SS approach. In the example of Table VI-1A, the data shows that 12 districts would have needed a total of \$79.6 million, or \$231 per student, on average, to bring them up to the successful schools adequacy level.

The degree to which districts were spending above or below adequacy varied by which approach was used and if the LCM was applied. In the example of Table VI-1A (using the SS approach without the LCM) the cost of adequacy again was \$2,295.5 million or \$64.2 million more than current actual spending, with 5 districts spending above the adequate amount and 12 districts spending below. In Table VI-1B (using the SS approach but also applying the LCM) the cost of adequacy was \$2,287.0 million or \$55.7 million over current spending, with 10 districts spending above the adequate amount and 7 districts spending below.

Table VI-1C and VI-1D both used the professional judgment approach to determine the cost of adequacy using the 2013-14 standard. Since this standard is, by definition, higher than that used for the SS approach, the costs for providing resources to meet that standard as shown in Tables VI-1C and D are much higher than the estimates of the previous tables. Table VI-1C (using the PJ approach without applying the LCM) shows an adequacy cost of \$3,564.5 million (or \$1,333.2 million more than current spending) with only one district spending above the estimated adequate amount, and the other 16 spending below. In Table VI-1D, (using the PJ approach with the LCM) the cost of adequacy was \$3,551.3 million (or \$1,320.0 million more than current spending) with 2 districts spending above adequacy and 15 spending below.

TABLE VI-1A

ESTIMATING THE COST OF ADEQUACY FOR NEVADA SCHOOL DISTRICTS
 USING THE SUCCESSFUL SCHOOLS BASE IN 2003-04

WITHOUT LCM

	Small	Moderate	Large	<u>TOTAL</u>
<u>I. School District Characteristics</u>				
Range in Size of District (Students)	< 1,500	1501 - 49,999	> 50,000	
Number of Districts	8	7	2	17
Number of Students	5,789	45,260	317,974	369,023
<u>II. Estimated Aggregate Cost of Adequacy (millions)*</u>				
Base Cost	\$43.1	\$239.1	\$1,432.2	\$1,714.4
Special Education	\$8.6	\$37.9	\$180.0	\$226.5
At-Risk	\$4.1	\$24.2	\$177.6	\$206.0
ELL	\$1.7	\$11.6	\$119.4	\$132.7
CTE	\$1.8	\$3.1	\$11.0	\$15.9
Grand Total	\$59.2	\$316.0	\$1,920.3	\$2,295.5
<u>III. Estimated Cost of Adequacy Per Student*</u>				
<i>Grand Total</i>	<i>\$10,232</i>	<i>\$6,981</i>	<i>\$6,039</i>	<i>\$6,221</i>
<u>IV. Actual Comparable Spending*</u>				
Aggregate Total (millions)	\$54.2	\$319.8	\$1,857.3	\$2,231.3
<i>Per Student Total</i>	<i>\$9,356</i>	<i>\$7,065</i>	<i>\$5,841</i>	<i>\$6,046</i>

TABLE VI-1A (Continued)

	Small	Moderate	Large	<u>TOTAL</u>
	< 1,500	1501 - 49,999	> 50,000	
V. <u>Districts with Higher Spending than the Amount Estimated to be Adequate</u>				
Number of Districts	2	3	0	5
Number of Students	279	23,696	0	23,975
Estimated 2003-04 Adequate Spending (Aggregate in millions)*	\$3.6	\$152.5	--	\$156.2
Actual 2003-04 Spending (Aggregate in millions)*	\$5.5	\$166.0	--	\$171.5
Actual Spending Over Adequacy (Aggregate in millions)*	\$1.9	\$13.4	--	\$15.3
Per Student Spending Over Adequacy	\$6,767	\$567	--	\$640

TABLE VI-1A (Continued)

	Small	Moderate	Large	<u>TOTAL</u>
	< 1,500	1501 - 49,999	> 50,000	
VI. <u>Districts with Lower Spending than the Amount Calculated to be Adequate</u>				
Number of Districts	6	4	2	12
Number of Students	5,509	21,564	317,974	345,047
Estimated 2003-04 Adequate Spending (Aggregate in millions)*	\$55.6	\$163.4	\$1,920.3	\$2,139.4
Actual 2003-04 Spending (Aggregate in millions)*	\$48.6	\$153.8	\$1,857.3	\$2,059.8
Actual Spending <i>Under Adequacy</i> (Aggregate in millions)*	\$7.0	\$9.7	\$63.0	\$79.6
Per Student Spending <i>Under Adequacy</i>	\$1,264	\$448	\$198	\$231

* Figures exclude spending for capital, transportation, and food service

TABLE VI-1B

ESTIMATING THE COST OF ADEQUACY FOR NEVADA SCHOOL DISTRICTS
USING THE SUCCESSFUL SCHOOLS BASE IN 2003-04

WITH LCM

	Small	Moderate	Large	<u>TOTAL</u>
<u>I. School District Characteristics</u>				
Range in Size of District (Students)	< 1,500	1501 - 49,999	> 50,000	
Number of Districts	8	7	2	17
Number of Students	5,789	45,260	317,974	369,023
<u>II. Estimated Aggregate Cost of Adequacy (millions)*</u>				
Base Cost	\$36.8	\$229.2	\$1,442.2	\$1,708.2
Special Education	\$7.4	\$36.4	\$181.4	\$225.2
At-Risk	\$3.5	\$23.1	\$178.8	\$205.4
ELL	\$1.4	\$11.0	\$120.1	\$132.6
CTE	\$1.5	\$3.0	\$11.1	\$15.5
Grand Total	\$50.6	\$302.7	\$1,933.7	\$2,287.0
<u>III. Estimated Cost of Adequacy Per Student*</u>				
<i>Grand Total</i>	<i>\$8,741</i>	<i>\$6,689</i>	<i>\$6,081</i>	<i>\$6,198</i>
<u>IV. Actual Comparable Spending*</u>				
Aggregate Total (millions)	\$54.2	\$319.8	\$1,857.3	\$2,231.3
<i>Per Student Total</i>	<i>\$9,356</i>	<i>\$7,065</i>	<i>\$5,841</i>	<i>\$6,046</i>

TABLE VI-1B (Continued)

	Small	Moderate	Large	<u>TOTAL</u>
	< 1,500	1501 - 49,999	> 50,000	
V. <u>Districts with Higher Spending than the Amount Estimated to be Adequate</u>				
Number of Districts	5	5	0	10
Number of Students	3,147	33,326	0	36,473
Estimated 2003-04 Adequate Spending (Aggregate in millions)*	\$27.9	\$218.0	--	\$245.9
Actual 2003-04 Spending (Aggregate in millions)*	\$32.0	\$238.3	--	\$270.3
Actual Spending Over Adequacy (Aggregate in millions)*	\$4.1	\$20.3	--	\$24.4
Per Student Spending Over Adequacy	\$1,307	\$609	--	\$669

TABLE VI-1B (Continued)

	Small	Moderate	Large	<u>TOTAL</u>
	< 1,500	1501 - 49,999	> 50,000	
VI. <u>Districts with Lower</u> <u>Spending than the Amount</u> <u>Calculated to be Adequate</u>				
Number of Districts	3	2	2	7
Number of Students	2,642	11,934	317,974	332,550
Estimated 2003-04 Adequate Spending (Aggregate in millions)*	\$22.7	\$84.8	\$1,933.7	\$2,041.1
Actual 2003-04 Spending (Aggregate in millions)*	\$22.1	\$81.5	\$1,857.3	\$1,960.9
Actual Spending <i>Under Adequacy</i> (Aggregate in millions)*	\$0.6	\$3.3	\$76.3	\$80.2
Per Student Spending <i>Under Adequacy</i>	\$209	\$275	\$240	\$241

* Figures exclude spending for capital, transportation, and food service

TABLE VI-1C

ESTIMATING THE COST OF ADEQUACY FOR NEVADA SCHOOL DISTRICTS
USING THE PROFESSIONAL JUDGMENT BASE IN 2003-04

WITHOUT LCM

	Small	Moderate	Large	<u>TOTAL</u>
<u>I. School District Characteristics</u>				
Range in Size of District (Students)	< 1,500	1501 - 49,999	> 50,000	
Number of Districts	8	7	2	17
Number of Students	5,789	45,260	317,974	369,023
<u>II. Estimated Aggregate Cost of Adequacy (millions)*</u>				
Base Cost	\$66.9	\$371.3	\$2,223.9	\$2,662.1
Special Education	\$13.3	\$58.9	\$279.6	\$351.8
At-Risk	\$6.4	\$37.7	\$275.8	\$319.9
ELL	\$2.6	\$18.0	\$185.5	\$206.1
CTE	\$2.7	\$4.9	\$17.0	\$24.7
Grand Total	\$92.0	\$490.6	\$2,981.8	\$3,564.5
<u>III. Estimated Cost of Adequacy Per Student*</u>				
<i>Grand Total</i>	<i>\$15,888</i>	<i>\$10,841</i>	<i>\$9,378</i>	<i>\$9,659</i>
<u>IV. Actual Comparable Spending*</u>				
Aggregate Total (millions)	\$54.2	\$319.8	\$1,857.3	\$2,231.3
<i>Per Student Total</i>	<i>\$9,356</i>	<i>\$7,065</i>	<i>\$5,841</i>	<i>\$6,046</i>

TABLE VI-1C (Continued)

	Small	Moderate	Large	<u>TOTAL</u>
	< 1,500	1501 - 49,999	> 50,000	
V. <u>Districts with Higher Spending than the Amount Estimated to be Adequate</u>				
Number of Districts	1	0	0	1
Number of Students	67	--	--	67
Estimated 2003-04 Adequate Spending (Aggregate in millions)*	\$1.39	--	--	\$1.39
Actual 2003-04 Spending (Aggregate in millions)*	\$1.43	--	--	\$1.43
Actual Spending Over Adequacy (Aggregate in millions)*	\$0.04	--	--	\$0.04
Per Student Spending Over Adequacy	\$627	--	--	\$627

TABLE VI-1C (Continued)

	Small	Moderate	Large	<u>TOTAL</u>
	< 1,500	1501 - 49,999	> 50,000	
VI. <u>Districts with Lower</u> <u>Spending than the Amount</u> <u>Calculated to be Adequate</u>				
Number of Districts	7	7	2	16
Number of Students	5,721	45,260	317,974	368,955
Estimated 2003-04 Adequate Spending (Aggregate in millions)*	\$90.6	\$490.6	\$2,981.8	\$3,563.1
Actual 2003-04 Spending (Aggregate in millions)*	\$52.7	\$319.8	\$1,857.3	\$2,229.8
Actual Spending <i>Under Adequacy</i> (Aggregate in millions)*	\$37.9	\$170.9	\$1,124.5	\$1,333.2
Per Student Spending <i>Under Adequacy</i>	\$6,616	\$3,776	\$3,536	\$3,614

* Figures exclude spending for capital, transportation, and food service

TABLE VI-1D

ESTIMATING THE COST OF ADEQUACY FOR NEVADA SCHOOL DISTRICTS
 USING THE PROFESSIONAL JUDGMENT BASE IN 2003-04

WITH LCM

	Small	Moderate	Large	<u>TOTAL</u>
<u>I. School District Characteristics</u>				
Range in Size of District (Students)	< 1,500	1501 - 49,999	> 50,000	
Number of Districts	8	7	2	17
Number of Students	5,789	45,260	317,974	369,023
<u>II. Estimated Aggregate Cost of Adequacy (millions)*</u>				
Base Cost	\$57.2	\$355.9	\$2,239.5	\$2,652.6
Special Education	\$11.5	\$56.5	\$281.7	\$349.7
At-Risk	\$5.4	\$35.9	\$277.6	\$319.0
ELL	\$2.2	\$17.1	\$186.6	\$205.9
CTE	\$2.3	\$4.6	\$17.2	\$24.1
Grand Total	\$78.6	\$470.1	\$3,002.6	\$3,551.3
<u>III. Estimated Cost of Adequacy Per Student*</u>				
<i>Grand Total</i>	<i>\$13,573</i>	<i>\$10,386</i>	<i>\$9,443</i>	<i>\$9,623</i>
<u>IV. Actual Comparable Spending*</u>				
Aggregate Total (millions)	\$54.2	\$319.8	\$1,857.3	\$2,231.3
<i>Per Student Total</i>	<i>\$9,356</i>	<i>\$7,065</i>	<i>\$5,841</i>	<i>\$6,046</i>

TABLE VI-1D (Continued)

	Small	Moderate	Large	<u>TOTAL</u>
	< 1,500	1501 - 49,999	> 50,000	
V. <u>Districts with Higher</u> <u>Spending than the Amount</u> <u>Estimated to be Adequate</u>				
Number of Districts	2	0	0	2
Number of Students	279	--	--	279
Estimated 2003-04 Adequate Spending (Aggregate in millions)*	\$4.7	--	--	\$4.7
Actual 2003-04 Spending (Aggregate in millions)*	\$5.5	--	--	\$5.5
Actual Spending Over Adequacy (Aggregate in millions)*	\$0.8	--	--	\$0.8
Per Student Spending Over Adequacy	\$2,801	--	--	\$2,801

TABLE VI-1D (Continued)

	Small	Moderate	Large	<u>TOTAL</u>
	< 1,500	1501 - 49,999	> 50,000	
VI. <u>Districts with Lower</u> <u>Spending than the Amount</u> <u>Calculated to be Adequate</u>				
Number of Districts	6	7	2	15
Number of Students	5,509	45,260	317,974	368,743
Estimated 2003-04 Adequate Spending (Aggregate in millions)*	\$73.8	\$470.1	\$3,002.6	\$3,546.5
Actual 2003-04 Spending (Aggregate in millions)*	\$48.6	\$319.8	\$1,857.3	\$2,225.7
Actual Spending <i>Under Adequacy</i> (Aggregate in millions)*	\$25.2	\$150.3	\$1,145.3	\$1,320.8
Per Student Spending <i>Under Adequacy</i>	\$4,573	\$3,322	\$3,602	\$3,579

* Figures exclude spending for capital, transportation, and food service

VII. NEVADA'S CURRENT SCHOOL FINANCE SYSTEM

This chapter serves two key purposes:

- It provides a discussion and overview of Nevada's current school finance system and funding formula and compares key components of this funding system with several surrounding states; and
- It provides a comparison of Nevada to other selected states in terms of a series of school finance-related variables:
 - Numbers of students and schools, and growth over time;
 - Percentages of students with special needs;
 - Teachers per 1,000 students and teachers as percentage of staff;
 - Changes over time of per student revenues and expenditures;
 - Capital spending and long term debt per student; and
 - School district revenue sources.

An Overview of Nevada's Current School Finance System

The "Nevada Plan" is the State's mechanism for providing a "reasonably equal educational opportunity" for students in every district and all charter schools (Nevada Revised Statutes 387.121). The system guarantees a level of funding on a per student basis. The per-student amount is established by each Session of the Legislature for each of the following two years. The funds are then divided statewide by a weighted apportionment enrollment. The weighted apportionment enrollment includes:

- A partial count (.6) of kindergarten and pre-kindergarten students);
- A full count (1) for students in grades 1-12;
- A full count (1) for ungraded students; and
- The inclusion of net transfers (transfers out of the school district minus transfers in).

In an effort to meet the diverse needs of Nevada's school districts the Nevada Plan has an equity allocation process that looks at each district's unique characteristics. Specifically, student enrollment, teacher and licensed staffing, other operating costs, the school district's degree of urbanization and school dispersal through the concept of "attendance areas," transportation cost equalization, and a local wealth factor incorporating each district's relative ability to raise specific local education taxes.¹⁰ All of these adjustments are combined to create a per-student funding amount for each district.

The State guarantees to provide the per-student funding support to each district based on student enrollment. To meet this requirement there are two sources of

¹⁰ Nevada Department of Education, Administrative and Fiscal Services (2006). "The "NEVADA PLAN" and Distributive School Account (DSA): The DSA Equity Allocation Model. p. 3.

money: (1) the Distributive School Account in the State General Fund and (2) two-locally generated revenues –a county-specific and apportioned 2.25% Local School Support Tax (LSST) and a 1/3 (\$0.25) Public Schools Operating Property Tax (PSOPT). The LSST and PSOPT are subtracted from the state-guaranteed support to determine the state’s financial responsibility. If the revenue from these two local sources is more than anticipated, state aid is decreased, if, on the other hand, the revenue is less than expected the state aid is increased to ensure the basic support level guaranteed.

Approximately 80 percent of school districts’ operating funds are guaranteed by the state.¹¹ This money is allocated through the Distributive School Account (DSA) in the State General Fund. In addition to the General Fund resources, the state uses several other dedicated revenue sources to meet its share of the financial obligation. These revenue sources include: A share of the annual slot tax; Investment income from the permanent school fund; Federal mineral land lease receipts; Sales tax on out-of-state sales that cannot be attributed to a particular county; and Estate tax.

The remaining 20 percent of the school districts’ operating budgets are provided through local revenues that are considered “outside” of the Nevada Plan. These additional components of local revenue include the remaining 2/3 (\$0.50) of the PSOPT; a share of basic government services tax distributed to school districts; Franchise taxes; Interest income; Tuition; Rent; Non-categorical federal funds (such as Title VIII of the Elementary and Secondary Education Act of 1965); and Opening general fund balance.¹² These additional revenues do not affect state aid like the two other local revenue sources –state aid does not increase or decrease if estimations are met or not. However, this revenue is considered when determining each school district’s relative wealth.

To better understand the funding system in Nevada, key components of the funding system were compared to several surrounding states’ systems. Table VII-1 on the following page outlines important components of the finance system.

There are several interesting findings shown in the table. First, the Legislature sets the base cost per-pupil support in every state, including Nevada. In several states, including California and Oregon, the base cost is determined by previous year support or average daily membership. Another similarity among the states is the relationship between local and state support. In every state, local school districts are required to levy property tax to meet their financial obligation. Depending on the ability of each school district to raise money, the State pays the difference between what is guaranteed per-student support and local revenue for student support. However, Nevada requires local districts to levy a local

¹¹ Fiscal Analysis Division, Legislative Counsel Bureau (2003). The NEVADA PLAN for School Finance: An Overview. p. 3.

¹² Fiscal Analysis Division, Legislative Counsel Bureau (2003). The NEVADA PLAN for School Finance: An Overview. p. 5

school tax in addition to property taxes. This differs from the surrounding states. In some states there is an option for local school districts to raise additional revenue above the base cost determined by the state. Arizona, Idaho, and Utah school districts all have the opportunity to ask voters to approve additional taxation to support schools. Nevada, California, and Oregon do not have this local option.

Special populations of students, including Special Education, At-Risk, and English Language Learners, have implications for school funding systems. Oftentimes, local school districts face higher costs in educating these students. The support for special education students varies in the above comparison. Nevada allocates special education units and Idaho says that funding is included in the base cost, while Utah gives school districts an added weight of 1.53. There is more homogeneity in supporting at-risk and ELL students. Three states (Nevada, Arizona, and Idaho) do not include additional support for at-risk students in the calculation of per-student support. Oregon and Utah, on the other hand, include additional support for at-risk students in the base cost. Finally, Nevada is the only state that does not include additional support for ELL students. All surrounding states either include these students in the base cost or provide some additional support (like \$100 per student in California) to local school districts. These differences may reflect important assumptions about the cost of educating Special Education, At-risk, and/or ELL students.

The last funding component compared is the support for Capital. With certain exceptions on a case-by case basis, Nevada and Idaho are the only two states in the comparison that do not provide any support for Capital. The other four states support local school districts by providing funds or assuming the cost of construction and then leasing the buildings back to the district. In both Arizona and Utah districts either match state support or can go beyond what state support is given.

TABLE VII - 1

OTHER STATE APPROACHES TO SCHOOL FINANCE

		Nevada	Arizona	California	Idaho	Oregon	Utah
Base Cost		Set by legislature for following two years	Weighted Student Formula, Legislature sets base cost	Set by state legislature based on previous year	Foundation set by the Legislature	Set by Legislature, system based on defined amount per ADM	Set by the Legislature
Pay for the Base		Use the LSST, PSOPT and State funds	District Primary Tax Levy is deducted from the base and the State pays the difference	Controlled by Proposition 13 with limited local funding coming from property taxes and the State paying the difference	Districts must levy a set amount and State pays the difference	Districts levy property tax and then state picks up difference, also use the timber tax	Districts levy property tax and then state picks up difference
Local Option			Secondary Levy option is available with voter approval		Additional Levy available with voter approval		Additional Levy available with voter approval
Special needs	Special Ed	Special Education Units are allocated	Based on a number of weights specified in the funding formula	Receive a per pupil amount derived from a base year of actual spending and then adjusted for inflation yearly	Funded as part of regular program	Included in base amount up to \$30,000 per pupil which is then reimbursed	Added weight of 1.53
	At-Risk	Not Included	Not included	State funds an Economic Impact Aid program and allows certain districts to raise local resources	Not included	Included in base amount	Considered in Base or from local levy
	ESL	Not Included	Based on a weight in the funding formula	\$100 per identified student	Additional funding has been made available based on legal requirements	included base amount	Considered in Base or from local levy
Capital		Not generally provided by the state	State funds a definition of adequate facilities, districts can go above	State passes bonds to build facilities and then leases them back to Districts	None provided by the State	Up to 8% of the construction cost of new classrooms	State provide funds with District match

Comparison of Nevada to Selected Other States in Terms of School Finance-Related Variables

The purpose of this section is to describe a variety of school funding characteristics in Nevada and to compare those characteristics with selected other states. APA identified two sets of states for comparison purposes. The first set includes the five states that are geographically close to Nevada (Arizona, California, Idaho, Oregon, and Utah). The second set includes three states (Florida, Maryland, and New Mexico) that are similar to Nevada in two ways that school districts are organized – they have a relatively small number of school districts (less than half of the national average of 300 or so) and they have at least one large, urban school district (similar to Clark County). We chose these two sets because it is not unusual that states near to one another tend to fund schools at similar levels and because the way states organize their school districts may affect school funding.

In addition to these two sets of states, we also show national average information. The comparisons use data from the National Center for Education Statistics (NCES) and are for three years: 2002-03, the latest year for which all of the variables we wanted to look at were available; 1997-98, five years prior to 2002-03; and 1992-93, ten years prior to 2002-03.

First, we looked at the basic demographic characteristics of the education system in the states, including the number of school districts, schools, and students. Information about these demographic characteristics is shown in Table VII-2. Some interesting findings include:

- Clearly, Nevada has the fewest number of school districts among the states selected for comparison. In most of the other comparison states, school districts are not organized by county (in many states, some, but not all, districts are county based) as they are in Nevada but, rather, reflect communities or groups of communities.
- The growth in Nevada's number of schools from 1992-2003 is impressive. Only Arizona had faster growth over this timeframe and, in most states, the number of schools increased less than half as fast as Nevada.
- The growth in the number of students in Nevada far outpaced student population growth in all other selected states. In fact, Nevada's pace of student growth from 1992-2003 was more than 50 percent greater than the next fastest growing state (Arizona).

TABLE VII-2

NUMBERS OF SCHOOL DISTRICTS, SCHOOLS, AND STUDENTS WITH CHANGE BETWEEN 1992-93 AND 2002-03

	School Districts	Schools					Students				
		1992-93	1997-98	2002-03	Change 92-93 to 02-03	Change 97-98 to 02-03	1992-93	1997-98	2002-03	Change 92-93 to 02-03	Change 97-98 to 02-03
Nevada	17	383	455	542	41.5%	19.1%	222,169	295,972	368,794	66.0%	24.6%
U.S.	15,873	84,374	89,508	96,048	13.8%	7.3%	41,955,413	45,307,422	47,666,276	13.6%	5.2%
<u>Nearby States</u>											
Arizona	522	1,117	1,429	1,928	72.6%	34.9%	672,557	808,089	957,188	42.3%	18.5%
California	1,056	7,665	8,182	9,100	18.7%	11.2%	5,089,808	5,634,519	6,181,021	21.4%	9.7%
Idaho	115	605	642	697	15.2%	8.6%	230,485	244,510	248,604	7.9%	1.7%
Oregon	205	1,213	1,253	1,263	4.1%	0.8%	507,429	539,118	551,605	8.7%	2.3%
Utah	53	714	759	804	12.6%	5.9%	452,509	469,890	473,274	4.6%	0.7%
<u>Similarly Organized States</u>											
Florida	73	2,592	2,888	3,526	36.0%	22.1%	1,981,407	2,295,671	2,541,478	28.3%	10.7%
Maryland	24	1,263	1,300	1,404	11.2%	8.0%	783,139	817,013	861,255	10.0%	5.4%
New Mexico	89	697	745	809	16.1%	8.6%	307,890	331,673	320,264	4.0%	-3.4%

Source: National Center for Education Statistics (Build a Table)

Note: Similarly organized states are those with a relatively small number of school districts and at least one comparatively large district.

Second, it is important to understand something about the nature of the students being served in a state. This is important because, in addition to raw enrollment growth, the number of students with special needs and associated higher costs places a significant fiscal responsibility on the state. Just looking at 2002-03, as shown in Table VII-3, it is clear that Nevada's proportion of students in special education programs and the proportion eligible for free or reduced-price lunch (often used as a proxy for the number of "at-risk" students, who might not keep pace with other students unless added services are provided) is slightly below the national average and below the averages of the two groups of comparison states. On the other hand, Nevada's proportion of students who are English language learners, and may require special services, is higher than the national average and those of the comparison groups.

When students are "weighted" to reflect the relative cost of serving them, a ratio of weighted to unweighted students can be created. Such a ratio is shown in the last column of Table VII-3. To create this ratio, APA used a common set of weights for all states in the table. This common set was based on APA experience, not on any specific weights generated through the current Nevada study. Nevada's ratio of weighted to unweighted students of 1.47 suggests that it costs 47 percent more to educate the actual students enrolled as compared to the cost of serving students with no special needs. Nevada's costs are slightly more than the national average but generally similar to those of the comparison states (with the exception of California and New Mexico, which had much higher costs).

TABLE VII-3

TOTAL STUDENTS, PERCENTAGE OF STUDENTS WITH SPECIAL NEEDS, AND RATIO OF WEIGHTED TO UNWEIGHTED STUDENTS IN 2002-03

	2002-03 Total Students	Percentage of All Students with Special Needs in 2002-03			2002-03 Ratio of Weighted to Unweighted Students*
		Special Education	Free and Reduced-Price Lunch Eligible	English Language Learners	
Nevada	368,794	11.5%	34.1%	15.9%	1.47
<i>U.S.</i>	<i>47,666,276</i>	<i>13.5%</i>	<i>36.8%</i>	<i>8.6%</i>	<i>1.45</i>
<u>Nearby States</u>					
Arizona	957,188	10.6%	47.6%	15.0%	1.54
California	6,181,021	10.9%	48.6%	25.9%	1.64
Idaho	248,604	11.6%	36.4%	7.5%	1.41
Oregon	551,605	13.0%	38.4%	9.5%	1.46
Utah	473,274	11.9%	31.6%	9.1%	1.40
Simple Average		11.6%	40.5%	13.4%	1.49
<u>Similarly Organized States</u>					
Florida	2,541,478	15.3%	45.2%	8.0%	1.51
Maryland	861,255	12.3%	30.9%	3.2%	1.35
New Mexico	320,264	19.9%	57.0%	20.4%	1.74
Simple Average		15.8%	44.4%	10.5%	1.53

* Student weights are: special education, 1.10; free and reduced-price lunch eligible, .60; and ELL, .90 (based on prior APA work in other states).

Source or raw data: National Center for Education Statistics (Build a Table)

Note: Similarly organized states are those with a relatively small number of school districts and at least one comparatively large district.

Table VII-4 shows the number of employees working in the public schools relative to the number of students enrolled. It should be noted that most states do not specify how revenues should be spent (to hire specific numbers of employees, such as teachers) so the figures shown in the table reflect the average of decisions made by all of the school districts, and schools, in the states. While the number of teachers per 1,000 students has grown over time in Nevada, from 53.8 in 1992-93 to 54.3 in 2002-03, that level is well below the U.S. average, higher than most nearby states, and below two of the three similarly organized states; weighting students does not change this result. Nevada's teachers represent a high proportion of all staff, which grew in the mid 1990's

and has remained constant at about 57.4 percent. In fact, Nevada's teacher proportion is well above the national average and above all comparison states.

TABLE VII-4
TEACHERS PER 1,000 STUDENTS AND TEACHERS AS A PERCENTAGE OF ALL STAFF
IN 1992-93, 1997-98, AND 2002-03

	Teachers per 1,000 Students			Teachers per 1,000 Weighted Students 2002-03	Teachers as Percent of Staff		
	1992-93	1997-98	2002-03		1992-93	1997-98	2002-03
	Nevada	53.8	54.2		54.3	36.8	55.7%
<i>U.S.</i>	<i>56.1</i>	<i>57.6</i>	<i>63.3</i>	<i>44.0</i>	<i>56.6%</i>	<i>54.7%</i>	<i>52.7%</i>
<u>Nearby States</u>							
Arizona	53.6	50.9	48.7	42.9	50.4%	50.8%	48.7%
California	42.4	47.0	48.7	29.6	50.8%	54.1%	52.4%
Idaho	51.3	54.0	55.9	39.5	60.4%	57.2%	55.8%
Oregon	52.5	50.2	49.2	33.8	51.6%	46.7%	49.3%
Utah	42.4	45.2	47.7	34.0	55.1%	53.4%	54.1%
Simple Average	48.5	49.5	50.0	36.0	53.7%	52.4%	52.1%
<u>Similarly Organized States</u>							
Florida	54.3	54.2	54.4	36.0	43.8%	48.6%	48.1%
Maryland	60.3	59.1	64.3	47.6	54.7%	55.3%	53.9%
New Mexico	56.1	59.2	66.1	37.9	49.6%	49.2%	48.0%
Simple Average	56.9	57.5	61.6	40.5	49.4%	51.0%	50.0%

Source of raw data: National Center for Education Statistics (Build a Table)

Note: Similarly organized states are those with a relatively small number of school districts and at least one comparatively large district.

Table VII-5 shows per student revenue and expenditure figures. It is important to note that revenues include all revenues, for current operations and for capital purposes (NCES does not separate revenues except by source), while expenditures are for current operating purposes only. In 2002-03, the total revenue per weighted student in Nevada were well below the national average, higher than in three of the five nearby states, and higher than two of the three similarly organized states. Revenues grew sluggishly over time compared to four of five nearby states and two of three similarly organized states.

Nevada does not fare quite as well in terms of expenditures. Table VII-5 shows that, in 2002-03, Nevada's expenditures were well below the national average. Increases in Nevada's per student expenditures were also slower than the national average and all comparison states. When the figures are adjusted for inter-state cost-of-living differences and weighted students (which is the fairest way to compare expenditure figures since it is sensitive to factors beyond the control of states) Nevada's per student spending was 20 percent below the

national average, five percent above the average of nearby states, and 14 percent below the average of similarly organized states.

TABLE VII-5

CHANGE OVER TIME IN PER STUDENT REVENUE (CURRENT AND CAPITAL) AND CURRENT EXPENDITURE ADJUSTED FOR NEED AND INTER-STATE COST-OF-LIVING

	Total Revenue per Student							Current Expenditure per Student						
	1992-93	1997-98	2002-03	Change: 92-93 to 02-03	Change: 97-98 to 02-03	Total Revenue per Weighted Student in 02-03*	Per Weighted Student in 02-03 Adjusted for Cost-of-Living**	1992-93	1997-98	2002-03	Change: 92-93 to 02-03	Change: 97-98 to 02-03	Expenditure per Weighted Student in 02-03*	Per Weighted Student in 02-03 Adjusted for Cost-of-Living**
Nevada	\$5,295	\$6,456	\$7,551	42.6%	17.0%	\$5,138	\$5,501	\$4,661	\$5,307	\$6,104	31.0%	15.0%	\$4,140	\$4,432
<i>U.S.</i>	\$5,902	\$7,194	\$9,234	56.5%	28.4%	\$6,368	\$6,386	\$5,266	\$6,301	\$8,131	54.4%	29.1%	\$5,608	\$5,608
<u>Nearby States</u>														
Arizona	\$5,060	\$5,855	\$7,680	51.8%	31.2%	\$4,987	\$5,200	\$4,094	\$4,629	\$6,155	50.4%	33.0%	\$3,997	\$4,168
California	\$5,509	\$6,769	\$9,225	59.7%	36.3%	\$5,625	\$4,614	\$4,758	\$5,814	\$7,763	63.2%	33.5%	\$4,721	\$3,873
Idaho	\$3,891	\$5,401	\$6,832	75.6%	26.5%	\$4,845	\$5,165	\$3,489	\$4,719	\$6,081	74.3%	28.9%	\$4,301	\$4,585
Oregon	\$6,180	\$7,204	\$8,339	34.9%	15.8%	\$5,712	\$5,514	\$5,615	\$6,445	\$7,525	34.0%	16.8%	\$5,161	\$4,982
Utah	\$3,663	\$4,906	\$6,155	68.0%	25.5%	\$4,396	\$4,323	\$3,042	\$4,079	\$5,001	64.4%	22.6%	\$3,566	\$3,506
Simple Average	\$4,860	\$6,027	\$7,646	57.3%	26.9%	\$5,113	\$4,963	\$4,200	\$5,137	\$6,505	54.9%	26.6%	\$4,366	\$4,223
<u>Similarly Organized States</u>														
Florida	\$5,738	\$6,529	\$7,470	30.2%	14.4%	\$4,947	\$5,252	\$4,876	\$5,548	\$6,435	32.0%	16.0%	\$4,256	\$4,518
Maryland	\$6,670	\$7,900	\$10,064	50.9%	27.4%	\$7,455	\$7,388	\$6,173	\$7,152	\$9,211	49.2%	28.8%	\$6,825	\$6,764
New Mexico	\$4,643	\$5,887	\$8,386	80.6%	42.5%	\$4,820	\$5,010	\$4,028	\$5,005	\$7,124	76.9%	42.3%	\$4,085	\$4,246
Simple Average	\$5,684	\$6,772	\$8,640	52.0%	27.6%	\$5,741	\$5,883	\$5,026	\$5,902	\$7,590	51.0%	28.6%	\$5,056	\$5,176

Source of raw data: National Center for Education Statistics (Build a Table)

* Student weights are: special education, 1.10; free and reduced-price lunch eligible, .60; and ELL, .90 (based on prior APA work in other states).

** Inter-state cost-of-living differences are based on figures from the American Federation of Teachers for the year 2000.

Note: Similarly organized states are those with a relatively small number of school districts and at least one comparatively large district.

Given that enrollment has grown and schools have been built so rapidly in Nevada (see Table VII-2), it makes sense to examine how spending for capital purposes has changed over time. Table VII-6 shows that, in 2002-03 (and 1997-98) Nevada spent more for capital purposes than the national average and more than all of the comparison states. While Nevada's rate of capital expenditure growth was lower than many of the comparison states, this is primarily attributable to the state's much higher spending in 1992-93. Nevada also had the highest levels of long term debt per student in 1997-98 and 2002-03. What should be kept in mind is that most capital, and debt, is paid by local school districts (this is the case in Nevada and several, but not all, of the comparison states).

TABLE VII-6

CHANGE OVER TIME IN PER STUDENT CAPITAL EXPENDITURE AND LONG TERM DEBT

	Capital Expenditure per Student					Long Term Debt per Student		
	1992-93	1997-98	2002-03	Change: 92-93 to 02 03	Change: 97-98 to 02 03	1997-98	2002-03	Change: 97-98 to 02 03
Nevada	\$915	\$1,190	\$1,607	75.6%	35.0%	\$6,214	\$8,697	40.0%
<i>U.S.</i>	<i>\$631</i>	<i>\$904</i>	<i>\$1,167</i>	<i>84.9%</i>	<i>29.1%</i>	<i>\$3,127</i>	<i>\$5,077</i>	<i>62.4%</i>
<u>Nearby States</u>								
Arizona	\$1,052	\$1,015	\$934	-11.2%	-8.0%	\$4,856	\$4,228	-12.9%
California	\$531	\$890	\$1,294	143.7%	45.4%	\$1,360	\$3,947	190.2%
Idaho	\$359	\$691	\$771	114.8%	11.6%	\$2,270	\$3,058	34.7%
Oregon	\$445	\$696	\$1,160	160.7%	66.7%	\$3,354	\$6,939	106.9%
Utah	\$530	\$877	\$1,132	113.6%	29.1%	\$2,362	\$3,191	35.1%
Simple Average	\$583	\$834	\$1,058	104.3%	28.9%	\$2,840	\$4,273	50.4%
<u>Similarly Organized States</u>								
Florida	\$896	\$1,038	\$1,313	46.5%	26.5%	\$2,921	\$3,989	36.6%
Maryland	\$472	\$724	\$824	74.6%	13.8%	\$1,819	\$2,317	27.4%
New Mexico	\$531	\$837	\$1,300	144.8%	55.3%	\$1,815	\$2,737	50.8%
Simple Average	\$633	\$866	\$1,146	88.6%	31.9%	\$2,185	\$3,014	38.0%

Source: National Center for Education Statistics (Build a Table)

Note: Similarly organized states are those with a relatively small number of school districts and at least one comparatively large district.

Finally, in Table VII-7, we show the distribution of revenues to school districts by source. We were somewhat hesitant to show these figures – not because they are not correct but because they are not very meaningful given Nevada’s funding system. As mentioned earlier, revenue figures include current operations and capital. In Nevada, however, local school districts have no control over their current operating tax rates – other states provide some flexibility to districts, which can set current operating tax rates in order to supplement state support. And, unlike other states, Nevada uses two major sources of local revenue, property and sales taxes, where in most states local school districts rely primarily on property tax revenues.

TABLE VII-7

DISTRIBUTION OF REVENUE TO SCHOOL DISTRICTS BY SOURCE IN 1992-93, 1997-98 AND 2002-03

	1992-93			1997-98			2002-03		
	Local	State	Federal	Local	State	Federal	Local	State	Federal
Nevada	61.1%	34.2%	4.7%	63.6%	31.8%	4.6%	62.8%	30.2%	7.0%
U.S.	45.8%	44.8%	7.0%	48.4%	44.5%	6.8%	48.7%	42.5%	8.5%
<u>Nearby States</u>									
Arizona	44.1%	41.5%	8.8%	41.8%	44.3%	10.2%	37.9%	48.5%	11.4%
California	29.8%	62.2%	8.0%	31.6%	60.2%	8.2%	31.3%	58.9%	9.9%
Idaho	30.4%	61.1%	8.4%	30.3%	62.7%	7.0%	31.1%	59.1%	9.8%
Oregon	54.5%	37.9%	6.3%	35.4%	56.8%	6.4%	38.4%	50.9%	9.1%
Utah	34.9%	58.0%	7.1%	32.1%	61.0%	6.9%	34.3%	56.4%	9.3%
Simple Average	38.7%	52.1%	7.7%	34.2%	57.0%	7.8%	34.6%	54.7%	9.9%
<u>Similarly Organized States</u>									
Florida	43.2%	48.5%	8.3%	43.6%	48.8%	7.6%	45.8%	43.6%	10.5%
Maryland	55.2%	39.4%	5.4%	55.8%	39.0%	5.2%	55.0%	38.3%	6.7%
New Mexico	13.8%	73.7%	12.6%	14.6%	72.2%	13.2%	12.9%	72.1%	15.0%
Simple Average	37.4%	53.8%	8.8%	38.0%	53.3%	8.7%	37.9%	51.3%	10.7%

Source of raw data: National Center for Education Statistics (Build a Table)

Note: Similarly organized states are those with a relatively small number of school districts and at least one comparatively large district.

Note: Revenue includes both current and capital funds. In Nevada local districts do not have flexibility in setting local tax rates so the distinction between state and local funds is very different than in other states where local districts have more control over tax decisions.

Looking at the figures in Table VII-7, it is clear that Nevada is very different from the national average and from the comparison states in its reliance on local funds to support public schools. This pattern of reliance has not changed much over time. Such patterns tend not to change over time although, as the figures for Oregon indicate, a change in state policy – in that case limiting local property taxes – can dramatically change the balance between state and local revenues. In our view, the figures shown in this table overall are difficult to interpret. We do not believe that these figures necessarily suggest a change in Nevada’s state-local share is needed.

VIII. DESIGNING NEVADA'S SCHOOL FINANCE SYSTEM TO ACCOMMODATE BOTH EQUITY AND ADEQUACY

This chapter provides recommendations for incorporating the findings of APA's equity and adequacy analyses into Nevada's school finance system. It therefore addresses four main topics:

- A discussion of school finance systems in general.
- A discussion of equity analysis in general
- An equity analysis of Nevada's funding system.
- Incorporating APA's analyses into Nevada's school finance system.

A Discussion of School Finance Systems in General

School finance systems are used by states for two primary purposes: to distribute state aid to school districts and to control the taxing and spending behavior of school districts. The centerpiece of most school finance systems is a mathematical formula that calculates state aid on the basis of comparable, auditable school district information. A state's school finance formula can be complex, reflecting the desire to make the formula sensitive to factors that simultaneously:

1. Affect the cost of providing education services;
2. Are beyond the control of districts; and
3. Vary significantly among districts.

Over the past 30 years, states have become more sophisticated about identifying these factors and estimating the extent of their fiscal impact. Fiscal needs can be calculated by establishing a base cost and a series of adjustments to the base cost.

The base cost is the cost of providing services to students with no special needs who attend schools that are not affected by external cost factors (such as size). It is important that the base cost have some "meaning" – that is, that it reflects the cost of doing something that the state considers to be important, such as providing a specific array of services or reaching a specific achievement level. Too often, however, states set a base cost solely on the basis of available revenue, which obscures whatever meaning the figure would otherwise have.

The series of adjustments to the base cost can be expressed as student "weights." Such weights reflect the cost of a particular factor relative to the base cost and can either apply to all students (as in the case of district size or geographic cost) or only to some students (as in the case of a weight for low income students or students in a particular grade level). Weights typically are incorporated in a school aid formula when three criteria are met: 1) the cost factor is important – it should be the case that knowledgeable people believe the

factor impacts school district cost even if they cannot agree on the extent of the impact; 2) a significant number of students are affected by the factor (at least 5-10 percent of all students in the state); and 3) there is significant variation in the number of students affected by the cost factor across all districts. If these three criteria are not met, then adding a weight to a state aid formula serves to unnecessarily complicate matters.

With a proper base cost and weights that meet the three criteria described above, a state can accurately estimate the costs districts face in fulfilling whatever expectations are specified. In this way, the state aid system can complement state education policy as reflected in school district accreditation, teacher certification, and education accountability requirements.

Once costs have been estimated for each district, it is necessary to determine how costs will be split between state and local sources of revenue (assuming that federal funds are considered to be supplemental or are accounted for by reducing the student weights associated with special education and at-risk students). Since one of the primary purposes of a school finance system is to “equalize” revenue (or spending), states use one of several procedures to assure that wealthy school districts pay a higher share of total cost than less wealthy districts: 1) a foundation program, under which districts make a uniform tax effort and state aid is the difference between estimated cost and the local revenue produced by the uniform tax rate; or 2) a formula that takes into consideration the relative wealth of districts. Under both options, the state determines the overall share of total cost it wants to pay and sets the parameters of the allocation procedure to accomplish that result.

Numerous other issues arise in designing a state aid system for public elementary and secondary education. At the highest level, policymakers need to decide whether state aid should be subdivided into components. Typically, current operating funds are separate from capital funds and it is not unusual that transportation funds are separated from other operating funds – but it is also possible to separate funding for special education or to create distinct funding streams for programs such as vocational education or ELL funds.

While creating separate funding streams complicates the system, it also provides greater flexibility to policymakers, who can choose to equalize some components of the system but not others or who could decide to provide a higher share of state support for one component than another. For example, it would be possible to create a school finance system in which the state separated capital costs from current operating costs, provided a small fixed amount of funding per student for capital purposes, and provided an equalized formula with the state paying 60 percent of costs in a district with average wealth for operating costs.

One of the issues many states have focused on is local tax effort, particularly tax effort beyond whatever might be required in the basic aid program (such as a

foundation program with state aid calculated as the difference between an estimate of district cost and the revenue raised by a specified level of tax effort). Typically, school districts have wide leeway in the effort they make above the base requirement – in some cases there is no state control over that tax effort or the control is in the form of requiring voter approval (many states require voter approval of *increases* in spending, local revenue, tax rates, and/or tax effort). Some states limit the extent to which districts can tax themselves above the base (based on the tax rate or the revenue produced by the tax rate). In addition, some states attempt to equalize the revenues that can be generated by such tax rates, by providing state aid that is inversely related to district wealth and directly related to the level of effort.

School finance systems can become extremely complicated depending on the decisions made by policymakers. The more complex systems become, the more difficult it is to assure that they achieve appropriate levels of adequacy and equity, two longstanding goals of school finance.

A Discussion of Equity Analysis in General

Over the last century, school finance equity has received a great deal of attention. State policymakers first became interested in the topic when they began to realize there were enormous differences in districts' fiscal capacity and that some districts could obtain much more revenue per student than others while taxing themselves at similar or lower tax rates.

Policymakers also came to understand that the way they were distributing state aid, primarily through "flat grants", did little to overcome the advantages of wealth that were associated with some districts. Much of the effort that has been made to change school finance systems in the past 30 years has been to make the allocation of state aid more sensitive to the wealth of school districts – to "equalize" state aid – so that the total revenues of districts would be more similar (or so that the primary determinant of differences in revenue would be the tax effort of school districts).

Many states have had to defend their school finance systems in court against plaintiffs who claimed that variations in school district wealth led to variations in per student expenditures, which violated the education clauses found in most state constitutions. As a result, many states changed the way they allocated state aid to school districts. While significant improvements have been made, many people remain concerned about differences in spending across school districts and the role that state aid can play to alleviate such differences.

It is possible to measure such "inter-district fiscal equity" using statistics. To be effective, the statistic needs to: 1) measure the variation in spending among all, or most, districts; 2) be simple to calculate; and 3) be easy for policymakers to understand. In our experience, the best statistic to use in measuring inter-district

equity is the “coefficient of variation,” which is the standard deviation of a distribution of figures divided by the average of such figures. For example, if a state had 200 school districts, the average spending per student was \$5,000 and the standard deviation was \$1,000, then the coefficient of variation would be .200. Sometimes this figure is interpreted as meaning that about two-thirds of the districts have per student spending between \$4,000 and \$6,000 (one standard deviation above and below the average).

The coefficient can also be calculated in a more complex way, taking into consideration the enrollment of each district, so that larger districts have a greater impact on the resulting coefficient than smaller ones. The coefficient of variation typically ranges from .000 to .900 or so, with the lowest number indicating that there is literally no variation among the cases.

An Equity Analysis of Nevada’s Funding System

In school finance it is generally considered “good” if the coefficient of variation for per student spending across all school districts is less than .150. However, while many state courts have used the coefficient of variation in examining the equity of a school finance system, no court has ever specified the level of the coefficient above which the variation would be so great as to violate state constitutional requirements.

APA calculated the coefficient of variation for the 2003-04 per student spending of the 17 school districts in Nevada. As shown in Column 1 of Table VIII-1, using all districts, the coefficient of variation was .473. This figure is a result of using data for all 17 districts, which range in spending per student from \$5,825 to \$21,250 (excluding capital spending and transportation spending), producing a range of \$15,425 (the difference between the maximum and minimum) and a range ratio of 3.648 (dividing the maximum by the minimum). The range and range ratio are sometimes used as indicators of fiscal equity but since they exclude all but two districts in the calculation, we do not find them to be of much value.

While the .473 coefficient of variation appears to be relatively high (and much greater than the .150 figure described above), it overstates the level of inequity because it weighs a Nevada district with 100 students the same as it weighs a district with 300,000 students. In fact, if a student weighted figure were calculated, the variation would be very close to zero because one district in Nevada has about 70 percent of all students, and two districts have about 85 percent of all students.

Our experience suggests that, if possible, it is important to take two factors into consideration in examining the per student spending of districts: 1) student-based cost pressures facing school districts – such as those associated with special education, students from low income families, and ELL students; and 2) district-

based cost pressures such as those associated with size and geographic cost differences. The purpose of considering these cost pressures is to account for spending differences that simply reflect factors that are beyond district control. That is, a district may appear to be spending more than another district because it has a higher proportion of students in special education programs (which are more expensive than regular programs) or because it is small and cannot obtain the economies of scale available to a larger district.

The way to account for such factors is to add student cost weights to reflect costs that are beyond district control. APA therefore waited to conduct its equity analysis until we had completed the work necessary to quantify the cost impacts of special education, students from low income families, and ELL students as well as district size and regional costs. Having developed formulas that quantify these factors (as described in previous chapters of this report) we combined the weights for student needs with the district size adjustment formula. We then applied the regional cost factor (using the Location Cost Metric, or LCM discussed in Chapter IV) separately to per student spending and to per weighted student spending.

Column 2 of Table VIII-1 shows equity figures for LCM-adjusted spending per student; Column 3 of Table VIII-1 shows equity figures for spending per weighted student (weighted for student needs and district size); and Column 4 shows equity figures for LCM-adjusted spending per weighted student.

Clearly, adjusting spending to reflect the cost of serving students with special needs and taking size into consideration reduces the coefficient of variation (see Column 3, all districts, of table VIII-1). At the same time, the range of spending (per weighted student) and the range ratio decrease also. But adjusting spending for geographic cost differences, using the LCM, raises the coefficient of variation slightly. This indicates that the state aid system is not sensitive to the cost differences estimated by the LCM. Again, the coefficient of variation would be close to zero if the enrollment of each district were factored into consideration of the per-student (or weighted student) spending figures for the 17 districts.

TABLE VIII-1

INDICATORS OF INTER-DISTRICT FISCAL EQUITY USING 2003-04
SPENDING DATA FOR NEVADA SCHOOL DISTRICTS

Spending is for Current Operations Excluding Transportation

Raw Spending and Spending Adjusted by the Location Cost Metric (LCM)
and Shown in per Student and per Weighted Student Terms

	<u>Spending per Student</u>		<u>Spending per Weighted* Student</u>	
	(1) Actual Spending per Student	(2) LCM- Adjusted** Spending per Student	(3) Actual Spending per Weighted Student	(4) LCM- Adjusted** Spending per Weighted Student
<i>All Districts</i>				
Number of Districts	17	17	17	17
Minimum	\$5,825	\$5,725	\$4,073	\$4,284
Maximum	\$21,250	\$25,207	\$8,111	\$9,622
Range	\$15,425	\$19,482	\$4,038	\$5,338
Range Ratio	3.648	4.403	1.991	2.246
Simple Average	\$9,236	\$10,324	\$4,916	\$5,421
Simple Standard Deviation	\$4,373	\$5,518	\$1,154	\$1,535
Simple Coefficient of Variation	0.473	0.534	0.235	0.283
<i>Federal Range of Districts***</i>				
Number of Districts	6	7	9	10
Minimum	\$5,825	\$5,725	\$4,386	\$4,284
Maximum	\$7,199	\$8,008	\$4,826	\$4,904
Range	\$1,374	\$2,283	\$440	\$620
Range Ratio	1.236	1.399	1.100	1.145
Simple Average	\$6,547	\$6,821	\$4,526	\$4,655
Simple Standard Deviation	\$576	\$910	\$139	\$219
Simple Coefficient of Variation	0.088	0.133	0.031	0.047

* Students are weighted for district size and for special education, eligibility for free or reduced-price lunch, English-language learner, and vocational education

** The Location Cost Metric (LCM) is a factor designed to estimate inter-district differences in the cost of living.

*** The federal range of districts excludes those highest and lowest spending districts with five percent of all students -- it may only exclude the highest or lowest five percent depending on where Clark County and Washoe County stand in the distribution of districts.

Figures in the lower half of Table VIII-1 show the results of making the same calculations for districts that enrolled 90-95 percent of all students in Nevada. Years ago, the federal government developed inter-district fiscal equity tests in order to determine whether states could count federal Impact Aid as local revenue.¹³ Those tests allow states to exclude from statistical consideration those districts enrolling up to five percent of all students in the highest spending districts and five percent of all students in the lowest spending districts. The equity tests that exclude such districts are called the federal range and federal range ratio and a coefficient of variation can also be calculated for such districts.

The coefficient of variation of per student spending (unadjusted by the LCM) for the six districts with at least 90 percent of Nevada's students is .088, a very low level (as shown in Column 1). The coefficient drops even lower, to .031, when it is calculated for spending per weighted student (again, unadjusted by the LCM). In both cases, the coefficient of variation rises a bit when spending figures are adjusted by the LCM because state aid is not sensitive to geographic cost differences. While we discount the use of the federal range or range ratio statistics, it is interesting to note that both drop to extremely low levels when looking at spending per weighted student (columns 3 and 4) even though only a small proportion of students have been eliminated from the calculation.

Ultimately, APA believes Nevada's school finance system is highly equitable in terms of inter-district spending. Almost by definition, the system would be equitable given the low number of districts and the distribution of students across those districts. Calculating traditional statistics and weighing district data for enrollment would also produce highly equitable results. We used traditional statistics and calculated them using a conservative approach, without weighing districts by enrollment. Even under those circumstances, the system is fairly equitable once spending has been adjusted to reflect the impact of cost pressures beyond the control of districts (coefficient of variation is .235). Eliminating districts with only 5-10 percent of the students, as permitted under federal definitions of fiscal equity, makes the system appear to be almost perfect (coefficient of variation is .031).

Incorporating APA's Analyses into Nevada's School Finance System

Previously, we have discussed both the general nature of school finance formulas and the specific structure of Nevada's system (the Nevada Plan). We have also examined the inter-district fiscal equity achieved by the system and found that it was very high. Our analysis leads us to conclude that the general structure of the Nevada Plan should be maintained. The Plan operates as a

¹³ Impact Aid, given to school districts with large Native American populations and serving students whose parents work on military bases, is highly focused and completely fungible – in order for states to consider it local revenue, thereby reducing state aid, the state has to pass one of the equity tests devised by the federal government.

foundation program under which the state specifies the fiscal needs of each district and pays as state aid the difference between the fiscal needs and the yield of sales and property taxes that are set by the state (and which the districts cannot exceed).

The weakness of the Nevada Plan is that the parameters that drive the estimate of fiscal need are not tied to expected student performance levels. The analyses we have presented in Chapters II-VI allow those parameters to be set in a rational way so that there is a link to student performance. Setting the parameters in this way would complete the logical connection between the state's student performance expectations, the accountability system that identifies the extent of progress being made toward achieving those expectations, and the allocation of state support.

There are several issues that arise in using the parameters and formulas APA has developed, which are discussed below. These issues are presented as being independent of each other and we do not combine them. However, policymakers should understand that they would need to be dealt with together in order to construct a state aid formula.

Rectifying Two Base Cost Figures

As discussed in Chapter V, we calculated two base cost figures, one using the successful school approach and the other based on the professional judgment approach. One way to interpret these figures is that the successful school base represents a starting point in 2003-04 and the professional judgment figure represents an ending point in 2013-14. Assuming that the student and district cost weights that modify the base remain constant over time and apply to the base as it increases, the state would need to figure out how to increase the revenues of school districts to match their anticipated cost, including inflation, which could be done in two different ways:

- (1) The increase could be based on the annual percentage change needed to move from the lower costs to the higher costs; or
- (2) The increase could be based on the annual constant amount that would be needed to move from the lower costs to the higher costs.

The figures shown below indicate alternative approaches to dealing with rising costs between 2003-04 and 2013-14. These figures assume that student population remains constant (which is unlikely) and that annual inflation is 2.3 percent per year (a figure provided by Nevada legislative staff). The figures start with the actual spending in 2003-04 (where spending is for current operations and excludes transportation and food services).

As discussed previously in Chapter VI, total Nevada district spending in 2003-04 was \$2,231.3 million. According to Table VI-1A, data shows that 12 districts would have needed a total of \$79.6 million, or \$231 per student (excluding the adjustment for the Location Cost Metric) on average, to bring them up to the successful schools adequacy level. We add this \$79.6 million and increase the total by 2.3 percent to get to the 2004-05 figure of \$2,364.1 million, which becomes the adequacy starting point. The PJ-produced ending point is \$4,457.6, which is the total cost in 2003-04 (including the LCM, as shown in Table VI-1D) adjusted by inflation of 2.3 percent over ten years (which raises 2003-04 costs by 25.5 percent).

As discussed above, there are two ways which Nevada could use to increase the revenues of school districts to match their anticipated costs. These alternatives result in two different modes of revenue increase:

- (1) Using the first approach to get from \$2,364.1 million to \$4,457.6 million in nine years would require an annual increase of 7.3 percent (including the 2.3 percent assumed for inflation) and would result in a cost of \$2,759.8 million in 2006-07.
- (2) Using the second approach would require an annual increase of \$222.7 million each year for nine years (again, including inflation), which would result in a cost of \$2,829.3 million in 2006-07.

Table VIII-2 illustrates the above two ways to increase revenue. The table also shows that, had current spending been inflated by 2.3 percent per year from 2003-04 its value in 2013-14 would be \$2,801.0; that means that in 2013-14 the PJ amount would be 59.1 percent higher than the actual amount spent in 2003-04 inflated to 2013-14.

Adjusting Weights Due to the Availability of Federal Funds

As we have discussed previously, our work was designed to estimate the costs of achieving certain levels of student performance – and the costs we have shown are current operating costs less transportation. The federal government distributed support for education that can be used to pay for those costs and such revenue can be taken into consideration before thinking about state and local revenue. In general, most federal support is provided for students with special needs – while more federal aid is described as being fungible, the history of federal support, and the spirit in which it has been given, is based on providing supplemental revenue for students with special needs or for special programs and services.

One way to account for federal support is to deduct the amount a district receives from the estimated cost before determining state and local support. Unfortunately, this approach may violate federal “supplement not supplant”

requirements. We believe it would be possible to adjust the student weights we have described previously for special education, students from low income families, ELL, and career-technical education by reducing the cost associated with each weight by federal funding and recalculating the weights. In 2003-04, the federal government provided \$229.1 million to school districts in Nevada, of which \$46.5 million was for special education, \$48.2 million was for students from low income families (Title 1), \$4.8 million was for Impact Aid, and \$129.5 million was for other purposes (including \$63.5 million for at-risk students, \$56.5 million for ELL students, and \$9.6 million for vocational education). After accounting for students in charter schools, we estimate that \$46.2 million of federal revenue was for special education, \$110.7 million was for students from low income families (or at-risk students), \$56.0 million was for ELL, and \$9.5 million was for vocational education. Subtracting those funds from the funds attributable to the corresponding student weights (based on the proportion of students in mild, moderate, and severe special education programs in the case of special education), would allow those weights to be reduced as follows: at-risk by 53 percent; ELL by 42 percent, mild special education by 25 percent; moderate special education by 17 percent; severe special education by nine percent; and career-technical education by 57 percent. These adjustments apply to weights driven by the successful school base figure – the adjustments would be lower percentages if applied against the professional judgment base cost; this means that the adjustments would have to be modified a bit each year as progress was made in moving from the successful school to the professional judgment base.

Applying Weights to Students Who Qualify for Multiple Weights

As calculated, the weights we have shown previously are based on characteristics of individual students. That means that it would be possible for multiple weights to be associated with a single student so that if a student were from a low income family, enrolled in a moderate-cost special education program, and be an English language learner, a very high weight would be produced that would overstate the cost of the services that could be provided. One way to deal with that situation is to apply the highest single weight to a student eligible for multiple weights.

Using the LCM

Earlier we discussed the Location Cost Metric (LCM), which is designed to reflect differences in the regional cost of providing services in Nevada, which is mostly attributable to the variation in housing costs across the state. Our assumption is that the LCM should be applied against the base cost before applying any other weights to it. In effect, the LCM modifies the district size-adjusted base cost figure to which student weights then apply. For example, if the district size-adjusted base cost were \$8,000 and the LCM was .90, then the base used for student weights would be \$7,200 ($\$8,000 \times .90$) and a weight of .15 would add \$1,080 to the cost ($\$7,200 \times .15$).

Modifying the Base in Future Years

Previously we described a way to estimate the annual inflation rate for Nevada based on adjusting the national rate of inflation by annual changes in costs in Nevada communities. Regardless of what approach is used to estimate the cost of inflation in Nevada, we would recommend modifying the base each year by that factor plus whatever approach is used to move the figure from the successful school level to the professional judgment level. Our view is that there is no need to restudy the cost of adequacy for several years, particularly if the state's accountability system (including its standards, tests of student performance, and expectations for performance) does not change.

Applying the Base and the Weights to Schools

As discussed previously, it would be possible to determine the fiscal needs of school district based on aggregating the needs of individual schools in each district. The model we described for determining the needs of schools is sensitive to their size, which can be controlled by school districts to some extent. The state may not want to provide incentives to school districts to operate small schools (although there certainly is a push across the country to decrease the size of schools, particularly high schools), which would generate more fiscal need than larger ones. One way to deal with that issue is to define the concept of "necessarily small" schools – those that are small because there is no way to make them larger. In other states, this concept tends to focus on distance from other schools and/or the time it takes for students to travel to schools. Before applying the formulas APA developed to estimate the fiscal needs of schools, it would make sense to be able to distinguish necessarily small schools from those that are small by choice and to only apply the formula that benefits small schools to those that are necessarily small.

TABLE VIII-2

TOTAL COST OF MOVING FROM CURRENT FUNDING IN 2003-04 TO ADEQUATE FUNDING (PJ) IN 2013-14 USING THREE ALTERNATIVE APPROACHES TO DETERMINE ANNUAL COST CHANGES

Assuming an inflation rate of 2.3% for each year between 2003-04 and 2013-14

Year	Total Cost (Millions)	Basis of Total Cost
2003-04	\$2,231.3	Actual
2004-05	\$2,364.1	Actual in 2003-04 plus \$79.6 million, multiplied by 1.023
2006-07		<u>Impact of Alternative Approaches in 2006-07</u>
	\$2,759.8	(1) Using a 7.3% annual increase (including 2.3% inflation)
	\$2,829.3	(2) Using an annual increase of \$222.7 million
2013-14	\$4,457.6	Using the Professional Judgment figures (which are 25.5% above 2003-04 given 2.3% inflation/year)
	\$2,801.0	Actual Inflated to 2013-14
	1.591	2013-14 PJ figures in comparison to Actual, inflated to 2013-14

APPENDIX A

PROFESSIONAL JUDGMENT PANELISTS

First Round Panels: March 29-30

Brian Frazier
Dan Fox
George Worden
Jean Jackson
Jeanne Ohl
Jim Rickley
Jose Loya
Judy Pratt

Kathy Foster
Ken Higbee
Laurie Spark
Mary Ann Robinson
Nancy Sanger
Pete Peterson
Rick Hardy
Robert Slaby

Second Round Panels: April 25-26

Andrea Awerbach
Betty Fobes
Bill Langs
Bob Anderson
Derild Parsons
Dotty Merrill
Jeff Zander
Jim Hill
Juanita Jeanney
Keith Bradford
Leighann Pemelton
Leslie Zimmerman
Linda Enteles
Linda Fields
Loretta Asay
Nat Lommori
Sandra Reed
Sharla Hales
Sheila Jones Mosely
Steve Hansen

In-state Panel: May 17

Michael Alastuey
Rick Kester
Mary Pierczynski

APPENDIX B

SUMMARY OF NEVADA'S ACADEMIC STANDARDS

Student Assessment

Nevada's system for assessing students, the Nevada Proficiency Examination Program (NPEP), consists of different tests taken by students enrolled in public and charter schools in specific grades and specific programs.

As required by the No Child Left Behind Act of 2001, all students who are identified as "Limited English Proficient" must be assessed annually for English proficiency in the five domains of speaking, listening, reading, writing, and comprehension. This language assessment does not replace the State English Language Arts Criterion Referenced Tests (CRTs) or the Norm Referenced Tests (NRTs) as required by state law. All LEP students must participate in the state assessments as well as the assessment of English Language proficiency.

Similarly, as required by IDEA, all students who are identified as needing special education services must participate in the state assessments. The State Board is required to prescribe modifications and accommodations as necessary in order to ensure participation of all students, regardless of need, in the state assessments.

NPEP includes the following assessments: criterion-referenced tests (CRT), norm-referenced tests (NRT), performance-writing tests, high school proficiency examination (HSPE). The items that are in *italics* are the tests used in the AYP determination process.

Type of Tests (by Grade) that are Required

	2005-2006
Grade 3	<i>CRT-Reading, Math</i>
Grade 4	NRT-ELA, Math, Science <i>CRT-Reading, Math</i> <i>Perf-Writing</i>
Grade 5	<i>CRT-Reading, Math, Science</i>
Grade 6	<i>CRT-Reading, Math</i>
Grade 7	NRT-ELA, Math, Science <i>CRT-Reading, Math</i>
Grade 8	<i>CRT-Reading, Math, Science</i> <i>Perf—Writing</i>
Grades 9-12	NRT-ELA, Math, Science <i>HSPE-ELA, Math</i>

Proficiency/Graduation Requirements

If a pupil fails to demonstrate at least adequate achievement on the state tests administered before the completion of grades 4, 7 or 10, he may be promoted to the next higher grade, but the results of his examination must be evaluated to determine what remedial study is appropriate. If such a pupil is enrolled at a school that has failed to make adequate yearly progress or in which less than 60 percent of the pupils enrolled in grade 4, 7 or 10 in the school who took the examinations administered pursuant to this section received an average score on those examinations that is at least equal to the 26th percentile of the national reference group of pupils to which the examinations were compared, the pupil must complete remedial study that is determined to be appropriate for the pupil. As such, schools need to anticipate their resource needs for remediation.

If a pupil fails to pass the proficiency examination administered before the completion of grade 11, he must not be graduated until he is able, through remedial study, to pass the proficiency examination, but he may be given a certificate of attendance, in place of a diploma, if he has reached the age of 17 years.

Instructional Program Requirements

Nevada has developed standards in the following areas that guide the type of instruction schools must provide:

Arts

- Standards necessitate instruction in music, visual arts, and theater for grades 3 & 5, all other grades instruction is not required; however, if instruction is provided (and students elect to take such courses), standards specify the type of knowledge students should walk away from those course having.

Career & Tech Ed. (*elective—no requirement to provide*)

- If schools choose to provide, intent is to integrate career and technical education with core academic standards
- high school (primarily)

Computers & Technology

- ½ credit course in computers required to graduate high school
- Require integration of technology with core content standards across all grades
- Have specific outcomes for students in grades 3, 5, 8, & 12.

English Language Arts

- Specific criteria for subject matter and outcomes for students in grades K-8 and by the end of grade 12. As such, all schools must provide instruction in ELA for these grades.

Foreign Language (not mandated)

- If schools choose to implement, specific criteria for subject matter and outcomes for students in grades K, 3, 5, 8, 9, 10, &12 are provided.

Health & PE

- Specific outcomes for students in grades 2, 3, 5, 8, & by the end of 12. As such, all schools must provide health and P.E. instruction for students in these grades.

Math

- Specific criteria for subject matter and outcomes for students at grades K-8 and by the end of grade 12 meaning that all schools must provide math instruction across these grades.

PreK

- Not mandatory (except for children who have Individual Education Plans), but for those schools that choose to offer PreK, specific standards exist for these programs.

Science

- Specific criteria for subject matter and outcomes for students in clusters of grades (K-2, 3-5, 6-8, and 9-12).

Social Studies

- Schools must provide instruction in geography, economics, civics, and history in grades 2, 3, 5, 8, & by the end of grade 12
- Each year, schools must recognize and provide programs related to constitution day

Information Literacy

- Specific standards have been developed to ensure that students across all grades (K-12) are information literate. As such, schools are required to weave these standards into their instructional programs.

Student-Instructor Ratio Requirements

- The ratio in each school district of pupils per class in kindergarten and grades 1, 2 and 3 per licensed teacher designated to teach those classes full time must not exceed 15 to 1 in classes where core curriculum is taught. In determining this ratio, all licensed educational personnel who teach kindergarten or grade 1, 2 or 3 must be counted except teachers of art, music, physical education or special education, counselors, librarians, administrators, deans and specialists.¹

¹ Nevada currently funds a 16:1 ratio in grades 1 and 2 and a 19:1 ratio in grade 3.

Minimum # of Days of Instruction

- Boards of trustees of school districts shall schedule and provide a minimum of 180 days of free school in the districts under their charge

Graduation Requirements

1. The total number of credits required to graduate from high school is at least 22.5. Each district has the option of adding to the credit requirements.
2. There are 15 units of core courses that everyone must take. (For students who started high school in or before 1998 there are only 14 units of core courses required.) The core courses are: American Government —1, American History —1, Arts & Humanities —1, English —4, Health —__, Math —3 (2 if you started high school in or before 1998), PE —2, Computers* —__, Science —2. The remaining credits needed to graduate from high school are considered elective credits and are not specifically identified by content area. [* If a student passed a course of study in computers in 6th, 7th, or 8th grade, they don't have to take a course in computers in high school.]
3. In addition to passing the core courses to get the credits you need, every student must pass the Nevada High School Proficiency Exam (HSPE) in reading, math, and writing in order to receive a standard diploma.
4. Students who started 9th grade in or after 1999, need to achieve passing scores for the HSPE in Reading, Mathematics, Writing, and Science. The content of these tests will be based on the Nevada State Content and Performance Standards, approved by the State Board of Education in August, 1998. The passing scores for the new, standards based HSPE will be set in the fall of 2001. All of the content and performance standards are available on the NDE web site.
5. If a student achieves a passing score on any portion of the HSPE they don't have to retake that portion. However, if a student doesn't receive a passing score the first time, they may retake the test again until they receive a passing score. Currently, students have multiple opportunities to take the different portions of the test. For example, a student who took the HSPE reading and math tests for the first time in October of 1999 would be able to take them again in February, April, June/July, and October of 2000, and February, April, and June/July of 2001.

High School Dropout Rates

The dropout rate published in the Nevada Report Card is an *annual student dropout rate* and measures the percentage of students who dropout of high school in a given year. The calculation method is as follows: total dropouts plus total non-returns divided by total enrollment plus total non-returns, multiplied by one hundred. Consequently, a comparison to corresponding ninth grade student numbers cannot be made.

Over a five-year period, from the 1999-2000 school year to the 2003-2004 school year, the Nevada high school dropout rate decreased slightly from 6.1% to 5.8%. A look at the major ethnic groups indicates that the American Indian dropout rate had a slight increase over this five-year period, having one of the highest rates (7.4%) of the subgroups (same as the African American rate) in 2003-2004. The African American and Hispanic dropout rates had a slight decrease over the five years, from 8.0% to 7.4% and from 9.2% to 8.2% respectively. The Asian dropout rate was the lowest of the subgroups in 1999-2000 (4.6%) with a slight increase in five years to 4.9%. The White dropout rate fluctuated over the five years and had the lowest rate (4.5%) in 2003-2004. For the state rate and all subgroups (except Asian) the 2000-2001 dropout rates seem an anomaly with noticeable change from the year before and the year after.

High School Completion Indicators

The Nevada Report Card reports the number of students completing high school who receive standard diplomas, advanced diplomas, adjusted diplomas, adult diplomas, and certificates of attendance. Table 4 shows the state results of diplomas and certificates of attendance for the 2003-2004 school year. Of the 18,705 Nevada seniors, 17,311 (93%) received a diploma or certificate of attendance. The majority of students received a Standard Diploma.

Table 4: State results of diploma/certificate acquisition (2003-2004)

Standard Diploma (22 1/2 credits & proficient scores on HSPE)		Advanced Diploma (24 credits, 3.0 + GPA & proficient scores on HSPE)		Adult Diploma (Requirements of adult education or alternative education program met)		Adjusted Diploma (Special requirements or adjusted standards met by student with disability)		Certificate of Attendance (Met all requirements except proficient score on HSPE)	
10,931	63.1%	4,042	23.3%	192	1.1%	1,195	6.9%	951	5.5%

No Child Left Behind Federal Requirements

Participation Indicators

- Schools are required to have at least 95% of all students participate on the state AYP tests to meet the AYP requirements. Participation rates on English language arts and mathematics tests are considered separately.

“Other” Indicators

- In addition to subject area proficiency and test participation, schools must be judged with respect to at least one “other” indicator. At the high school level, the NCLB Act requires that graduation rate be used. The Act gives states flexibility in the use of other indicators at the elementary and middle school levels. State statute now requires that elementary and middle schools in Nevada be judged relative to average daily student attendance.

Crosswalk of Nevada and Federal Achievement Level Categories

Nevada Achievement Levels	Federal Achievement Levels
Developing/Emergent	
Approaching Standard	Basic
Meets Standard	Proficient
Exceeds Standard	Advanced

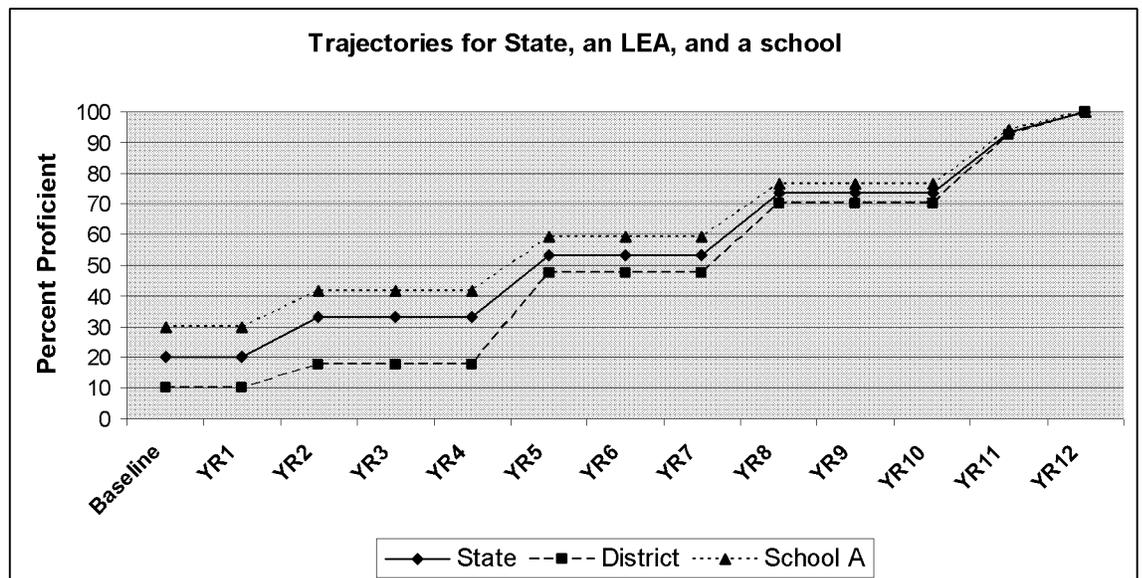
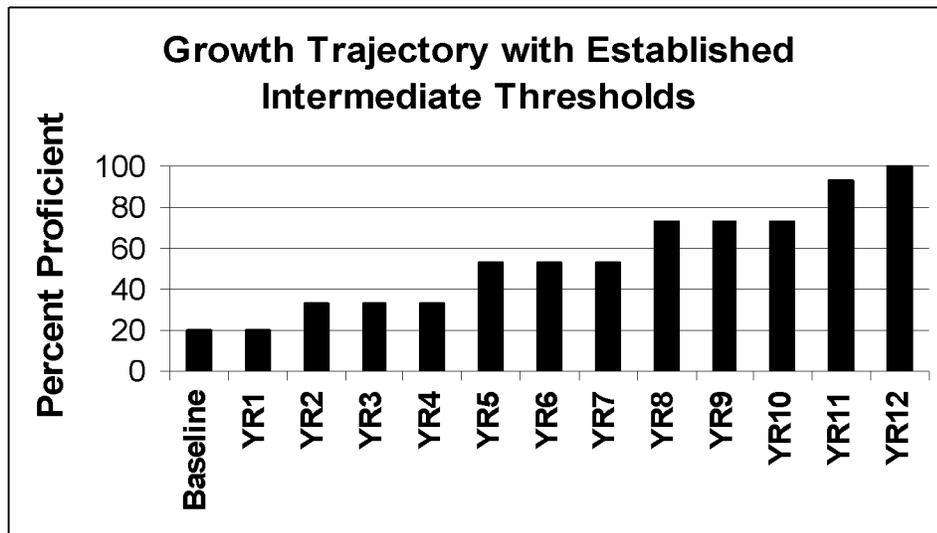
Adequate Yearly Progress Performance Targets

School year	Elementary School		Middle School		High School	
	ELA	Math	ELA	Math	ELA	Math
2003-04	27.5%	34.5%	37%	32%	73.5	42.8
2004-05, 2005-06, 2006-07	39.6%	45.4%	47.5%	43.3%	77.9%	52.3%
2007-08, 2008-09	51.7%	56.3%	58%	54.6%	82.3%	61.8%
2009-10, 2010-11	63.8%	67.2%	68.5%	65.9%	86.7%	71.3%
2011-12	75.9%	78.1%	79%	77.2%	91.1%	80.8%
2012-13	88%	89%	89.5%	88.5%	95.5%	90.3%
2013-14	100%	100%	100%	100%	100%	100%

2004 CRT Results (percentage of students meeting or exceeding proficiency levels in reading, math, science)

	3 rd Grade	5 th Grade	8 th Grade
Reading	44%	43%	49%
Math	45%	50%	48%
Science		52%	59%

AYP Growth Trajectories



APPENDIX C

REFERENCES USED BY APA'S NATIONAL EXPERT GROUP TO SET INITIAL RESEARCH-BASED RESOURCE LEVELS FOR PJ PANEL WORK

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NRS 386.500 “Pupil ‘at risk’ ” defined.

For the purposes of NRS 386.500 to 386.610, inclusive, a pupil is “at risk” if the pupil has an economic or academic disadvantage such that he or she requires special services and assistance to enable him or her to succeed in educational programs. The term includes, without limitation, pupils who are members of economically disadvantaged families, pupils who are limited English proficient, pupils who are at risk of dropping out of high school and pupils who do not meet minimum standards of academic proficiency. The term does not include a pupil with a disability.

(Added to NRS by 1997, 1843; A 2001, 3125; 2003, 19th Special Session, 44; 2005, 1656, 1662, 2398; 2007, 1256, 2567)

Subcommittee on Charter Schools; Charter School District; Renewal and Revocation of Charters

NRS 386.505 Legislative declaration concerning formation of charter schools. The Legislature declares that by authorizing the formation of charter schools it is not authorizing:

1. The conversion of an existing public school, homeschool or other program of home study to a charter school.

2. A means for providing financial assistance for private schools or programs of home study. The provisions of this subsection do not preclude:

(a) A private school from ceasing to operate as a private school and reopening as a charter school in compliance with the provisions of NRS 386.500 to 386.610, inclusive.

(b) The payment of money to a charter school for the enrollment of children in classes at the charter school pursuant to subsection 5 of NRS 386.580 who are enrolled in a public school of a school district or a private school or who are homeschooled.

3. The formation of charter schools on the basis of a single race, religion or ethnicity.

(Added to NRS by 1997, 1843; A 1999, 3291; 2001, 3125; 2007, 1256)

NRS 386.506 No authority to convert public school or homeschool to charter school. The provisions of NRS 386.500 to 386.610, inclusive, do not authorize an existing public school, homeschool or other program of home study to convert to a charter school.

(Added to NRS by 2001, 3123)

NRS 386.507 Subcommittee on Charter Schools: Appointment of members; terms. The Subcommittee on Charter Schools of the State Board is hereby created. The President of the State Board shall appoint three members of the State Board to serve on the Subcommittee. Except as otherwise provided in this section, the members of the Subcommittee serve terms of 2 years. If a member is not reelected to the State Board during his or her service on the

Subcommittee, the term of the member on the Subcommittee expires when his or her membership on the State Board expires. Members of the Subcommittee may be reappointed.

(Added to NRS by 1999, 3289)

NRS 386.508 Charter School District for State Board-Sponsored Charter Schools and Nevada System of Higher Education-Sponsored Charter Schools. There is hereby created a school district to be designated as the Charter School District for State Board-Sponsored Charter Schools and Nevada System of Higher Education-Sponsored Charter Schools. The School District comprises only those charter schools that are sponsored by the State Board or sponsored by a college or university within the Nevada System of Higher Education. The State Board is hereby deemed the Board of Trustees of the School District. The School District is created for the sole purpose of providing local educational agency status to the School District for purposes of federal law governing charter schools.

(Added to NRS by 2007, 1255; A 2007, 2579)

NRS 386.515 Sponsorship of charter schools by board of trustees, State Board and Nevada System of Higher Education.

1. The board of trustees of a school district may apply to the Department for authorization to sponsor charter schools within the school district. An application must be approved by the Department before the board of trustees may sponsor a charter school. Not more than 180 days after receiving approval to sponsor charter schools, the board of trustees shall provide public notice of its ability to sponsor charter schools and solicit applications for charter schools.

2. The State Board shall sponsor charter schools whose applications have been approved by the State Board pursuant to NRS 386.525. Except as otherwise provided by specific statute, if the State Board sponsors a charter school, the State Board or the Department is responsible for the evaluation, monitoring and oversight of the charter school.

3. A college or university within the Nevada System of Higher Education may sponsor charter schools.

(Added to NRS by 1997, 1844; A 2001, 3125; 2005, 2398; 2007, 2567)

NRS 386.520 Membership of committee to form charter school; submission of application to Department; opportunity to correct deficiencies.

1. A committee to form a charter school must consist of at least three teachers, as defined in subsection 4. In addition to the teachers who serve, the committee may consist of:

(a) Members of the general public;

(b) Representatives of nonprofit organizations and businesses; or

(c) Representatives of a college or university within the Nevada System of Higher Education.

→ A majority of the persons described in paragraphs (a), (b) and (c) who serve on the committee must be residents of this State at the time that the application to form the charter school is submitted to the Department.

2. Before a committee to form a charter school may submit an application to the board of trustees of a school district, the Subcommittee on Charter Schools, the State Board or a college or university within the Nevada System of Higher Education, it must submit the application to the Department. The application must include all information prescribed by the Department by regulation and:

(a) A written description of how the charter school will carry out the provisions of NRS 386.500 to 386.610, inclusive.

(b) A written description of the mission and goals for the charter school. A charter school must have as its stated purpose at least one of the following goals:

(1) Improving the opportunities for pupils to learn;

(2) Encouraging the use of effective methods of teaching;

(3) Providing an accurate measurement of the educational achievement of pupils;

(4) Establishing accountability of public schools;

(5) Providing a method for public schools to measure achievement based upon the performance of the schools; or

(6) Creating new professional opportunities for teachers.

(c) The projected enrollment of pupils in the charter school.

(d) The proposed dates of enrollment for the charter school.

(e) The proposed system of governance for the charter school, including, without limitation, the number of persons who will govern, the method of selecting the persons who will govern and the term of office for each person.

(f) The method by which disputes will be resolved between the governing body of the charter school and the sponsor of the charter school.

(g) The proposed curriculum for the charter school and, if applicable to the grade level of pupils who are enrolled in the charter school, the requirements for the pupils to receive a high school diploma, including, without limitation, whether those pupils will satisfy the requirements of the school district in which the charter school is located for receipt of a high school diploma.

(h) The textbooks that will be used at the charter school.

(i) The qualifications of the persons who will provide instruction at the charter school.

(j) Except as otherwise required by NRS 386.595, the process by which the governing body of the charter school will negotiate employment contracts with the employees of the charter school.

(k) A financial plan for the operation of the charter school. The plan must include, without limitation, procedures for the audit of the programs and finances of the charter school and guidelines for determining the financial liability if the charter school is unsuccessful.

(l) A statement of whether the charter school will provide for the transportation of pupils to and from the charter school. If the charter school will provide transportation, the application must include the proposed plan for the transportation of pupils. If the charter school will not provide transportation, the application must include a statement that the charter school will work with the parents and guardians of pupils enrolled in the charter school to develop a plan for transportation to ensure that pupils have access to transportation to and from the charter school.

(m) The procedure for the evaluation of teachers of the charter school, if different from the procedure prescribed in NRS 391.3125. If the procedure is different from the procedure prescribed in NRS 391.3125, the procedure for the evaluation of teachers of the charter school must provide the same level of protection and otherwise comply with the standards for evaluation set forth in NRS 391.3125.

(n) The time by which certain academic or educational results will be achieved.

(o) The kind of school, as defined in subsections 1 to 4, inclusive, of NRS 388.020, for which the charter school intends to operate.

(p) A statement of whether the charter school will enroll pupils who are in a particular category of at-risk pupils before enrolling other children who are eligible to attend the charter school pursuant to NRS 386.580 and the method for determining eligibility for enrollment in each such category of at-risk pupils served by the charter school.

3. The Department shall review an application to form a charter school to determine whether it is complete. If an application proposes to convert an existing public school, homeschool or other program of home study into a charter school, the Department shall deny the application. The Department shall provide written notice to the applicant of its approval or denial of the application. If the Department denies an application, the Department shall include in the written notice the reason for the denial and the deficiencies in the application. The applicant must be granted 30 days after receipt of the written notice to correct any deficiencies identified in the written notice and resubmit the application.

4. As used in subsection 1, “teacher” means a person who:

- (a) Holds a current license to teach issued pursuant to chapter 391 of NRS; and
- (b) Has at least 2 years of experience as an employed teacher.

↪ The term does not include a person who is employed as a substitute teacher.

(Added to NRS by 1997, 1844; A 1999, 3292; 2001, 3125; 2007, 2568; 2009, 257)

NRS 386.525 Review of application to form charter school; assistance of Department; opportunity to correct deficiencies; appeal of denial; biennial report by Superintendent of Public Instruction concerning applications.

1. Upon approval of an application by the Department, a committee to form a charter school may submit the application to the board of trustees of the school district in which the proposed charter school will be located, a college or university within the Nevada System of Higher Education or directly to the Subcommittee on Charter Schools. If the board of trustees of a school district, a college or a university, as applicable, receives an application to form a charter school, the board of trustees or the institution, as applicable, shall consider the application at a meeting that must be held not later than 45 days after the receipt of the application, or a period mutually agreed upon by the committee to form the charter school and the board of trustees of the school district or the institution, as applicable, and ensure that notice of the meeting has been provided pursuant to chapter 241 of NRS. The board of trustees, the college, the university or the Subcommittee on Charter Schools, as applicable, shall review an application to determine whether the application:

(a) Complies with NRS 386.500 to 386.610, inclusive, and the regulations applicable to charter schools; and

(b) Is complete in accordance with the regulations of the Department.

2. The Department shall assist the board of trustees of a school district, the college or the university, as applicable, in the review of an application. The board of trustees, the college or the university, as applicable, may approve an application if it satisfies the requirements of paragraphs (a) and (b) of subsection 1. The board of trustees, the college or the university, as applicable, shall provide written notice to the applicant of its approval or denial of the application.

3. If the board of trustees, the college or the university, as applicable, denies an application, it shall include in the written notice the reasons for the denial and the deficiencies in the application. The applicant must be granted 30 days after receipt of the written notice to correct any deficiencies identified in the written notice and resubmit the application.

4. If the board of trustees, the college or the university, as applicable, denies an application after it has been resubmitted pursuant to subsection 3, the applicant may submit a written request for sponsorship by the State Board to the Subcommittee on Charter Schools created pursuant to NRS 386.507 not more than 30 days after receipt of the written notice of denial. Any request that

is submitted pursuant to this subsection must be accompanied by the application to form the charter school.

5. If the Subcommittee on Charter Schools receives an application pursuant to subsection 1 or 4, it shall hold a meeting to consider the application. The meeting must be held not later than 45 days after receipt of the application. Notice of the meeting must be posted in accordance with chapter 241 of NRS. The Subcommittee shall review the application in accordance with the factors set forth in paragraphs (a) and (b) of subsection 1. The Subcommittee may approve an application if it satisfies the requirements of paragraphs (a) and (b) of subsection 1.

6. The Subcommittee on Charter Schools shall transmit the application and the recommendation of the Subcommittee for approval or denial of the application to the State Board. Not more than 14 days after the date of the meeting of the Subcommittee pursuant to subsection 5, the State Board shall hold a meeting to consider the recommendation of the Subcommittee. Notice of the meeting must be posted in accordance with chapter 241 of NRS. The State Board shall review the application in accordance with the factors set forth in paragraphs (a) and (b) of subsection 1. The State Board may approve an application if it satisfies the requirements of paragraphs (a) and (b) of subsection 1. Not more than 30 days after the meeting, the State Board shall provide written notice of its determination to the applicant.

7. If the State Board denies an application, it shall include in the written notice the reasons for the denial and the deficiencies in the application. The applicant must be granted 30 days after receipt of the written notice to correct any deficiencies identified in the written notice and resubmit the application.

8. If the State Board denies an application after it has been resubmitted pursuant to subsection 7, the applicant may, not more than 30 days after the receipt of the written notice from the State Board, appeal the final determination to the district court of the county in which the proposed charter school will be located.

9. On or before January 1 of each odd-numbered year, the Superintendent of Public Instruction shall submit a written report to the Director of the Legislative Counsel Bureau for transmission to the next regular session of the Legislature. The report must include:

(a) A list of each application to form a charter school that was submitted to the board of trustees of a school district, the State Board, a college or a university during the immediately preceding biennium;

(b) The educational focus of each charter school for which an application was submitted;

(c) The current status of the application; and

(d) If the application was denied, the reasons for the denial.

(Added to NRS by 1997, 1846; A 1999, 3295; 2001, 3127; 2005, 1098, 2399, 2537; 2007, 2569)

NRS 386.527 Approval of application; contents and term of written charter; request for change in sponsorship; new application required to expand grade levels under certain circumstances; issuance of charter to applicant who is not prepared to commence operation.

1. If the State Board, the board of trustees of a school district or a college or university within the Nevada System of Higher Education approves an application to form a charter school, it shall grant a written charter to the applicant. The State Board, the board of trustees, the college or the university, as applicable, shall, not later than 10 days after the approval of the application, provide written notice to the Department of the approval and the date of the approval. If the board of trustees approves the application, the board of trustees shall be deemed the sponsor of the charter school.

2. If the State Board approves the application:

(a) The State Board shall be deemed the sponsor of the charter school.

(b) Neither the State of Nevada, the State Board nor the Department is an employer of the members of the governing body of the charter school or any of the employees of the charter school.

3. If a college or university within the Nevada System of Higher Education approves the application:

(a) That institution shall be deemed the sponsor of the charter school.

(b) Neither the State of Nevada, the State Board nor the Department is an employer of the members of the governing body of the charter school or any of the employees of the charter school.

4. The governing body of a charter school may request, at any time, a change in the sponsorship of the charter school to an entity that is authorized to sponsor charter schools pursuant to NRS 386.515. The State Board shall adopt:

(a) An application process for a charter school that requests a change in the sponsorship of the charter school, which must not require the applicant to undergo the requirements of an initial application to form a charter school; and

(b) Objective criteria for the conditions under which such a request may be granted.

5. Except as otherwise provided in subsection 7, a written charter must be for a term of 6 years unless the governing body of a charter school renews its initial charter after 3 years of operation pursuant to subsection 2 of NRS 386.530. A written charter must include all conditions of operation set forth in subsection 2 of NRS 386.520 and include the kind of school, as defined in subsections 1 to 4, inclusive, of NRS 388.020 for which the charter school is authorized to operate. If the State Board or a college or university within the Nevada System of Higher

Education is the sponsor of the charter school, the written charter must set forth the responsibilities of the sponsor and the charter school with regard to the provision of services and programs to pupils with disabilities who are enrolled in the charter school in accordance with the Individuals with Disabilities Education Act, 20 U.S.C. §§ 1400 et seq., and NRS 388.440 to 388.520, inclusive. As a condition of the issuance of a written charter pursuant to this subsection, the charter school must agree to comply with all conditions of operation set forth in NRS 386.550.

6. The governing body of a charter school may submit to the sponsor of the charter school a written request for an amendment of the written charter of the charter school. Such an amendment may include, without limitation, the expansion of instruction and other educational services to pupils who are enrolled in grade levels other than the grade levels of pupils currently approved for enrollment in the charter school if the expansion of grade levels does not change the kind of school, as defined in NRS 388.020, for which the charter school is authorized to operate. If the proposed amendment complies with the provisions of this section, NRS 386.500 to 386.610, inclusive, and any other statute or regulation applicable to charter schools, the sponsor may amend the written charter in accordance with the proposed amendment. If a charter school wishes to expand the instruction and other educational services offered by the charter school to pupils who are enrolled in grade levels other than the grade levels of pupils currently approved for enrollment in the charter school and the expansion of grade levels changes the kind of school, as defined in NRS 388.020, for which the charter school is authorized to operate, the governing body of the charter school must submit a new application to form a charter school. If such an application is approved, the charter school may continue to operate under the same governing body and an additional governing body does not need to be selected to operate the charter school with the expanded grade levels.

7. The State Board shall adopt objective criteria for the issuance of a written charter to an applicant who is not prepared to commence operation on the date of issuance of the written charter. The criteria must include, without limitation, the:

(a) Period for which such a written charter is valid; and

(b) Timelines by which the applicant must satisfy certain requirements demonstrating its progress in preparing to commence operation.

➔ A holder of such a written charter may apply for grants of money to prepare the charter school for operation. A written charter issued pursuant to this subsection must not be designated as a conditional charter or a provisional charter or otherwise contain any other designation that would indicate the charter is issued for a temporary period.

8. The holder of a written charter that is issued pursuant to subsection 7 shall not commence operation of the charter school and is not eligible to receive apportionments pursuant to NRS 387.124 until the sponsor has determined that the requirements adopted by the State Board pursuant to subsection 7 have been satisfied and that the facility the charter school will occupy has been inspected and meets the requirements of any applicable building codes, codes for the prevention of fire, and codes pertaining to safety, health and sanitation. Except as otherwise

provided in this subsection, the sponsor shall make such a determination 30 days before the first day of school for the:

(a) Schools of the school district in which the charter school is located that operate on a traditional school schedule and not a year-round school schedule; or

(b) Charter school,

↪ whichever date the sponsor selects. The sponsor shall not require a charter school to demonstrate compliance with the requirements of this subsection more than 30 days before the date selected. However, it may authorize a charter school to demonstrate compliance less than 30 days before the date selected.

(Added to NRS by 1999, 3289; A 2001, 3129; 2005, 1662, 2400, 2538; 2007, 1256, 2571; 2009, 259)

NRS 386.530 Renewal of charter: Application; intensive review by sponsor; opportunity to correct deficiencies.

1. Except as otherwise provided in subsection 2, an application for renewal of a written charter may be submitted to the sponsor of the charter school not less than 120 days before the expiration of the charter. The application must include the information prescribed by the regulations of the Department. The sponsor shall conduct an intensive review and evaluation of the charter school in accordance with the regulations of the Department. The sponsor shall renew the charter unless it finds the existence of any ground for revocation set forth in NRS 386.535. The sponsor shall provide written notice of its determination not fewer than 30 days before the expiration of the charter. If the sponsor intends not to renew the charter, the written notice must:

(a) Include a statement of the deficiencies or reasons upon which the action of the sponsor is based; and

(b) Prescribe a period of not less than 30 days during which the charter school may correct any such deficiencies.

↪ If the charter school corrects the deficiencies to the satisfaction of the sponsor within the time prescribed in paragraph (b), the sponsor shall renew the charter of the charter school.

2. A charter school may submit an application for renewal of its initial charter after 3 years of operation of the charter school. The application must include the information prescribed by the regulations of the Department. The sponsor shall conduct an intensive review and evaluation of the charter school in accordance with the regulations of the Department. The sponsor shall renew the charter unless it finds the existence of any ground for revocation set forth in NRS 386.535. The sponsor shall provide written notice of its determination. If the sponsor intends not to renew the charter, the written notice must:

(a) Include a statement of the deficiencies or reasons upon which the action of the sponsor is based; and

(b) Prescribe a period of not less than 30 days during which the charter school may correct any such deficiencies.

➔ If the charter school corrects the deficiencies to the satisfaction of the sponsor within the time prescribed in paragraph (b), the sponsor shall renew the charter of the charter school.

(Added to NRS by 1997, 1849; A 2009, 914)

NRS 386.535 Revocation of charter; written notice; opportunity to correct deficiencies; public hearing.

1. The sponsor of a charter school may revoke the written charter of the charter school before the expiration of the charter if the sponsor determines that:

(a) The charter school, its officers or its employees have failed to comply with:

(1) The terms and conditions of the written charter;

(2) Generally accepted standards of accounting and fiscal management; or

(3) The provisions of NRS 386.500 to 386.610, inclusive, or any other statute or regulation applicable to charter schools;

(b) The charter school has filed for a voluntary petition of bankruptcy, is adjudicated bankrupt or insolvent, or is otherwise financially impaired such that the charter school cannot continue to operate; or

(c) There is reasonable cause to believe that revocation is necessary to protect the health and safety of the pupils who are enrolled in the charter school or persons who are employed by the charter school from jeopardy, or to prevent damage to or loss of the property of the school district or the community in which the charter school is located.

2. Before the sponsor revokes a written charter, the sponsor shall provide written notice of its intention to the governing body of the charter school. The written notice must:

(a) Include a statement of the deficiencies or reasons upon which the action of the sponsor is based;

(b) Except as otherwise provided in subsection 4, prescribe a period, not less than 30 days, during which the charter school may correct the deficiencies, including, without limitation, the date on which the period to correct the deficiencies begins and the date on which that period ends;

(c) Prescribe the date on which the sponsor will make a determination regarding whether the charter school has corrected the deficiencies, which determination may be made during the public hearing held pursuant to subsection 3; and

(d) Prescribe the date on which the sponsor will hold a public hearing to consider whether to revoke the charter.

3. Except as otherwise provided in subsection 4, not more than 90 days after the notice is provided pursuant to subsection 2, the sponsor shall hold a public hearing to make a determination regarding whether to revoke the written charter. If the charter school corrects the deficiencies to the satisfaction of the sponsor within the time prescribed in paragraph (b) of subsection 2, the sponsor shall not revoke the written charter of the charter school. The sponsor may not include in a written notice pursuant to subsection 2 any deficiency which was included in a previous written notice and which was corrected by the charter school, unless the deficiency recurred after being corrected.

4. The sponsor of a charter school and the governing body of the charter school may enter into a written agreement that prescribes different time periods than those set forth in subsections 2 and 3.

(Added to NRS by 1997, 1848; A 1999, 3296; 2005, 2401)

NRS 386.536 Appointment of trustee upon closure of charter school; financial compensation for trustee.

1. Except as otherwise provided in subsections 2 and 3, if a charter school ceases to operate voluntarily or upon revocation of its written charter, the governing body of the charter school shall appoint an administrator of the charter school, subject to the approval of the sponsor of the charter school, to act as a trustee during the process of the closure of the charter school and for 1 year after the date of closure. The administrator shall assume the responsibility for the records of the:

(a) Charter school;

(b) Employees of the charter school; and

(c) Pupils enrolled in the charter school.

2. If an administrator for the charter school is no longer available to carry out the duties set forth in subsection 1, the governing body of the charter school shall appoint a qualified person to assume those duties.

3. If the governing body of the charter school ceases to exist or is otherwise unable to appoint an administrator pursuant to subsection 1 or a qualified person pursuant to subsection 2, the sponsor of the charter school shall appoint an administrator or a qualified person to carry out the duties set forth in subsection 1.

4. The governing body of the charter school or the sponsor of the charter school may, to the extent practicable, provide financial compensation to the administrator or person appointed to carry out the provisions of this section. If the sponsor of the charter school provides such financial compensation, the sponsor is entitled to receive reimbursement from the charter school for the costs incurred by the sponsor in providing the financial compensation. Such reimbursement must not exceed costs incurred for a period longer than 6 months.

(Added to NRS by 2007, 1255; A 2009, 933)

NRS 386.540 Regulations.

1. The Department shall adopt regulations that prescribe:

(a) The process for submission of an application by the board of trustees of a school district to the Department for authorization to sponsor charter schools and the contents of the application;

(b) The process for submission of an application to form a charter school to the Department, the board of trustees of a school district, the Subcommittee on Charter Schools and a college or university within the Nevada System of Higher Education, and the contents of the application;

(c) The process for submission of an application to renew a written charter; and

(d) The criteria and type of investigation that must be applied by the board of trustees, the Subcommittee on Charter Schools, the State Board and a college or university within the Nevada System of Higher Education in determining whether to approve an application to form a charter school or an application to renew a written charter.

2. The Department may adopt regulations as it determines are necessary to carry out the provisions of NRS 386.500 to 386.610, inclusive, including, without limitation, regulations that prescribe the:

(a) Procedures for accounting and budgeting;

(b) Requirements for performance audits and financial audits of charter schools on an annual basis for charter schools that do not satisfy the requirements of subsection 1 of NRS 386.5515; and

(c) Requirements for performance audits every 3 years and financial audits on an annual basis for charter schools that satisfy the requirements of subsection 1 of NRS 386.5515.

(Added to NRS by 1997, 1856; A 2001, 3131; 2007, 2573)

NRS 386.545 Duty of Department, board of trustees and sponsor to provide information and assistance; provision of additional services by district-sponsored charter

schools; availability of summer school and Internet-based classes for certain charter school pupils.

1. The Department and the board of trustees of a school district shall:

(a) Upon request, provide information to the general public concerning the formation and operation of charter schools; and

(b) Maintain a list available for public inspection that describes the location of each charter school.

2. The sponsor of a charter school shall:

(a) Provide reasonable assistance to an applicant for a charter school and to a charter school in carrying out the provisions of NRS 386.500 to 386.610, inclusive;

(b) Provide technical and other reasonable assistance to a charter school for the operation of the charter school;

(c) Provide information to the governing body of a charter school concerning the availability of money for the charter school, including, without limitation, money available from the Federal Government; and

(d) Provide timely access to the electronic data concerning the pupils enrolled in the charter school that is maintained pursuant to NRS 386.650.

3. If the board of trustees of a school district is the sponsor of a charter school, the sponsor shall:

(a) Provide the charter school with an updated list of available substitute teachers within the school district.

(b) Provide access to school buses for use by the charter school for field trips. The school district may charge a reasonable fee for the use of the school buses.

(c) If the school district offers summer school or Internet-based credit recovery classes, allow the pupils enrolled in the charter school to participate if space is available. The school district shall apply the same fees, if any, for participation of the pupils enrolled in the charter school as it applies to pupils enrolled in the school district.

4. The Department shall provide appropriate information, education and training for charter schools and the governing bodies of charter schools concerning the applicable provisions of title 34 of NRS and other laws and regulations that affect charter schools and the governing bodies of charter schools.

(Added to NRS by 1997, 1856; A 1999, 3297; 2005, 2402; 2007, 2573)

NRS 386.547 Duty of State Board to review statutes and regulations and to provide information. The State Board shall:

1. Review all statutes and regulations from which charter schools are exempt and determine whether such exemption assisted or impeded the charter schools in achieving their educational goals and objectives.
2. Make available information concerning the formation and operation of charter schools in this State to pupils, parents and legal guardians of pupils, teachers and other educational personnel and members of the general public.

(Added to NRS by 1997, 1856)

Governing Body; Operation and Finances; Implementation of Statutes; Relations With Board of Trustees

NRS 386.549 Membership and qualifications of governing body; powers; duty to hold public meeting on quarterly basis.

1. The governing body of a charter school:
 - (a) Must consist of:
 - (1) At least three teachers, as defined in subsection 5; or
 - (2) Two teachers, as defined in subsection 5, and one person who previously held a license to teach issued pursuant to chapter 391 of NRS as long as his or her license was held in good standing, including, without limitation, a retired teacher.
 - (b) May consist of, without limitation, parents and representatives of nonprofit organizations and businesses. Not more than two persons who serve on the governing body may represent the same organization or business or otherwise represent the interests of the same organization or business. A majority of the members of the governing body must reside in this State. If the membership of the governing body changes, the governing body shall provide written notice to the sponsor of the charter school within 10 working days after such change.
2. A person may serve on the governing body only if the person submits an affidavit to the Department indicating that the person:
 - (a) Has not been convicted of a felony relating to serving on the governing body of a charter school or any offense involving moral turpitude.
 - (b) Has read and understands material concerning the roles and responsibilities of members of governing bodies of charter schools and other material designed to assist the governing bodies of charter schools, if such material is provided to the person by the Department.

3. The governing body of a charter school is a public body. It is hereby given such reasonable and necessary powers, not conflicting with the Constitution and the laws of the State of Nevada, as may be requisite to attain the ends for which the charter school is established and to promote the welfare of pupils who are enrolled in the charter school.

4. The governing body of a charter school shall, during each calendar quarter, hold at least one regularly scheduled public meeting in the county in which the charter school is located.

5. As used in subsection 1, “teacher” means a person who:

(a) Holds a current license to teach issued pursuant to chapter 391 of NRS; and

(b) Has at least 2 years of experience as an employed teacher.

→ The term does not include a person who is employed as a substitute teacher.

(Added to NRS by 1999, 3290; A 2001, 3131; 2003, 2697; 2005, 2539; 2007, 2574)

NRS 386.550 Operation: General conditions; limitation on programs of distance education.

1. A charter school shall:

(a) Comply with all laws and regulations relating to discrimination and civil rights.

(b) Remain nonsectarian, including, without limitation, in its educational programs, policies for admission and employment practices.

(c) Refrain from charging tuition or fees, levying taxes or issuing bonds.

(d) Comply with any plan for desegregation ordered by a court that is in effect in the school district in which the charter school is located.

(e) Comply with the provisions of chapter 241 of NRS.

(f) Except as otherwise provided in this paragraph, schedule and provide annually at least as many days of instruction as are required of other public schools located in the same school district as the charter school is located. The governing body of a charter school may submit a written request to the Superintendent of Public Instruction for a waiver from providing the days of instruction required by this paragraph. The Superintendent of Public Instruction may grant such a request if the governing body demonstrates to the satisfaction of the Superintendent that:

(1) Extenuating circumstances exist to justify the waiver; and

(2) The charter school will provide at least as many hours or minutes of instruction as would be provided under a program consisting of 180 days.

(g) Cooperate with the board of trustees of the school district in the administration of the achievement and proficiency examinations administered pursuant to NRS 389.015 and the examinations required pursuant to NRS 389.550 to the pupils who are enrolled in the charter school.

(h) Comply with applicable statutes and regulations governing the achievement and proficiency of pupils in this State.

(i) Provide instruction in the core academic subjects set forth in subsection 1 of NRS 389.018, as applicable for the grade levels of pupils who are enrolled in the charter school, and provide at least the courses of study that are required of pupils by statute or regulation for promotion to the next grade or graduation from a public high school and require the pupils who are enrolled in the charter school to take those courses of study. This paragraph does not preclude a charter school from offering, or requiring the pupils who are enrolled in the charter school to take, other courses of study that are required by statute or regulation.

(j) If the parent or legal guardian of a child submits an application to enroll in kindergarten, first grade or second grade at the charter school, comply with NRS 392.040 regarding the ages for enrollment in those grades.

(k) Refrain from using public money to purchase real property or buildings without the approval of the sponsor.

(l) Hold harmless, indemnify and defend the sponsor of the charter school against any claim or liability arising from an act or omission by the governing body of the charter school or an employee or officer of the charter school. An action at law may not be maintained against the sponsor of a charter school for any cause of action for which the charter school has obtained liability insurance.

(m) Provide written notice to the parents or legal guardians of pupils in grades 9 to 12, inclusive, who are enrolled in the charter school of whether the charter school is accredited by the Commission on Schools of the Northwest Association of Schools and of Colleges and Universities.

(n) Adopt a final budget in accordance with the regulations adopted by the Department. A charter school is not required to adopt a final budget pursuant to NRS 354.598 or otherwise comply with the provisions of chapter 354 of NRS.

(o) If the charter school provides a program of distance education pursuant to NRS 388.820 to 388.874, inclusive, comply with all statutes and regulations that are applicable to a program of distance education for purposes of the operation of the program.

2. A charter school shall not provide instruction through a program of distance education to children who are exempt from compulsory attendance authorized by the State Board pursuant to subsection 1 of NRS 392.070. As used in this subsection, “distance education” has the meaning ascribed to it in NRS 388.826.

(Added to NRS by 1997, 1849; A 1999, 2664, 3256, 3297, 3383; 2001, 238, 240, 3132)

NRS 386.551 Operation: Limitation on additional terms and conditions.

The provisions of NRS 386.500 to 386.610, inclusive, and any other statute or regulation applicable to a charter school or its officers or employees govern the formation and operation of charter schools in this State. Upon the first renewal of a written charter and each renewal thereafter, the sponsor of a charter school shall not prescribe additional requirements or otherwise require a charter school to comply with additional terms or conditions unless the sponsor is specifically authorized by statute, regulation or the written charter.

(Added to NRS by 2005, 1662)

NRS 386.5515 Operation: Eligibility for available money for facilities for charter schools that meet certain conditions; requirements for performance audit; exemption from annual performance audit; quarterly financial report.

1. To the extent money is available from legislative appropriation or otherwise, a charter school may apply to the Department for money for facilities if:

(a) The charter school has been operating in this State for at least 5 consecutive years and is in good financial standing;

(b) Each financial audit and each performance audit of the charter school required by the Department contains no major notations, corrections or errors concerning the charter school for at least 5 consecutive years;

(c) The charter school has met or exceeded adequate yearly progress as determined pursuant to NRS 385.3613 or has demonstrated improvement in the achievement of pupils enrolled in the charter school, as indicated by annual measurable objectives determined by the State Board, for the majority of the years of its operation;

(d) The charter school offers instruction on a daily basis during the school week of the charter school on the campus of the charter school; and

(e) At least 75 percent of the pupils enrolled in the charter school who are required to take the high school proficiency examination have passed that examination, if the charter school enrolls pupils at a high school grade level.

2. A charter school that satisfies the requirements of subsection 1 shall submit to a performance audit as required by the Department one time every 3 years. The sponsor of the charter school and the Department shall not request a performance audit of the charter school more frequently than every 3 years without reasonable evidence of noncompliance in achieving the educational goals and objectives of the charter school based upon the annual report submitted to the State Board pursuant to NRS 386.610. If the charter school no longer satisfies the requirements of subsection 1 or if reasonable evidence of noncompliance in achieving the

educational goals and objectives of the charter school exists based upon the annual report, the charter school shall, upon written notice from the sponsor, submit to an annual performance audit. Notwithstanding the provisions of paragraph (b) of subsection 1, such a charter school:

(a) May, after undergoing the annual performance audit, reapply to the sponsor to determine whether the charter school satisfies the requirements of paragraphs (a), (c), (d) and (e) of subsection 1.

(b) Is not eligible for any available money pursuant to subsection 1 until the sponsor determines that the charter school satisfies the requirements of that subsection.

3. A charter school that does not satisfy the requirements of subsection 1 shall submit a quarterly report of the financial status of the charter school if requested by the sponsor of the charter school.

(Added to NRS by 2007, 2567; A 2009, 915, 933)

NRS 386.552 Preparation of plan for implementation of statutes; written notice to parents and teachers concerning statutes and plan for implementation.

1. Not later than 60 days after receipt of a memorandum pursuant to subsection 3 of NRS 385.210 or an addendum to a memorandum pursuant to subsection 4 of that section, the governing body of a charter school shall determine which statutes and bills described in the memorandum or addendum, as applicable, directly affect pupils, parents, teachers, administrators or other educational personnel of the charter school and require a plan for implementation. If the governing body determines that a statute or bill requires a plan for implementation, the governing body shall prepare a brief plan, which must ensure that the charter school will comply with the statute or bill on the date on which the statute or bill becomes effective and thereafter.

2. The governing body of a charter school shall provide to the parents and legal guardians of pupils who are enrolled in the charter school, and to all teachers, administrators and other educational personnel who are employed by the charter school, written notice of the:

(a) Information contained in the memorandum provided pursuant to subsection 3 of NRS 385.210 or the addendum provided pursuant to subsection 4 of that section, as applicable, that directly affects pupils, parents, teachers, administrators or other educational personnel of the charter school; and

(b) Brief plan for implementation of the statutes or bills, if any.

3. The written notice provided pursuant to subsection 2 to the parents and legal guardians may be:

(a) Included in other notices that the charter school provides to parents and legal guardians.

(b) Provided in a language other than English if the governing body determines that it is necessary for the parent or legal guardian to understand the notice.

(Added to NRS by 2005, 1654)

NRS 386.553 Operation for profit prohibited. A charter school shall not operate for profit.

(Added to NRS by 2001, 3123)

NRS 386.555 Support by or affiliation with religion or religious organization prohibited. A charter school shall not be supported by or otherwise affiliated with any religion or religious organization or institution.

(Added to NRS by 1997, 1850)

NRS 386.560 Authorization to contract for services and facilities; donation of surplus property of school district; board of trustees required to allow pupil to participate in class or activity of school district in which pupil resides.

1. The governing body of a charter school may contract with the board of trustees of the school district in which the charter school is located or the Nevada System of Higher Education for the provision of facilities to operate the charter school or to perform any service relating to the operation of the charter school, including, without limitation, transportation, the provision of health services for the pupils who are enrolled in the charter school and the provision of school police officers.

2. A charter school may use any public facility located within the school district in which the charter school is located. A charter school may use school buildings owned by the school district only upon approval of the board of trustees of the school district and during times that are not regular school hours.

3. The board of trustees of a school district may donate surplus personal property of the school district to a charter school that is located within the school district.

4. Except as otherwise provided in this subsection, upon the request of a parent or legal guardian of a pupil who is enrolled in a charter school, the board of trustees of the school district in which the pupil resides shall authorize the pupil to participate in a class that is not available to the pupil at the charter school or participate in an extracurricular activity, excluding sports, at a public school within the school district if:

(a) Space for the pupil in the class or extracurricular activity is available; and

(b) The parent or legal guardian demonstrates to the satisfaction of the board of trustees that the pupil is qualified to participate in the class or extracurricular activity.

➔ If the board of trustees of a school district authorizes a pupil to participate in a class or extracurricular activity, excluding sports, pursuant to this subsection, the board of trustees is not required to provide transportation for the pupil to attend the class or activity. The provisions of this subsection do not apply to a pupil who is enrolled in a charter school and who desires to participate on a part-time basis in a program of distance education provided by the board of trustees of a school district pursuant to NRS 388.820 to 388.874, inclusive. Such a pupil must comply with NRS 388.858.

5. Upon the request of a parent or legal guardian of a pupil who is enrolled in a charter school, the board of trustees of the school district in which the pupil resides shall authorize the pupil to participate in sports at the public school that he or she would otherwise be required to attend within the school district, or upon approval of the board of trustees, any public school within the same zone of attendance as the charter school if:

(a) Space is available for the pupil to participate; and

(b) The parent or legal guardian demonstrates to the satisfaction of the board of trustees that the pupil is qualified to participate.

➔ If the board of trustees of a school district authorizes a pupil to participate in sports pursuant to this subsection, the board of trustees is not required to provide transportation for the pupil to participate.

6. The board of trustees of a school district may revoke its approval for a pupil to participate in a class, extracurricular activity or sports at a public school pursuant to subsections 4 and 5 if the board of trustees or the public school determines that the pupil has failed to comply with applicable statutes, or applicable rules and regulations of the board of trustees, the public school or the Nevada Interscholastic Activities Association. If the board of trustees so revokes its approval, neither the board of trustees nor the public school is liable for any damages relating to the denial of services to the pupil.

(Added to NRS by 1997, 1850; A 1999, 3299; 2001, 3133; 2007, 2575; 2009, 934)

NRS 386.563 Solicitation or acceptance of gifts or money from charter school by member of board of trustees or employee of school district prohibited; exception; penalty.

1. Unless otherwise authorized by specific statute, it is unlawful for a member of the board of trustees of a school district or an employee of a school district to solicit or accept any gift or payment of money on his or her own behalf or on behalf of the school district or for any other purpose from a member of a committee to form a charter school, the governing body of a charter school, or any officer or employee of a charter school.

2. This section does not prohibit the payment of a salary or other compensation or income to a member of the board of trustees or an employee of a school district for services provided in accordance with a contract made pursuant to NRS 386.560.

3. A person who violates subsection 1 shall be punished for a misdemeanor.

(Added to NRS by 2001, 3123)

NRS 386.565 Board of trustees prohibited from interfering with operation. The board of trustees of a school district in which a charter school is located shall not:

1. Assign any pupil who is enrolled in a public school in the school district or any employee who is employed in a public school in the school district to a charter school.

2. Interfere with the operation and management of the charter school except as authorized by the written charter, NRS 386.500 to 386.610, inclusive, and any other statute or regulation applicable to charter schools or its officers or employees.

(Added to NRS by 1997, 1848; A 1999, 3300)

NRS 386.570 Count of pupils for apportionment; deposit of money; reimbursement of sponsor for administrative expenses; distribution in first year of operation; payment of remaining apportionments upon cessation of operation; solicitation and acceptance of donations and grants; purchase of real property.

1. Each pupil who is enrolled in a charter school, including, without limitation, a pupil who is enrolled in a program of special education in a charter school, must be included in the count of pupils in the school district for the purposes of apportionments and allowances from the State Distributive School Account pursuant to NRS 387.121 to 387.126, inclusive, unless the pupil is exempt from compulsory attendance pursuant to NRS 392.070. A charter school is entitled to receive its proportionate share of any other money available from federal, state or local sources that the school or the pupils who are enrolled in the school are eligible to receive. If a charter school receives special education program units directly from this State, the amount of money for special education that the school district pays to the charter school may be reduced proportionately by the amount of money the charter school received from this State for that purpose.

2. All money received by the charter school from this State or from the board of trustees of a school district must be deposited in an account with a bank, credit union or other financial institution in this State. The governing body of a charter school may negotiate with the board of trustees of the school district and the State Board for additional money to pay for services which the governing body wishes to offer.

3. Upon completion of each school quarter, the sponsor of a charter school may request reimbursement from the governing body of the charter school for the administrative costs associated with sponsorship for that school quarter if the sponsor provided administrative services during that school quarter. The request must include an itemized list of those costs. Unless a delay is granted pursuant to subsection 9, upon receipt of such a request, the governing body shall pay the reimbursement to the board of trustees of the school district if the board of trustees sponsors the charter school, to the Department if the State Board sponsors the charter

school or to the college or university within the Nevada System of Higher Education if that institution sponsors the charter school. If a governing body fails to pay the reimbursement pursuant to this subsection or pursuant to a plan approved by the Superintendent of Public Instruction in accordance with subsection 9, the charter school shall be deemed to have violated its written charter and the sponsor may take such action to revoke the written charter pursuant to NRS 386.535 as it deems necessary. If the board of trustees of a school district is the sponsor of a charter school, the amount of money that may be paid to the sponsor pursuant to this subsection for administrative expenses in 1 school year must not exceed:

(a) For the first year of operation of the charter school, 2 percent of the total amount of money apportioned to the charter school during the year pursuant to NRS 387.124, as adjusted by the final computation of apportionment pursuant to subsection 4 of NRS 387.1243.

(b) For any year after the first year of operation of the charter school, 1 percent of the total amount of money apportioned to the charter school during the year pursuant to NRS 387.124, as adjusted by the final computation of apportionment pursuant to subsection 4 of NRS 387.1243.

4. If the State Board or a college or university within the Nevada System of Higher Education is the sponsor of a charter school, the amount of money that may be paid to the Department or to the institution, as applicable, pursuant to subsection 3 for administrative expenses in 1 school year must not exceed:

(a) For the first year of operation of the charter school, 2 percent of the total amount of money apportioned to the charter school during the year pursuant to NRS 387.124, as adjusted by the final computation of apportionment pursuant to subsection 4 of NRS 387.1243.

(b) For any year after the first year of operation of the charter school, 1.5 percent of the total amount of money apportioned to the charter school during the year pursuant to NRS 387.124, as adjusted by the final computation of apportionment pursuant to subsection 4 of NRS 387.1243.

5. To determine the amount of money for distribution to a charter school in its first year of operation, the count of pupils who are enrolled in the charter school must initially be determined 30 days before the beginning of the school year of the school district, based on the number of pupils whose applications for enrollment have been approved by the charter school. The count of pupils who are enrolled in the charter school must be revised on the last day of the first school month of the school district in which the charter school is located for the school year, based on the actual number of pupils who are enrolled in the charter school. Pursuant to subsection 5 of NRS 387.124, the governing body of a charter school may request that the apportionments made to the charter school in its first year of operation be paid to the charter school 30 days before the apportionments are otherwise required to be made.

6. If a charter school ceases to operate as a charter school during a school year, the remaining apportionments that would have been made to the charter school pursuant to NRS 387.124 for that year must be paid on a proportionate basis to the school districts where the pupils who were enrolled in the charter school reside.

7. The governing body of a charter school may solicit and accept donations, money, grants, property, loans, personal services or other assistance for purposes relating to education from members of the general public, corporations or agencies. The governing body may comply with applicable federal laws and regulations governing the provision of federal grants for charter schools. The State Board may assist a charter school that operates exclusively for the enrollment of pupils who receive special education in identifying sources of money that may be available from the Federal Government or this State for the provision of educational programs and services to such pupils.

8. If a charter school uses money received from this State to purchase real property, buildings, equipment or facilities, the governing body of the charter school shall assign a security interest in the property, buildings, equipment and facilities to the State of Nevada.

9. The governing body of a charter school may submit to the Superintendent of Public Instruction a written request to delay a quarterly payment of a reimbursement for the administrative costs that a charter school owes pursuant to this section. The written request must be in the form prescribed by the Superintendent and must include, without limitation, documentation that a financial hardship exists for the charter school and a plan for the payment of the reimbursement. The Superintendent may approve or deny the request and shall notify the governing body and the sponsor of the charter school of the approval or denial of the request.

(Added to NRS by 1997, 1852; A 1999, 3300; 2001, 3134; 2005, 2403; 2007, 2576; 2009, 935)

NRS 386.573 Orders for payment of money; limitations.

1. The governing body of a charter school shall designate a person to draw all orders for the payment of money belonging to the charter school. The orders must be listed on cumulative voucher sheets.

2. The governing body of a charter school shall prescribe the procedures by which the orders must be approved and the cumulative voucher sheets signed.

3. An order for the payment of money to a member of the governing body of the charter school may only be drawn for salary, travel expenses, subsistence allowances or for services rendered by the member.

4. An action may not be maintained against any governing body of a charter school or the sponsor of a charter school to collect upon any bill not presented for payment to the governing body within 6 months after the bill was incurred.

(Added to NRS by 1999, 3290)

NRS 386.575 Bankruptcy: Assignment of property to State of Nevada; immunity from liability.

1. If a charter school files a voluntary petition of bankruptcy or is declared bankrupt during a school year, the governing body of the charter school shall make an assignment of all real property and other property of the charter school to the State of Nevada for the repayment of all money received by the charter school from this state for the operation of the charter school during that year. The governing body shall make full settlement with this state for such repayment, and the State may take any lawful action necessary to recover the money.

2. If a charter school files a voluntary petition of bankruptcy or is declared bankrupt during a school year, neither the State of Nevada nor the sponsor of the charter school may be held liable for any claims resulting from the bankruptcy.

(Added to NRS by 1997, 1848; A 1999, 3301)

Fund for Charter Schools

NRS 386.576 Creation; investment; deposit of money; payment of claims; acceptance of gifts and grants.

1. The Fund for Charter Schools is hereby created in the State Treasury as a revolving loan fund, to be administered by the Department.

2. The money in the revolving fund must be invested as other state funds are invested. All interest and income earned on the money in the revolving fund must be credited to the revolving fund. Any money remaining in the revolving fund at the end of a fiscal year does not revert to the State General Fund, and the balance in the Fund must be carried forward.

3. All payments of principal and interest on all the loans made to a charter school from the revolving fund must be deposited in the State Treasury for credit to the revolving fund.

4. Claims against the revolving fund must be paid as other claims against the State are paid.

5. The Department may accept gifts, grants, bequests and donations from any source for deposit in the revolving fund.

(Added to NRS by 2001, 3124)

NRS 386.577 Authorized uses of money in Fund; limitation.

1. After deducting the costs directly related to administering the Fund for Charter Schools, the Department may use the money in the Fund for Charter Schools, including repayments of principal and interest on loans made from the Fund, and interest and income earned on money in the Fund, only to make loans at or below market rate to charter schools for the costs incurred:

(a) In preparing a charter school to commence its first year of operation; and

(b) To improve a charter school that has been in operation.

2. The total amount of a loan that may be made to a charter school in 1 year must not exceed \$25,000.

(Added to NRS by 2001, 3124)

NRS 386.578 Application for loan; requirements of contract for loan; regulations.

1. If the governing body of a charter school has a written charter issued pursuant to NRS 386.527, the governing body may submit an application to the Department for a loan from the Fund for Charter Schools. An application must include a written description of the manner in which the loan will be used to prepare the charter school for its first year of operation or to improve a charter school that has been in operation.

2. The Department shall, within the limits of money available for use in the Fund, make loans to charter schools whose applications have been approved. If the Department makes a loan from the Fund, the Department shall ensure that the contract for the loan includes all terms and conditions for repayment of the loan.

3. The State Board:

(a) Shall adopt regulations that prescribe the:

(1) Annual deadline for submission of an application to the Department by a charter school that desires to receive a loan from the Fund; and

(2) Period for repayment and the rate of interest for loans made from the Fund.

(b) May adopt such other regulations as it deems necessary to carry out the provisions of this section and NRS 386.576 and 386.577.

(Added to NRS by 2001, 3124)

Pupils

NRS 386.580 Application for admission; determination of enrollment; discrimination prohibited; exception for charter school that provides education for certain pupils; participation in class or extracurricular activity by pupil enrolled in another school or homeschooled child.

1. An application for enrollment in a charter school may be submitted to the governing body of the charter school by the parent or legal guardian of any child who resides in this State. Except as otherwise provided in this subsection and subsection 2, a charter school shall enroll pupils who are eligible for enrollment in the order in which the applications are received. If the board of trustees of the school district in which the charter school is located has established zones of attendance pursuant to NRS 388.040, the charter school shall, if practicable, ensure that the racial composition of pupils enrolled in the charter school does not differ by more than 10 percent from

the racial composition of pupils who attend public schools in the zone in which the charter school is located. If a charter school is sponsored by the board of trustees of a school district located in a county whose population is 100,000 or more, except for a program of distance education provided by the charter school, the charter school shall enroll pupils who are eligible for enrollment who reside in the school district in which the charter school is located before enrolling pupils who reside outside the school district. Except as otherwise provided in subsection 2, if more pupils who are eligible for enrollment apply for enrollment in the charter school than the number of spaces which are available, the charter school shall determine which applicants to enroll pursuant to this subsection on the basis of a lottery system.

2. Before a charter school enrolls pupils who are eligible for enrollment, a charter school that is dedicated to providing educational programs and opportunities to pupils who are at risk may enroll a child who:

(a) Is a sibling of a pupil who is currently enrolled in the charter school;

(b) Was enrolled, on the basis of a lottery system, in a prekindergarten program at the charter school or any other early childhood educational program affiliated with the charter school;

(c) Is a child of a person employed in a full-time position by the charter school;

(d) Is in a particular category of at-risk pupils and the child meets the eligibility for enrollment prescribed by the charter school for that particular category; or

(e) Resides within the school district and within 2 miles of the charter school if the charter school is located in an area that the sponsor of the charter school determines includes a high percentage of children who are at risk. If space is available after the charter school enrolls pupils pursuant to this paragraph, the charter school may enroll children who reside outside the school district but within 2 miles of the charter school if the charter school is located within an area that the sponsor determines includes a high percentage of children who are at risk.

↪ If more pupils described in this subsection who are eligible apply for enrollment than the number of spaces available, the charter school shall determine which applicants to enroll pursuant to this subsection on the basis of a lottery system.

3. Except as otherwise provided in subsection 8, a charter school shall not accept applications for enrollment in the charter school or otherwise discriminate based on the:

(a) Race;

(b) Gender;

(c) Religion;

(d) Ethnicity; or

(e) Disability,

↳ of a pupil.

4. If the governing body of a charter school determines that the charter school is unable to provide an appropriate special education program and related services for a particular disability of a pupil who is enrolled in the charter school, the governing body may request that the board of trustees of the school district of the county in which the pupil resides transfer that pupil to an appropriate school.

5. Except as otherwise provided in this subsection, upon the request of a parent or legal guardian of a child who is enrolled in a public school of a school district or a private school, or a parent or legal guardian of a homeschooled child, the governing body of the charter school shall authorize the child to participate in a class that is not otherwise available to the child at his or her school or homeschool or participate in an extracurricular activity at the charter school if:

(a) Space for the child in the class or extracurricular activity is available;

(b) The parent or legal guardian demonstrates to the satisfaction of the governing body that the child is qualified to participate in the class or extracurricular activity; and

(c) The child is a homeschooled child and a notice of intent of a homeschooled child to participate in programs and activities is filed for the child with the school district in which the child resides for the current school year pursuant to NRS 392.705.

↳ If the governing body of a charter school authorizes a child to participate in a class or extracurricular activity pursuant to this subsection, the governing body is not required to provide transportation for the child to attend the class or activity. A charter school shall not authorize such a child to participate in a class or activity through a program of distance education provided by the charter school pursuant to NRS 388.820 to 388.874, inclusive.

6. The governing body of a charter school may revoke its approval for a child to participate in a class or extracurricular activity at a charter school pursuant to subsection 5 if the governing body determines that the child has failed to comply with applicable statutes, or applicable rules and regulations. If the governing body so revokes its approval, neither the governing body nor the charter school is liable for any damages relating to the denial of services to the child.

7. The governing body of a charter school may, before authorizing a homeschooled child to participate in a class or extracurricular activity pursuant to subsection 5, require proof of the identity of the child, including, without limitation, the birth certificate of the child or other documentation sufficient to establish the identity of the child.

8. This section does not preclude the formation of a charter school that is dedicated to provide educational services exclusively to pupils:

(a) With disabilities;

(b) Who pose such severe disciplinary problems that they warrant a specific educational program, including, without limitation, a charter school specifically designed to serve a single gender that emphasizes personal responsibility and rehabilitation; or

(c) Who are at risk.

→ If more eligible pupils apply for enrollment in such a charter school than the number of spaces which are available, the charter school shall determine which applicants to enroll pursuant to this subsection on the basis of a lottery system.

(Added to NRS by 1997, 1850; A 1999, 3301; 2001, 3135; 2003, 2960; 2005, 1537, 1664, 2404, 2540; 2007, 3029; 2009, 261, 580)

NRS 386.582 Transfer of credit.

If a pupil has successfully completed equivalent courses at a charter school, the pupil must be allowed to transfer the credit that the pupil received at the charter school as applicable toward advancement to the next grade at any other public school or toward graduation from any other public school.

(Added to NRS by 1999, 3291)

NRS 386.583 Adoption of rules for academic retention.

The governing body of a charter school shall adopt rules for the academic retention of pupils who are enrolled in the charter school. The rules must prescribe the conditions under which a pupil may be retained in the same grade rather than promoted to the next higher grade for the immediately succeeding school year.

(Added to NRS by 1999, 3291)

NRS 386.584 Issuance of high school diploma; approval of form for diploma by Department.

1. If a charter school provides instruction to pupils enrolled in a high school grade level and the charter school requires those pupils to satisfy requirements for graduation from high school that are less than the requirements imposed by the school district in which the charter school is located, the charter school shall not issue a high school diploma of the school district but may issue a high school diploma which clearly indicates that it is a diploma issued by a charter school. If a charter school requires its pupils to satisfy requirements for graduation from high school that meet or exceed the requirements of the school district in which the charter school is located, the charter school may issue a high school diploma of the school district or a high school diploma of the charter school.

2. A charter school shall submit the form for a diploma of the charter school to the Department for approval if the form differs from the form of the school district in which the charter school is located.

3. The provisions of this section do not authorize a charter school to impose requirements for graduation from high school that are less than the requirements of the applicable state statutes and regulations.

(Added to NRS by 2001, 3124)

NRS 386.585 Adoption and distribution of rules of behavior and punishments; procedure for suspension or expulsion of pupils; adoption of rules for truancy.

1. A governing body of a charter school shall adopt:

(a) Written rules of behavior required of and prohibited for pupils attending the charter school; and

(b) Appropriate punishments for violations of the rules.

2. Except as otherwise provided in subsection 3, if suspension or expulsion of a pupil is used as a punishment for a violation of the rules, the charter school shall ensure that, before the suspension or expulsion, the pupil has been given notice of the charges against him or her, an explanation of the evidence and an opportunity for a hearing. The provisions of chapter 241 of NRS do not apply to any hearing conducted pursuant to this section. Such a hearing must be closed to the public.

3. A pupil who poses a continuing danger to persons or property or an ongoing threat of disrupting the academic process or who is selling or distributing any controlled substance or who is found to be in possession of a dangerous weapon as provided in NRS 392.466 may be removed from the charter school immediately upon being given an explanation of the reasons for his or her removal and pending proceedings, which must be conducted as soon as practicable after removal, for suspension or expulsion of the pupil.

4. A pupil who is enrolled in a charter school and participating in a program of special education pursuant to NRS 388.520, other than a pupil who is gifted and talented or who receives early intervening services, may, in accordance with the procedural policy adopted by the governing body of the charter school for such matters, be:

(a) Suspended from the charter school pursuant to this section for not more than 10 days.

(b) Suspended from the charter school for more than 10 days or permanently expelled from school pursuant to this section only after the governing body has reviewed the circumstances and determined that the action is in compliance with the Individuals with Disabilities Education Act, 20 U.S.C. §§ 1400 et seq.

5. A copy of the rules of behavior, prescribed punishments and procedures to be followed in imposing punishments must be:

(a) Distributed to each pupil at the beginning of the school year and to each new pupil who enters school during the year.

(b) Available for public inspection at the charter school.

6. The governing body of a charter school may adopt rules relating to the truancy of pupils who are enrolled in the charter school if the rules are at least as restrictive as the provisions governing truancy set forth in NRS 392.130 to 392.220, inclusive. If a governing body adopts rules governing truancy, it shall include the rules in the written rules adopted by the governing body pursuant to subsection 1.

(Added to NRS by 1997, 1851; A 2009, 752)

Personnel

NRS 386.588 Fingerprinting of nonlicensed applicants; review of criminal history report by Superintendent of Public Instruction under certain circumstances; prohibition on employment of certain applicants.

1. Each applicant for employment with a charter school, except a licensed teacher or other person licensed by the Superintendent of Public Instruction, must, as a condition to employment, submit to the governing body of the charter school a complete set of the applicant's fingerprints and written permission authorizing the governing body to forward the fingerprints to the Central Repository for Nevada Records of Criminal History for its report on the criminal history of the applicant and for submission to the Federal Bureau of Investigation for its report on the criminal history of the applicant.

2. If the reports on the criminal history of an applicant indicate that the applicant has not been convicted of a felony or an offense involving moral turpitude, the governing body of the charter school may employ the applicant.

3. If a report on the criminal history of an applicant indicates that the applicant has been convicted of a felony or an offense involving moral turpitude and the governing body of the charter school does not disqualify the applicant from further consideration of employment on the basis of that report, the governing body shall, upon the written authorization of the applicant, forward a copy of the report to the Superintendent of Public Instruction. If the applicant refuses to provide his or her written authorization to forward a copy of the report pursuant to this subsection, the charter school shall not employ the applicant.

4. The Superintendent of Public Instruction or the Superintendent's designee shall promptly review the report to determine whether the conviction of the applicant is related or unrelated to the position with the charter school for which the applicant has applied. If the applicant desires employment with the charter school, the applicant shall, upon the request of the Superintendent

of Public Instruction or the Superintendent's designee, provide any further information that the Superintendent or the designee determines is necessary to make the determination. If the governing body of the charter school desires to employ the applicant, the governing body shall, upon the request of the Superintendent of Public Instruction or the Superintendent's designee, provide any further information that the Superintendent or the designee determines is necessary to make the determination. The Superintendent of Public Instruction or the Superintendent's designee shall provide written notice of the determination to the applicant and to the governing body of the charter school.

5. If the Superintendent of Public Instruction or the Superintendent's designee determines that the conviction of the applicant is related to the position with the charter school for which the applicant has applied, the governing body of the charter school shall not employ the applicant. If the Superintendent of Public Instruction or the Superintendent's designee determines that the conviction of the applicant is unrelated to the position with the charter school for which the applicant has applied, the governing body of the charter school may employ the applicant for that position.

(Added to NRS by 2005, 2397)

NRS 386.590 Employment of licensed teachers required for certain instruction; certain teachers required to possess qualifications prescribed by federal law; qualifications of nonlicensed teachers; qualifications and employment of administrators; limitation on salaries of administrators; submission of information to Department.

1. Except as otherwise provided in this subsection, at least 70 percent of the teachers who provide instruction at a charter school must be licensed teachers. If a charter school is a vocational school, the charter school shall, to the extent practicable, ensure that at least 70 percent of the teachers who provide instruction at the school are licensed teachers, but in no event may more than 50 percent of the teachers who provide instruction at the school be unlicensed teachers.

2. A governing body of a charter school shall employ:

(a) If the charter school offers instruction in kindergarten or grade 1, 2, 3, 4, 5, 6, 7 or 8, a licensed teacher to teach pupils who are enrolled in those grades. If required by subsection 3 or 4, such a teacher must possess the qualifications required by 20 U.S.C. § 6319(a).

(b) If the charter school offers instruction in grade 9, 10, 11 or 12, a licensed teacher to teach pupils who are enrolled in those grades for the subjects set forth in subsection 4. If required by subsection 3 or 4, such a teacher must possess the qualifications required by 20 U.S.C. § 6319(a).

(c) In addition to the requirements of paragraphs (a) and (b):

(1) If a charter school specializes in arts and humanities, physical education or health education, a licensed teacher to teach those courses of study.

(2) If a charter school specializes in the construction industry or other building industry, licensed teachers to teach courses of study relating to the industry if those teachers are employed full-time.

(3) If a charter school specializes in the construction industry or other building industry and the school offers courses of study in computer education, technology or business, licensed teachers to teach those courses of study if those teachers are employed full-time.

3. A person who is initially hired by the governing body of a charter school on or after January 8, 2002, to teach in a program supported with money from Title I must possess the qualifications required by 20 U.S.C. § 6319(a). For the purposes of this subsection, a person is not “initially hired” if the person has been employed as a teacher by another school district or charter school in this State without an interruption in employment before the date of hire by his or her current employer.

4. A teacher who is employed by a charter school, regardless of the date of hire, must, on or before July 1, 2006, possess the qualifications required by 20 U.S.C. § 6319(a) if the teacher teaches one or more of the following subjects:

(a) English, reading or language arts;

(b) Mathematics;

(c) Science;

(d) Foreign language;

(e) Civics or government;

(f) Economics;

(g) Geography;

(h) History; or

(i) The arts.

5. Except as otherwise provided in NRS 386.588, a charter school may employ a person who is not licensed pursuant to the provisions of chapter 391 of NRS to teach a course of study for which a licensed teacher is not required pursuant to subsections 2, 3 and 4 if the person has:

(a) A degree, a license or a certificate in the field for which the person is employed to teach at the charter school; and

(b) At least 2 years of experience in that field.

6. Except as otherwise provided in NRS 386.588, a charter school shall employ such administrators for the school as it deems necessary. A person employed as an administrator must possess:

(a) A valid teacher's license issued pursuant to chapter 391 of NRS with an administrative endorsement;

(b) A master's degree in school administration, public administration or business administration; or

(c) At least 5 years of experience in school administration, public administration or business administration and a baccalaureate degree.

7. Except as otherwise provided in subsection 8, the portion of the salary or other compensation of an administrator employed by a charter school that is derived from public funds must not exceed the salary or other compensation, as applicable, of the highest paid administrator in a comparable position in the school district in which the charter school is located. For purposes of determining the salary or other compensation of the highest paid administrator in a comparable position in the school district, the salary or other compensation of the superintendent of schools of that school district must not be included in the determination.

8. If the salary or other compensation paid to an administrator employed by a charter school from public funds exceeds the maximum amount prescribed in subsection 7, the sponsor of the charter school shall conduct an audit of the salary or compensation. The audit must include, without limitation, a review of the reasons set forth by the governing body of the charter school for the salary or other compensation and the interests of the public in using public funds to pay that salary or compensation. If the sponsor determines that the payment of the salary or other compensation from public funds is justified, the sponsor shall provide written documentation of its determination to the governing body of the charter school and to the Department. If the sponsor determines that the payment of the salary or other compensation from public funds is not justified, the governing body of the charter school shall reduce the salary or compensation paid to the administrator from public funds to an amount not to exceed the maximum amount prescribed in subsection 7.

9. A charter school shall not employ a person pursuant to this section if the person's license to teach or provide other educational services has been revoked or suspended in this State or another state.

10. On or before November 15 of each year, a charter school shall submit to the Department, in a format prescribed by the Superintendent of Public Instruction, the following information for each licensed employee who is employed by the governing body on October 1 of that year:

(a) The amount of salary of the employee, including, without limitation, verification of compliance with subsection 7, if applicable to that employee; and

(b) The designated assignment, as that term is defined by the Department, of the employee.

(Added to NRS by 1997, 1852; A 1999, 3302; 2001, 3137; 2003, 19th Special Session, 44; 2005, 2406, 2542; 2007, 1258)

NRS 386.593 Certain paraprofessionals required to possess qualifications prescribed by federal law.

1. A person who is initially hired as a paraprofessional by a charter school after January 8, 2002, to work in a program supported with Title I money must possess the qualifications required by 20 U.S.C. § 6319(c).

2. A person who is employed as a paraprofessional by a charter school, regardless of the date of hire, to work in a program supported with Title I money must possess, on or before January 8, 2006, the qualifications required by 20 U.S.C. § 6319(c).

3. For the purposes of this section, a person is not “initially hired” if the person has been employed as a paraprofessional by another school district or charter school in this State without an interruption in employment before the date of hire by his or her current employer.

4. As used in this section, “paraprofessional” has the meaning ascribed to it in NRS 391.008.

(Added to NRS by 2003, 19th Special Session, 44)

NRS 386.595 Employment status; applicability of collective bargaining agreement; reassignment upon revocation of charter or cessation of operation; leave of absence to accept employment with charter school; reinstatement; eligibility for benefits.

1. All employees of a charter school shall be deemed public employees.

2. The governing body of a charter school may make all decisions concerning the terms and conditions of employment with the charter school and any other matter relating to employment with the charter school. In addition, the governing body may make all employment decisions with regard to its employees pursuant to NRS 391.311 to 391.3197, inclusive, unless a collective bargaining agreement entered into by the governing body pursuant to chapter 288 of NRS contains separate provisions relating to the discipline of licensed employees of a school.

3. Except as otherwise provided in this subsection, if the written charter of a charter school is revoked or if a charter school ceases to operate as a charter school, the employees of the charter school must be reassigned to employment within the school district in accordance with the applicable collective bargaining agreement. A school district is not required to reassign an employee of a charter school pursuant to this subsection if the employee:

(a) Was not granted a leave of absence by the school district to teach at the charter school pursuant to subsection 4; or

(b) Was granted a leave of absence by the school district and did not submit a written request to return to employment with the school district in accordance with subsection 4.

4. The board of trustees of a school district that is a sponsor of a charter school shall grant a leave of absence, not to exceed 3 years, to any employee who is employed by the board of trustees who requests such a leave of absence to accept employment with the charter school. After the first school year in which an employee is on a leave of absence, the employee may return to his or her former teaching position with the board of trustees. After the third school year, an employee shall either submit a written request to return to a comparable teaching position or resign from the position for which the employee's leave was granted. The board of trustees shall grant a written request to return to a comparable position pursuant to this subsection even if the return of the employee requires the board of trustees to reduce the existing workforce of the school district. The board of trustees may require that a request to return to a teaching position submitted pursuant to this subsection be submitted at least 90 days before the employee would otherwise be required to report to duty.

5. An employee who is on a leave of absence from a school district pursuant to this section:

(a) Shall contribute to and be eligible for all benefits for which the employee would otherwise be entitled, including, without limitation, participation in the Public Employees' Retirement System and accrual of time for the purposes of leave and retirement.

(b) Continues, while the employee is on leave, to be covered by the collective bargaining agreement of the school district only with respect to any matter relating to his or her status or employment with the district.

➔ The time during which such an employee is on a leave of absence and employed in a charter school does not count toward the acquisition of permanent status with the school district.

6. Upon the return of a teacher to employment in the school district, the teacher is entitled to the same level of retirement, salary and any other benefits to which the teacher would otherwise be entitled if the teacher had not taken a leave of absence to teach in a charter school.

7. An employee of a charter school who is not on a leave of absence from a school district is eligible for all benefits for which the employee would be eligible for employment in a public school, including, without limitation, participation in the Public Employees' Retirement System.

8. For all employees of a charter school:

(a) The compensation that a teacher or other school employee would have received if he or she were employed by the school district must be used to determine the appropriate levels of contribution required of the employee and employer for purposes of the Public Employees' Retirement System.

(b) The compensation that is paid to a teacher or other school employee that exceeds the compensation that the employee would have received if he or she were employed by the school district must not be included for the purposes of calculating future retirement benefits of the employee.

9. If the board of trustees of a school district in which a charter school is located manages a plan of group insurance for its employees, the governing body of the charter school may negotiate with the board of trustees to participate in the same plan of group insurance that the board of trustees offers to its employees. If the employees of the charter school participate in the plan of group insurance managed by the board of trustees, the governing body of the charter school shall:

(a) Ensure that the premiums for that insurance are paid to the board of trustees; and

(b) Provide, upon the request of the board of trustees, all information that is necessary for the board of trustees to provide the group insurance to the employees of the charter school.

(Added to NRS by 1997, 1853; A 1999, 3303; 2001, 1497, 3138, 3165; 2003, 223; 2005, 1665, 2408, 2543)

Reports Required of Governing Body and Sponsor

NRS 386.600 Annual reports of budget required; compilation of reports by Superintendent of Public Instruction.

1. On or before November 15 of each year, the governing body of each charter school shall submit to the sponsor of the charter school, the Superintendent of Public Instruction and the Director of the Legislative Counsel Bureau for transmission to the Majority Leader of the Senate and the Speaker of the Assembly a report that includes:

(a) A written description of the progress of the charter school in achieving the mission and goals of the charter school set forth in its application.

(b) For each fund maintained by the charter school, including, without limitation, the general fund of the charter school and any special revenue fund which receives state money, the total number and salaries of licensed and nonlicensed persons whose salaries are paid from the fund and who are employed by the governing body in full-time positions or in part-time positions added together to represent full-time positions. Information must be provided for the current school year based upon the final budget of the charter school, including any amendments and augmentations thereto, and for the preceding school year. An employee must be categorized as filling an instructional, administrative, instructional support or other position.

(c) The actual expenditures of the charter school in the fiscal year immediately preceding the report.

(d) The proposed expenditures of the charter school for the current fiscal year.

(e) The salary schedule for licensed employees and nonlicensed teachers in the current school year and a statement of whether salary negotiations for the current school year have been completed. If salary negotiations have not been completed at the time the salary schedule is

submitted, the governing body shall submit a supplemental report to the Superintendent of Public Instruction upon completion of negotiations.

(f) The number of employees eligible for health insurance within the charter school for the current and preceding fiscal years and the amount paid for health insurance for each such employee during those years.

(g) The rates for fringe benefits, excluding health insurance, paid by the charter school for its licensed employees in the preceding and current fiscal years.

(h) The amount paid for extra duties, supervision of extracurricular activities and supplemental pay and the number of employees receiving that pay in the preceding and current fiscal years.

2. On or before November 25 of each year, the Superintendent of Public Instruction shall submit to the Department of Administration and the Fiscal Analysis Division of the Legislative Counsel Bureau, in a format approved by the Director of the Department of Administration, a compilation of the reports made by each governing body pursuant to subsection 1.

3. The Superintendent of Public Instruction shall, in the compilation required by subsection 2, reconcile the revenues and expenditures of the charter schools with the apportionment received by those schools from the State Distributive School Account for the preceding year.

(Added to NRS by 1997, 1855; A 2009, 937)

NRS 386.605 Submission of accountability information to school district; review of accountability information by consultant. [Effective through June 30, 2010.]

1. On or before July 15 of each year, the governing body of a charter school shall submit the information concerning the charter school that is required pursuant to subsection 2 of NRS 385.347 to the board of trustees of the school district in which the charter school is located for inclusion in the report of the school district pursuant to that section. The information must be submitted by the charter school in a format prescribed by the board of trustees.

2. The Legislative Bureau of Educational Accountability and Program Evaluation created pursuant to NRS 218E.625 may authorize a person or entity with whom it contracts pursuant to NRS 385.359 to review and analyze information submitted by charter schools pursuant to this section and NRS 385.357, consult with the governing bodies of charter schools and submit written reports concerning charter schools pursuant to NRS 385.359.

(Added to NRS by 1997, 1847; A 1999, 2664, 3305; 2001, 1482, 3140; 2003, 19th Special Session, 46; 2005, 1174, 2409, 2545; 2007, 1958)

NRS 386.605 Submission of accountability information to school district; review of accountability information by consultant. [Effective July 1, 2010.]

1. On or before July 15 of each year, the governing body of a charter school shall submit the information concerning the charter school that is required pursuant to subsection 2 of NRS 385.347 to the board of trustees of the school district in which the charter school is located for inclusion in the report of the school district pursuant to that section. The information must be submitted by the charter school in a format prescribed by the board of trustees.

2. The Legislative Bureau of Educational Accountability and Program Evaluation created pursuant to NRS 218E.625 may authorize a person or entity with whom it contracts pursuant to NRS 385.359 to review and analyze information submitted by charter schools pursuant to this section and pursuant to NRS 385.357, 385.3745 or 385.3746, whichever is applicable for the school, consult with the governing bodies of charter schools and submit written reports concerning charter schools pursuant to NRS 385.359.

(Added to NRS by 1997, 1847; A 1999, 2664, 3305; 2001, 1482, 3140; 2003, 19th Special Session, 46; 2005, 1174, 2409, 2545; 2007, 1958; 2009, 2326, effective July 1, 2010)

NRS 386.610 Annual report by sponsor of charter school; report of progress by governing body.

1. On or before August 15 of each year, if the State Board, the board of trustees of a school district or a college or university within the Nevada System of Higher Education sponsors a charter school, the Department, the board of trustees or the institution, as applicable, shall submit a written report to the State Board. The written report must include:

(a) An evaluation of the progress of each charter school sponsored by the State Board, the board of trustees or the institution, as applicable, in achieving its educational goals and objectives.

(b) A description of all administrative support and services provided by the Department, the school district or the institution, as applicable, to the charter school.

2. The governing body of a charter school shall, after 3 years of operation under its initial charter, submit a written report to the sponsor of the charter school. The written report must include a description of the progress of the charter school in achieving its educational goals and objectives. If the charter school submits an application for renewal in accordance with the regulations of the Department, the sponsor may renew the written charter of the school pursuant to subsection 2 of NRS 386.530.

(Added to NRS by 1997, 1847; A 2001, 3141; 2005, 2410, 2546; 2007, 2577; 2009, 916, 938)

NEVADA DEPARTMENT of EDUCATION
Administrative and Fiscal Services

Charter School and University School Directory

Updated: March 10, 2010 (New FY2010 Charter Schools)
Updated Material Highlighted in Red

[1] CHARTER SCHOOLS

Academy for Career Education

School Year Begun Operation: 2002-2003 (FY2003)
Sponsor: Washoe County School District
Grades: 9-12
Director: Adam Nicely, anicely@acehighschool.org
Principal: Bob DeRuse, bderuse@acehighschool.org
Mailing Address: 2800 Vassar Street, Reno, NV 89502
Physical Address: same
Phone: 775.324.3900 x12
FAX: 775.324.3901
Website: www.acehighschool.org

Alpine Academy

School Year Begun Operation: 2009-2010 (FY2010)
Sponsor: State Board of Education
Grades: 9-12
Principal: Jill Petersen, jpetersen@alpineacademy.net
Mailing Address: 605 Boxington, Suite 112, Sparks, NV 89436
Physical Addresses: same
Phone: 775.356.1166
FAX: 775.356.1168
Website: www.alpineacademy.net

Andre Agassi College Preparatory Academy

School Year Begun Operation: 2001-2002 (FY2002)
Sponsor: Clark County School District
Grades: K-12
Chancellor: Marsha Irvin, chancellor@agassiprep.net
Mailing Address: 1201 West Lake Mead Boulevard, Las Vegas NV 89106
Physical Address: same
Phone: 702.948.6000
FAX: 702.948.6002
Website: www.agassiprep.org

Bailey Charter Elementary School

School Year Begun Operation: 2001-2002 (FY2002)
Sponsor: Washoe County School District
Grades: K-6
Administrator/Principal: Michelle Engebretson, mengebretson@baileycharter.org
Mailing Address: 1090 Bresson Avenue, Reno NV 89502
Physical Address: same
Phone: 775.323.6767
FAX: 775.323.6799

Website: www.baileycharter.org

Beacon Academy of Nevada (formerly Insight School of Nevada) (Distance Education)

School Year Begun Operation: 2008-2009 (FY2009)

Sponsor: State Board of Education

Grades: 9-12

Director: Gary Waters, gwaters@banv.org

Principal: Michael Opp, Michael.opp@banv.org

Mailing Address: 8970 West Tropicana Avenue, Suite 6, Las Vegas NV 89147

Physical Address: same

Phone: 702.538.9501

FAX: 702.538.9500

Website: www.beaconacademynv.org

Carson Montessori School

School Year Begun Operation: 2004-2005 (FY2005)

Sponsor: Carson City School District

Grades: K-6

Administrator/Principal: Jessica Daniels, jdaniels@carson.k12.nv.us

Mailing Address: 2263 Mouton Drive, Carson City, NV 89706

Physical Address: same

Phones: 775.887.9500 and 775.887.9501

FAX: 775.887.9502

Website: www.carsonmontessori.com

Coral Academy of Science-Reno

School Year Begun Operation: 2000-2001 (FY2001)

Sponsor: Washoe County School District

Grades: K-12

Executive Director: Erdinc Acar, eacar@coralacademy.org

Mailing Address: 1350 East Ninth Street, Reno NV 89512

Physical Address (Elementary): 1701 Valley Road, Reno NV 89512

Physical Address (Secondary): 1350 East Ninth Street, Reno NV 89512

Phone: 775.323.2332 x114

FAX: 775.323.2366

Website: www.coralacademy.org

Coral Academy of Science-Las Vegas

School Year Begun Operation: 2007-2008 (FY2008)

Sponsor: State Board of Education

Grades: K-10

Administrator/Principal: Feyzi Tandogan, ftandogan@coralacademylv.org

Mailing Address: 8185 Tamarus Street, Las Vegas NV 89123

Physical Address: same

Phone: 702.269.8512

FAX: 702.269.3258

Website: www.coralacademylv.org

Elko Institute for Academic Achievement

School Year Begun Operation: 2009-2010 (FY2010)

Sponsor: State Board of Education

Grades: K-8

Administrator/Principal/Director: Pat Tsunemori, tsuno@elkocharterschool.com

Mailing Address: 1031 Railroad Street, Suite 107, Elko, NV 89801
Physical Addresses: same
Phone: 775.738.3422
FAX: 775.738.3488
Website: www.elkocharterschool.com

Explore Knowledge Academy

School Year Begun Operation: 2003-2004 (FY2004)
Sponsor: Clark County School District
Grades: K-12
Administrator/Principal: Donnie Houston, dhouston@ekacademy.org
Mailing Address: 1711 Whitney Mesa Drive, Suite 140, Henderson, NV 89014
Physical Addresses: 4801 South Sandhill Road and 4845 Community Lane, Las Vegas, NV 89121
Phone: 702.870.5032
FAX: 702.871.5032
Website: www.ekacademy.org

High Desert Montessori School

School Year Begun Operation: 2002-2003 (FY2003)
Sponsor: Washoe County School District
Grades: K-8 (K-7 currently)
Principal: Carol Andrew, principal@hdmschoolnv.org
Mailing Address: 2590 Orovada Street, Reno, NV 89512
Physical Address: same
Phone: 775.624.2800 x105
FAX: 775.624.2801
Website: www.highdesertmontessori.org

I Can Do Anything Charter High School

School Year Begun Operation: 1998-1999 (FY1999)
Sponsor: Washoe County School District
Grades: 9-12
Principal: Allen Beebe, abeebe@icdachs.com
Mailing Address: 1195 Corporate Boulevard, Suite C, Reno NV 89502
Physical Address: same
Phone: 775.857.1544
FAX: 775.857.6825
Website: www.icdachs.com

Imagine School in the Valle

School Year Begun Operation: 2008-2009 (FY2009)
Sponsor: State Board of Education
Grades: K-8
Principal: Connie Burch, Connie.Burch@imagineschools.com
Mailing Address: 3521 North Durango Drive (YMCA Building), Las Vegas, NV 89129
Physical Address: (Temporary location in the YMCA Durango Hills Building)
Phone: 702.631.4751
FAX: 702.395.1115
Website: www.imaginevalle.com

Innovations International Charter School of Nevada

School Year Begun Operation: 2006-2007 (FY2007)

Sponsor: Clark County School District
Grades: K-12
Chief Education Officer: Dr. Connie Malin, connie.malin@iicsn.org
Mailing Address: 1600 East Oakey Boulevard, Las Vegas, NV 89104
Physical Address: same
Phone: 702.216.4337
FAX: 702.216.4353
Website: www.iicsn.org

Las Vegas Charter School of the Deaf

School Year Begun Operation: 2008-2009 (FY2009)
Sponsor: Clark County School District
Grades: K-3
Director: Cathy Bennett, cbennett@lvcsd.org
Mailing Address: 1951 Rainbow Boulevard, Las Vegas, NV 89146
Physical Address: same
Phone: 702.385.3323
FAX: 702.838.3323
Website: www.lvcsd.org

Mariposa Academy of Language and Learning

School Year Begun Operation: 2002-2003 (FY2003)
Sponsor: Washoe County School District
Grades: K-5
Principal: Maria Sandra Jimenez, director.mariposa@gmail.com
Mailing Address: 3875 Glen Street, Reno NV 89502
Physical Address: same
Phone: 775.826.4040
FAX: 775.826.4030
Website: www.mariposaacademy.net

Nevada Connections Academy (Distance Education)

School Year Begun Operation: 2007-2008 (FY2008)
Sponsor: State Board of Education
Grades: K-12
Principal: Jerry Krummel, gkrummel@connectionsacademy.com
Mailing Address: 5690 Riggins Court, Suite B, Reno, NV 89502
Physical Address: same
Phone: 775.826.4200 x301
FAX: 775.826.4288
Website: www.connectionsacademy.com (Nevada link)

Nevada State High School

School Year Begun Operation: 2004-2005 (FY2005)
Sponsor: State Board of Education
Grades: 11-12
Executive Director: Dr. John Hawk, hawkj1@earlycollegeNV.com
Mailing Address: 303 South Water Street; Suite 120, Henderson, NV 89015
Physical Address: same
Phone: 702.953.2600
Cell: 702.808.3373
FAX: 702.953.2608
Website: www.earlycollegeNV.com

Nevada Virtual Academy (Distance Education)

School Year Begun Operation: 2007-2008 (FY2008)

Sponsor: State Board of Education

Grades: K-12

Principal: Mike Kazek, mkazek@nvvacademy.org

Mailing Address: 187 East Warm Springs Road, Suite C, Las Vegas, NV 89119

Physical Address: same

Phone: 702.407.1825 x7001

FAX: 702.407.5055

Cell: 702.219.6998

Website: www.k12.com/nvva

Odyssey Charter Schools (Distance Education)

School Year Begun Operation: 1999-2000 (FY2000)

Sponsor: Clark County School District

Grades: K-12

Principal: Dr. Michele Robinson, mrobinson@odysseyk12.org

Mailing Address: 2251 South Jones Boulevard, Las Vegas NV 89146

Physical Address: same

Phone: 702.257.0578

FAX: 702.259.7793

Website: www.odysseyk12.org

100 Academy of Excellence

School Year Begun Operation: 2006-2007 (FY2007)

Sponsor: Clark County School District

Grades: K-12 (K-8 currently)

Principal: Christopher Hall (Interim), Christopher.hall@imagineschools.com

Mailing Address: 2341 Comstock Drive, North Las Vegas NV 89032

Physical Address: same

Phone: 702.636.2551

FAX: 702.636.9475

Website: www.imagineschools.com

Rainbow Dreams Academy

School Year Begun Operation: 2007-2008 (FY2008)

Sponsor: Clark County School District

Grades: K-5 (K-4 Currently)

Principal: Roxie Witt-Davis, rd charter@yahoo.com

Mailing Address: 950 West Lake Mead Boulevard, Las Vegas, Nevada 89106

Physical Address: same

Phone: 702.638.0222

FAX: 702.638.0220

Website: www.rainbowdreamsacademy.com

Rainshadow Community Charter High School

School Year Begun Operation: 2003-2004 (FY2004)

Sponsor: Washoe County School District

Grades: 9-12

Principal: Steve West, steve@rainshadowcchs.org

Mailing Address: 121 Vesta Street, Reno NV 89502

Physical Address: same

Phone: 775.322.5566
FAX: 775.322.5509
Website: www.rainshadowcchs.org

Sierra Crest Academy

School Year Begun Operation: 2004-2005 (FY2005)
Sponsor: Douglas County School District
Grades: K-12 (7-12 currently)
Director: David Brackett, brackett@sierracrestacademy.org
Mailing Address: P.O. Box 2439, Minden NV 89423
Physical Address: 1701 Lucerne Street, Minden NV 89423
Phone: 775.783.9002
FAX: 775.552.9815
Website: www.sierracrest.org

Sierra Nevada Academy

School Year Begun Operation: 1999-2000 (FY2000)
Sponsor: Washoe County School District
Grades: K-8
Principal: Kim Regan, kregan@snacs.org
Mailing Address: 13880 Stead Boulevard, Reno NV 89506
Physical Address: same
Phone: 775.677.4500 x31
FAX: 775.677.4441
Website: www.snacs.org

Silver Sands Montessori Charter School

School Year Begun Operation: 2009-2010 (FY2010)
Sponsor: State Board of Education
Grades: K-5 (expanding to K-8)
Executive Director: Dr. Carol White, carol@silversandsmcs.org
Mailing Address: 1841 Whitney Mesa Drive, Henderson, NV 89014
Physical Addresses: same
Phone: 702.522.6220
FAX: 702.522.6218
Website: www.silversandsmcs.org

Silver State High School (Distance Education)

School Year Begun Operation: 2004-2005 (FY2005)
Sponsor: State Board of Education
Grades: 7-12
Director: Steve Knight, sknight@sshs.org
Principal: Alan Staggs, astaggs@sshs.org
Mailing Address: 3719 North Carson Street, Carson City NV 89706
Physical Address: same
Phone: 775.883.7900
FAX: 775.883.9130
Website: www.SSHS.org

The Delta Academy (formerly WestCare Charter School) (Distance Education)

School Year Begun Operation: 2007-2008 (FY2008)
Sponsor: Clark County School District
Grades: 7-12

Director: Dr. Kyle Konold, kyle_konold@deltaacademylv.com
Principal: Bruce Congleton, Bruce_congleton@deltaacademylv.com
Mailing Address: 4075 North Rancho, Las Vegas NV 89130
Physical Address: same
Phone: 702.396.2252
FAX: 702.396.0848
Website: www.deltaacademyLV.com

[2] UNIVERSITY SCHOOLS FOR THE PROFOUNDLY GIFTED PUPILS

The Davidson Academy of Nevada (Serving Profoundly Gifted Students)
School Year Begun Operation: 2006-2007 (FY2007)
School Year State Payments Began: 2007-2008 (FY2008)
Sponsor: None (University of Nevada, Reno / Washoe County School District)
Grades: Ungraded (non-traditional grades)
Administrator/Director: Colleen Harsin, charsin@DavidsonAcademy.UNR.edu
Mailing Address: P.O. Box 9119, Reno, NV 89507
Physical Address: 1164 North Virginia Street/MS 450, Reno, NV 89557
Phone: 775.682.5800
FAX: 775.682-5801
Website: www.DavidsonAcademy.UNR.edu

NRS 385.007 Definitions.

As used in this title, unless the context otherwise requires:

1. “Charter school” means a public school that is formed pursuant to the provisions of NRS 386.500 to 386.610, inclusive.

2. “Department” means the Department of Education.

3. “Homeschooled child” means a child who receives instruction at home and who is exempt from compulsory attendance pursuant to NRS 392.070.

4. “Limited English proficient” has the meaning ascribed to it in 20 U.S.C. § 7801(25).

5. “Public schools” means all kindergartens and elementary schools, junior high schools and middle schools, high schools, charter schools and any other schools, classes and educational programs which receive their support through public taxation and, except for charter schools, whose textbooks and courses of study are under the control of the State Board.

6. “State Board” means the State Board of Education.

7. “University school for profoundly gifted pupils” has the meaning ascribed to it in NRS 392A.040.

(Added to NRS by 1979, 1563; A 1997, 1840; 1999, 3289; 2003, 2958; 2003, 19th Special Session, 34; 2005, 2428)

NRS 387.124 Apportionments to school districts, charter schools and university schools for profoundly gifted pupils; request for advance by charter school or university school.

Except as otherwise provided in this section and NRS 387.528:

1. On or before August 1, November 1, February 1 and May 1 of each year, the Superintendent of Public Instruction shall apportion the State Distributive School Account in the State General Fund among the several county school districts, charter schools and university schools for profoundly gifted pupils in amounts approximating one-fourth of their respective yearly apportionments less any amount set aside as a reserve. The apportionment to a school district, computed on a yearly basis, equals the difference between the basic support and the local funds available pursuant to NRS 387.1235, minus all the funds attributable to pupils who reside in the county but attend a charter school, all the funds attributable to pupils who reside in the county and are enrolled full-time or part-time in a program of distance education provided by another school district or a charter school and all the funds attributable to pupils who are enrolled in a university school for profoundly gifted pupils located in the county. No apportionment may be made to a school district if the amount of the local funds exceeds the amount of basic support.

2. Except as otherwise provided in subsection 3, the apportionment to a charter school, computed on a yearly basis, is equal to the sum of the basic support per pupil in the county in which the pupil resides plus the amount of local funds available per pupil pursuant to NRS 387.1235 and all other funds available for public schools in the county in which the pupil resides minus all the funds attributable to pupils who are enrolled in the charter school but are concurrently enrolled part-time in a program of distance education provided by a school district or another charter school. If the apportionment per pupil to a charter school is more than the amount to be apportioned to the school district in which a pupil who is enrolled in the charter school resides, the school district in which the pupil resides shall pay the difference directly to the charter school.

3. The apportionment to a charter school that is sponsored by the State Board or by a college or university within the Nevada System of Higher Education, computed on a yearly basis, is equal to the sum of the basic support per pupil in the county in which the pupil resides plus the amount of local funds available per pupil pursuant to NRS 387.1235 and all other funds available for public schools in the county in which the pupil resides, minus all funds attributable to pupils who are enrolled in the charter school but are concurrently enrolled part-time in a program of distance education provided by a school district or another charter school.

4. In addition to the apportionments made pursuant to this section, an apportionment must be made to a school district or charter school that provides a program of distance education for each pupil who is enrolled part-time in the program. The amount of the apportionment must be equal to the percentage of the total time services are provided to the pupil through the program of distance education per school day in proportion to the total time services are provided during a school day to pupils who are counted pursuant to subparagraph (2) of paragraph (a) of subsection 1 of NRS 387.1233 for the school district in which the pupil resides.

5. The governing body of a charter school may submit a written request to the Superintendent of Public Instruction to receive, in the first year of operation of the charter

school, an apportionment 30 days before the apportionment is required to be made pursuant to subsection 1. Upon receipt of such a request, the Superintendent of Public Instruction may make the apportionment 30 days before the apportionment is required to be made. A charter school may receive all four apportionments in advance in its first year of operation.

6. The apportionment to a university school for profoundly gifted pupils, computed on a yearly basis, is equal to the sum of the basic support per pupil in the county in which the university school is located plus the amount of local funds available per pupil pursuant to NRS 387.1235 and all other funds available for public schools in the county in which the university school is located. If the apportionment per pupil to a university school for profoundly gifted pupils is more than the amount to be apportioned to the school district in which the university school is located, the school district shall pay the difference directly to the university school. The governing body of a university school for profoundly gifted pupils may submit a written request to the Superintendent of Public Instruction to receive, in the first year of operation of the university school, an apportionment 30 days before the apportionment is required to be made pursuant to subsection 1. Upon receipt of such a request, the Superintendent of Public Instruction may make the apportionment 30 days before the apportionment is required to be made. A university school for profoundly gifted pupils may receive all four apportionments in advance in its first year of operation.

7. The Superintendent of Public Instruction shall apportion, on or before August 1 of each year, the money designated as the "Nutrition State Match" pursuant to NRS 387.105 to those school districts that participate in the National School Lunch Program, 42 U.S.C. §§ 1751 et seq. The apportionment to a school district must be directly related to the district's reimbursements for the Program as compared with the total amount of reimbursements for all school districts in this State that participate in the Program.

8. If the State Controller finds that such an action is needed to maintain the balance in the State General Fund at a level sufficient to pay the other appropriations from it, the State Controller may pay out the apportionments monthly, each approximately one-twelfth of the yearly apportionment less any amount set aside as a reserve. If such action is needed, the State Controller shall submit a report to the Department of Administration and the Fiscal Analysis Division of the Legislative Counsel Bureau documenting reasons for the action.

(Added to NRS by 1967, 890; A 1969, 1174; 1971, 519; 1973, 1424; 1975, 1376, 1741; 1977, 701; 1979, 1588; 1983, 1907; 1987, 420; 1993, 1430; 1995, 2486; 1997, 1862, 2710; 1999, 599, 3308; 2001, 3145; 2005, 1262, 2413; 2007, 1203, 1990, 2578)

NRS 386.720 Establishment of Program; required percentage of empowerment schools in certain counties; limitation on total number of empowerment schools statewide; membership and duties of school district design team; acceptance of gifts and grants by school district. [Effective through June 30, 2011.]

1. There is hereby established a Program of Empowerment Schools for public schools within this State. The Program does not include a university school for profoundly gifted pupils.

2. Except as otherwise provided in this subsection, the board of trustees of a school district which is located:

(a) In a county whose population is less than 100,000 may approve public schools located within the school district to operate as empowerment schools.

(b) In a county whose population is 100,000 or more shall approve not less than 5 percent of the schools located within the school district to operate as empowerment schools.

↪ The total number of schools which operate as empowerment schools in this State must not exceed 100 schools. The Department shall adopt procedures to ensure compliance with the provisions of this subsection.

3. The board of trustees of a school district which participates in the Program of Empowerment Schools shall, on or before September 1 of each year, provide notice to the Department of the number of schools within the school district that are approved to operate as empowerment schools for that school year.

4. The board of trustees of a school district that participates in the Program of Empowerment Schools may create a design team for the school district. If such a design team is created, the membership of the design team must consist of the following persons appointed by the board of trustees:

(a) At least one representative of the board of trustees;

(b) The superintendent of the school district, or the superintendent's designee;

(c) Parents and legal guardians of pupils enrolled in public schools in the school district;

(d) Teachers and other educational personnel employed by the school district, including, without limitation, school administrators;

(e) Representatives of organizations that represent teachers and other educational personnel;

(f) Representatives of the community in which the school district is located and representatives of businesses within the community; and

(g) Such other members as the board of trustees determines are necessary.

5. If a design team is created for a school district, the design team shall:

(a) Recommend policies and procedures relating to empowerment schools to the board of trustees of the school district; and

(b) Advise the board of trustees on issues relating to empowerment schools.

6. The board of trustees of a school district may accept gifts, grants and donations from any source for the support of the empowerment schools within the school districts.

(Added to NRS by 2007, 3277)

PROGRAMS OF SCHOOL-BASED DECISION MAKING FOR PUBLIC SCHOOLS WITHIN DISTRICT

NRS 386.4154 Authority of board of trustees to prescribe rules relating to creation and administration of program.

The board of trustees of a school district may prescribe rules relating to the creation and administration of a program of school-based decision making for the public schools within the district. The rules must provide:

1. For the creation of a school council;
2. For the involvement of parents and other members of the community on and with the school council;
3. The requirements for recordkeeping by the school council;
4. The procedure for appealing a decision of the school council;
5. The procedure for a school to obtain a waiver of the requirements of regulations of the board of trustees or the State Board;
6. A method for determining the progress of a pupil in a program of school-based decision making;
7. A method for reporting the progress of a pupil to the pupil, the pupil's parents or guardians, the board of trustees and the State Board;
8. Plans for improving the schools within the district;
9. A method for allocating money to schools that have adopted a program of school-based decision making and for the administration of the budget of the school district; and
10. The procedure which a school council or board of trustees may use to withdraw from a program of school-based decision making.

(Added to NRS by 1993, 2886; A 1995, 862; 1997, 2357)

NRS 386.4156 Authority of board of trustees to waive requirements of regulations for public school adopting program.

The board of trustees of a school district may waive the requirements of regulations of the board of trustees and the State Board for a public school within the district that adopts a program of school-based decision making. The board of trustees may not waive statutory requirements.

(Added to NRS by 1993, 2887; A 1995, 862; 1997, 2357)

NRS 386.4158 Authority of State Board of Education to waive required course of study for school council created pursuant to program.

The State Board may waive a course of study otherwise required by statute upon application of the board of trustees of a school district on behalf of a school council created pursuant to a program of school-based decision making.

(Added to NRS by 1993, 2887; A 1995, 862; 1997, 2357)

CLARK COUNTY SCHOOL DISTRICT EMPOWERMENT SCHOOLS

Why do we believe in the Empowerment of principal, staff, and community?

- Critical decisions impacting instruction should be made at the school site level in order to:
 - Foster creativity and innovation
 - Address specific school community needs
 - Increase student achievement
 - Promote greater student, parent, and staff engagement in the learning process
 - Create more knowledgeable, expert, and professional staffs that operate in a more strategic manner
 - Advance incentive programs tied to increased student achievement and increased accountability for school outcomes

Who was involved in the design of the CCSD Empowerment Model?

- Principals and teachers
- Central office staff
- Board members
- Clark County Education Association (CCEA)
- Clark County Association of School Administrators and Professional-technical Employees (CCASAPE)
- Education Support Employees Association (ESEA)
- Representatives of higher education
- Community members

How many Empowerment Schools are in CCSD?

- There are eight elementary schools:
 - Kirk Adams Elementary School
 - Lee Antonello Elementary School
 - Kermit Booker Elementary School
 - Walter Bracken Elementary School
 - Paul E. Culley Elementary School
 - C.T. Sewell Elementary School
 - Kitty Ward Elementary School
 - Rose Warren Elementary School

What were the changes to the Empowerment School initiative for the 2007-08 school year?

Additional Annual Resources (4 schools created in 2006-07—Adams, Antonello, Culley, and Warren):

- **\$600 per student additional money, to be used to cover the following:**
 - Smaller Class Size--Student to teacher ratio of maximum 25:1 in core classes not otherwise governed by CCSD class size reduction requirements.
 - 29 minutes extra per teacher per day
 - 5 additional days per school year per teacher
 - \$150,000 discretionary dollars
 - 5% increase in principal pay
 - Up to 2% incentive pay for all licensed staff if specific achievement targets are met
- **\$50,000 for 3 years + additional support from a Community Partner**

CLARK COUNTY SCHOOL DISTRICT EMPOWERMENT SCHOOLS

Additional Annual Resources (4 schools added for 2007-08—Booker, Bracken, Ward, and Sewell:

- **\$400 per student additional money, to be used to cover the following:**
 - 5% increase in principal pay
 - Up to 2% incentive pay for all licensed staff if specific achievement targets are met, as outlined in the Accountability Document
 - Balance of funds are discretionary
- **Additional financial support from a Community Partner will be sought.**

How is the work being funded?

- Currently 100% through district funds, since SB 238 funds (\$400 per student) will not be available until the 2008-09 school year.

How many schools will be added to the Empowerment Schools in 2008-09?

- According to SB238, CCSD must empower 5% of its total schools by 2008-09. That will mean 16-18 schools by next year, so an additional 8-10 will be added for 2008-09.

What did the Nevada Legislature do with the empowerment concept during the 2007 session?

- Through SB238, the Legislature requires that not less than 5% of the total schools in a district be empowered by the 2008-09 school year. It is up to the Board of Trustees (BOT) of each school district to determine the selection process, choose the schools to be empowered, and submit the list by September 1 of each year.
- If the BOT creates a Central Design Team (CDT) to assist them in selecting the Empowerment Schools and recommending policies and procedures related to them, some of the members who serve on that team will be determined by law to ensure balanced representation of the school district, teachers, parents and community members.
- Empowered schools will be granted autonomy to decide issues relating to the operation of the school, including schedule, governance, employee incentives, staffing, budgeting, and instruction, but they are expected to be accountable to ensure that students are achieving certain academic achievement goals and standards.
- Schools are required to establish a School Design Team (SDT), consisting of teachers, support staff, parents, and community members to assist the principal in the development of an empowerment plan for the school, including a the proposed budget, and to oversee and assist in management decisions for the school. Some of the members on this team are prescribed by law to ensure balanced representation of all stakeholders, as well as expertise in finance, administration, curriculum and data analysis.
- The empowerment plan for a school must be approved by the BOT and must include:
 - Method of school governance
 - Budget
 - Academic plan
 - Means by which student achievement will be measured and reported
 - Manner by which teachers, administrators and support staff will be selected and hired

CLARK COUNTY SCHOOL DISTRICT EMPOWERMENT SCHOOLS

- Description of any incentive plan
 - Intended student/teacher ratios
 - Professional development plan
 - Calendar and schedule
 - Parental involvement plan
- Each empowerment school must submit a quarterly report to the BOT, including the financial status of the school and a description of the school's compliance with each component of their empowerment plan. The BOT must conduct an annual financial audit (more if deemed necessary). They will compile the reports and audits and submit them to the state by July 1 each year.

What Is the CCSD Empowerment School Model?

- More autonomy
 - Governance
 - Budget
 - Staffing
 - Instruction
 - Time and calendar
- More accountability
 - Staff agrees to reach specific achievement targets
 - Staff may be reassigned to another school during the school year
 - Incentive pay of up to 2% if student achievement and school outcome targets are met
- More support
 - \$400 per student additional dollars
 - Link with a Community Partner

Does “Empowerment” Eliminate or Significantly Reduce Central Office Functions?

- No, outcomes for which central office is accountable and responsible should always remain in central office with the appropriate resources and staff to support those activities. Those outcomes for which schools are the responsible and accountable should be made at the school level with appropriate resources provided.

Does “Empowerment” Mean Principals Can Do Anything They Want?

- No, Empowerment Schools in Nevada must:
 - Teach to state standards
 - Comply with all district, state, federal policies, mandates, and laws
 - Adhere to all personnel contracts and bargained agreements
 - Follow the CCSD *Keys to Empowerment* regarding the use of the autonomies

Will Empowerment Schools Have a Business Plan or Achievement Expectation Plan?

- School Design Team (SDT) must develop a 3-year strategic plan to be approved by the BOT and submitted to the state by September 1.
 - Strategic plan
 - Expand on use of autonomies
 - Identify benchmarks
 - Resources allocation and gap analysis

CLARK COUNTY SCHOOL DISTRICT EMPOWERMENT SCHOOLS

- Accountability Agreement
 - Consent of SDT and district regarding targets and consequences/rewards that include the attainment of non-negotiable student achievement targets as well as school-identified objectives based on pre-identified goals directly tied to improved student achievement
- Community Agreement
 - Consent of SDT and Community Partner regarding resources and support to be provided

What School Districts Has CCSD Reviewed Regarding This Model?

- Houston
- Boston
- Edmonton
- Seattle
- New York
- Cincinnati

Why Does CCSD Need More Time and Discretionary Dollars To Run Empowerment Schools?

Dollars are needed to bring CCSD schools up to a standard met by other districts that have enacted autonomy or decentralized systems.

- **Houston**
 - Decentralized system weighted student formula budget allocation to all 300 schools
 - Time: 7-hour school day for students
 - State allocation: \$7,500 per student
 - Amount to school: \$2,580 per student – average amount
 - Dropout rate: (cohort)
 - 2000 – 15.3%
 - 2001 – 12.7%
 - 2002 – 9.2%
 - After graduation: (Figures reflect % of students enrolled from previous year's graduating class in Texas institutions of higher education. High school graduates who enrolled in out-of-state institutions are not reflected in these figures.)
 - 2005-2006 – 24% in 4-year/28% in 2-year
 - 2004-2005 – 25% in 4-year/18% in 2-year
 - 2003-2004 – 19% in 4-year/28% in 3-year
- **Boston**
 - Pilot School Project includes 26 public charter schools within the Boston Public School system
 - Time: 7-hour school day for students
 - State allocation: \$11,000 per pupil
 - Amount to school: \$500 per student allocated to each pilot school
 - Dropout rate: 8.4% in one year – 21.1%--ninth-graders who dropped out over 5 years
 - After graduation:
 - 40% are in school and not working
 - 36% are in school and working
 - 15% are working

CLARK COUNTY SCHOOL DISTRICT EMPOWERMENT SCHOOLS

- 1% are in the military
- 5% are jobless but looking for work
- 3% are jobless and not looking for work
- **Edmonton**
 - Decentralized system weighted student formula budget allocation to all schools
 - Time:
 - 190-day school year for students/200 days for teachers
 - 304 minutes per day – Grades K-9
 - 324 minutes per day – Grades 10-12
 - Government allocation: (weighted formula) \$8,272 – per student FTE for 2005-2006
 - Amount to school: 92% – \$7,610
 - Completion rate:
 - 63.6% complete in 3 years
 - 68% complete in 4 years
 - 70% complete in 5 years
 - After graduation: 59.2% attend post-secondary within 6 years
- **Seattle**
 - Decentralized system weighted student formula budget allocation to all schools
 - Time: 7-hour school day/180 days
 - Dropout rate: (cohort rate)
 - 2004 – 36%
 - 2005 – 33%
 - 2006 – 29%
 - After graduation: Seattle does not collect post-secondary data
- **New York**
 - New Visions Schools began with 18 schools within an autonomy zone. They expanded to 48 “Empowerment Schools” in 2005, added an additional 150 in 2006, and are moving toward a decentralized system for the future.
 - Time: pending
 - State allocation: pending
 - Amount to school: pending
 - Dropout rate: pending
 - After graduation: pending
- **Cincinnati**
 - Decentralized system weighted student formula budget allocation to all schools
 - Time: 7.5-hour school day
 - State allocation: \$11,970
 - School allocation: 61-71% – \$7,302-\$8,499
 - Dropout rate: 77%
 - After graduation: 64% enter some form of postsecondary education
- **Clark County**
 - 8 Empowerment Schools
 - Time: 6-hour school day
 - State allocation: \$5,400 per pupil
 - School allocation: \$400 per pupil
 - Dropout rate: 6.8%

CLARK COUNTY SCHOOL DISTRICT EMPOWERMENT SCHOOLS

- After graduation:
 - 43% – 4-year college
 - 39% – 2-year college

How Will We Know If Empowerment Works?

To determine whether Empowerment Schools increase the academic achievement of students, an independent research team is being sponsored by the Clark County School District.

- **Research Team**

- The Empowerment School Study (ESS) research team is comprised of members from UNLV's Center for Evaluation and Assessment and the Center for Outreach in School Leadership Development.
- CCSD has also contracted an independent technical group, The Empowerment School Technical Advisory Panel (ESTAP), which has expertise in research design and methods, change research, resources allocation, and effective schools research, as well as practical field knowledge, to oversee the ESS project evaluation. The panel's expertise allows for credibility and confidence in the evaluation process and the reporting of outcomes, while their independence ensures objective and timely recommendations and findings.
- Methodology developed by William L. Sanders, the Tennessee Value-Added Assessment System (TVAAS), will be used to explore the question.

- **Study Design**

- The overall design of the ESS involves matching the four Empowerment Schools with four control schools who mirror them in terms of academic performance and demographic variables so findings can be compared to determine whether Empowerment Schools are increasing student achievement at a greater rate than their paired control schools. The ESS will continue over a 3-year period with annual progress reports. The study will address several categories of educational improvement that the research literature supports as indicators of effective, high-performing schools:
 - Student achievement
 - Other indicators known to influence student achievement and overall school success
 - ◆ Teacher perceptions, efficacy, and orientations
 - ◆ Leadership approaches and attitudes
 - ◆ Parent involvement
 - ◆ Curriculum decisions
 - ◆ Instructional planning and practice
 - ◆ Budgetary decisions
- SAS, a specialized software program, uses multiple measures of achievement for reading, math, and science in mixed model statistical methodology to analyze a longitudinal data set of student achievement test scores. Specifically designed for the statistical challenges of analyzing thousands of individual students connected to thousands of teachers and schools over many years, SAS is able to build a precise summary of past schooling performance for students. This allows us to estimate the influence of teachers, schools, and districts on student achievement over time.

Empowerment is being given the means to design new methods of delivery – whatever that might look like – that cannot be done within the confines of the budget as it is currently allocated from the central office.

NRS 385.379 Creation of Account for Programs for Innovation and the Prevention of Remediation; acceptance of gifts and grants; use of money in Account.

1. The Account for Programs for Innovation and the Prevention of Remediation is hereby created in the State General Fund, to be administered by the Superintendent of Public Instruction. The Superintendent of Public Instruction may accept gifts and grants of money from any source for deposit in the Account. Any money from gifts and grants may be expended in accordance with the terms and conditions of the gift or grant, or in accordance with subsection 2 or 3. The interest and income earned on the sum of:

(a) The money in the Account; and

(b) Unexpended appropriations made to the Account from the State General Fund,

↪ must be credited to the Account. Any money remaining in the Account at the end of a fiscal year does not revert to the State General Fund, and the balance in the Account must be carried forward to the next fiscal year.

2. Except as otherwise provided in NRS 385.3784 and subsection 3, the money in the Account may only be used for the allocation of money to public schools and consortiums of public schools whose applications are approved by the Commission pursuant to NRS 385.3785.

3. Upon the request of the Commission:

(a) Not more than \$50,000 in the Account may be used each biennium to pay:

(1) The expenses incurred by members of the Commission to travel to the public schools and consortiums of public schools that received allocations of money from the Account; and

(2) The costs incurred by the Commission to hold meetings or conferences for representatives of public schools and consortiums of schools that received allocations of money from the Account to discuss or display, or both, programs, practices and strategies that have proven effective in improving the academic achievement and proficiency of pupils.

(b) Not more than \$450,000 in the Account may be used each biennium to pay for an evaluation of the programs for which money was allocated from the Account. If the Commission uses money in the Account for such an evaluation, the Commission shall ensure that:

(1) A request for proposals is issued and a qualified, independent consultant is selected to conduct the evaluation;

(2) Upon selection of the consultant, the Commission receives approval of the consultant and the plan for the evaluation from the Committee;

(3) The evaluation is designed to determine the effectiveness of the programs for which money was allocated from the Account in improving the achievement of pupils;

(4) The evaluation includes an identification of the programs for which money was allocated from the Account that did not improve the achievement of pupils as described in the approved application for the grant;

(5) The evaluation includes an identification of the public schools and consortiums of public schools that did not implement the programs for which money was allocated from the Account as described in the approved application for the grant; and

(6) The evaluation includes a compilation and review of each evaluation required to be submitted by public schools and consortiums of public schools pursuant to NRS 385.3787.

(Added to NRS by 2005, 1975; A 2007, 1565, 2379)

NRS 388.700 Reduction of ratio in certain grades; request for variance required under certain circumstances; reports by State Board and Department; exception to requirements for charter schools and distance education.

1. Except as otherwise provided in this section, after the last day of the first month of the school year, the ratio in each school district of pupils per licensed teacher designated to teach, on a full-time basis, in classes where core curriculum is taught:

(a) In kindergarten and grades 1, 2 and 3, must not exceed 15 to 1; or

(b) If a plan is approved pursuant to subsection 3 of NRS 388.720, must not exceed the ratio set forth in that plan for the grade levels specified in the plan.

↪ In determining this ratio, all licensed educational personnel who teach a grade level specified in paragraph (a) or a grade level specified in a plan that is approved pursuant to subsection 3 of NRS 388.720, as applicable for the school district, must be counted except teachers of art, music, physical education or special education, counselors, librarians, administrators, deans and specialists.

2. A school district may, within the limits of any plan adopted pursuant to NRS 388.720, assign a pupil whose enrollment in a grade occurs after the last day of the first month of the school year to any existing class regardless of the number of pupils in the class.

3. Each school district that does not meet the ratio of pupils per class:

(a) Set forth in subsection 1;

(b) Prescribed in conjunction with a legislative appropriation for the support of the class-size reduction program; or

(c) Defined by a legislatively approved alternative class-size reduction plan, if applicable to that school district,

↪ must request a variance from the State Board by providing a written statement that includes the reasons for the request and the justification for exceeding the applicable prescribed ratio of pupils per class.

4. The State Board may grant to a school district a variance from the limitation on the number of pupils per class set forth in paragraph (a), (b) or (c) of subsection 3 for good cause, including the lack of available financial support specifically set aside for the reduction of pupil-teacher ratios.

5. The State Board shall, on or before February 1 of each odd-numbered year, report to the Legislature on:

(a) Each variance granted by it during the preceding biennium, including the specific justification for the variance.

(b) The data reported to it by the various school districts pursuant to subsection 2 of NRS 388.710, including an explanation of that data, and the current pupil-teacher ratios per class in the grade levels specified in paragraph (a) of subsection 1 or the grade levels specified in a plan that is approved pursuant to subsection 3 of NRS 388.720, as applicable for the school district.

6. The Department shall, on or before November 15 of each year, report to the Chief of the Budget Division of the Department of Administration and the Fiscal Analysis Division of the Legislative Counsel Bureau:

(a) The number of teachers employed;

(b) The number of teachers employed in order to attain the ratio required by subsection 1;

(c) The number of pupils enrolled; and

(d) The number of teachers assigned to teach in the same classroom with another teacher or in any other arrangement other than one teacher assigned to one classroom of pupils,

↳ during the current school year in the grade levels specified in paragraph (a) of subsection 1 or the grade levels specified in a plan that is approved pursuant to subsection 3 of NRS 388.720, as applicable, for each school district.

7. The provisions of this section do not apply to a charter school or to a program of distance education provided pursuant to NRS 388.820 to 388.874, inclusive.

(Added to NRS by 1989, 2105; A 1993, 1362; 1995, 2820; 1999, 3312; 2001, 3157; 2005, 1264, 2161)

NRS 388.790 Commission on Educational Technology: Creation; membership; terms; removal and vacancy; quarterly meetings required; compensation.

1. The Commission on Educational Technology, consisting of 2 members who serve ex officio and 11 members who are appointed, is hereby created. The Superintendent of Public Instruction and the Director of the Department of Information Technology shall serve ex officio as nonvoting members of the Commission.

2. The Governor shall appoint the following voting members to the Commission, at least two of whom must reside in a county whose population is less than 100,000:

(a) One administrator in a public school who possesses knowledge and experience in the general application of technology;

(b) One school teacher in a public elementary school who possesses knowledge and experience in the use of educational technology in the public schools;

(c) One school teacher in a public secondary school who possesses knowledge and experience in the use of educational technology in the public schools;

(d) One representative of public libraries who possesses knowledge and experience in the general application of technology;

(e) One representative of the Nevada System of Higher Education who possesses knowledge and experience in the use of educational technology in institutions of higher education;

(f) One representative of the private sector who possesses knowledge and experience in the use of technology; and

(g) One parent or legal guardian who possesses knowledge and experience in the general application of technology.

3. The Majority Leader of the Senate shall appoint two voting members to the Commission:

(a) One of whom is a member of the Senate; and

(b) One of whom is employed in the field of technology.

4. The Speaker of the Assembly shall appoint two voting members to the Commission:

(a) One of whom is a member of the Assembly; and

(b) One of whom is employed in the field of technology.

5. The Governor shall appoint a Chair among the voting members of the Commission.

6. After the initial terms, the term of each member of the Commission is 2 years, commencing on January 1 of the year in which the member is appointed and expiring on December 31 of the immediately following year. A member shall continue to serve on the Commission until his or her successor is appointed. Upon the expiration of a term of a member, he or she may be reappointed if he or she still possesses any requisite qualifications for appointment. There is no limit on the number of terms that a member may serve.

7. The person or entity who appoints a member to the Commission may remove that member if the member neglects his or her duty or commits malfeasance in office, or for other just cause. Any vacancy in the membership of the Commission must be filled for the remainder of the unexpired term in the same manner as the original appointment.

8. The Commission shall hold at least four regular meetings each year and may hold special meetings at the call of the Chair.

9. Members of the Commission who are not Legislators serve without compensation, except that for each day or portion of a day during which a member of the Commission attends a meeting of the Commission or is otherwise engaged in the business of the Commission, the member is entitled to receive the per diem allowance and travel expenses provided for state officers and employees generally.

10. For each day or portion of a day during which a member of the Commission who is a Legislator attends a meeting of the Commission or is otherwise engaged in the work of the Commission, except during a regular or special session of the Legislature, the Legislator is entitled to receive the:

(a) Compensation provided for a majority of the members of the Legislature during the first 60 days of the preceding session;

(b) Per diem allowance provided for state officers and employees generally; and

(c) Travel expenses provided pursuant to NRS 218A.655.

➔ The compensation, per diem allowances and travel expenses of the legislative members of the Commission must be paid from the Legislative Fund.

(Added to NRS by 1997, 1770; A 1999, 476; 2003, 814)

NRS 385.610 Establishment; appointment of members; election of officers; terms; administrative support by Department; compensation of members.

1. The Superintendent of Public Instruction shall establish an Advisory Council on Parental Involvement. The Advisory Council is composed of 10 members.

2. The Superintendent of Public Instruction shall appoint the following members to the Advisory Council:

(a) Two parents or legal guardians of pupils enrolled in public schools;

(b) Two teachers in public schools;

(c) One administrator of a public school;

(d) One representative of a private business or industry;

(e) One member of the board of trustees of a school district in a county whose population is 100,000 or more; and

(f) One member of the board of trustees of a school district in a county whose population is less than 100,000.

↪ The Superintendent of Public Instruction shall, to the extent practicable, ensure that the members the Superintendent appoints to the Advisory Council reflect the ethnic, economic and geographic diversity of this State.

3. The Speaker of the Assembly shall appoint one member of the Assembly to the Advisory Council.

4. The Majority Leader of the Senate shall appoint one member of the Senate to the Advisory Council.

5. The Advisory Council shall elect a Chair and Vice Chair from among its members. The Chair and Vice Chair serve a term of 1 year.

6. After the initial terms:

(a) The term of each member of the Advisory Council who is appointed by the Superintendent of Public Instruction is 3 years.

(b) The term of each member of the Advisory Council who is appointed by the Speaker of the Assembly and the Majority Leader of the Senate is 2 years.

7. The Department shall provide:

(a) Administrative support to the Advisory Council; and

(b) All information that is necessary for the Advisory Council to carry out its duties.

8. For each day or portion of a day during which a member of the Advisory Council who is a Legislator attends a meeting of the Advisory Council or is otherwise engaged in the business of the Advisory Council, except during a regular or special session of the Legislature, the member is entitled to receive the:

(a) Compensation provided for a majority of the members of the Legislature during the first 60 days of the preceding regular session;

(b) Per diem allowance provided for state officers generally; and

(c) Travel expenses provided pursuant to NRS 218A.655.

➔ The compensation, per diem allowances and travel expenses of the legislative members of the Advisory Council must be paid from the Legislative Fund.

9. A member of the Advisory Council who is not a Legislator is entitled to receive the per diem allowance and travel expenses provided for state officers and employees generally for each day or portion of a day during which the member attends a meeting of the Advisory Council or is otherwise engaged in the business of the Advisory Council. The per diem allowance and travel expenses for the members of the Advisory Council who are not Legislators must be paid by the Department.

(Added to NRS by 2007, 2910)

THE GOVERNOR GUINN MILLENNIUM SCHOLARSHIP PROGRAM

NRS 396.911 Legislative declaration.

1. The Legislature hereby declares that its priorities in expending the proceeds to the State of Nevada from settlement agreements with and civil actions against manufacturers of tobacco products are:

(a) To increase the number of Nevada students who attend and graduate from Nevada institutions of higher education; and

(b) To assist Nevada residents in obtaining and maintaining good health.

2. To further these priorities, the Legislature hereby declares that it is in the best interest of the residents of the State of Nevada that all money received by the State of Nevada pursuant to any settlement entered into by the State of Nevada and a manufacturer of tobacco products and all money recovered by the State of Nevada from a judgment in a civil action against a manufacturer of tobacco products be dedicated solely toward the achievement of the following goals:

(a) Increasing the number of residents of the State of Nevada who enroll in and attend a university, college or community college in the State of Nevada;

(b) Reducing and preventing the use of tobacco products, alcohol and illegal drugs, especially by children;

(c) Expanding the availability of health insurance and health care for children and adults in this State, especially for children and for adults with disabilities;

(d) Assisting senior citizens who have modest incomes in purchasing prescription drugs and assisting those senior citizens in meeting their needs related to health care, home care, respite care and their ability to live independent of institutional care; and

(e) Promoting the general health of all residents of the State of Nevada.

(Added to NRS by 1999, 2750; A 2001, 1416)

NRS 396.914 Definitions. As used in NRS 396.911 to 396.938, inclusive, unless the context otherwise requires, the words and terms defined in NRS 396.916, 396.918 and 396.922 have the meanings ascribed to them in those sections.

(Added to NRS by 1999, 2751; A 2001, 1416)

NRS 396.916 “Eligible institution” defined. “Eligible institution” means:

1. A university, state college or community college within the System; or

2. Any other nonsectarian college or university that:

(a) Was originally established in, and is organized under the laws of, this state;

(b) Is exempt from taxation pursuant to 26 U.S.C. § 501(c)(3); and

(c) Is accredited by a regional accrediting agency recognized by the United States Department of Education.

(Added to NRS by 2001, 1415)

NRS 396.918 “Millennium Scholarship” defined. “Millennium Scholarship” means a Governor Guinn Millennium Scholarship that is awarded from the Trust Fund to a student.

(Added to NRS by 1999, 2751; A 2005, 22nd Special Session, 147)

NRS 396.922 “Trust Fund” defined. “Trust Fund” means the Millennium Scholarship Trust Fund created pursuant to NRS 396.926.

(Added to NRS by 1999, 2751)

NRS 396.926 Creation of Program; Millennium Scholarship Trust Fund; deposit and investment of money in Fund; administration by Treasurer; use of money in Fund.

1. The Governor Guinn Millennium Scholarship Program is hereby created for the distribution of the Governor Guinn Millennium Scholarships in accordance with NRS 396.911 to 396.938, inclusive. The Millennium Scholarship Trust Fund is hereby created in the State Treasury. The State Treasurer may accept gifts, grants, bequests and donations for deposit in the Trust Fund.

2. The State Treasurer shall deposit in the Trust Fund:

(a) Forty percent of all money received by the State of Nevada pursuant to any settlement entered into by the State of Nevada and a manufacturer of tobacco products;

(b) Forty percent of all money recovered by the State of Nevada from a judgment in a civil action against a manufacturer of tobacco products; and

(c) Any gifts, grants, bequests or donations specifically designated for the Trust Fund by the donor.

3. The State Treasurer shall administer the Trust Fund. As administrator of the Trust Fund, the State Treasurer, except as otherwise provided in this section:

(a) Shall maintain the financial records of the Trust Fund;

(b) Shall invest the money in the Trust Fund as the money in other state funds is invested;

(c) Shall manage any account associated with the Trust Fund;

(d) Shall maintain any instruments that evidence investments made with the money in the Trust Fund;

(e) May contract with vendors for any good or service that is necessary to carry out the provisions of this section; and

(f) May perform any other duties necessary to administer the Trust Fund.

4. In addition to the investments authorized pursuant to paragraph (b) of subsection 3, the State Treasurer may, except as otherwise provided in subsection 5, invest the money in the Trust Fund in:

(a) Common or preferred stock of a corporation created by or existing under the laws of the United States or of a state, district or territory of the United States, if:

(1) The stock of the corporation is:

(I) Listed on a national stock exchange; or

(II) Traded in the over-the-counter market, if the price quotations for the over-the-counter stock are quoted by the National Association of Securities Dealers Automated Quotations System (NASDAQ);

(2) The outstanding shares of the corporation have a total market value of not less than \$50,000,000;

(3) The maximum investment in stock is not greater than 25 percent of the book value of the total investments of the Trust Fund;

(4) Except for investments made pursuant to paragraph (c), the amount of an investment in a single corporation is not greater than 3 percent of the book value of the assets of the Trust Fund; and

(5) Except for investments made pursuant to paragraph (c), the total amount of shares owned by the Trust Fund is not greater than 5 percent of the outstanding stock of a single corporation.

(b) A pooled or commingled real estate fund or a real estate security that is managed by a corporate trustee or by an investment advisory firm that is registered with the Securities and Exchange Commission, either of which may be retained by the State Treasurer as an investment manager. The shares and the pooled or commingled fund must be held in trust. The total book

value of an investment made under this paragraph must not at any time be greater than 5 percent of the total book value of all investments of the Trust Fund.

(c) Mutual funds or common trust funds that consist of any combination of the investments authorized pursuant to paragraph (b) of subsection 3 and paragraphs (a) and (b) of this subsection.

5. The State Treasurer shall not invest any money in the Trust Fund pursuant to subsection 4 unless the State Treasurer obtains a judicial determination that the proposed investment or category of investments will not violate the provisions of Section 9 of Article 8 of the Constitution of the State of Nevada. The State Treasurer shall contract for the services of independent contractors to manage any investments of the State Treasurer made pursuant to subsection 4. The State Treasurer shall establish such criteria for the qualifications of such an independent contractor as are appropriate to ensure that each independent contractor has expertise in the management of such investments.

6. All interest and income earned on the money in the Trust Fund must, after deducting any applicable charges, be credited to the Trust Fund. All claims against the Trust Fund must be paid as other claims against the State are paid.

7. Not more than 3 percent of the anticipated annual revenue to the State of Nevada from the settlement agreements with and civil actions against manufacturers of tobacco products anticipated for deposit in the Trust Fund may be used to pay the costs of administering the Trust Fund.

8. The money in the Trust Fund remains in the Fund and does not revert to the State General Fund at the end of any fiscal year.

9. Money in the Trust Fund may be used only for the purposes set forth in NRS 396.914 to 396.934, inclusive.

(Added to NRS by 1999, 2751; A 2001, 2299; 2005, 22nd Special Session, 147)

NRS 396.930 Eligibility requirements for Millennium Scholarship; duties and powers of Board of Regents; outreach to certain students; affidavit declaring eligibility.

1. Except as otherwise provided in subsections 2 and 3, a student may apply to the Board of Regents for a Millennium Scholarship if the student:

(a) Except as otherwise provided in paragraph (e) of subsection 2, has been a resident of this State for at least 2 years before the student applies for the Millennium Scholarship;

(b) Except as otherwise provided in paragraph (c), graduated from a public or private high school in this State:

(1) After May 1, 2000, but not later than May 1, 2003; or

(2) After May 1, 2003, and, except as otherwise provided in paragraphs (c), (d) and (f) of subsection 2, not more than 6 years before the student applies for the Millennium Scholarship;

(c) Does not satisfy the requirements of paragraph (b) and:

(1) Was enrolled as a pupil in a public or private high school in this State with a class of pupils who were regularly scheduled to graduate after May 1, 2000;

(2) Received his or her high school diploma within 4 years after he or she was regularly scheduled to graduate; and

(3) Applies for the Millennium Scholarship not more than 6 years after he or she was regularly scheduled to graduate from high school;

(d) Maintained in high school in the courses designated by the Board of Regents pursuant to paragraph (b) of subsection 2, at least:

(1) A 3.00 grade point average on a 4.0 grading scale, if the student was a member of the graduating class of 2003 or 2004;

(2) A 3.10 grade point average on a 4.0 grading scale, if the student was a member of the graduating class of 2005 or 2006; or

(3) A 3.25 grade point average on a 4.0 grading scale, if the student was a member of the graduating class of 2007 or a later graduating class; and

(e) Is enrolled in at least:

(1) Six semester credit hours in a community college within the System;

(2) Twelve semester credit hours in another eligible institution; or

(3) A total of 12 or more semester credit hours in eligible institutions if the student is enrolled in more than one eligible institution.

2. The Board of Regents:

(a) Shall define the core curriculum that a student must complete in high school to be eligible for a Millennium Scholarship.

(b) Shall designate the courses in which a student must earn the minimum grade point averages set forth in paragraph (d) of subsection 1.

(c) May establish criteria with respect to students who have been on active duty serving in the Armed Forces of the United States to exempt such students from the 6-year limitation on applications that is set forth in subparagraph (2) of paragraph (b) of subsection 1.

(d) Shall establish criteria with respect to students who have a documented physical or mental disability or who were previously subject to an individualized education program under the Individuals with Disabilities Education Act, 20 U.S.C. §§ 1400 et seq., or a plan under Title V of the Rehabilitation Act of 1973, 29 U.S.C. §§ 791 et seq. The criteria must provide an exemption for those students from:

(1) The 6-year limitation on applications that is set forth in subparagraph (2) of paragraph (b) of subsection 1 and subparagraph (3) of paragraph (c) of subsection 1 and any limitation applicable to students who are eligible pursuant to subparagraph (1) of paragraph (b) of subsection 1.

(2) The minimum number of credits prescribed in paragraph (e) of subsection 1.

(e) Shall establish criteria with respect to students who have a parent or legal guardian on active duty in the Armed Forces of the United States to exempt such students from the residency requirement set forth in paragraph (a) of subsection 1 or subsection 3.

(f) Shall establish criteria with respect to students who have been actively serving or participating in a charitable, religious or public service assignment or mission to exempt such students from the 6-year limitation on applications that is set forth in subparagraph (2) of paragraph (b) of subsection 1. Such criteria must provide for the award of Millennium Scholarships to those students who qualify for the exemption and who otherwise meet the eligibility criteria to the extent that money is available to award Millennium Scholarships to the students after all other obligations for the award of Millennium Scholarships for the current school year have been satisfied.

3. Except as otherwise provided in paragraph (c) of subsection 1, for students who did not graduate from a public or private high school in this State and who, except as otherwise provided in paragraph (e) of subsection 2, have been residents of this State for at least 2 years, the Board of Regents shall establish:

(a) The minimum score on a standardized test that such students must receive; or

(b) Other criteria that students must meet,

→ to be eligible for Millennium Scholarships.

4. In awarding Millennium Scholarships, the Board of Regents shall enhance its outreach to students who:

(a) Are pursuing a career in education or health care;

(b) Come from families who lack sufficient financial resources to pay for the costs of sending their children to an eligible institution; or

(c) Substantially participated in an antismoking, antidrug or antialcohol program during high school.

5. The Board of Regents shall establish a procedure by which an applicant for a Millennium Scholarship is required to execute an affidavit declaring the applicant's eligibility for a Millennium Scholarship pursuant to the requirements of this section. The affidavit must include a declaration that the applicant is a citizen of the United States or has lawful immigration status, or that the applicant has filed an application to legalize the applicant's immigration status or will file an application to legalize his or her immigration status as soon as he or she is eligible to do so.

(Added to NRS by 1999, 2751; A 2001, 1416; 2003, 2962; 2005, 22nd Special Session, 149; 2007, 23rd Special Session, 10; 2009, 76, 706)

NRS 396.934 Maximum amount of Millennium Scholarship; remedial courses excluded from payment; requirements for continuing eligibility; ineligibility if requirements not satisfied; disbursement upon certification of eligibility; procedures for refund.

1. Except as otherwise provided in this section, within the limits of money available in the Trust Fund, a student who is eligible for a Millennium Scholarship is entitled to receive:

(a) If he or she is enrolled in a community college within the System, including, without limitation, a summer academic term, \$40 per credit for each lower division course and \$60 per credit for each upper division course in which the student is enrolled, or the amount of money that is necessary for the student to pay the costs of attending the community college that are not otherwise satisfied by other grants or scholarships, whichever is less. The Board of Regents shall provide for the designation of upper and lower division courses for the purposes of this paragraph.

(b) If he or she is enrolled in a state college within the System, including, without limitation, a summer academic term, \$60 per credit for which the student is enrolled, or the amount of money that is necessary for the student to pay the costs of attending the state college that are not otherwise satisfied by other grants or scholarships, whichever is less.

(c) If he or she is enrolled in another eligible institution, including, without limitation, a summer academic term, \$80 per credit for which the student is enrolled, or the amount of money that is necessary for the student to pay the costs of attending the university that are not otherwise satisfied by other grants or scholarships, whichever is less.

(d) If he or she is enrolled in more than one eligible institution, including, without limitation, a summer academic term, the amount authorized pursuant to paragraph (a), (b) or (c), or a combination thereof, in accordance with procedures and guidelines established by the Board of Regents.

➔ In no event may a student who is eligible for a Millennium Scholarship receive more than the cost of 12 semester credits per semester pursuant to this subsection.

2. No student may be awarded a Millennium Scholarship:

- (a) To pay for remedial courses.
- (b) For a total amount in excess of \$10,000.

3. A student who receives a Millennium Scholarship shall:

(a) Make satisfactory academic progress toward a recognized degree or certificate, as determined by the Board of Regents pursuant to subsection 7; and

(b) If the student graduated from high school after May 1, 2003, maintain:

(1) At least a 2.60 grade point average on a 4.0 grading scale for each semester during the first year of enrollment in the Governor Guinn Millennium Scholarship Program.

(2) At least a 2.75 grade point average on a 4.0 grading scale for each semester during the second year of enrollment in the Governor Guinn Millennium Scholarship Program and for each semester during each year of enrollment thereafter.

4. If a student does not satisfy the requirements of subsection 3 during one semester of enrollment, excluding a summer academic term, he or she is not eligible for the Millennium Scholarship for the succeeding semester of enrollment. If such a student:

(a) Subsequently satisfies the requirements of subsection 3 in a semester in which he or she is not eligible for the Millennium Scholarship, the student is eligible for the Millennium Scholarship for the student's next semester of enrollment.

(b) Fails a second time to satisfy the requirements of subsection 3 during any subsequent semester, excluding a summer academic term, the student is no longer eligible for a Millennium Scholarship.

5. A Millennium Scholarship must be used only:

- (a) For the payment of registration fees and laboratory fees and expenses;
- (b) To purchase required textbooks and course materials; and
- (c) For other costs related to the attendance of the student at the eligible institution.

6. The Board of Regents shall certify a list of eligible students to the State Treasurer. The State Treasurer shall disburse a Millennium Scholarship for each semester on behalf of an eligible student directly to the eligible institution in which the student is enrolled, upon certification from the eligible institution of the number of credits for which the student is enrolled, which must meet or exceed the minimum number of credits required for eligibility and certification that the student is in good standing and making satisfactory academic progress

toward a recognized degree or certificate, as determined by the Board of Regents pursuant to subsection 7. The Millennium Scholarship must be administered by the eligible institution as other similar scholarships are administered and may be used only for the expenditures authorized pursuant to subsection 5. If a student is enrolled in more than one eligible institution, the Millennium Scholarship must be administered by the eligible institution at which the student is enrolled in a program of study leading to a recognized degree or certificate.

7. The Board of Regents shall establish:

(a) Criteria for determining whether a student is making satisfactory academic progress toward a recognized degree or certificate for purposes of subsection 6.

(b) Procedures to ensure that all money from a Millennium Scholarship awarded to a student that is refunded in whole or in part for any reason is refunded to the Trust Fund and not the student.

(c) Procedures and guidelines for the administration of a Millennium Scholarship for students who are enrolled in more than one eligible institution.

(Added to NRS by 1999, 2752; A 2001, 1417, 2003, 2963; 2005, 22nd Special Session, 150; 2009, 78)

NRS 396.938 Development of plan to direct other financial aid to students who are not eligible for Millennium Scholarships.

The Board of Regents shall develop a plan to direct a significant portion of other available financial aid to culturally disadvantaged or at-risk students, and students who graduated from high school before May 1, 2000, who wish to attend college and have the potential to be successful, but who do not otherwise meet the eligibility requirements for Millennium Scholarships.

(Added to NRS by 1999, 2753)

Section G:

Budget

STATE of NEVADA

Budget Part I: Summary Budget Table Evidence for selection criterion (A)(2)(i)(d)					
Budget Categories	Project Year 1	Project Year 2	Project Year 3	Project Year 4	Total
1. Personnel	1,287,829	1,702,158	2,055,345	2,288,896	7,334,228
2. Fringe Benefits	334,178	467,377	561,220	614,574	1,977,349
3. Travel	119,000	147,107	248,712	449,400	964,219
4. Equipment	0	402,958	0	0	402,958
5. Supplies	120,000	215,144	147,924	130,000	613,068
6. Contractual	3,426,078	5,532,100	6,292,100	5,937,100	21,187,378
7. Training Stipends	0	0	0	0	0
8. Other	8,234,670	12,419,322	12,173,057	12,659,008	45,486,057
9. Total Direct Costs (lines 1-8)	13,521,755	20,886,166	21,478,358	22,078,978	77,965,257
10. Indirect Costs*	449,548	682,806	762,044	840,345	2,734,743
11. Funding for Involved LEAs	0	0	0	0	0
12. Supplemental Funding for Participating LEAs	1,700,000	1,700,000	1,700,000	1,700,000	6,800,000
13. Total Costs (lines 9-12)	15,671,303	23,268,972	23,940,402	24,619,323	87,500,000
14. Funding Subgranted to Participating LEAs (50% of Total Grant)	21,875,000	21,875,000	21,875,000	21,875,000	87,500,000
15. Total Budget (lines 13-14)	37,546,303	45,143,972	45,815,402	46,494,323	175,000,000

All applicants must provide a break-down by the applicable budget categories shown in lines 1-15.
 Columns (a) through (d): For each project year for which funding is requested, show the total amount requested for each applicable budget category.
 Column (e): Show the total amount requested for all project years.
 *If you plan to request reimbursement for indirect costs, complete the Indirect Cost Information form at the end of this Budget section.
 Note that indirect costs are not allocated to lines 11-12.

STATE of NEVADA

Budget Part I: OVERALL BUDGET SUMMARY by REFORM AREA PROJECTS

Race to the Top (RTTT) funding request / 4 years: \$175,000,000

	TOTAL \$	YEAR 1 \$	YEAR 2 \$	YEAR 3 \$	YEAR 4 \$
A. SYSTEMS for IMPLEMENTATION of the REFORM AGENDA	110,041,605				
A.1. AID-to-SCHOOLS	97,550,000				
Total A.1.	97,550,000	24,150,000	24,300,000	24,475,000	24,625,000
SUB-GRANTS: Funding sub-granted to participating LEAs (50% of funds)	87,500,000	21,875,000	21,875,000	21,875,000	21,875,000
SUB-GRANTS: Supplemental funding for 17 LEAs	6,800,000	1,700,000	1,700,000	1,700,000	1,700,000
SUB-GRANTS: Supplemental funding for charter schools	2,200,000	375,000	475,000	600,000	750,000
SUB-GRANTS: Supplemental funding for LEAs to roll-out reform agenda and systems change	1,050,000	200,000	250,000	300,000	300,000
A.2. GRANT IMPLEMENTATION, SUPPORT, EVALUATION	12,491,605				
Total A.2.	12,491,605	2,741,285	3,160,162	3,248,891	3,341,267
The Nevada's Promise office	10,080,255	2,429,935	2,460,162	2,548,891	2,641,267
CONTRACTUAL: Systems Thinking	405,675	105,675	100,000	100,000	100,000
CONTRACTUAL: External evaluator	2,005,675	205,675	600,000	600,000	600,000
B. STANDARDS and ASSESSMENTS	12,135,330				
6.9%					
SUB-GRANTS: Professional development, standards roll-out	1,972,630	786,315	786,315	200,000	200,000
CONTRACTUAL: Interim and formative assessment activities	8,751,350	2,196,350	2,185,000	2,185,000	2,185,000
CONTRACTUAL: Assessments	1,411,350	361,350	350,000	350,000	350,000
C. DATA SYSTEMS to SUPPORT INSTRUCTION	17,303,197				
9.9%					
Statewide longitudinal data system	9,020,175	0	3,782,412	2,623,159	2,614,604
E-MALL / COMPASS	7,983,022	0	2,477,843	2,373,152	3,132,027
CONTRACTUAL: Data technical assistance	300,000	0	100,000	100,000	100,000

Budget Part I: Overall Budget Summary by Reform Area Projects, cont.

		7.1%		12,373,775			
D. GREAT TEACHERS and LEADERS							
SUB-GRANTS: Regional Professional Development Programs (RPDPs)		6,020,000	1,505,000	1,505,000	1,505,000	1,505,000	1,505,000
SUB-GRANTS: Training / Professional Development		4,748,100	1,235,275	1,135,275	1,235,275	1,142,275	1,142,275
<i>Expand alternative routes to teacher licensure</i>		1,000,000	250,000	250,000	250,000	250,000	250,000
<i>Direct support to LEAs for supplemental training / professional development</i>		1,921,100	480,275	480,275	480,275	480,275	480,275
<i>Family engagement technical assistance</i>		160,000	40,000	40,000	40,000	40,000	40,000
<i>Communities in schools technical assistance</i>		160,000	40,000	40,000	40,000	40,000	40,000
<i>Nevada Association of School Boards</i>		200,000	100,000	0	100,000	0	0
<i>Nevada Association of School Administrators</i>		400,000	100,000	100,000	100,000	100,000	100,000
<i>Principal Academy</i>		400,000	100,000	100,000	100,000	100,000	100,000
<i>Education Summit</i>		507,000	125,000	125,000	125,000	125,000	132,000
CONTRACTUAL: Professional Development		1,605,675	405,675	400,000	400,000	400,000	400,000
<i>Support alternative routes to teacher licensure</i>		1,000,000	250,000	250,000	250,000	250,000	250,000
<i>Teachers and leaders evaluation systems and professional development</i>		605,675	151,418	151,419	151,419	151,419	151,419
E. TURNING AROUND the LOWEST-ACHIEVING SCHOOLS 6.9%							
SUB-GRANTS: School Intervention Model expansion		9,000,000	250,000	1,750,000	3,500,000	3,500,000	3,500,000
SUB-GRANTS: Support to schools		2,650,000	600,000	650,000	700,000	700,000	700,000
<i>Early childhood education</i>		1,325,000	300,000	325,000	350,000	350,000	350,000
<i>Extended day / year programs (pre-K-12)</i>		1,325,000	300,000	325,000	350,000	350,000	350,000
CONTRACTUAL: Differentiated consequences for struggling schools		405,675	105,675	100,000	100,000	100,000	100,000
F. INNOVATION 6.3%							
SUB-GRANTS: STEM		5,894,740	2,363,700	1,286,965	1,244,925	999,150	999,150
<i>Nevada Pathway Project</i>		2,544,600	636,150	636,150	636,150	636,150	636,150
<i>K-12 programs</i>		400,000	100,000	100,000	100,000	100,000	100,000
<i>MESA expansion</i>		610,000	129,000	129,000	176,000	176,000	176,000
<i>MINES & Science Builder interventions</i>		1,992,140	1,411,550	334,815	245,775	0	0
<i>Newton Network support</i>		64,000	16,000	16,000	16,000	16,000	16,000
<i>Silver State Advanced Placement Summer Institute</i>		240,000	60,000	60,000	60,000	60,000	60,000

<i>STEM Coordinating Council</i>										
<i>Budget Part I: Overall Budget Summary by Reform Area Projects, cont.</i>										
SUB-GRANTS: INNOVATION			4,900,000		800,000		1,100,000		1,500,000	1,500,000
<i>Empowerment schools</i>			3,200,000		500,000		700,000		1,000,000	1,000,000
<i>Effective practices</i>			1,700,000		300,000		400,000		500,000	500,000
CONTRACTUAL: Efficacy of innovation			295,678		45,678		75,000		75,000	100,000

Budget Part I: OVERALL BUDGET SUMMARY by REFORM AREA PROJECTS - LINE ITEM COSTS

1. PERSONNEL	TOTAL	YEAR 1	YEAR 2	YEAR 3	YEAR 4
<i>Nevada's Promise</i> office	5,518,173	1,287,829	1,346,899	1,409,308	1,474,137
Statewide Longitudinal Data System	874,417	0	171,425	311,954	391,038
E-MALL / COMPASS	941,638	0	183,834	334,083	423,721
TOTAL	7,334,228	1,287,829	1,702,158	2,055,345	2,288,896
2. FRINGE BENEFITS					
<i>Nevada's Promise</i> office	1,462,274	334,178	365,943	375,848	386,305
Statewide Longitudinal Data System	253,437	0	49,604	90,746	113,087
E-MALL / COMPASS	261,638	0	51,830	94,626	115,182
TOTAL	1,977,349	334,178	467,377	561,220	614,574
3. TRAVEL					
<i>Nevada's Promise</i> office	476,000	119,000	119,000	119,000	119,000
Statewide Longitudinal Data System	201,241	0	14,063	64,240	122,938
E-MALL / COMPASS	286,978	0	14,044	65,472	207,462
TOTAL	964,219	119,000	147,107	248,712	449,400
4. EQUIPMENT					
<i>Nevada's Promise</i> office	0	0	0	0	0
Statewide Longitudinal Data System	201,479	0	201,479	0	0
E-MALL / COMPASS	201,479	0	201,479	0	0
TOTAL	402,958	0	402,958	0	0
5. SUPPLIES					
<i>Nevada's Promise</i> office	480,000	120,000	120,000	120,000	120,000
Statewide Longitudinal Data System	66,534	0	47,572	13,962	5,000
E-MALL / COMPASS	66,534	0	47,572	13,962	5,000
TOTAL	613,068	120,000	215,144	147,924	130,000

Budget Part I: Overall Budget Summary by Line Item Costs, cont.

6. CONTRACTUAL	TOTAL	YEAR 1	YEAR 2	YEAR 3	YEAR 4
SLDS Project Manager IV	712,500	0	237,500	237,500	237,500
SLDS Developer/Architect-IT Pro IV	598,500	0	199,500	199,500	199,500
SLDS DBA/Programmer	1,197,000	0	399,000	399,000	399,000
SLDS Trainer/Online Developer	570,000	0	0	380,000	190,000
E-C Project Manager	712,500	0	237,500	237,500	237,500

E-C Developer/Architect-JT Pro IV	448,800	0	149,600	149,600	149,600
E-C DBA/Programmer	1,197,000	0	399,000	399,000	399,000
E-C Trainer/Online Developer	570,000	0	0	380,000	190,000
CONTRACTUAL: Systems Thinking	405,675	105,675	100,000	100,000	100,000
TOTAL	77,965,257	13,521,755	20,886,166	21,478,358	22,078,978
9. TOTAL DIRECT COSTS					
10. INDIRECT COSTS					
<i>Nevada's Promise</i> office	1,864,888	449,548	455,140	471,555	488,645
Statewide Longitudinal Data System	428,406	0	118,465	144,612	165,329
E-MALL / COMPASS	441,449	0	109,201	145,877	186,371
CONTRACTUAL: External evaluator	2,005,675	205,675	600,000	600,000	600,000
CONTRACTUAL: Interim and formative assessment activities	8,751,350	2,196,350	2,185,000	2,185,000	2,185,000
CONTRACTUAL: Assessments	1,411,350	361,350	350,000	350,000	350,000
CONTRACTUAL: Data technical assistance	300,000	0	100,000	100,000	100,000
CONTRACTUAL: Professional Development	1,605,675	405,675	400,000	400,000	400,000
CONTRACTUAL: Differentiated	405,675	105,675	100,000	100,000	100,000
CONTRACTUAL: Efficacy of innovation	295,678	45,678	75,000	75,000	100,000
TOTAL	21,187,378	3,426,078	5,532,100	6,292,100	5,937,100
8. OTHER					
<i>Nevada's Promise</i> office	278,920	119,380	53,180	53,180	53,180
Statewide Longitudinal Data System	3,916,661	0	2,343,804	781,645	791,212
E-MALL / COMPASS	2,855,006	0	1,083,783	553,032	1,218,191
SUB-GRANTS: Supplemental funding for charter schools	2,200,000	375,000	475,000	600,000	750,000
SUB-GRANTS: LEAs roll-out reform agenda / systems thinking	1,050,000	200,000	250,000	300,000	300,000
SUB-GRANT: Professional development, standards	1,972,630	786,315	786,315	200,000	200,000
SUB-GRANT: Regional Professional Development Programs	6,020,000	1,505,000	1,505,000	1,505,000	1,505,000
SUB-GRANTS: Training / Professional Development	4,748,100	1,235,275	1,135,275	1,235,275	1,142,275
SUB-GRANTS: School Intervention Model expansion	9,000,000	250,000	1,750,000	3,500,000	3,500,000
SUB-GRANTS: Support to schools	2,650,000	600,000	650,000	700,000	700,000
SUB-GRANTS: STEM	5,894,740	2,363,700	1,286,965	1,244,925	999,150
SUB-GRANTS: INNOVATION	4,900,000	800,000	1,100,000	1,500,000	1,500,000
TOTAL	45,486,057	8,234,670	12,413,282	12,173,057	12,659,008
TOTAL	2,734,743	449,548	682,806	762,044	840,345

12. SUPPLEMENTAL FUNDING LEAS	6,800,000	1,700,000							
13. TOTAL COSTS	87,500,000	15,671,303	23,268,972	23,268,972	23,268,972	23,940,402	23,940,402	24,619,323	24,619,323
14. SUB-GRANTS 50% LEAS	87,500,000	21,875,000							
15. TOTAL BUDGET	175,000,000	37,546,303	45,143,972	45,143,972	45,143,972	45,815,402	45,815,402	46,494,323	46,494,323

Budget Part I: Overall Budget Summary by Line Item Costs, cont.

The Cost Basis for line items for Project-level budgets and the Nevada Department of Education Indirect Cost Rate Agreement are located at the end of this BUDGET NARRATIVE

A. SYSTEMS for IMPLEMENTATION of the REFORM AGENDA

A.1. AID-to-SCHOOLS

SUB-GRANTS: Funding sub-granted to participating LEAS (50% of RTTT funds)

SUB-GRANTS: Supplemental funding - additional implementation support for 17 LEAs

SUB-GRANTS: Supplemental funding for charter schools

A.2. GRANT IMPLEMENTATION, SUPPORT, EVALUATION

The Nevada's Promise Office

SUB-GRANT: Five Reform Councils

CONTRACTUAL: Systems Thinking

CONTRACTUAL: External Evaluator

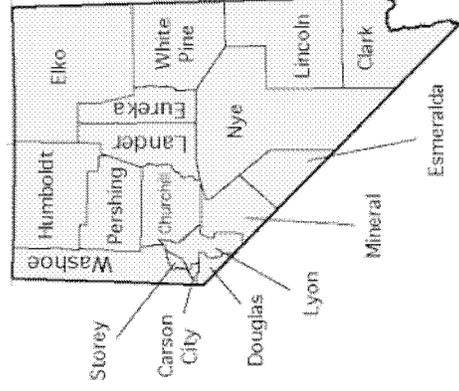
**A. SYSTEMS for IMPLEMENTATION of the REFORM AGENDA
A.1. AID-to-SCHOOLS: Funding Sub-granted to Participating LEAs (50% of Total Grant)**

Budget Part II: Project-Level Budget Table					
Project Name: Funding Sub-granted to Participating LEAs (50% of Total Grant)	2010-2011 Project Year 1	2011-2012 Project Year 2	2012-2013 Project Year 3	2013-2014 Project Year 4	Criteria: (A)(2)(i)(c) / (F)(2)(i)-(iv) Total
Budget Categories					
1. Personnel	0	0	0	0	0
2. Fringe Benefits	0	0	0	0	0
3. Travel	0	0	0	0	0
4. Equipment	0	0	0	0	0
5. Supplies	0	0	0	0	0
6. Contractual	0	0	0	0	0
7. Training Stipends	0	0	0	0	0
8. Other	0	0	0	0	0
9. Total Direct Costs (lines 1-8)	0	0	0	0	0
10. Indirect Costs*	0	0	0	0	0
11. Funding for Involved LEAs	0	0	0	0	0
12. Supplemental Funding for Participating LEAs (50%)	21,875,000	21,875,000	21,875,000	21,875,000	87,500,000
13. Total Costs (lines 9-12)	21,875,000	21,875,000	21,875,000	21,875,000	87,500,000

A. SYSTEMS for IMPLEMENTATION of the REFORM AGENDA
A.1. AID-to-SCHOOLS: Funding Sub-granted to Participating LEAs (50% of Total Grant)

Based on Title I grants to LEAs under the American Recovery and Reinvestment Act, projected, approximate allocations to LEAs: Clark County School District 85.7%, Washoe County School District 9.0%, and Carson City School District 1.0%. The remaining 14 LEAs will each receive less than 1.0% of the sub-grant funds. All 17 Nevada LEAs will be participating in Race to the Top (RTTT). Within 90 days of a RTTT award, Nevada LEAs will submit applications for sub-grants "... to complete final scopes of work which must contain detailed work plans that are consistent with the preliminary scope of work and with the State's grant application . . ." (RTTT application, p. 96). Sub-grant applicants will provide detailed project designs and implementation strategies that address Nevada Race to the Top (RTTT) objectives, and provide a detailed management plan that includes timelines with target benchmarks or milestones, detailed budgets for individual grant periods, key personnel with each person's responsibilities and accountability, and targets for key performance measures.

The 17 Nevada Pre-K-12 Local Education Agencies (LEAs) / School Districts Organized by Counties



- Carson City
- Churchill
- Clark
- Douglas
- Elko
- Esmeralda
- Eureka
- Humboldt
- Lander
- Lincoln
- Lyon
- Mineral
- Nye
- Pershing
- Storey
- Washoe
- White Pine

**A. SYSTEMS for IMPLEMENTATION of the REFORM AGENDA
A.1. AID-to-SCHOOLS: Supplemental Funding for Participating LEAs (Additional Implementation Support)**

Budget Part II: Project-Level Budget Table					
Project Name: Supplemental Funding for Participating LEAs (Additional Implementation Support)	2010-2011 Project Year 1	2011-2012 Project Year 2	2012-2013 Project Year 3	2013-2014 Project Year 4	Criteria: (F)(2)(i)-(iv) Total
Budget Categories					
1. Personnel	0	0	0	0	0
2. Fringe Benefits	0	0	0	0	0
3. Travel	0	0	0	0	0
4. Equipment	0	0	0	0	0
5. Supplies	0	0	0	0	0
6. Contractual	0	0	0	0	0
7. Training Stipends	0	0	0	0	0
8. Other	0	0	0	0	0
9. Total Direct Costs (lines 1-8)	0	0	0	0	0
10. Indirect Costs*	0	0	0	0	0
11. Funding for Involved LEAs	0	0	0	0	0
12. Supplemental Funding for Participating LEAs	1,700,000	1,700,000	1,700,000	1,700,000	6,800,000
13. Total Costs (lines 9-12)	1,700,000	1,700,000	1,700,000	1,700,000	6,800,000

A. SYSTEMS for IMPLEMENTATION of the REFORM AGENDA
A.1. AID-to-SCHOOLS: Supplemental Funding for Participating LEAs (Additional Implementation Support)

Nevada has the fifth largest LEA in the nation; the Clark County School District (Las Vegas metropolitan area) enrollment exceeds 311,000 students. Nevada also has one of the smallest LEAs in the nation; the frontier¹ Esmeralda County School District enrollment is 68 students. To ensure equity of RTTT project implementation support for all 17 Nevada LEAs, \$100,000 per year will be sub-granted to each participating LEA. The 17 Nevada participating LEAs will design and implement strategies that align with Nevada RTTT objectives, timelines, and key performance measures.

LEAs will be able to provide public and charter schools, teachers and leaders, and students with support for specific, identified needs unique to each LEA, which may include, are not be limited to: interventions, technical assistance, technology, curricula materials, parent and community involvement activities, and data and assessment professional development support.

¹ The U.S. Census Bureau defines "urban" as counties that have at least one population center exceeding 50,000 people; "frontier" as having less than 6 persons per square mile; "rural" is defined as the number of persons per square mile that falls between the other two.

**A. SYSTEMS for IMPLEMENTATION of the REFORM AGENDA
A.1. AID-to-SCHOOLS SUB-GRANTS: Supplemental Funding for Charter Schools**

Budget Part II: Project-Level Budget Table					
Project Name: Supplemental Funding for Charter Schools					Criteria: F(2)(f)-(iv)
Budget Categories	2010-2011 Project Year 1	2011-2012 Project Year 2	2012-2013 Project Year 3	2013-2014 Project Year 4	Total
1. Personnel	0	0	0	0	0
2. Fringe Benefits	0	0	0	0	0
3. Travel	0	0	0	0	0
4. Equipment	0	0	0	0	0
5. Supplies	0	0	0	0	0
6. Contractual	0	0	0	0	0
7. Training Stipends	0	0	0	0	0
8. Other	375,000	475,000	600,000	750,000	2,200,000
9. Total Direct Costs (lines 1-8)	0	0	0	0	0
10. Indirect Costs*	0	0	0	0	0
11. Funding for Involved LEAs	0	0	0	0	0
12. Supplemental Funding for Participating LEAs	0	0	0	0	0
13. Total Costs (lines 9-12)	375,000	475,000	600,000	750,000	2,200,000

**A. SYSTEMS for IMPLEMENTATION of the REFORM AGENDA
A.1. AID-to-SCHOOLS SUB-GRANTS: Supplemental Funding for Charter Schools**

RTTT grant year	Number of existing charter schools	State-sponsored and expected new	RTTT funds \$
1	12 existing + 3 new = 15 total		375,000
2	15 existing + 4 new = 19 total		475,000
3	19 existing + 5 new = 24 total		600,000
4	24 existing + 6 new = 30 total		750,000

Currently, Nevada has 28 operating charter schools that operate under a charter issued by a public entity, such as a local education agency (LEA), the Nevada State Board of Education, or the Nevada System of Higher Education (NSHE). LEAs sponsor 18 schools and 12 are sponsored by the Nevada State Board of Education (i.e., State-sponsored). Clark (Las Vegas) and Washoe (Reno - Sparks) LEAs each sponsor eight schools (16 total), and Carson (Carson City) and Douglas (Minden - Gardnerville - Stateline Lake Tahoe) LEAs each sponsor one. Neither the state nor LEA sponsored charter schools are LEAs; therefore, they are not eligible for the RTTT 50% of the total grant that is awarded to participating LEAs. LEA-sponsored charter schools may be eligible to receive RTTT funds through the LEA sponsor. RTTT funds will be used to support existing State-sponsored charter schools and increase the number of high-quality state-sponsored charter schools. RTTT funds of \$25,000 per school per grant year will support the 12 state-sponsored schools in addition to new charter schools. The new Nevada Department of Education (NDE) Charter Schools Office personnel will collaborate with NDE and RTTT Nevada's Promise office personnel to design and implement the charter schools project.

A. SYSTEMS for IMPLEMENTATION of the REFORM AGENDA
A.2. SUB-GRANTS: Supplemental funding for LEAs to roll-out reform agenda and systems change

Budget Part II: Project-Level Budget Table						
Project Name: Supplemental funding for LEAs to roll-out reform agenda and systems change Criteria: (A)(1)-all / (A)(2)-all						
Budget Categories	2010-2011 Project Year 1	2011-2012 Project Year 2	2012-2013 Project Year 3	2013-2014 Project Year 4	Total	
1. Personnel	0	0	0	0	0	0
2. Fringe Benefits	0	0	0	0	0	0
3. Travel	0	0	0	0	0	0
4. Equipment	0	0	0	0	0	0
5. Supplies	0	0	0	0	0	0
6. Contractual	0	0	0	0	0	0
7. Training Stipends	0	0	0	0	0	0
8. Other	200,000	250,000	300,000	300,000	1,050,000	1,050,000
9. Total Direct Costs (lines 1-8)	0	0	0	0	0	0
10. Indirect Costs*	0	0	0	0	0	0
11. Funding for Involved LEAs	0	0	0	0	0	0
12. Supplemental Funding for Participating LEAs	0	0	0	0	0	0
13. Total Costs (lines 9-12)	200,000	250,000	300,000	300,000	1,050,000	1,050,000

A. SYSTEMS for IMPLEMENTATION of the REFORM AGENDA
A.2. SUB-GRANTS: Supplemental Funding for LEAs to Roll-out Reform Agenda and Systems Change

RTTT sub-grant funds will support participating LEAs in their efforts to implement the Nevada comprehensive education reform agenda, sharing best practices statewide, allowing for periodic progress of goals, and collaborating with the NDE and the Nevada's *Promise* office. LEAs will be able to utilize funds to supplement other resources as they refine their scope of work to ensure 100% alignment with Nevada project goals and desired outcomes. LEAs will be able to support requirements based on the Managed Performance/Empowerment (MPE). Sub-grant funds may be used to support costs for personnel, travel, consultant fees, materials, and/or other items that will facilitate meeting requirements of the reform agenda and implement authentic systems change.

A. SYSTEMS for IMPLEMENTATION of the REFORM AGENDA
A.2. Grant Implementation, Support, Evaluation

Budget Part II: Project-Level Budget Table					
Project Name: The Nevada's Promise office	Criteria: (A)(1)-all / (A)(2)-all				
Budget Categories	2010-2011 Project Year 1	2011-2012 Project Year 2	2012-2013 Project Year 3	2013-2014 Project Year 4	Total
1. Personnel	1,287,829	1,346,899	1,409,308	1,474,137	5,518,173
2. Fringe Benefits	334,178	365,943	375,848	386,305	1,462,274
3. Travel	119,000	119,000	119,000	119,000	476,000
4. Equipment	0	0	0	0	0
5. Supplies	120,000	120,000	120,000	120,000	480,000
6. Contractual	0	0	0	0	0
7. Training Stipends	0	0	0	0	0
8. Other	119,380	53,180	53,180	53,180	278,920
9. Total Direct Costs (lines 1-8)	1,980,387	2,005,022	2,077,336	2,152,622	8,215,367
10. Indirect Costs*	449,548	455,140	471,555	488,645	1,864,888
11. Funding for Involved LEAs	0	0	0	0	0
12. Supplemental Funding for Participating LEAs	0	0	0	0	0
13. Total Costs (lines 9-12)	2,429,935	2,460,162	2,548,891	2,641,267	10,080,255

**A. SYSTEMS for IMPLEMENTATION of the REFORM AGENDA
A.2. Grant Implementation, Support, Evaluation - The Nevada's Promise office**

1. PERSONNEL	2010-11 YEAR 1	2011-12 YEAR 2	2012-13 YEAR 3	2013-14 YEAR 4	TOTAL
20 to be hired, job classification number, time commitment, salary Grade/Step					
a. Project Director (5.207 Director, ESE); 1 @ 1.00 FTE, 41/07-10	77,570	81,140	84,982	88,949	332,641
b. Project Manager (5.208 Ass't. Director, ESE); 1 @ 1.00 FTE, 40/07-10	74,083	77,570	81,140	84,982	317,775
c. Content Expert (5.233 Elementary & Secondary Education Consultant); 6 @ 1.00 FTE ea.; 39/07-10	424,830	444,498	465,420	486,840	1,821,588
d. Webmaster/IT Support (7.925 IT Professional III); 1 @ 1.00 FTE; 39/07-10	70,805	74,083	77,570	81,140	303,598
e. Reform Initiative Manager (5.232 Federal & Related Programs Consultant) 5 @ 1.00 FTE ea.; 39/07-10	354,025	370,415	387,850	405,700	1,517,990
f. Parent Involvement Consultant (5.232 Federal & Related Programs Consultant) 1 @ 1.00 FTE ea.; 39/07-10	61,951	64,708	67,693	70,805	265,157
g. Gifted and Talented Consultant (5.232 Federal & Related Programs Consultant) 1 @ 1.00 FTE ea.; 39/07-10	61,951	64,708	67,693	70,805	265,157
h. Grants & Projects Analyst II (7.755) 1 @ 1.00 FTE; 35/04-07	51,866	54,205	56,627	59,195	221,893
i. Administrative Assistant III (2.211) 3 @ 1.00 FTE ea.; 27/04-07	110,748	115,572	120,333	125,721	472,374
Personnel Total	1,287,829	1,346,899	1,409,308	1,474,137	5,518,173
2. FRINGE BENEFITS					
a. Project Director - 1	18,426	20,106	20,692	21,320	80,544
b. Project Manager - 1	17,892	19,548	20,106	20,692	78,238
c. Content Experts - 6	104,376	114,084	117,288	120,636	456,384
d. Webmaster - 1	17,396	19,014	19,548	20,106	76,064
e. Reform Initiative Managers - 5	86,980	95,070	97,740	100,530	380,320
f. Parent Involvement Consultant - 1	17,396	19,014	19,548	20,106	76,064
g. Gifted and Talented Consultant - 1	17,396	19,014	19,548	20,106	76,064
h. Grants & Projects Analysts - 1	15,589	17,130	17,566	18,025	68,310
i. Administrative Assistants - 3	38,727	42,963	43,812	44,784	170,286
Fringe Benefits Total	334,178	365,943	375,848	386,305	1,462,274

<i>NERO, cont.</i>						
3. TRAVEL						
a. 17 people @ \$7,000/yr. ea.; in-state & out-of-state to be determined	119,000	119,000	119,000	119,000	119,000	476,000
4. EQUIPMENT						
	0	0	0	0	0	0
5. SUPPLIES						
a. 20 people @ \$6,000/yr. ea.	120,000	120,000	120,000	120,000	120,000	480,000
6. CONTRACTUAL						
	0	0	0	0	0	0
7. TRAINING STIPENDS						
	0	0	0	0	0	0
8. OTHER: OPERATING COSTS						
a. Project Director - 1	5,969	2,659	2,659	2,659	2,659	13,946
b. Project Manager - 1	5,969	2,659	2,659	2,659	2,659	13,946
c. Content Experts - 6	35,814	15,954	15,954	15,954	15,954	83,676
d. Webmaster - 1	5,969	2,659	2,659	2,659	2,659	13,946
e. Reform Initiative Managers - 5	29,845	13,295	13,295	13,295	13,295	69,730
f. Parent Involvement Consultant - 1	5,969	2,659	2,659	2,659	2,659	13,946
g. Gifted and Talented Consultant - 1	5,969	2,659	2,659	2,659	2,659	13,946
h. Grants & Projects Analyst - 1	5,969	2,659	2,659	2,659	2,659	13,946
i. Administrative Assistants - 3	17,907	7,977	7,977	7,977	7,977	41,838
<i>Other Total</i>	119,380	53,180	53,180	53,180	53,180	278,920
9. TOTAL DIRECT COSTS	1,980,387	2,005,022	2,077,336	2,152,622	2,152,622	8,215,367
10. INDIRECT COSTS Unrestricted rate 22.7%	449,548	455,140	471,555	488,645	488,645	1,864,888
11. FUNDING for INVOLVED LEAs	0	0	0	0	0	0
12. SUPPLEMENTAL FUNDING for PARTICIPATING LEAs	0	0	0	0	0	0
13. TOTAL COSTS	2,429,935	2,460,162	2,548,891	2,641,267	2,641,267	10,080,255

A. SYSTEMS for IMPLEMENTATION of the REFORM AGENDA
A.2. Grant Implementation, Support, Evaluation - The Nevada's Promise office

The *Nevada's Promise* office will be located within the Nevada Department of Education (NDE). The NDE is the State of Nevada fiscal agent for the RTTT grant. Contracts and sub-grants will be dispersed by the NDE. RTTT grant funds will *create 20 new jobs* in the *Nevada's Promise* office, with *additional jobs created statewide and nationwide* through sub-grants and contracts.

1a.b. Project Director and Project Manager Specific to RTTT, these staff will be responsible for oversight and accountability of the RTTT project. In part, they will direct and supervise consultant staff in the RTTT project to ensure regulation and/or provision of statewide assistance to RTTT entities. They will plan, direct, and review RTTT project implementation by determining needs, setting goals, identifying potential barriers, and ensuring that RTTT objectives and performance measures are met in order to accomplish project outcomes. They will evaluate RTTT effectiveness in order to determine any changes that may be suitable for recommendation; respond to requests for services by planning with staff to provide services in a timely and cost-effective manner; respond and/or supervise responses to information requests in order to ensure timely and correct responses; review, edit, and approve all documents printed and sent from the NERO to ensure appropriateness and correctness of form and content.

They will develop and review budgets for project reform areas to ensure compliance with policy and procedures; monitor the maintenance of project budgets and reports to ensure appropriate procedures are followed; approve purchases, sub-grant award documents, request for payment by sub-grantees, and RTTT project monitoring reports to ensure compliance with policies, procedures and regulations. They will develop the RTTT biennial budget based on the RTTT grant award budget, determine discrepancies and/or necessary changes, and recommend or institute corrective action or adjustments. The leadership will identify employee training needs to provide appropriate training; guide new employees in setting objectives, review written drafts, establish deadlines, and monitor progress of training in order to direct new employee development; establish work performance standards to evaluate employees according to schedule and initiate disciplinary actions when necessary. They will act as liaisons between all RTTT entities

Nevada's Promise, cont.

to assist with the development and implementation of sub-grant projects by working with LEAs, the State Board of Education, and other RTTT entities.

1c.e.f.g. Consultants Specific to RTTT, in part they will provide services and leadership in an area of expertise to LEA, school, and other agency personnel in planning, developing, implementing, and evaluating educational curriculum and/or projects. RTTT consultants will collaborate with sub-grantees to establish the need for new or revised curriculum and/or projects in their areas of expertise in order to respond to RTTT project goals and/or needs assessment. RTTT consultants will interpret state and federal regulations and statutes in order to determine the legal basis, authority, and requirements for new or revised projects and/or curriculum; compile information on existing projects or curriculum to determine their strengths and weaknesses; assemble committees of RTTT personnel to gather their input on proposed new or revised projects and/or curriculum; prepare descriptions of new or revised projects to be reviewed by personnel for approval, as necessary, by NDE administration, State Board of Education, NSHE administration and Board of Regents, and the Legislative Counsel Bureau as appropriate.

They will assess budgetary needs and prepare budgets for the RTTT project to accurately reflect needs and meet established format and constraints. RTTT consultants will develop and disseminate instructional materials as dictated by RTTT goals and objectives; format, design and write project announcements to most effectively reach affected audience; draft sub-grant applications pursuant to federal regulations, and assemble sub-grant application review committees.

They will prepare, distribute, and review sub-grant applications for project participation in order to select and notify project participants; prepare materials such as handbooks, agendas, and completion certificates to complete on-site implementation of projects; make or arrange accommodations to meet project and participant needs; design, write, and distribute evaluation forms to ensure maximum return of evaluations by project participants; and compile, write, and distribute a summary report evaluation of projects in order to use results to improve future projects.

Nevada's Promise, cont.

They will draft and negotiate contract or inter-local agreements necessary within established guidelines to implement new or revised projects; oversee contracts, agreements, and expenditures to ensure timely and accurate payments within set limits; compile and organize pertinent documents to provide an accurate budget and project record for future use. Consultants prepare new or revised curriculum to comply with new or revised regulations or statute as applicable; design and disseminate curriculum to all affected parties for necessary notification prior to the implementation date. They will provide in-service training to local education agency personnel by preparing course content; delivering the training or hiring a consultant to give training; determining the need for in-service training; identifying financial and human resources; completing any necessary contractual agreements; arranging physical accommodations; conducting evaluation of the training; preparing evaluation/summary reports of the training; and maintaining budgetary and project records of the in-service training to meet the needs of teachers, principals and administrators as appropriate.

1d. Webmaster The RTTT Webmaster will be an Information Technology (IT) professional who will ensure that a Nevada RTTT website is complete, updated, and user-friendly, and offers all of the information, resources, and access to RTTT project information and data as directed by the state, NDE, and RTTT leadership. The Webmaster will analyze, develop, implement, maintain, and modify computer operations, systems, networks, databases, applications, and/or information security. The Webmaster will perform advanced professional work associated with the analysis, enhancement, maintenance, and installation of application-independent hardware and/or software components of one or more information systems including servers. Specific to RTTT, the Webmaster will evaluate and make technical recommendations regarding equipment configurations and associated software; serve as a liaison to vendor technical personnel; coordinate with RTTT entities concerning technical issues; and implement monitoring techniques and/or equipment to assess system and application operation and performance. The Webmaster will perform advanced professional work in the analysis of user requirements, and development and implementation of computer based solutions; and perform advanced level analytical and technical work where user or RTTT project requirements are of considerable complexity; require detailed knowledge of the user's subject matter; and implement individual components.

NERO, cont.

1h Grants and Projects Analyst The Analyst will develop and implement and/or assess, monitor, control and review the RTTT project administered by the NDE, and provide assistance to recipients in evaluating program effectiveness. The Analyst will review and evaluate sub-grant applications submitted by LEAs, schools, and other entities for program participation, eligibility determination, and approval recommendation. They will prepare grant applications to secure federal funding for State and/or State-sponsored programs including writing/amending program descriptions and compiling required financial and statistical data. They will research, develop, recommend, and implement long-range plans and projects within grant guidelines to maximize and enhance services provided. Provide technical assistance to service providers regarding program operations including grants management, program planning, and interpretation and analysis of regulations, policies and procedures. The Analyst will conduct and/or assist in conducting workshops to provide guidance to service providers and program applicants regarding grant requirements, policies, and procedures. They will compile data and prepare reports and inspect service provider operations to ensure adherence to program objectives; document and report all discrepancies and make suggestions regarding proposed improvements. They will conduct audits of financial records and reports submitted by service providers to ensure the appropriate and efficient use of monies received and/or reimbursed.

1.i. Administrative Assistants will provide secretarial support to all personnel in the RTTT Nevada's Promise office. They will ensure that office policies, procedures, requirements, and applicable regulations are applied. They will problem-solve, record meeting activities, and provide timely and pertinent services to all RTTT personnel. Administrative Assistants will interact with RTTT entity personnel and establish a collaborative working relationship with them.

A. SYSTEMS for IMPLEMENTATION of the REFORM AGENDA
A.2. CONTRACTUAL: Systems Thinking

Project Name: Systems Thinking		Budget Part II: Project-Level Budget Table				Criteria: (A)(2)(ii)
Budget Categories	2010-2011 Project Year 1	2011-2012 Project Year 2	2012-2013 Project Year 3	2013-2014 Project Year 4	Total	
1. Personnel	0	0	0	0	0	
2. Fringe Benefits	0	0	0	0	0	
3. Travel	0	0	0	0	0	
4. Equipment	0	0	0	0	0	
5. Supplies	0	0	0	0	0	
6. Contractual	100,000	100,000	100,000	100,000	400,000	
7. Training Stipends	0	0	0	0	0	
8. Other	0	0	0	0	0	
9. Total Direct Costs (lines 1-8)	0	0	0	0	0	
10. Indirect Costs*	5,675	0	0	0	5,675	
11. Funding for Involved LEAs	0	0	0	0	0	
12. Supplemental Funding for Participating LEAs	0	0	0	0	0	
13. Total Costs (lines 9-12)	105,675	100,000	100,000	100,000	405,675	

A. SYSTEMS for IMPLEMENTATION of the REFORM AGENDA

A.2. CONTRACTUAL: Systems Thinking

Through the competitive Request for Proposals (RFP) process, the Nevada Department of Education—through the *Nevada’s Promise* office—will contract with a national expert facilitate learning that leads to high-quality implementation of Nevada’s global systems reform work. Fulfilling *Nevada’s Promise* will require transformative change in the way educational systems and partners conduct business. To support necessary shifts in cultural thinking and operational outcomes, coordinated and progressive systems thinking is essential. The contractor will work with the Nevada Department of Education, the five reform area councils, and other primary partners including Regional Professional Development Programs and LEAs. Deliverables will include training and technical assistance that leads to the development and implementation of communication and action plans that are outcomes-driven and that lead to deep improvements in student performance, educator satisfaction, and community confidence.

**A. SYSTEMS for IMPLEMENTATION of the REFORM AGENDA
A.2. CONTRACTUAL: External Evaluator**

Project Name: External Evaluator		Budget Part II: Project-Level Budget Table				Criteria: (A)(3)(i)	
Budget Categories	2010-2011 Project Year 1	2011-2012 Project Year 2	2012-2013 Project Year 3	2013-2014 Project Year 4	Total		
1. Personnel	0	0	0	0	0	0	
2. Fringe Benefits	0	0	0	0	0	0	
3. Travel	0	0	0	0	0	0	
4. Equipment	0	0	0	0	0	0	
5. Supplies	0	0	0	0	0	0	
6. Contractual	200,000	600,000	600,000	600,000	2,000,000	2,000,000	
7. Training Stipends	0	0	0	0	0	0	
8. Other	0	0	0	0	0	0	
9. Total Direct Costs (lines 1-8)	0	0	0	0	0	0	
10. Indirect Costs*	5,675	0	0	0	5,675	5,675	
11. Funding for Involved LEAs	0	0	0	0	0	0	
12. Supplemental Funding for Participating LEAs	0	0	0	0	0	0	
13. Total Costs (lines 9-12)	205,675	600,000	600,000	600,000	2,005,675	2,005,675	

A. SYSTEMS for IMPLEMENTATION of the REFORM AGENDA
A.2. CONTRACTUAL: External Evaluator

Through the competitive Request for Proposals (RFP) process, the Nevada Department of Education—through the *Nevada's Promise* office—will contract with a national expert to design and conduct a rigorous program evaluation in order to assure the ambitious Nevada RTTT grant project is implemented with fidelity, the activities are completed on time and within budget, and measurable objectives and key performance measures are achieved. The External Evaluator will collaborate with all RTTT project stakeholders and ultimately be responsible for development, testing, and revision of data collection instruments, as well as finalizing the plan for data collection. The External Evaluator will prepare annual and interim reports as determined by the NDE and *Nevada's Promise* office leadership. The External Evaluator qualifications will, in part, align with the standards articulated by the Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance (NCEE) for conducting ". . . unbiased large-scale evaluations of education programs and practices supported by federal funds [and] research-based technical assistance to educators and policymakers . . ." (http://ies.ed.gov/ncee/tech_methods).

B. STANDARDS and ASSESSMENTS

SUB-GRANTS: Five Reform Area Councils

CONTRACTUAL: Interim and formative assessment activities

CONTRACTUAL: Assessments

**B. STANDARDS and ASSESSMENTS
SUB-GRANTS: Standards, Professional Development**

Budget Part II: Project-Level Budget Table					
Project Name: Standards, Professional Development	Criteria: (B)(I)(i) / (B)(I)(ii)				
Budget Categories	2010-2011 Project Year 1	2011-2012 Project Year 2	2012-2013 Project Year 3	2013-2014 Project Year 4	Total
1. Personnel	0	0	0	0	0
2. Fringe Benefits	0	0	0	0	0
3. Travel	0	0	0	0	0
4. Equipment	0	0	0	0	0
5. Supplies	0	0	0	0	0
6. Contractual	0	0	0	0	0
7. Training Stipends	0	0	0	0	0
8. Other	786,315	786,315	200,000	200,000	1,972,630
9. Total Direct Costs (lines 1-8)	0	0	0	0	0
10. Indirect Costs*	0	0	0	0	0
11. Funding for Involved LEAs	0	0	0	0	0
12. Supplemental Funding for Participating LEAs	0	0	0	0	0
13. Total Costs (lines 9-12)	786,315	786,315	200,000	200,000	1,972,630

**B. STANDARDS and ASSESSMENTS
SUB-GRANTS: Standards, Professional Development**

In addition to the 50% of total grant RTTT funds allocated to participating LEAs and RPD P sub-grant funds, LEAs will be able to apply for funds to carry out specific professional development activities necessitated by the Common Core Standards roll-out. LEAs will be able to support professional development in the areas of (a) common core standards and formative assessments, (b) continuous support and constructive feedback, (c) mentorship, (d) curriculum and instruction, and (e) support access to expertise, resources, and effective practices.

**B. STANDARDS and ASSESSMENTS
CONTRACTUAL: Interim and Formative Assessment Activities**

Budget Part II: Project-Level Budget Table					
Project Name: Interim and Formative Assessment Activities	2010-2011 Project Year 1	2011-2012 Project Year 2	2012-2013 Project Year 3	2013-2014 Project Year 4	Criteria: (B)(2)(i) / (B)(3) Total
1. Personnel	0	0	0	0	0
2. Fringe Benefits	0	0	0	0	0
3. Travel	0	0	0	0	0
4. Equipment	0	0	0	0	0
5. Supplies	0	0	0	0	0
6. Contractual	2,185,000	2,185,000	2,185,000	2,185,000	8,740,000
7. Training Stipends	0	0	0	0	0
8. Other	0	0	0	0	0
9. Total Direct Costs (lines 1-8)	0	0	0	0	0
10. Indirect Costs*	11,350	0	0	0	11,350
11. Funding for Involved LEAs	0	0	0	0	0
12. Supplemental Funding for Participating LEAs	0	0	0	0	0
13. Total Costs (lines 9-12)	2,196,350	2,185,000	2,185,000	2,185,000	8,751,350

B. STANDARDS and ASSESSMENTS CONTRACTUAL: Interim and Formative Assessment Activities

Assessment data will be used at the classroom, grade, and school level to determine which students are performing below grade level and are in need of standards-based and diagnostic assessments to determine what supplemental instruction is needed for them to progress to grade level expectations. RTTT funds will provide assessment instruments for an anticipated 437,000 students at an estimated \$20 per student.

To develop a more comprehensive and aligned system of interim assessments in Nevada, the *Nevada's Promise* office will provide oversight on an evaluation of the existing interim / benchmark systems across all LEAs and state-sponsored charter schools during the 2010-2011 school year.

Formative Assessments

Classroom-based formative assessments are a critical component of a balanced assessment system designed to inform educators about student thinking as they perform tasks, justify solutions, and/or assess understanding of a concept prior to advancing. Based on data collected through formative assessments, educators can gauge, sequence, and differentiate instruction. By 2013-2014, RTTT will fund statewide interim and formative tools that will be available to all Nevada schools to support instruction of and measure student growth in Common Core State Standards. Work will continue toward pre-course and post-course common statewide assessments for other subjects, such as science, social studies, and computer technology.

**B. STANDARDS and ASSESSMENTS
CONTRACTUAL: Assessments**

Project Name: Assessments	Budget Part II: Project-Level Budget Table				Criteria: (B)(3)	Total
	2010-2011 Project Year 1	2011-2012 Project Year 2	2012-2013 Project Year 3	2013-2014 Project Year 4		
1. Personnel	0	0	0	0	0	0
2. Fringe Benefits	0	0	0	0	0	0
3. Travel	0	0	0	0	0	0
4. Equipment	0	0	0	0	0	0
5. Supplies	0	0	0	0	0	0
6. Contractual	350,000	350,000	350,000	350,000	1,400,000	1,400,000
7. Training Stipends	0	0	0	0	0	0
8. Other	0	0	0	0	0	0
9. Total Direct Costs (lines 1-8)	0	0	0	0	0	0
10. Indirect Costs*	11,350	0	0	0	11,350	11,350
11. Funding for Involved LEAs	0	0	0	0	0	0
12. Supplemental Funding for Participating LEAs	0	0	0	0	0	0
13. Total Costs (lines 9-12)	361,350	300,000	300,000	300,000	1,411,350	1,411,350

**B. STANDARDS and ASSESSMENTS
CONTRACTUAL: Assessments**

Through the competitive Request for Proposals (RFP) process, the Nevada Department of Education—through the *Nevada's Promise* office—will contract with national experts to provide technical assistance and guidance to achieve RTTT objectives in assessment and data system design, and evaluation related to assessment data.

C. DATA SYSTEMS to SUPPORT INSTRUCTION

Statewide Longitudinal Data System

E-MALL / COMPASS

CONTRACTUAL: Data technical assistance

C. DATA SYSTEMS to SUPPORT INSTRUCTION - Nevada Statewide Longitudinal Data System

Budget Part II: Project-Level Budget Table						
Project Name:	Nevada Statewide Longitudinal Data System					Criteria: (C) - all
Budget Categories	2010-2011 Project Year 1	2011-2012 Project Year 2	2012-2013 Project Year 3	2013-2014 Project Year 4	Total	
1. Personnel	0	171,425	311,954	391,038	874,417	
2. Fringe Benefits	0	49,604	90,746	113,087	253,437	
3. Travel	0	14,063	64,240	122,938	201,241	
4. Equipment	0	201,479	0	0	201,479	
5. Supplies	0	47,572	13,962	5,000	66,534	
6. Contractual	0	836,000	1,216,000	1,026,000	3,078,000	
7. Training Stipends	0	0	0	0	0	
8. Other	0	2,343,804	781,645	791,212	3,916,661	
9. Total Direct Costs (lines 1-8)	0	3,663,947	2,478,547	2,449,275	8,591,769	
10. Indirect Costs*	0	118,465	144,612	165,329	428,406	
11. Funding for Involved LEAs	0	0	0	0	0	
12. Supplemental Funding for Participating LEAs	0	0	0	0	0	
13. Total Costs (lines 9-12)	0	3,782,412	2,623,159	2,614,604	9,020,175	

**C. DATA SYSTEMS to SUPPORT INSTRUCTION
Statewide Longitudinal Data Systems**

Amounts rounded up to nearest whole dollar

FTE = Full-time equivalent (based on 2,080 hrs./yr.)

DoIT = Nevada Department of Information Technology

DBA = Database Administrator

PD = Project Director LV = Las Vegas RT = Round Trip TBH = To Be Hired est. = estimated S/H = Shipping/Handling

MSA = Master Service Agreement, NV Dept. of Administration, Purchasing Division

SLA = Service Level Agreement, DoIT

GSA = Federal General Services Administration

est. = estimated S/H = Shipping/Handling

	YEAR 2	YEAR 3	YEAR 4	TOTAL
1a. Business Process Analyst 1, TBH, 2 @ 1.00 FTE ea., salary Grade/Step 33/06-08	103,732	106,844	110,050	320,626
1b. Data Quality Manager/IT Pro III, TBH, 1.00 FTE, salary Grade/Step 39/06-08	67,693	69,724	71,816	209,233
1c. School Improvement/Data Trainer, TBH, 2 Yr. 2; 3 Yr. 3 & 4 ea. @ 1.00 FTE ea., salary Grade/Step 39/06-07	0	135,386	209,172	344,558
Personnel Total	171,425	311,954	391,038	874,417
2. FRINGE BENEFITS	YEAR 2	YEAR 3	YEAR 4	TOTAL
2a. Line Items 1a, 1b, 1c, Employer/Employee paid plan	49,604	90,746	113,087	253,437
3. TRAVEL	YEAR 2	YEAR 3	YEAR 4	TOTAL
3a. OUT-OF-STATE: PD & Project Manager IV attend grant meeting, Washington, DC				
Airfare, RT Reno to Dulles, Southwest Airlines Anytime Fare as of Jan. 5-8, 2010, 1 RT @ \$881 x 2 people (\$779.54 base fee + \$100.86 taxes = \$880.40/person)	1,762	1,762	1,762	5,286
Mileage, RT Carson City to Reno Airport, personal car, 62 mi. @ \$0.55/mi. x 2 people	69	69	69	207

SLDS, cont.

Airport parking, 4 days @ \$12/day x 2 people	96	96	96	288
Ground transportation, cab, shuttle 4 days @ est.\$30/day x 2 people	240	240	240	720
Lodging, out-of-state GSA rate March 1-June 30, 3 days @ \$226/day x 2 people	1,356	1,356	1,356	4,068
Lodging tax, out-of-state GSA rate, 13%/day, 3 days @ \$29.38 /day x 2 people	177	177	177	531
Per diem (M&IE), out-of-state GSA rate, full day, 2 days @ \$71/day x 2 people	284	284	284	852
Per diem (M&IE), out-of-state GSA rate, first & last days, 2 days @ \$53.25/day x 2 people	213	213	213	639
3a. Sub-total	4,197	4,197	4,197	12,591
3b. OUT-OF-STATE: PD & Project Manager IV attend Management Information Systems (MIS) conference				
Airfare, RT Reno to Dulles, Southwest Airlines Anytime Fare as of Jan. 5-8, 2010, 1 RT @ \$881 x 2 people (\$389.77 base fee + \$50.43 taxes = \$440.20/person)	1,762	1,762	1,762	0
Mileage, RT Carson City to Reno Airport, personal car, 62 mi. @ \$0.55/mi. x 2 people	69	69	69	0
Airport parking, 5 days @ \$12/day x 2 people	120	120	120	0
Ground transportation, cab, shuttle 5 days @ est.\$30/day x 2 people	300	300	300	0
Lodging, out-of-state GSA rate March 1-June 30, 4 days @ \$226/day x 2 people	1,808	1,808	1,808	0
Lodging tax, out-of-state GSA rate, 13%/day, 4 days @ \$29.38 /day x 2 people	235	235	235	0
Per diem (M&IE), out-of-state GSA rate, full day, 3 days @ \$71/day x 2 people	426	426	426	0
Per diem (M&IE), out-of-state GSA rate, first & last days, 2 days @ \$53.25/day x 2 people	213	213	213	0
3b. Sub-total	4,933	4,933	4,933	0

SLDS, cont.

3c. OUT-OF-STATE: PD & Project Manager IV attend Education Information Management Advisory Consortium (EIMAC) conference					
Airfare, RT Reno to Dulles, Southwest Airlines Anytime Fare as of Jan. 5-8, 2010, 1 RT @ \$881 x 2 people (\$389.77 base fee + \$50.43 taxes = \$440.20/person)	1,762	1,762	1,762	1,762	0
Mileage, RT Carson City to Reno Airport, personal car, 62 mi. @ \$0.55/mi. x 2 people	69	69	69	69	0
Airport parking, 5 days @ \$12/day x 2 people	120	120	120	120	0
Ground transportation, cab, shuttle 5 days @ est.\$30/day x 2 people	300	300	300	300	0
Lodging, out-of-state GSA rate March 1-June 30, 4 days @ \$226/day x 2 people	1,808	1,808	1,808	1,808	0
Lodging tax, out-of-state GSA rate, 13%/day, 4 days @ \$29.38 /day x 2 people	235	235	235	235	0
Per diem (M&IE), out-of-state GSA rate, full day, 3 days @ \$71/day x 2 people	426	426	426	426	0
Per diem (M&IE), out-of-state GSA rate, first & last days, 2 days @ \$53.25/day x 2 people	213	213	213	213	0
3c. Sub-total	4,933	4,933	4,933	4,933	0
Out-of-State Travel Sub-total	14,063	14,063	14,063	14,063	42,189
3d. IN-STATE: PD or Project Manager IV, & 1 Trainer/Online Developer to on-site regional (Las Vegas, Elko) trainings & technical assistance for LEAs & State sponsored charter schools. Trainer/Online Developer will provide technical assistance & support, and collaborate to design, develop, and implement data training programs for educators.					
Airfare, RT Reno to Las Vegas, Southwest Airlines, anytime fare as of Nov. 2-5, 2009, 12 RTs @ \$290/person x 2 people	0	6,960	6,960	6,960	13,920

SLDS, cont.

Airfare, RT Reno to Elko, Delta Airlines, as of Nov. 2-5, 2009, 4 RTs @ \$687.20/person x 2 people	0	5,498	5,498	10,996
Mileage Carson City to Reno airport, personal car, 16 RTs x 66 mi./trip = 1,056 mi. @ \$0.55/mi. x 2 people	0	1,162	1,162	2,324
Airport parking, \$12/day Reno airport, 40 days @ \$12/day x 2 people	0	960	960	1,920
Ground transportation, bus, cab, shuttle, 40 days @ \$30/day x 2 people	0	2,400	2,400	4,800
LV: Lodging, NV in-state GSA per diem rate, Las Vegas, 12 days @ \$118/day max. depends on dates x 2 people (1 day lodging/trip)	0	2,832	2,832	5,664
LV: Nevada transient lodging tax, Las Vegas 13.5% + Nevada hotel energy surcharge (compulsory), avg. \$4/day, 12 days @ \$19.93/day x 2 people (based on max. lodging rate \$118/day)	0	479	479	958
LV: Per diem (M&IE), Las Vegas in-state GSA rate full day, 24 days @ \$71/day x 2 people	0	3,408	3,408	6,816
Elko: Lodging, NV in-state GSA per diem CONUS rate, 12 days @ \$70/day x 2 people	0	1,680	1,680	3,360
Elko: Nevada transient lodging tax, Elko 12% + Nevada hotel energy surcharge (compulsory), avg. \$4/day, 12 days @ \$12.40/day x 2 people	0	298	298	596
Elko: Per diem (M&IE), NV in-state GSA rate full day, 16 days @ \$61/day x 2 people	0	976	976	1,952
3d. Sub-total	0	26,653	26,653	53,306
3e. IN-STATE: School Improvement/Data Trainers provide regional trainings & technical assistance for 17 LEAs & State-sponsored charter schools.				
LAS VEGAS & ELKO LV: 2 days per trip x 12 trips = 24 days total. Elko: 4 days per trip x 4 trips = 16 days total. Total: 40 days. Yr. 2: 2 people, 6 mon./yr.; Yr. 3 & 4: 3 people, 12 mon./yr.				
Airfare, RT Reno to Las Vegas, Southwest Airlines, anytime fare as of Nov. 2-5, 2009, Yr. 2: 6 RT x 2 people; Yr. 3 & 4 ea.: 12 RT x 3 people @ \$290/person	0	3,480	10,440	13,920

SLDS, cont.

Airfare, RT Reno to Elko, Delta Airlines, as of Nov. 2-5, 2009, Yr. 2: 2 RT x 2 people; Yr. 3 & 4 ea.: 4 RT x 3 people @ \$687.20/person	0	2,749	8,247	10,996
Mileage Carson City to Reno airport, personal car, Yr. 2: 8 RT x 2 people; Yr. 3 & 4 ea. Yr.: 16 RT x 3 people, 66 mi. @ \$0.55/mi.	0	581	1,743	2,324
Airport parking, \$12/day Reno airport, Yr. 2: 20 days x 2 people; Yr. 3 & 4 ea.: 40 days x 3 people @ \$12/day	0	480	1,440	1,920
Ground transportation, bus, cab, shuttle, Yr. 2: 20 days x 2 people; Yr. 3 & 4 ea.: 40 days x 3 people @ \$30/day	0	1,200	3,600	4,800
L V: Lodging, NV in-state GSA per diem rate, Las Vegas, Yr. 2: 6 days x 2 people; Yr. 3 & 4 ea.: 12 days x 3 people @ \$118/day max.	0	1,416	4,248	5,664
L V: Nevada transient lodging tax, Las Vegas 13.5% + Nevada hotel energy surcharge (compulsory), avg. \$4/day, Yr. 2: 6 days x 2 people; Yr. 3 & 4 ea.: 12 days x 3 people @ \$19.93/day (based on max. lodging rate \$118/day)	0	240	719	959
L V: Per diem (M&IE), Las Vegas in-state GSA rate full day, Yr. 2: 12 days x 2 people; Yr. 3 & 4 ea.: 24 days x 3 people @ \$71/day	0	1,704	5,112	6,816
Elko: Lodging, NV in-state GSA per diem CONUS rate, Yr. 2: 6 days x 2 people; Yr. 3 & 4 ea.: 12 days x 3 people @ \$70/day	0	840	2,520	3,360
Elko: Nevada transient lodging tax, Elko 12% + Nevada hotel energy surcharge (compulsory), avg. \$4/day, Yr. 2: 6 days x 2 people; Yr. 3 & 4 ea.: 12 days x 3 people @ \$12.40/day	0	149	447	596
Elko: Per diem (M&IE), NV in-state GSA rate full day, Yr. 2: 6 days x 2 people; Yr. 3 & 4 ea.: 12 days x 3 people @ \$61/day	0	732	2,196	2,928
REGIONAL other than Las Vegas & Elko. Yr. 2: 2 people, 5 mon./yr. Yr. 3 & 4 each: 3 people, 10 mon./yr.				0
Ground transportation, NV Motor Pool car, Yr. 2: 8 days/mon. x 5 mon.; Yr. 3 & 4 ea.: 16 days/mon. x 10 mon. @ \$26/day.	0	1,040	4,160	5,200

SLDS, cont.

Ground transportation, NV Motor Pool, mileage, Yr. 2: 1,000 mi./mon. x 5 mon.; Yr. 3 & 4 ea.: 3,000 mi./mon. x 10 mon. @ \$0.17/mi.		850	5,100	5,950
Lodging, NV in-state GSA per diem CONUS rate, Yr. 2: 6 days/mon. x 5 mon. x 2 people ; Yr. 3 & 4 ea.: 8 days/mon. x 10 mon. x 3 people @ \$70/day	0	4,200	16,800	21,000
Nevada transient lodging tax, avg. 10% + Nevada hotel energy surcharge (compulsory), avg. \$4/day, Yr. 2: 6 days/mon. x 5 mon. x 2 people; Yr. 3 & 4 ea.: 8 days/mon. x 10 mon. x 3 people @ \$11/day	0	660	2,640	3,300
Per diem (M&IE), NV in-state GSA rate full day, Yr. 2: 3 days/mon. x 5 mon. x 2 people; Yr. 3 & 4 ea.: 4 days/mon. x 10 mon. x 3 people @ \$61/day	0	1,830	7,320	9,150
Per diem (M&IE), NV in-state GSA rate first & last days, Yr. 2: 3 days/mon. x 5 mon. x 2 people; Yr. 3 & 4 ea.: 4 days/mon. x 10 mon. x 3 people @ \$45.75/day	0	1,373	5,490	6,863
<i>3e. Sub-total</i>	0	23,524	82,222	105,746
<i>In-State Travel Sub-total</i>	0	50,177	108,875	159,052
<i>Out-of-State Travel Sub-total</i>	14,063	14,063	14,063	42,189
<i>Travel Total</i>	14,063	64,240	122,938	201,241
4. EQUIPMENT more than \$5,000/item	YEAR 2	YEAR 3	YEAR 4	TOTAL
4a. Server & storage hardware enhancements 2 @ \$42,435 ea.; 1 @ \$36,809	121,679	0	0	121,679
4b. Training software (Flextraining)	79,800	0	0	79,800
<i>Equipment Total</i>	201,479	0	0	201,479
5. SUPPLIES less than \$5,000/item	YEAR 2	YEAR 3	YEAR 4	TOTAL
5a. Computer workstations 7 Yr. 2; 4 Yr. 3 (11 total) @ \$1,403.66 ea.	9,826	5,615	0	15,441

SLDS, cont.

5b. Computer workstation software 7 Yr. 2; 4 Yr. 3 (11 total) @ \$836.59 ea.	5,857	3,347	0	9,204
5c. Server & storage software enhancements (a)	9,801	0	0	9,801
5d. Server & storage software enhancements (b)	17,088	0	0	17,088
5e. Misc.: Copier & toner costs, copies, paper, general office supplies.	5,000	5,000	5,000	15,000
Supplies Total	47,572	13,962	5,000	66,534
6. CONTRACTUAL	YEAR 2	YEAR 3	YEAR 4	TOTAL
6a. Project Manager IV, MSA, 1.00 FTE @ \$125/hr. x 1,900 hrs.	237,500	237,500	237,500	712,500
6b. Developer/Architect-IT Pro IV, MSA, 1.00 FTE @ \$105/hr. x 1,900 hrs.	199,500	199,500	199,500	598,500
6c. DBA/Programmer, MSA, 2 @ 1.00 FTE ea. @ \$105/hr. x 1,900 hrs.	399,000	399,000	399,000	1,197,000
6d. Trainer/Online Developer, MSA, 2 Yr. 2; 1 Yr. 3 & 4 each @ 1.00 FTE ea. @ \$100/hr. x 1,900 hrs.	0	380,000	190,000	570,000
Contractual Total	836,000	1,216,000	1,026,000	3,078,000
<i>First \$25,000 of each of 6 contracts subject to Indirect Costs (\$150,000 total)</i>	<i>100,000</i>	<i>50,000</i>	<i>0</i>	<i>150,000</i>
<i>Amount of Contractual not subject to Indirect Costs</i>	<i>686,100</i>	<i>1,116,100</i>	<i>976,100</i>	<i>2,778,300</i>
7. TRAINING STIPENDS	0	0	0	0
8. OTHER	YEAR 2	YEAR 3	YEAR 4	TOTAL
8a. SUB-AWARD: Nevada System of Higher Education (NSHE)	2,254,497	725,390	744,853	3,724,740
8c. State Operating Costs per person, 6 Yr. 2 @ \$5,969 ea. + 1 @ \$1,493 ; 10 Yr. 3 @ \$2,659 ea. + 1 @ \$665; 10 ea. Yr. 4 ea. @ est. \$2,659 ea. + 1 @ est. \$665.	37,307	27,255	27,255	91,817
8d. Training costs for NDE & RTTT Nevada's Promise office staff	50,000	28,000	18,650	96,650
8e. S/H costs for equipment & supplies, est.	2,000	1,000	454	3,454
Other Total	2,343,804	781,645	791,212	3,916,661
<i>Amount of Other, sub-awards, not subject to Indirect Costs</i>	<i>2,254,497</i>	<i>725,390</i>	<i>744,853</i>	<i>3,724,740</i>

SLDS, cont.

9. TOTAL DIRECT COSTS	3,663,947	2,478,547	2,449,275	8,591,769
<i>Direct Costs on which Indirect Costs are calculated = Total Direct Costs subtract Equipment, Sub-awards, all but \$150,000 of Contractual</i>				
	521,871	637,057	728,322	1,887,250
10. INDIRECT COSTS	118,465	144,612	165,329	428,406
<i>Indirect Cost Rate (ICR) - Unrestricted 22.7%</i>				
11. FUNDING for INVOLVED LEAS	0	0	0	0
12. SUPPLEMENTAL FUNDING for PARTICIPATING LEAS	0	0	0	0
13. TOTAL COSTS Budget Categories 9 + 10 + 11	3,782,412	2,623,159	2,614,604	9,020,175

C. DATA SYSTEMS to SUPPORT INSTRUCTION Nevada Statewide Longitudinal Data System

1a. Business Process Analyst 1 TBH, 2 @ 1.00 FTE ea., salary Grade/Step 33/06-08, \$51,866/yr.

Business Analysts must have a minimum of three (3) years in analyzing business practices and procedures for the purpose of defining and establishing new and improved procedures and practices. Improved practices may include the use of automated information technologies and as such, require experience that includes specialized technical skills or experience in the use of those technologies. Qualifying experience may also include: (1) documentation of current practices and procedures, workflow, information flow and current automated systems; (2) definition of problems, issues, and/or areas needing improvement; (3) definition of alternative/potential solutions; and (4) plans for implementation of best solutions and/or practices. Experience in the use of information technology tools such as Visio, Erwin, Oracle Designer, Project Workbench, etc., may also be required.

1b. Data Quality Manager TBH, 1 @ 1.00 (100%) FTE, salary Grade/Step 39/06-08, \$67,693/yr.

This position will coordinate the data audit program, including the design of additional audits for the eSAIN system, analyze results, and recommend the optimal use of the audits. The Data Quality Manager will lead the data efforts and work closely with the NDE data collaborative group to ensure that the NDE data is both accurate and valid.

1c. School Improvement/Data Trainers TBH, 2 Yr. 2; 3 Yr. 3 & 4 ea. @ 1.00 (100%) FTE ea., salary Grade/Step 39/06-07, \$67,692/yr. These positions will be responsible to develop on-site training and technical assistance for on-site data use for school improvement. Two will be hired Year 2 to create, develop, and pilot the training; an additional person will be hired Year 3 to scale-up the project and reach more schools. The will collaborate with the Trainer/Online Developers with development of online materials, and provide on-site training to LEA and school-level educators in the 273 K-12 public schools deemed In Need of Improvement based on Adequate Yearly Progress. As time and project progress allow, they will scale-up training to include the 407 additional K-12 and 12 state-sponsored charter schools. The focus of the training will be on review and analysis of data for improvement planning to identify needs, select targeted actions, and evaluate progress in a continuous improvement cycle. At a classroom level, teachers will be trained to use data to inform instructional practices and utilize tiered interventions more effectively. The positions involve extensive

SLDS, cont.

travel to provide training, technical assistance, and support on a regional and local level. The personnel will plan logistics, scheduling, and facilitation of trainings and technical assistance. They will act as liaisons between the NDE and LEA personnel, participate in stakeholder meetings, and prepare reports to fulfill grant project requirements. Requirements for the position also include two (2) or more years of professional experience in the development of technical training curriculum, coordinating training classes, conducting training, monitoring and evaluating training, overseeing specific technical training programs, and recommending training curriculum.

2. FRINGE BENEFITS

See BUDGET NARRATIVE, COST BASIS section.

3. TRAVEL

3a. – 3d. OUT-of-STATE: Line items are significant meetings critical to grant project success for training, technical assistance, and networking. The Project Director or Project Manager IV and one Trainer/Online Developer will travel to on-site regional school improvement/data use trainings, technical assistance, and support workshops as needed. Implementation will occur of on-site regional school improvement/data use trainings, technical assistance, and support workshops by School Improvement/Data Trainers for LEAs and state-sponsored charter schools. Training, technical assistance, and support are focused on the collection, analysis, and use of data to inform decision-making for school improvement.

3e. IN-STATE: Las Vegas: 2 days per trip x 12 trips = 24 days total. Elko: 4 days per trip x 4 trips = 16 days total. Total: 40 days.

Yr. 2: 2 people, 6 mon./yr.; Yr. 3-4: 3 people, 12 mon./yr. REGIONAL other than Las Vegas & Elko: Yr. 2: 2 people, 5 mon./yr.

Yr. 3-4: 3 people, 10 mon./yr. School Improvement/Data Trainers create, develop, implement, and evaluate trainings, technical assistance, and support for educators at LEAs and state-sponsored charter schools regarding collection, analysis, and use of data to inform decision-making for school improvement. Costs are estimated and dependent on hiring of personnel, planning and finalization of priority needs of schools not meeting AYP, and as determined by the NDE Office of School Improvement. Travel for regional training and technical assistance is estimated and subject to change dependent on actual dates of travel determined by grant-

funded personnel and LEA data availability. The training and technical assistance program will be aligned to Nevada SLDS outcomes and key performance measures.

4. EQUIPMENT Equipment is defined as tangible non-expendable personal property having a useful life of more than one year and an acquisition cost of \$5,000 or more per unit.

4a. Server and storage hardware enhancements 2 @ \$42,434.97 ea.; 1 @ \$36,808.89

4b. Training software Flextraining Software. All software modules (Student, Management) license for unlimited students.

Includes unlimited administrators, included: FlexAuthoring = **\$39,900**. Message board server and chat server, optional = **\$7,980**.

SCORM server module = **\$15,960**. *Software total* = \$63,840. Initial administrator training, custom via web-conferencing and

shipping (2nd day FedEx) included. One year support, optional, 10% of software total. Support service + upgrades one year, optional, 25% of software total = **\$15,960**. \$79,800 total = \$39,900 + 7,980 + 15,960 + \$15,960.

5. SUPPLIES

Supplies are defined as less than \$5,000 per unit. NDE will provide facility space for offices for grant-funded personnel; computers, software, accessory supplies for workstations, and general office supplies must be purchased for each new grant-funded person.

5a. Computer workstations (11) DELL Latitude E5400 stations, 11 \$1,403.66 ea. Specifications included.

5b. Computer workstations software (11) \$836.59 ea. No sales tax. S/H est. \$10 ea. \$110. DELL Quote: GXS09110303-R01.

VLA WINDOWS PRO 7 upgrade all languages 2534433, 1 @ **\$46.06**

VLA VISIO PRO 2007 all languages 2105374, 1 @ **\$48.46**

VLA VISUAL STUDIO PRO W/MSDN PREMIUM subscription all languages 1961412, 1 @ **\$383.20**

VLA OFFICE PRO PLUS 2007 all languages 2105348, 1 @ **\$48.57**

VLA PROJECT PRO 2007 w/1 project server client all languages 2105366, 1 @ **\$85.83**

VLA ACROBAT PRO 9 WIN license 2475309, 1 **\$187.37**

COREL CORPORATION WINZIP 14 standard 1U CD 2543433, 1 @ **\$37.10**

SLDS, cont.

5c. Server & storage software enhancements (a)DELL ea. VS4ADVLIC 4@\$1901.84 ea.& VS4ADVPLAT 1YR SNS 4@\$548.37
5d. Server & storage software enhancements (b) VLA Windows server ENT 2008R2 all languages 2534447 1 @ **\$249.03.**
VLA SQL server ENT 2008 WIN32/64BIT 1 processor all languages 2488282, 4 @ \$4,209.60 = **\$16,838.40.**

5e. Miscellaneous Business supplies required for the project specific personnel

6. CONTRACTUAL

6a. Project Manager IV TBH, MSA, 1 @ 1.00 FTE @ \$125/hr. x 1,900 hrs.. Experience that is required for this position is mandated by State policy 9.12 PM Qualification Standard (http://nitoc.nv.gov/PSPs/9.12_Standard_PM_Qualification.pdf). The Project Manager (PM) will have experience and expertise in strategic planning, project management, quality assurance, and computer operations, systems administration, network and database administration, applications analysis and development, and information security. The PM will act as the technology and data collection liaison between Nevada State agencies, NSHE, the Institute of Education Sciences (IES), and other stakeholders. The PM will provide research project coordination, oversight, and evaluation. Included in these duties are functional requirements and needs assessment; analysis; system development (design, programming and construction); and implementation and maintenance of the information system platform for the research project. Additional requirements of the position include expertise in functional requirements, architectural design, application analysis, design, development, maintenance and update support for NDE project applications. Areas of responsibility include management of the grant process and contracts, system and functional requirements, system development, change control, version control, testing, and quality assurance. Duties include development of NDE software architecture; setting up change control processes; defining and implementing tools to support development processes; system development; program management of the NDE project, including oversight of data collection and analysis, and technical report development.

6b. Developer/Architect-IT Pro IV TBH, MSA, 1.00 FTE @ \$105/hr. x 1,900 hrs./yr. The position requires the person to analyze, develop, implement, maintain, and modify computer operations, systems, networks, databases, applications, and/or information

SLDS, cont.

security. Incumbents may perform duties in one or more IT specialization areas depending on the needs of the grant project. Responsibilities include primary support of the NDE server databases and co-support of other databases. The person will be required to have a B.A. or B.S. degree from an accredited college or university with major coursework in computer science, management information systems, or closely related fields. Required is at least three years of progressively responsible professional IT experience relevant to the responsibilities of the grant project, which may include computer operations, systems administration, network administration, database administration, applications analysis and development, and/or information security.

6c. DBA/Programmer TBH, MSA, 2 @ 1.00 FTE ea. @ \$105/hr. x 1,900 hrs./yr. The Database Administrator (DBA) will provide information system functional requirements and needs assessment; analysis; system development (design, programming and construction); and implementation and maintenance for various platforms of information systems related to data collection in the NDE eSAIN, EDEN, and school district data systems. The DBAs will be expected to resolve design conflicts and perform comparative analyses on the costs/benefits of various implementation alternatives with minimal technical supervision. They will manage database systems, develop and implement standards and procedures to convert, transfer, and interface data within and between databases, and provide technical expertise in application development within various database environments.

DBAs manage production/development/test database environments that provide sharing and control of system-wide information. They will resolve problems with the database management system and associated software to ensure availability of all data, monitor database utility executions and backup processing, and implement and maintain database security to protect data and applications. The DBAs will analyze and develop guidelines and standards to support application data sharing, research new data elements to prevent duplicate representation of data, and develop programs to generate customized reports. They will define, allocate, and load physical databases, develop procedures and standards for database administration, develop and implement backup and recovery procedures to support database integrity, and respond to technical inquiries concerning database and related technology. Working with the FERPA and Information Security Officers, the DBAs will develop and maintain security procedures and functions/uses of database software.

SLDS, cont.

DBAs will evaluate new database software and determine applicability. They will monitor database management systems to anticipate and prevent potential problems, control and execute system utilities to create and modify database structures, back up and restore databases, regenerate updates, and produce system reports. They plan, coordinate, and oversee the installation of new software releases to update the capabilities of the database management system and associated management software to attain optimal performance, and develop procedures to interface databases with other software systems. One DBA will be assigned the responsibility of all improvements of the eSAIN including, but not limited to, teacher licensure tracking, implementing additional data elements, and security audits. One DBA will be assigned responsibilities including, but not limited to, data quality enhancements, enhancements to ARC, and enhancements to Federal reporting.

6d. Trainer/Online Developer TBH, MSA, 2 Yr. 2; 1 Yr. 3-4 @ 1.00 FTE ea. @ \$100/hr. x 1,900 hrs./yr.

Two Trainer/Online Developers will be hired Yr. 2 to create, develop, and pilot the technical training materials through a learning management system (LMS) to be purchased (software). One will be retained Yr. 3-4 to provide ongoing support to the School Improvement/ Data Trainers and ensure modifications and oversight are seamlessly transitioned beyond the grant period. These personnel will first create and then maintain and support the technical training on the various interfaces. The development and delivery of training will be in collaboration with the two School Improvement/Data Trainers. These two people will be responsible for, but not limited to, online and system resources and training modules, procedural documentation, and additional automatic data validation reports (DVRs). Both Trainer/Online Developers will be dedicated to the development and delivery of the online modules and contents, as well as providing support on-site and online for the School Improvement/Data Trainers. Requirements for the position include two (2) or more years of professional experience specific to online work: development of technical training curriculum, coordinating training classes, conducting training, monitoring and evaluating training, overseeing specific technical training programs, and recommending training curriculum.

SLDS, cont.

8. OTHER

8a. SUB-AWARD: Nevada System of Higher Education (NSHE). NSHE sub-award Budget Narrative has been prepared in detail; however, it is not included at this time.

8b. Training costs for NDE & Race to the Top Nevada's Promise office staff Training on technology that both project staff must have in order to sustain and expand the system. Training to include, but be not limited to, Microsoft Performance Point, Flextraining software, Microsoft Office SharePoint Server v 10, Microsoft Business Intelligence (e.g., SQL Server Analysis Services (SSAS)), SQL Server Integration Services (SSIS), and T-SQL.

**C. DATA SYSTEMS to SUPPORT INSTRUCTION
E-MALL / COMPASS**

Budget Part II: Project-Level Budget Table					
Project Name:	E-MALL / COMPASS	Criteria: C(2)			
Budget Categories	2010-2011 Project Year 1	2011-2012 Project Year 2	2012-2013 Project Year 3	2013-2014 Project Year 4	Total
1. Personnel	0	183,834	334,083	423,721	941,638
2. Fringe Benefits	0	51,830	94,626	115,182	261,638
3. Travel	0	14,044	65,472	207,462	964,219
4. Equipment	0	201,479	0	0	201,479
5. Supplies	0	47,572	13,962	5,000	66,534
6. Contractual	0	786,100	1,166,100	976,100	2,928,300
7. Training Stipends	0	0	0	0	0
8. Other	0	1,083,783	553,032	1,218,191	2,855,006
9. Total Direct Costs (lines 1-8)	0	2,368,642	2,227,275	2,945,656	7,541,573
10. Indirect Costs*	0	109,201	145,877	186,370	441,449
11. Funding for Involved LEAs	0	0	0	0	0
12. Supplemental Funding for Participating LEAs	0	0	0	0	0
13. Total Costs (lines 9-12)	0	2,477,843	2,373,152	3,132,026	7,983,022

**C. DATA SYSTEMS to SUPPORT INSTRUCTION
E-MALL / COMPASS**

Amounts rounded up to nearest whole dollar

FTE = Full-time equivalent (based on 2,080 hrs./yr.)

DoIT = Nevada Department of Information Technology

DBA = Database Administrator

P.D. = Project Director

LV = Las Vegas

RT = Round Trip

TBH = To Be Hired

MSA = Master Service Agreement, NV Dept. of Administration, Purchasing Division

SLA = Service Level Agreement, DoIT

GSA = Federal General Services Administration

est. = estimated

S/H = Shipping/Handling

1. PERSONNEL	YEAR 2	YEAR 3	YEAR 4	TOTAL
1a. Business Process Analyst 1, (7.657), TBH, 2 @ 1.00 FTE ea., salary Grade/Step 34/07-10	113,254	118,390	123,902	355,546
1b. Data Quality Manager, (7.925 IT Professional III), TBH, 1 @ 1.00 FTE ea., salary Grade/Step 39/07-10	70,580	74,083	77,570	222,233
1c. School Improvement/Data Trainer, (5.232 Federal & Related Programs Consultant), TBH, Yr. 2: 2 @ 1.00 FTE ea.; Yr. 3-4: 3 @ 1.00 FTE ea., salary Grade/Step 39/07-09	0	141,610	222,249	363,859
Personnel Total	183,834	334,083	423,721	941,638
2. FRINGE BENEFITS Approximately 32%	51,830	94,626	115,182	261,638
3. TRAVEL				
3a. OUT-OF-STATE: P.D. & Project Manager IV attend grant meetings, Washington, DC				
Airfare, RT Reno to Dulles, Southwest Airlines Anytime Fare as of Jan. 5-8, 2010, 1 RT @ \$881 x 2 people (\$779.54 base fee + \$100.86 taxes = \$880.40/person)	1,762	1,762	1,762	5,286
Mileage, RT Carson City to Reno Airport, personal car, 62 mi. @ \$.50/mi. x 2 people	62	62	62	186
Airport parking, 4 days @ \$12/day x 2 people	96	96	96	288
Ground transportation, cab, shuttle 4 days @ est.\$30/day x 2 people	240	240	240	720

E-MALL / COMPASS, cont.

	YEAR 2	YEAR 3	YEAR 4	TOTAL
Lodging, out-of-state GSA rate March 1-June 30, 3 days @ \$226/day x 2 people	1,356	1,356	1,356	4,068
Lodging tax, out-of-state GSA rate, 13%/day, 3 days @ \$29.38 /day x 2 people	177	177	177	531
Per diem (M&IE), out-of-state GSA rate, full day, 2 days @ \$71/day x 2 people	284	284	284	852
Per diem (M&IE), out-of-state GSA rate, first & last days @ \$53.25/day x 2 people	213	213	213	639
3a. Sub-total	4,190	4,190	4,190	12,570
3b. OUT-OF-STATE: P.D. & Project Manager IV attend Management Information Systems (MIS) conference				
Airfare, RT Reno to Dulles, Southwest Airlines Anytime Fare as of Jan. 5-8, 2010, 1 RT @ \$881 x 2 people (\$389.77 base fee + \$50.43 taxes = \$440.20/person)	1,762	1,762	1,762	5,286
Mileage, RT Carson City to Reno Airport, personal car, 62 mi. @ \$0.50/mi. x 2 people	62	62	62	186
Airport parking, 5 days @ \$12/day x 2 people	120	120	120	360
Ground transportation, cab, shuttle 5 days @ est.\$30/day x 2 people	300	300	300	900
Lodging, out-of-state GSA rate March 1-June 30, 4 days @ \$226/day x 2 people	1,808	1,808	1,808	5,424
Lodging tax, out-of-state GSA rate, 13%/day, 4 days @ \$29.38 /day x 2 people	236	236	236	708
Per diem (M&IE), out-of-state GSA rate, full day, 3 days @ \$71/day x 2 people	426	426	426	1,278
Per diem (M&IE), out-of-state GSA rate, first & last days @ \$53.25/day x 2 people	213	213	213	639
3b. Sub-total	4,927	4,927	4,927	14,781
3c. OUT-OF-STATE: P.D. & Project Manager IV attend Education Information Management Advisory Consortium (EIMAC) conference				
Airfare, RT Reno to Dulles, Southwest Airlines Anytime Fare as of Jan. 5-8, 2010, 1 RT @ \$881 x 3 people (\$389.77 base fee + \$50.43 taxes = \$440.20/person)	1,762	1,762	1,762	5,286

E-MALL / COMPASS, cont.

	YEAR 2	YEAR 3	YEAR 4	TOTAL
Mileage, RT Carson City to Reno Airport, personal car, 62 mi. @ \$.50/mi. x 2 people	62	62	62	186
Airport parking, 5 days @ \$12/day x 2 people	120	120	120	360
Ground transportation, cab, shuttle 5 days @ est.\$30/day x 2 people	300	300	300	900
Lodging, out-of-state GSA rate March 1-June 30, 4 days @ \$226/day x 2 people	1,808	1,808	1,808	5,424
Lodging tax, out-of-state GSA rate, 13%/day, 4 days @ \$29.38 /day x 2 people	236	236	236	708
Per diem (M&IE), out-of-state GSA rate, full day, 3 days @ \$71/day x 2 people	426	426	426	1,278
Per diem (M&IE), out-of-state GSA rate, first & last days @ \$53.25/day x 2 people	213	213	213	639
3c. Sub-total	4,927	4,927	4,927	14,781
Out-of-State Travel Sub-total	14,044	14,044	14,044	42,132
3d. IN-STATE: P.D. or Project Manager IV, & 1 Trainer/Online Developer to on-site regional (Las Vegas, Elko) trainings & technical assistance for LEAs & State sponsored charter schools. Trainer/Online Developer will provide technical assistance & support to School Improvement/Data Trainers. LV: 2 days per trip x 12 trips = 24 days total. Elko: 4 days per trip x 4 trips = 16 days total. Total: 40 days per year.				
Airfare, RT Reno to Las Vegas, Southwest Airlines, Anytime fare as of June 7-11, 2010, 12 RTs @ \$302/person x 2 people	0	0	7,248	7,248
Airfare, RT Reno to Elko, Delta Airlines, as of June 7-11, 2010, 4 RTs @ \$728/person x 2 people	0	0	5,824	5,824
Mileage Carson City to Reno airport, personal car, 16 RTs x 66 mi./trip = 1,056 mi. @ \$0.50/mi. x 2 people	0	0	1,056	1,056
Airport parking, \$12/day Reno airport, 40 days @ \$12/day x 2 people	0	0	960	960
Ground transportation, bus, cab, shuttle, 40 days @ \$30/day x 2 people	0	0	2,400	2,400
LV: Lodging, NV in-state GSA per diem rate, Las Vegas, 12 days @ \$118/day max.depends on dates x 2 people (1 day lodging/trip)	0	0	2,832	2,832

E-MALL / COMPASS, cont.

	YEAR 2	YEAR 3	YEAR 4	TOTAL
LV: Nevada transient lodging tax, Las Vegas 13.5% + Nevada hotel energy surcharge (compulsory), avg. \$4/day, 12 days @ \$19.93/day x 2 people (based on max. lodging rate \$118/day)	0	0	479	479
LV: Per diem (M&IE), Las Vegas in-state GSA rate full day, 24 days @ \$71/day x 2 people	0	0	3,408	3,408
Elko: Lodging, NV in-state GSA per diem CONUS rate, 12 days @ \$70/day x 2 people	0	0	1,680	1,680
Elko: Nevada transient lodging tax, Elko 12% + Nevada hotel energy surcharge (compulsory), avg. \$4/day, 12 days @ \$12.40/day x 2 people	0	0	298	298
Elko: Per diem (M&IE), NV in-state GSA rate full day, 16 days @ \$61/day x 2 people	0	0	1,952	1,952
<i>3d. Sub-total</i>	0	0	28,137	28,137
3e. IN-STATE: School Improvement/Data Trainers provide regional trainings & technical assistance for 17 LEAs & 12 State sponsored charter schools.				
LAS VEGAS & ELKO LV: 2 days per trip x 12 trips = 24 days total. Elko: 4 days per trip x 4 trips = 16 days total. Total: 40 days. Yr. 2: 2 people, 6 mon./yr.; Yr. 3-4: 3 people, 12 mon./yr.				
Airfare, RT Reno to Las Vegas, Southwest Airlines, anytime fare as of June 7-11, 2010, Yr. 2: 6 RT x 2 people; Yr. 3-4: 12 RT x 3 people @ \$302/person	0	3,624	10,872	14,496
Airfare, RT Reno to Elko, Delta Airlines, as of June 7-11, 2010, Yr. 2: 2 RT x 2 people; Yr. 3-4: 4 RT x 3 people @ \$728/person	0	2,912	8,736	11,648
Mileage Carson City to Reno airport, personal car, Yr. 2: 8 RT x 2 people; Yr. 3-4: 16 RT x 3 people, 66 mi. @ \$0.50/mi.	0	528	528	1,056
Airport parking, \$12/day Reno airport, Yr. 2: 20 days x 2 people; Yr. 3-4: 40 days x 3 people @ \$12/day	0	480	1,440	1,920
Ground transportation, bus, cab, shuttle, Yr. 2: 20 days x 2 people; Yr. 3: 40 days x 3 people @ \$30/day	0	1,200	3,600	4,800

E-MALL / COMPASS, cont.

	YEAR 2	YEAR 3	YEAR 4	TOTAL
LV: Lodging, NV in-state GSA per diem rate, Las Vegas, Yr. 2: 6 days x 2 people; Yr. 3-4: 12 days x 3 people @ \$118/day max.	0	1,416	4,248	5,664
LV: Nevada transient lodging tax, Las Vegas 13.5% + Nevada hotel energy surcharge (compulsory), avg. \$4/day, Yr. 2: 6 days x 2 people; Yr. 3-4: 12 days x 3 people @ \$19.93/day (based on max. lodging rate \$118/day)	0	240	718	958
LV: Per diem (M&IE), Las Vegas in-state GSA rate full day, Yr. 2: 12 days x 2 people; Yr. 3-4: 24 days x 3 people @ \$71/day	0	1,704	5,112	6,816
Elko: Lodging, NV in-state GSA per diem CONUS rate, Yr. 2: 6 days x 2 people; Yr. 3-4: 12 days x 4 people @ \$70/day	0	840	3,360	4,200
Elko: Nevada transient lodging tax, Elko 12% + Nevada hotel energy surcharge (compulsory), avg. \$4/day, Yr. 2: 6 days x 2 people; Yr. 3-4: 12 days x 3 people @ \$12.40/day	0	149	447	596
Elko: Per diem (M&IE), NV in-state GSA rate full day, Yr. 2: 6 days x 2 people; Yr. 3-4: 12 days x 3 people @ \$61/day	0	732	2,196	2,928
<i>3e. Sub-total</i>	0	13,825	41,257	55,082
REGIONAL other than Las Vegas & Elko. Shared transportation: Yr. 2: 2 people, 5 mon./yr.; Yr. 3-4: 3 people, 10 mon./yr.				
Ground transportation, NV Motor Pool car, Yr. 2: 8 days/mon. x 5 mon. x 2 people/car; Yr. 3-4: 16 days/mon. x 10 mon. x 3 people/car @ \$26/day.	0	1,040	4,160	5,200
Ground transportation, NV Motor Pool, mileage, Yr. 2: 1,000 mi./mon. x 5 mon. x 2 people/car; Yr. 3-4: 3,000 mi./mon. x 10 mon. x 3 people/car @ \$0.17/mi.	0	850	5,100	5,950
Lodging, NV in-state GSA per diem CONUS rate, Yr. 2: 6 days/mon. x 5 mon. x 2 people; Yr. 3-4: 8 days/mon. x 10 mon. x 3 people @ \$70/day	0	4,200	16,800	21,000
Nevada transient lodging tax, avg. 10% + Nevada hotel energy surcharge (compulsory), avg. \$4/day, Yr. 2: 6 days/mon. x 5 mon. x 2 people; Yr. 3-4: 8 days/mon. x 10 mon. x 3 people @ \$11/day	0	660	2,640	3,300

E-MALL / COMPASS, cont.

	YEAR 2	YEAR 3	YEAR 4	TOTAL
Per diem (M&IE), NV in-state GSA rate full day, Yr. 2: 3 days/mon. x 5 mon. x 2 people; Yr. 3-4: 4 days/mon. x 10 mon. x 3 people @ \$61/day	0	1,830	7,320	9,150
Per diem (M&IE), NV in-state GSA rate first & last days, Yr. 2: 3 days/mon. x 5 mon. x 2 people; Yr. 3-4: 4 days/mon. x 10 mon. x 3 people @ \$45.75/day	0	1,373	5,490	6,863
<i>3e. Sub-total</i>	0	37,603	124,024	161,627
<i>In-State Travel Sub-total</i>	0	51,428	193,418	244,846
Travel Total	14,044	65,472	207,462	286,978
4. EQUIPMENT more than \$5,000/item - price quotes & specifications see Budget Narrative	YEAR 2	YEAR 3	YEAR 4	TOTAL
4a. Server & storage hardware enhancements 2 @ \$42,434.97 ea.; 1 @ \$36,808.89	121,679	0	0	121,679
4b. Training software (Flextraining)	79,800	0	0	79,800
Equipment Total	201,479	0	0	201,479
5. SUPPLIES less than \$5,000/item - price quotes & specifications see Budget Narrative	YEAR 2	YEAR 3	YEAR 4	TOTAL
5a. Computer workstations 7 Yr. 1; 4 Yr.2 (11 total) @ \$1,403.66 ea.	9,826	5,615	0	15,441
5b. Computer workstation software 7 Yr. 1; 4Yr. 2 (11 total) @ \$836.59 ea.	5,857	3,347	0	9,204
5c. Server & storage software enhancements (a)	9,801	0	0	9,801
5d. Server & storage software enhancements (b)	17,088	0	0	17,088
5e. Misc.: Copier & toner costs, copies, paper, general office supplies.	5,000	5,000	5,000	15,000
Supplies Total	47,572	13,962	5,000	66,534

E-MALL / COMPASS, cont.

6. CONTRACTUAL	YEAR 2	YEAR 3	YEAR 4	TOTAL
6a. Project Manager IV, MSA, 1 @ 1.00 FTE @ \$125/hr. x 1,900 hrs.	237,500	237,500	237,500	712,500
6b. Developer/Architect-IT Pro IV, MSA, 1 @ 1.00 FTE @ \$105/hr. x 1,900 hrs.	149,600	149,600	149,600	448,800
6c. DBA/Programmer, MSA, 2 @ 1.00 FTE ea. @ \$105/hr. x 1,900 hrs.	399,000	399,000	399,000	1,197,000
6d. Trainer/Online Developer, MSA, 2 Yr. 2; 1 Yr. 3-4 @ 1.00 FTE ea. @ \$100/hr. x 1,900 hrs.	0	380,000	190,000	570,000
Contractual Total	786,100	1,166,100	976,100	2,928,300
<i>First \$25,000 of each of 6 contracts subject to Indirect Costs</i>	<i>100,000</i>	<i>50,000</i>	<i>0</i>	<i>150,000</i>
<i>Amount of Contractual not subject to Indirect Costs</i>	<i>686,100</i>	<i>1,116,100</i>	<i>976,100</i>	<i>2,778,300</i>
7. TRAINING STIPENDS	0	0	0	0
8. OTHER	YEAR 2	YEAR 3	YEAR 4	TOTAL
8a. SUB-AWARD: Nevada System of Higher Education (NSHE)	1,000,000	468,543	468,542	1,937,085
8b. SUB-AWARD: Public & charter schools to offset travel, substitute educators, materials incurred for on-site & online training, other expenses	0	0	680,000	680,000
8c. State Operating Costs per person, Yr. 1: 7 @ \$5,969 ; Yr. 2: 4 @ \$5,969 & 7 @ \$2,659; Yr. 3-4: 11 @ \$2,659.	41,783	42,489	29,249	113,521
8d. Training costs for 6 NDE staff	40,000	40,000	40,000	120,000
8e. S/H costs for equipment & supplies, est.	2,000	2,000	400	4,400
Other Total	1,083,783	553,032	1,218,191	2,855,006
Amount of OTHER, sub-awards, not subject to Indirect Costs	1,000,000	468,543	1,148,542	2,617,085

E-MALL / COMPASS, cont.

	YEAR 1	YEAR 2	YEAR 3	TOTAL
9. TOTAL DIRECT COSTS	2,368,642	2,227,275	2,945,656	7,541,573
<i>Direct Costs on which Indirect Costs are calculated = Total Direct Costs subtract Equipment, Sub-awards, all but \$150,000 of Contractual</i>	<i>481,063</i>	<i>642,632</i>	<i>821,014</i>	<i>1,944,709</i>
10. INDIRECT COSTS	109,201	145,877	186,370	441,449
Indirect Cost Rate (ICR) - Unrestricted 22.7%				
11. FUNDING for INVOLVED LEAS	0	0	0	0
12. SUPPLEMENTAL FUNDING for PARTICIPATING LEAS	0	0	0	0
13. TOTAL COSTS Budget Categories 9 + 10 + 11	2,477,843	2,373,152	3,132,026	7,983,022

C. DATA SYSTEMS to SUPPORT INSTRUCTION E-MALL / COMPASS

The NDE will add new Electronic Media Access to Leverage Learning (E-MALL) / Comprehensive Oversight for Managing Performance to Achieve Student Success (COMPASS) systems to existing technology structure. E-MALL will be a web-based portal of instructional resources. Nevada will draw on the experience and innovation of the most effective P-20 teachers statewide to design the Curricular Frameworks and classroom assessments that serve as a foundation for a unified Pre-K-12 instructional resource system to be delivered through E-MALL. Statewide professional development trainings will be conducted via technology, workshops, video/teleconferences, summer academies through the creation of E-MALL. The NDE will also utilize RTTT funding to award grants to LEAs and the Nevada System of Higher Education (NSHE) for the production of a variety of Science, Technology, Engineering, Math (STEM) and standards-based curriculum units, curriculum-embedded performance tasks, and professional development materials to meet the needs of Nevada's diverse population of students (including students with disabilities and English Language Learners) and will be delivered through E-MALL.

COMPASS will be a new web-based system to link student achievement to teacher and principal performance. COMPASS will be a tool for monitoring teacher and principal effectiveness to support student achievement improvement efforts. Access to reports and data through COMPASS will enable educators to understand and manage instructional quality. COMPASS will be integrated with E-MALL and will be used for critical decisions in evaluating teachers and principals and guiding and monitoring professional development.

COMPASS will be developed in conjunction with the teacher and principal evaluation systems and will enable Nevada to provide content-based, comprehensive, and rigorous professional development for all educators statewide. Data will be a critical component of the system and will be included in the Individualized Development Plans that effectively support Nevada educators. RTTT funds will be used to expand a statewide infrastructure supporting sustained use of active peer-to-peer collaboration. The Regional Professional Development Programs will create statewide standards for Professional Learning Communities for teachers and

E-MALL / COMPASS, cont.

principals and Structured Teacher Planning Time teams, as well as resources to successfully implement these peer-to-peer programs. Resources will be available in E-MALL and professional development will be provided in the use and application of these resources.

**C. DATA SYSTEMS to SUPPORT INSTRUCTION
CONTRACTUAL: Data Technical Assistance**

Budget Part II: Project-Level Budget Table					Criteria: (C)(I)
Project Name: Data Technical Assistance	2010-2011 Project Year 1	2011-2012 Project Year 2	2012-2013 Project Year 3	2013-2014 Project Year 4	Total
Budget Categories					
1. Personnel	0	0	0	0	0
2. Fringe Benefits	0	0	0	0	0
3. Travel	0	0	0	0	0
4. Equipment	0	0	0	0	0
5. Supplies	0	0	0	0	0
6. Contractual	0	100,000	100,000	100,000	300,000
7. Training Stipends	0	0	0	0	0
8. Other	0	0	0	0	0
9. Total Direct Costs (lines 1-8)	0	0	0	0	0
10. Indirect Costs*	0	5,675	0	0	5,675
11. Funding for Involved LEAs	0	0	0	0	0
12. Supplemental Funding for Participating LEAs	0	0	0	0	0
13. Total Costs (lines 9-12)	0	100,000	100,000	100,000	305,675

C. DATA SYSTEMS to SUPPORT INSTRUCTION CONTRACTUAL: Data Technical Assistance

Through the competitive Request for Proposals (RFP) process, the Nevada Department of Education—through the *Nevada’s Promise*—office will contract with a national expert who will provide technical assistance in all aspects of data system design and evaluation of systems. The Statewide Longitudinal Data Systems and E-MALL / COMPASS project personnel, NDE, NSHE, and *Nevada’s Promise* office Personnel, as well as oversight and management stakeholders, will be expected to participate in ongoing technical training to ensure all stakeholders are informed, knowledgeable, and current about the Nevada statewide data system design, function, and evaluation of systems.

D. GREAT TEACHERS and LEADERS

SUB-GRANTS: Regional Professional Development Programs (RPDPs)

SUB-GRANTS: Training and Professional Development

Expanding Alternative Routes to Teacher Licensure

Direct Support to LEAs for supplemental training / professional development

Family engagement technical assistance

Communities in schools technical assistance

School Trustee Training

School Administrators Training

Education Summit

CONTRACTUAL: Professional Development

Supporting Alternative Routes to Teacher Licensure

Teachers and Leaders Evaluation Systems and Professional Development

**D. GREAT TEACHERS and LEADERS
SUB-GRANTS: Regional Professional Development Programs**

Budget Part II: Project-Level Budget Table					Criteria: (D)(2)(ii)	
Project Name: Regional Professional Development Programs	2010-2011 Project Year 1	2011-2012 Project Year 2	2012-2013 Project Year 3	2013-2014 Project Year 4	Total	
1. Personnel	0	0	0	0	0	0
2. Fringe Benefits	0	0	0	0	0	0
3. Travel	0	0	0	0	0	0
4. Equipment	0	0	0	0	0	0
5. Supplies	0	0	0	0	0	0
6. Contractual	0	0	0	0	0	0
7. Training Stipends	0	0	0	0	0	0
8. Other	1,505,000	1,505,000	1,505,000	1,505,000	6,020,000	6,020,000
9. Total Direct Costs (lines 1-8)	0	0	0	0	0	0
10. Indirect Costs*	0	0	0	0	0	0
11. Funding for Involved LEAs	0	0	0	0	0	0
12. Supplemental Funding for Participating LEAs	0	0	0	0	0	0
13. Total Costs (lines 9-12)	1,505,000	1,505,000	1,505,000	1,505,000	6,020,000	6,020,000

**D. GREAT TEACHERS and LEADERS
SUB-GRANTS: Regional Professional Development Programs**

	2010-11 YEAR 1	2011-12 YEAR 2	2012-13 YEAR 3	2013-14 YEAR 4	TOTAL
RPDP STAFF EXPANSION & SUPPORT - sub-grant, no indirect costs					
Northwestern 4 positions @ \$100,000 ea.	400,000	400,000	400,000	400,000	1,600,000
Northeastern 3 positions @ \$100,000 ea.	300,000	300,000	300,000	300,000	1,200,000
Southern 7 positions @ \$100,000 ea.	700,000	700,000	700,000	700,000	2,800,000
Travel: 3 RPDPs, NW @ \$30,000/yr.; NE @ \$25,000/ yr.; S @ \$50,000/yr.	105,000	105,000	105,000	105,000	420,000
TOTAL RPDP Staff Expansion & Support	1,505,000	1,505,000	1,505,000	1,505,000	6,020,000
<i>RPDP Travel calculation:</i>					
<i>NW: 4 positions @ \$7,500 ea./yr.</i>	30,000	30,000	30,000	30,000	120,000
<i>NE: 3 positions @ ~\$8,334 ea./yr. slightly higher than others due to large geographic distances</i>	25,000	25,000	25,000	25,000	100,000
<i>Southern: 7 positions at ~\$7,143 ea./yr. slightly lower than others due to close geographic distances</i>	50,000	50,000	50,000	50,000	200,000
	105,000	105,000	105,000	105,000	420,000

D. GREAT TEACHERS and LEADERS SUB-GRANTS: Regional Professional Development Programs

To comply with state law and ensure Nevada teachers, administrators, and other educators receive high-quality, ongoing training, three Regional Professional Development Programs (RPDPs) provide opportunities for Nevada educators; Northwest, Northeast, and Southern Nevada RPDPs. The Nevada RTTT budget allocates sub-grants to the RPDPs to expand the number of staff and pay for a portion of their travel expenses in order to implement and expand an ambitious statewide program of educator professional development. The ambitious goal to improve student performance significantly in reading and math by 2014 necessarily demands that ongoing, expanded, customized professional development opportunities be offered to all educators statewide. Systemic change is dependent on high-quality, focused emphasis on teacher and administrator core subject knowledge and competence. To ensure all Nevada students will have access to highly-qualified, experienced, and effective teachers, RTTT funds will support RPDP programs to meet these goals.

**D. GREAT TEACHERS and LEADERS
SUB-GRANTS: Training and Professional Development**

Budget Part II: Project-Level Budget Table					Criteria: (D)(5)(i) / (D)(5)(ii)	
Project Name: Training and Professional Development						
Budget Categories	2010-2011 Project Year 1	2011-2012 Project Year 2	2012-2013 Project Year 3	2013-2014 Project Year 4	Total	
1. Personnel	0	0	0	0	0	0
2. Fringe Benefits	0	0	0	0	0	0
3. Travel	0	0	0	0	0	0
4. Equipment	0	0	0	0	0	0
5. Supplies	0	0	0	0	0	0
6. Contractual	0	0	0	0	0	0
7. Training Stipends	0	0	0	0	0	0
8. Other	1,235,275	1,235,275	1,235,275	1,142,275	4,748,100	4,748,100
9. Total Direct Costs (lines 1-8)	0	0	0	0	0	0
10. Indirect Costs*	0	0	0	0	0	0
11. Funding for Involved LEAs	0	0	0	0	0	0
12. Supplemental Funding for Participating LEAs	0	0	0	0	0	0
13. Total Costs (lines 9-12)	1,235,275	1,135,275	1,235,275	1,142,275	4,748,100	4,748,100

D. GREAT TEACHERS and LEADERS SUB-GRANTS: Training and Professional Development

Expand Alternative Routes to Teacher Licensure (ARL) - \$1,000,000

RTTT funds will support a priority program to expand ARL to increase the number of teachers in high-poverty schools and high-need subject matter areas. To increase the number of teachers that will meet the requirements for every classroom in high-need subject matter areas and high-poverty schools, the Nevada Department of Education (NDE) through the *Nevada's Promise* office will establish criteria for programs of alternative routes to licensure that will fill specific teacher needs within LEAs. These programs must meet the criteria and be able to provide ongoing professional development and training for teachers to serve high-poverty schools and high-need subject matter areas. The programs will be nationally recognized for providing consultants who are highly skilled, successful teachers specially trained for high-poverty, high-need subject matter areas.

Direct Support to LEAs for supplemental training / professional development - \$1,921,100

In addition to the 50% of total RTTT grant funds and RPDP funding, LEAs will be able to apply for funds to carry out specific professional development activities as specified in teacher and principal individualized development plans. LEAs will use RTTT funds to specifically target the identified needs of teachers and leaders unique to each LEA and school, as well as common to other entities.

Family engagement and technical assistance \$160,000 and communities in schools technical assistance - \$160,000

Through the competitive Request for Proposals (RFP) process, the Nevada Department of Education—through the *Nevada's Promise* office—will contract with a national expert to guide and assist implementation of a model program. It is anticipated that the budget allocation will fund two consultants at \$100 per hour, 350 hours each, plus \$5,000 each in travel expenses for each year of the grant period. The Family Engagement Consultant will work with LEA personnel, the Nevada State Parent Information and Resource Center, and community groups to individualize and implement a model program. The program is expected to create the foundation and framework for Family Engagement to create sustainable family interaction and involvement systems. A consultant

Training and Professional Development, cont.

will coordinate and assist teams in developing action plans, as well as support school teams during implementation of programs. Schools will create models for family engagement and community involvement. School teams will be provided with the tools, resources, and technical assistance to develop, implement, and monitor a two-year plan based on a data-rich needs assessment. The expected outcomes are that model programs will:

- Strengthen family-school connections;
- Engage parents in children's learning; and
- Improve student academic and social learning.

School Trustee Training - \$200,000

RTTT funds will be used specifically to train Nevada local school board trustees, charter school governing body members, and members of the State Board of Education to improve their leadership skills and policy-making decisions related to RTTT initiatives and student achievement. Costs for this training include workshop presenters, teachers fees, and non-personnel costs, such as meeting rooms, travel, and per diem. There are no personnel costs and no long-term permanent non-personnel costs such as office space. NA As part of the professional development goal, training will be provided to support for all Nevada school trustees and charter school governing body members, with collaboration from the Charter School Association of Nevada's Board of Trustees and the Nevada Department of Education.

School Administrators Training - \$400,000

Training school administrators is designed to enhance education by providing leadership, professional development, and collaboration among school administrators statewide. NDE will contract for training of professional public and private school superintendents, principals, assistant principals, deans, and LEA administrators. RTTT funds will be used to further the mission as it directly correlates to RTTT objectives and key performance measures.

Training and Professional Development, cont.

- Provide leadership by facilitating communication among administrators, component groups, and other state organizations.
- Provide for professional collaboration by sponsoring and/or facilitating relevant professional conferences, publications, and workshops.
- Serve as a unifying force for school administrators in matters affecting education.
- Provide technical assistance, guidance, and service to its members.

Principal Academy - \$400,000

RTTT funds will support sub-grants for the professional development of and technical assistance for principals to support effective and highly effective performance critical to the success of the roll out of new teacher and principal evaluation systems.

Education Summit - \$507,000

Nevada will conduct an annual Education Summit to continue statewide efforts to highlight best practices for replication throughout the state. RTTT funds will support personnel, travel, nationally recognized consultants for presentations and workshops, facilities, and other allowable expenses associated with the production of an ambitious, statewide conference serving thousands of educators and community members.

**D. GREAT TEACHERS and LEADERS
CONTRACTUAL: Professional Development**

Project Name: Professional Development		Budget Part II: Project-Level Budget Table				Criteria: (D)(2)(ii)
Budget Categories	2010-2011 Project Year 1	2011-2012 Project Year 2	2012-2013 Project Year 3	2013-2014 Project Year 4	Total	
1. Personnel	0	0	0	0	0	0
2. Fringe Benefits	0	0	0	0	0	0
3. Travel	0	0	0	0	0	0
4. Equipment	0	0	0	0	0	0
5. Supplies	0	0	0	0	0	0
6. Contractual	0	0	0	0	0	0
7. Training Stipends	0	0	0	0	0	0
8. Other	394,325	400,000	400,000	400,000	1,594,325	1,594,325
9. Total Direct Costs (lines 1-8)	0	0	0	0	0	0
10. Indirect Costs*	11,350	0	0	0	11,350	11,350
11. Funding for Involved LEAs	0	0	0	0	0	0
12. Supplemental Funding for Participating LEAs	0	0	0	0	0	0
13. Total Costs (lines 9-12)	405,675	400,000	400,000	400,000	1,605,675	1,605,675

D. GREAT TEACHERS and LEADERS CONTRACTUAL: Professional Development

Support Alternative Routes to Teacher Licensure - \$1,000,000

Through a competitive Request for Proposal (RFP) process, the Nevada Department of Education (NDE)—through the *Nevada's Promise* office—will contract with a nationally recognized program to assist in professional development of high-need subject matter teachers for high-poverty schools. These teachers will receive training in evaluation tools, development of teacher effectiveness, and use and analysis of student data to measure and report on student growth in the classroom.

Teachers and Leaders Evaluation Systems and Professional Development - \$605,675

Through the competitive Request for Proposals (RFP) process, the Nevada Department of Education—through the *Nevada's Promise* office—will contract with a national expert to assist with the development of teachers and leaders evaluation systems and professional development. By 2013, a statewide system that differentiates effectiveness using multiple measures of student growth will be designed and implemented by the *Nevada's Promise* office and the Teachers and Leaders Council. This system will include evaluation tools, training materials, and rubrics that will measure and report overall teacher and principal effectiveness. To support necessary reforms, Nevada will create standards for teachers and principals. These standards will serve as the foundation on which to measure teachers and principals.

**E. TURNING AROUND
the
LOWEST-ACHIEVING SCHOOLS**

School Intervention Model expansion

SUB-GRANTS: Support to schools

Early Childhood Education

Extended day / year programs (Pre-K-12)

CONTRACTUAL: Differentiated consequences for struggling schools

**E. TURNING AROUND the LOWEST-ACHIEVING SCHOOLS
SUB-GRANTS: School Intervention Model Expansion**

Project Name: School Intervention Model Expansion		Budget Part II: Project-Level Budget Table				Criteria: E(1) / E(2)
Budget Categories	2010-2011 Project Year 1	2011-2012 Project Year 2	2012-2013 Project Year 3	2013-2014 Project Year 4	Total	
1. Personnel	0	0	0	0	0	
2. Fringe Benefits	0	0	0	0	0	
3. Travel	0	0	0	0	0	
4. Equipment	0	0	0	0	0	
5. Supplies	0	0	0	0	0	
6. Contractual	0	0	0	0	0	
7. Training Stipends	0	0	0	0	0	
8. Other	250,000	1,750,000	3,500,000	3,500,000	9,000,000	
9. Total Direct Costs (lines 1-8)	0	0	0	0	0	
10. Indirect Costs*	0	0	0	0	0	
11. Funding for Involved LEAs	0	0	0	0	0	
12. Supplemental Funding for Participating LEAs	0	0	0	0	0	
13. Total Costs (lines 9-12)	250,000	1,750,000	3,500,000	3,500,000	9,000,000	

E. TURNING AROUND the LOWEST-ACHIEVING SCHOOLS School Intervention Model Expansion

Using the federally-approved definition of "lowest-achieving schools", RTTT funds will support additional schools from those funded through the School Improvement Grant (SIG) administered with Title I 1003(g) funds. In addition to Priority 1 and 2 schools, RTTT funds may support Priority 3 and 4 schools in the implementation of differentiated consequences for struggling schools.

The Nevada Department of Education (NDE) will work with nationally recognized programs that place teachers in high-need subject matter areas and in high-poverty schools. These programs will increase the number of teachers who work to turn-around the lowest-achieving schools based on criteria established by the NDE. Teachers will be required to meet rigorous criteria including proficiency in the use of student achievement data and participation in continual professional development.

**E. TURNING AROUND the LOWEST-ACHIEVING SCHOOLS
SUB-GRANTS: Support to Schools**

Project Name: Support to Schools		Budget Part II: Project-Level Budget Table				Criteria: E(2)(ii)	
		2010-2011 Project Year 1	2011-2012 Project Year 2	2012-2013 Project Year 3	2013-2014 Project Year 4	Total	
1. Personnel	0	0	0	0	0	0	0
2. Fringe Benefits	0	0	0	0	0	0	0
3. Travel	0	0	0	0	0	0	0
4. Equipment	0	0	0	0	0	0	0
5. Supplies	0	0	0	0	0	0	0
6. Contractual	0	0	0	0	0	0	0
7. Training Stipends	0	0	0	0	0	0	0
8. Other	600,000	650,000	700,000	700,000	700,000	700,000	2,650,000
9. Total Direct Costs (lines 1-8)	0	0	0	0	0	0	0
10. Indirect Costs*	0	0	0	0	0	0	0
11. Funding for Involved LEAs	0	0	0	0	0	0	0
12. Supplemental Funding for Participating LEAs	0	0	0	0	0	0	0
13. Total Costs (lines 9-12)	600,000	650,000	700,000	700,000	700,000	700,000	2,650,000

E. TURNING AROUND the LOWEST-ACHIEVING SCHOOLS SUB-GRANTS: Support to Schools

Early Childhood Education - \$1,325,000

RTTT sub-grants to schools will support an expansion of Early Childhood Education programs to plan, design, implement, and/or evaluate short-term and long-term programs to promote developmental progress of pre-K children and parent involvement.

- Prepare Nevada children for kindergarten and beyond.
- Assist parent involvement in their children's learning.
- Meet or exceed five program indicators on developmental progress of children and parent involvement.
- Provide technical assistance for evaluation of programs and children's growth.

Extended day / year programs (Pre-K-12) - \$1,325,000

LEAs will be able to provide schools with support for lengthened day and year-long programs for disadvantaged, low-achieving, and/or students in need of interventions. This model has proven successful in previously state-funded programs of Innovation and Prevention of Remediation.

**E. TURNING AROUND the LOWEST-ACHIEVING SCHOOLS
CONTRACTUAL: Differentiated Consequences for Struggling Schools**

Budget Part II: Project-Level Budget Table

Project Name: Differentiated Consequences for Struggling Schools		Criteria: E(2)(i)(ii)			
Budget Categories	2010-2011 Project Year 1	2011-2012 Project Year 2	2012-2013 Project Year 3	2013-2014 Project Year 4	Total
1. Personnel	0	0	0	0	0
2. Fringe Benefits	0	0	0	0	0
3. Travel	0	0	0	0	0
4. Equipment	0	0	0	0	0
5. Supplies	0	0	0	0	0
6. Contractual	0	0	0	0	0
7. Training Stipends	0	0	0	0	0
8. Other	100,000	100,000	100,000	100,000	400,000
9. Total Direct Costs (lines 1-8)	0	0	0	0	0
10. Indirect Costs*	5,675	0	0	0	5,675
11. Funding for Involved LEAs	0	0	0	0	0
12. Supplemental Funding for Participating LEAs	0	0	0	0	0
13. Total Costs (lines 9-12)	105,675	100,000	100,000	100,000	405,675

E. TURNING AROUND the LOWEST-ACHIEVING SCHOOLS CONTRACTUAL: Differentiated Consequences for Struggling Schools

Through the competitive Request for Proposals (RFP) process, the Nevada Department of Education—through the *Nevada's Promise* office—will contract with a national expert to provide technical assistance and guidance to struggling schools personnel to design and implement effective practices that will result in systemic change at the school and classroom level. The Nevada Department of Education (NDE) has the authority to intervene in persistently low-performing schools and has developed a well-defined implementation plan and differentiated statewide support system for turnaround schools.

F. INNOVATION

SUB-GRANTS: STEM

Nevada Pathway Project

K-12 programs

MESA expansion

MINES and Science Builder interventions

Newton Network support

Silver State Advanced Placement Summer Institute

STEM Coalition committees

SUB-GRANTS: INNOVATION

Empowerment schools

Effective practices

CONTRACTUAL: Efficacy of innovation

**F. INNOVATION
SUB-GRANTS: STEM**

Project Name: STEM PROJECTS		Budget Part II: Project-Level Budget Table				Criteria: D(S)(i) / D(S)(ii) / F(3)	
Budget Categories	2010-2011 Project Year 1	2011-2012 Project Year 2	2012-2013 Project Year 3	2013-2014 Project Year 4	Total		
1. Personnel	0	0	0	0	0		
2. Fringe Benefits	0	0	0	0	0		
3. Travel	0	0	0	0	0		
4. Equipment	0	0	0	0	0		
5. Supplies	0	0	0	0	0		
6. Contractual	0	0	0	0	0		
7. Training Stipends	0	0	0	0	0		
8. Other	2,363,700	1,286,965	1,244,925	999,150	5,894,740		
9. Total Direct Costs (lines 1-8)	0	0	0	0	0		
10. Indirect Costs*	0	0	0	0	0		
11. Funding for Involved LEAs	0	0	0	0	0		
12. Supplemental Funding for Participating LEAs	0	0	0	0	0		
13. Total Costs (lines 9-12)	2,363,700	1,286,965	1,244,925	999,150	5,894,740		

F. INNOVATIONS SUB-GRANTS: STEM

Nevada Pathway Project - \$2,544,600

The Nevada Pathway Project grew out of the Nevada Educational Technology Plan and statewide concern about student engagement and achievement. Stakeholders recognized that it is crucial that Nevada students are prepared for the demands of the 21st century and thereby, 16 of 17 Nevada LEAs (school districts) chose to participate in a pilot project. Made possible through American Recovery and Reinvestment Act (ARRA) funds, Pathway teachers and administrators take part in a two-year professional development program focused on recognizing and addressing the needs of 21st century students through the framework of the revised *Nevada Educational Technology Standards* that align to the *National Educational Technology Standards for Students* (NETS-S). All of the professional development takes place in an online environment. The modules are archived for future professional development needs across the state. To facilitate the integration of educational technology and implementation of strategies learned, each participating teacher has a minimum set of technological tools, such as student laptops and handhelds. The program evaluation team from UNLV is using an action research model that requires teachers to set goals. The evaluation measures if the teachers achieve those goals, which addresses D(5)(ii). The evaluation will continue supported by Race to the Top funds.

Funds provided by RTTT to expand the program will be dispersed as sub-grants to LEAs to support the salaries and travel expenses of three professional developers and two IT technicians. The percentage of RTTT funds allocated to each LEA is based on the percentage each LEA received of the total pilot project allocations minus the amount for the six positions that will run through three LEAs (Clark, Elko, Washoe). The original project will be expanded and modified to increase cost-effectiveness and to reach more educators and students without compromising the integrity of the program. To accomplish this, two parallel programs will be implemented simultaneously.

Project 1: Teams of four teachers will share one classroom set of iPod Touches and a laptop cart. Interactive slate systems were funded in the original program. Teachers will receive stipends for participation. Two cohorts in two-year blocks will each take

STEM, cont.

part over the life of the four-year grant. To accomplish this, three professional developers and a Moodle (a learning management system) technician will administer the server on which the online professional development lives. A number of rural LEAs spent extensive time to install project software and hardware in the pilot phase of this project; therefore, RTTT sub-grant funds will support a position of a rural IT support technician who will travel to rural LEAs to support Pathway IT activity.

Project 2: In addition to the expansion of the original project, a second project will parallel it to expand the professional development to any teacher who wishes to improve his or her classroom technology integration skills. This project will be called Pathway for All (P4A) and will maximize availability of the program to all teachers in Nevada. The focus of the project will be to expand teachers' knowledge of 21st century learning and to teach them effective ways to integrate readily available technology into classrooms. Continuing Education Units (CEUs) will be available to P4A teachers. To ensure equity of access for all teachers, participants (e.g., state-sponsored charter school teachers) will not bear any costs beyond the cost of the regular Pathway Project.

K-12 STEM Programs - \$400,000

The Stem Coordinating Council, in collaboration with the STEM Coalition committees, will team with existing K-12 STEM enrichment programs, such as MESA, UNLV² Liftoff with Math Summer Space and Math Camp, the UNR³ Girls Math and Technology Camp, UNR Engineering Exploration Summer Camp, Clark County School District Project Lead the Way, and Science Olympiad. Sub-grant awards will support programs that implement innovative strategies to include disadvantaged children and increase the diversity of participants from across all student populations. Nevada rural students are often underserved with limited or no access to enrichment programs, therefore emphasis will be placed on funding programs that include innovative outreach to and support of students in the 14 rural/frontier counties.

² University of Nevada, Las Vegas

³ University of Nevada, Reno

STEM, cont.

Mathematics, Engineering, Science, Achievement Program (MESA) - \$610,000

The MESA program is a STEM-focused academic program that targets minorities and other underrepresented students to provide academic support in grades 6-12. The focus of MESA is to increase access to college-readiness courses, support students to succeed, and guide them into STEM secondary courses to prepare for post-secondary college and careers. The MESA program currently exists on a very limited scale in Nevada. RTTT funds will support a 300% statewide expansion of the program. Sub-grant funds will pay for a state MESA program coordinator, a supplemental stipend for teachers (STEM coaches) at each of the participating schools, a STEM field student from a local college or university who acts as a mentor in the school programs, as well as basic costs associated with specific programs that students participate in each year through the MESA program. Currently, the UNR College of Engineering manages the MESA program; RTTT funds will support MESA expansion beginning there.

MINES and Science Builder Interventions - \$1,992,140

Mathematics Instruction for Nevada Educational Support (MINES) and Science Builder are programs developed by a Carson City-based company. These programs were initiated by a request from Nevada LEAs and teachers for a computer-based instructional program to provide targeted support for students struggling to pass the math portion of the High School Proficiency Exam. Funding for development of the MINES program was provided from the NDE assessment budget. The mathematics program has slowly expanded over the past eight years to include all grades 3-12. The Science Builder started as a visual dictionary for science students in grades K-5 and has expanded to include grades 6-8. The science programs were funded as part of content development components included in a Math/Science Partnership program grant. All of the content included in the STEM intervention programs developed by the vendor was developed with the support of and in response to specific requests to the NDE from Nevada schools and teachers. Funding support for the programs has facilitated statewide free distribution of the existing content to all teachers and schools. Components of programs in both areas are offered in English and Spanish. The annual license fees are less than 25 cents per student

STEM, cont.

to provide for ongoing updating and revision of the math and science content, including the annual distribution of the updated products to all Nevada schools.

RTTT funds for the MINES and Science Builder program will support completion of the content development for all grades K-12, and provide extended services to teachers and schools with additional functionality for using these products to provide information that can become part of academic intervention and instructional programs for all students. Teachers will be able to collect and retain information from their students as they use the programs, as well as receive extensive professional development on the effective use of the program products.

Newton Network - \$64,000

The Newton Network will be funded through a sub-grant to the UNR College of Education, Raggio STEM Education Center. The Newton Network is a project based on the Building A Presence (BAP) for Science program operated by the National Science Teachers Association. The BAP program was originally funded by grants from Exxon and Texaco, with a goal to establish a point-of-contact for science in every school in participating states (Nevada applied to become part of the nationally funded BAP network; we were not selected). The Newton Network was initially created in 2004 to extend the idea of the BAP network into Nevada schools. The Network has been funded through a Math/Science Partnership program sub-grant to UNR. The Network is used as a two-way communication tool to 1) disseminate information about STEM programs, activities, and professional development projects to schools and teachers and to collect information on professional development needs from schools, and 2) to provide a connection between STEM faculty in post-secondary education and K-12 teachers. By the end of this year, the Newton Network will have a point-of-contact in 89% of all Nevada schools (94% at the high school level). The Network is under-utilized at the present time, and the increased use of the Network for all purposes is a goal of the STEM Coordinating Council.

The one-year budget for the Newton Network in 2009-10 was \$14,049; the RTTT budget includes an additional \$1,951 to cover anticipated increased costs, including increased tuition at UNR. The 2009-10 budget included salary for the

STEM, cont.

programmer and webmaster (UNR students hired by the Raggio Center) to collect information, build and maintain the website, prepare a periodic electronic newsletter at minimum once per quarter, and to update and maintain the contact lists for each school/LEA.

Silver State Advanced Placement Summer Institute - \$240,000

The Silver State Advanced Placement Summer Institute (SSAPSI) originated in Southern Nevada several years ago, which provided a venue for Nevada teachers to obtain professional development without paying the registration fee of \$595 per course. The fees were paid by Clark County School District in Las Vegas and the Southern Nevada Regional Professional Development Program. Each year, RTTT funds will pay for up to 100 teachers to attend the SSAPSI so they can 1) increase their depth of knowledge of STEM core content and 2) expand the number of Advanced Placement courses available in high schools statewide, with emphasis on STEM Advanced Placement courses. RTTT funds will target support for teachers outside of Clark County who do not currently have access to the SSAPSI because of prohibitive costs for travel, lodging, and per diem to attend the SSAPSI in Las Vegas. Sub-grant funds will support innovative, alternative SSAPSI statewide programs to serve teachers outside of Clark County. This is an expansion to all other school districts of a program that is already performing well in Clark County.

STEM Coordinating Council and STEM Coalition - \$44,000

To maximize access to and impact on Nevada teachers and students from existing and future STEM education activities, the primary function of the lead STEM Coordinating Council within the structure of the STEM Coalition will be to coordinate, oversee, and ensure accountability of RTTT sub-grant funding support of STEM projects. The STEM Coordinating Council and STEM Coalition committees will work closely with the Nevada Department of Education (NDE), *Nevada's Promise* office, 17 Nevada LEAs and charter schools, RPDPs, Nevada System of Higher Education, and other STEM related organizations and agencies. The STEM

STEM, cont.

Coordinating Council members, in collaboration with the STEM Coalition members, will conduct statewide needs assessments and provide access to the results to individuals, partnerships, and organizations to focus the planning of STEM professional development or enrichment activities in identified STEM content areas. This will generate maximum return for the investment of time and resources, as well as maximum impact on student progress. The STEM Coordinating Council will serve as a point-of-contact between NSHE content faculty, LEAs, and schools to search for partners to increase in-depth teacher knowledge and student achievement in STEM.

**F. INNOVATION
SUB-GRANTS: INNOVATION - EMPOWERMENT SCHOOLS**

Budget Part II: Project-Level Budget Table					
Project Name: Empowerment Schools	Criteria: F(2)(v)				
Budget Categories	2010-2011 Project Year 1	2011-2012 Project Year 2	2012-2013 Project Year 3	2013-2014 Project Year 4	Total
1. Personnel	0	0	0	0	0
2. Fringe Benefits	0	0	0	0	0
3. Travel	0	0	0	0	0
4. Equipment	0	0	0	0	0
5. Supplies	0	0	0	0	0
6. Contractual	0	0	0	0	0
7. Training Stipends	0	0	0	0	0
8. Other	500,000	700,000	1,000,000	1,000,000	3,200,000
9. Total Direct Costs (lines 1-8)	0	0	0	0	0
10. Indirect Costs*	0	0	0	0	0
11. Funding for Involved LEAs	0	0	0	0	0
12. Supplemental Funding for Participating LEAs	0	0	0	0	0
13. Total Costs (lines 9-12)	500,000	700,000	1,000,000	1,000,000	3,200,000

F. INNOVATION SUB-GRANTS: EMPOWERMENT SCHOOLS

RTTT funds will expand the number of Empowerment Schools statewide. RTTT funds of a minimum of \$10,000 per Empowerment school per year will be allocated as sub-grants for planning and implementation support for up to 100 schools. Empowerment Schools ensure that maximum dollars reach students in the classroom. Empowerment Schools have a direct role in diagnosing their own specific needs and implementing their plans by working outside the normal mechanics of central-office banking. Rather than being the recipient of funds with predetermined uses, Empowerment Schools are given the autonomy to deploy their resources for maximum impact, according to the needs of their community. With increased autonomy comes increased responsibility for results. Empowerment Schools are expected to:

- Demonstrate fiscal efficiency and effectiveness.
- Comply with all LEA policies and regulations, all state and federal requirements, as well as all contractual and legal mandates, unless specific waivers have been granted.
- Make annual progress toward goals for student achievement and school environment.

**F. INNOVATION
SUB-GRANTS: EFFECTIVE PRACTICES**

Budget Part II: Project-Level Budget Table					
Project Name: Effective Practices	2010-2011 Project Year 1	2011-2012 Project Year 2	2012-2013 Project Year 3	2013-2014 Project Year 4	Criteria: F(3)
Budget Categories					Total
1. Personnel	0	0	0	0	0
2. Fringe Benefits	0	0	0	0	0
3. Travel	0	0	0	0	0
4. Equipment	0	0	0	0	0
5. Supplies	0	0	0	0	0
6. Contractual	0	0	0	0	0
7. Training Stipends	0	0	0	0	0
8. Other	300,000	400,000	500,000	500,000	1,700,000
9. Total Direct Costs (lines 1-8)	0	0	0	0	0
10. Indirect Costs*	0	0	0	0	0
11. Funding for Involved LEAs	0	0	0	0	0
12. Supplemental Funding for Participating LEAs	0	0	0	0	0
13. Total Costs (lines 9-12)	300,000	400,000	500,000	500,000	1,700,000

F. INNOVATION SUB-GRANTS: EFFECTIVE PRACTICES

RTTT sub-grants will support planning and implementation of models highlighted at the annual Nevada Mega Conference. To support the statewide adoption and scale-up of proven best practices, the Nevada Mega Conference will serve as the statewide venue to disseminate information on Effective Practices. This existing conference attracts approximately 500 educators per year and is already a popular venue for highlighting successful schools. RTTT sub-grants for LEAs and schools will support expansion of models highlighted in the conference, as well as others identified within the State.

**F. INNOVATION
CONTRACTUAL: Efficacy of Innovation**

Project Name: Efficacy of Innovation		Budget Part II: Project-Level Budget Table				Criteria: F - all	
Budget Categories	2010-2011 Project Year 1	2011-2012 Project Year 2	2012-2013 Project Year 3	2013-2014 Project Year 4	Total		
1. Personnel	0	0	0	0	0		
2. Fringe Benefits	0	0	0	0	0		
3. Travel	0	0	0	0	0		
4. Equipment	0	0	0	0	0		
5. Supplies	0	0	0	0	0		
6. Contractual	0	0	0	0	0		
7. Training Stipends	0	0	0	0	0		
8. Other	40,000	75,0000	75,000	100,000	290,000		
9. Total Direct Costs (lines 1-8)	0	0	0	0	0		
10. Indirect Costs*	5,678	0	0	0	5,678		
11. Funding for Involved LEAs	0	0	0	0	0		
12. Supplemental Funding for Participating LEAs	40,678	75,0000	75,000	100,000	295,678		
13. Total Costs (lines 9-12)	45,678	75,0000	75,000	100,000	295,678		

F. INNOVATION CONTRACTUAL: Efficacy of Innovation

Through the competitive Request for Proposals (RFP) process, the Nevada Department of Education—through the *Nevada’s Promise* office—will contract with a national expert to obtain additional support in expanding successful, innovative programs and interventions. It is expected that in the area of innovation, the support will include analysis of best practices that align to RTTT objectives and key performance, as well as guidance in planning and design of innovative, successful programs and interventions. A rigorous evaluation of the efficacy of each program will be conducted, including reporting of the feasibility of scale-up statewide and replication nationwide.

COST BASIS for NEVADA BUDGET

PERSONNEL salaries are calculated based on the July 1, 2009 (FY2010) State of Nevada Classified Compensation Schedule, Employer/Employee Pay Contribution Plan. Master Service Agreements are based on current rates charged by the Nevada Department of Information Technology (DoIT).

FRINGE BENEFITS for *Nevada's Promise* office and Nevada Department of Education personnel are budgeted according to the cost breakdown provided by James R. Wells, CPA, NDE Deputy Superintendent for Administrative and Fiscal Services. Costs may vary on an annual or bi-annual basis. Employer/Employee State of Nevada 2010-11 schedule:

Personnel Assessment	0.7798%	Workers Compensation Insurance	2.65%
Retirement, Employer/Employee schedule	11.25%	Payroll Assessment	0.2098%
Unemployment Insurance	0.4123%	Medicare	1.45%
Retired Employee Group Insurance Assessment	1.17%	AG Tort Claim Assessment	\$131/yr.
Department of Information Technology Assessment - \$121/yr		Employee Bond Insurance	\$3/yr.
Group Health Insurance Assessment	per month: FY2010 \$549; FY2011 \$596.75		

TRAVEL costs are based on General Services Administration (GSA) FY 2010 per diem rates and FY 2010-2011 State of Nevada government authorized rates. Lodging taxes and energy surcharges vary by Nevada county and Federal allowances for each destination. Airline fares fluctuate on a daily basis, therefore costs are estimated at the lowest fare for a particular time period. Airport parking fees are in effect at the time of application submission deadline and may vary. Travel costs are estimated per person at time of application submission and will be budgeted according to Federal GSA and State of Nevada government rates at the time of the RTTT award and subsequent fiscal year rate changes. Basic travel costs per person of \$1,896 per year are allocated in the *Nevada's Promise* office budget Operating Costs, however this is not sufficient for actual anticipated travel requirements.

FY0 2010 GSA Per Diem Rates, Washington, D. C.

Primary Destination (1)	County (2,3)	Max Lodging (per night)	* MILE RATE	=	Max Per Diem Rate (4)	First & Last Day (75% of Rate)
District of Columbia (October 1 - October 31)	Washington DC (also the cities of Alexandria, Falls Church and Fairfax, and the counties of Arlington and Fairfax, in Virginia; and the counties of Montgomery and Prince George's in Maryland) (See also Maryland and Virginia)	229	71		300	53.25
District of Columbia (November 1 - February 28)	Washington DC (also the cities of Alexandria, Falls Church and Fairfax, and the counties of Arlington and Fairfax, in Virginia; and the counties of Montgomery and Prince George's in Maryland) (See also Maryland and Virginia)	207	71		278	53.25
District of Columbia (March 1 - June 30)	Washington DC (also the cities of Alexandria, Falls Church and Fairfax, and the counties of Arlington and Fairfax, in Virginia; and the counties of Montgomery and Prince George's in Maryland) (See also Maryland and Virginia)	226	71		297	53.25
District of Columbia (July 1 - August 31)	Washington DC (also the cities of Alexandria, Falls Church and Fairfax, and the counties of Arlington and Fairfax, in Virginia; and the counties of Montgomery and Prince George's in Maryland) (See also Maryland and Virginia)	170	71		241	53.25
District of Columbia (September 1 - September 30)	Washington DC (also the cities of Alexandria, Falls Church and Fairfax, and the counties of Arlington and Fairfax, in Virginia; and the counties of Montgomery and Prince George's in Maryland) (See also Maryland and Virginia)	229	71		300	53.25

FY0 2010 GSA Per Diem Rates for Nevada

Primary Destination	County	Max Lod (per night)	Star Rating	MILE RE	Max Per Diem Rate	First & Last Day (75% of Rate)
Incline Village / Reno / Sparks (October 1 - June 30)	Washoe	104		51	155	38.25
Incline Village / Reno / Sparks (July 1 - August 31)	Washoe	130		51	181	38.25
Incline Village / Reno / Sparks (September 1 - September 30)	Washoe	104		51	155	38.25
Las Vegas (October 1 - December 31)	Clark	109		71	180	53.25
Las Vegas (January 1 - May 31)	Clark	118		71	189	53.25
Las Vegas (June 1 - September 30)	Clark	109		71	180	53.25
Stateline, Carson City	Douglas, Carson City	100		61	161	45.75

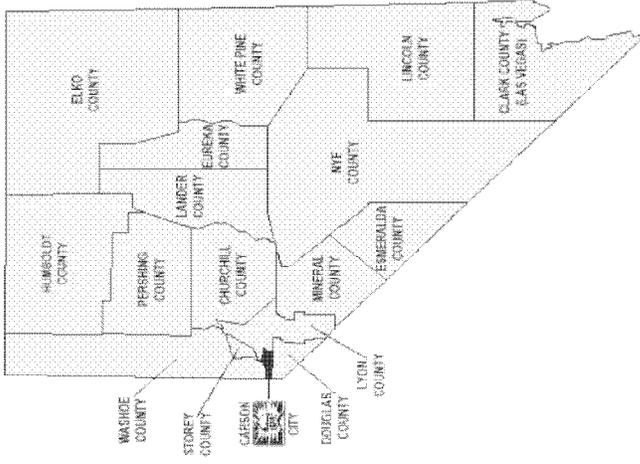
FY2010-2011 Nevada Motor Pool Rates

Rate Tier	Daily Rate \$	Per Mile \$
Compact	25	0.16
Intermediate	26	0.17
Premium	27	0.26
Specialty	31	0.26

Round Trip Mileage (example)

Carson City ↔ Reno Airport	66
Carson City ↔ Tonopah	456
Carson City ↔ Ely	636
Carson City ↔ Winnemucca	360
Carson City ↔ Austin	242
Reno Airport ↔ Las Vegas Airport	886
Reno Airport ↔ Elko Airport	578

From Reno or Las Vegas to locations not served by commercial airlines, ground transportation is used



EQUIPMENT costs are based on price quotes and current government rate prices established by State of Nevada approved vendors.

SUPPLIES costs are estimated per person at this time for general office supplies: postage, paper, copying costs, general office supplies. Nevada costs may change on July 1, 2010; therefore, a detailed cost structure will be provided at time of the RTTT award. Supplies will be purchased from State of Nevada authorized vendors.

CONTRACTUAL costs are estimated on an anticipated allowance for each reform area agenda. Indirect costs are calculated at one or two contracts per reform area. The actual number of contracts and indirect costs per reform area may vary.

OPERATING COSTS per person for Nevada Department of Education and Nevada's Promise office PERSONNEL /
CONTRACTUAL (e.g., Master Service Agreement (MSA) contracts), FY 2010-11:

	Yr. 1	Yr. 2 +
Telephone	111	148
Voice Mail	38	51
Long Distance	100	100
E-mail	58	78
Travel, basic expenses	1,896	1,896
Operating	375	375
New Furnishings	1,800	0
New PC w/software	<u>1,591</u>	<u>11</u>
Total Operating per person	5,969	2,659

INDIRECT COSTS The NDE Indirect Cost Rate (ICR) Agreement with the U. S. Department of Education is attached below. Indirect costs are charged on total direct costs less items of equipment, alterations and renovations, flow-through (sub-grant) funds, and the portion of each competitive bid sub-grant in excess of \$25,000 regardless of the period covered by the sub-grant. The Unrestricted ICR is 22.7%, effective July 1, 2009 to June 30, 2010.

COPY

INDIRECT COST RATE AGREEMENT
STATE EDUCATION AGENCY

ORGANIZATION:

Nevada Department of Education
700 East Fifth Street
Carson City, Nevada 89701-5096

EIN: 88-6000022

DATE: May 13, 2009

AGREEMENT NO. 2009-089
FILING REFERENCE: This replaces
previous Agreement No. 2008-119
dated July 3, 2008

The purpose of this Agreement is to establish indirect cost rates for use in award and management of Federal contracts, grants, and other assistance arrangements to which Office of Management and Budget (OMB) Circular A-87 applies. The rates were negotiated by the US Department of Education pursuant to the authority cited in Attachment A of OMB Circular A-87.

This agreement consists of four parts: Section I - Rates and Bases; Section II - Particulars; Section III - Special Remarks; and, Section IV - Approvals.

Section I - Rate(s) and Base(s)

TYPE	Effective Period		Rate	Base	Coverage		
	From	To			Location	Applicability	
Fixed	07-01-09	06-30-10	22.7%	1/	All	2/	
Fixed	07-01-09	06-30-10	17.5%	1/	All	3/	
1/	Total direct costs less items of equipment, alterations and renovations, flow-through funds, and the portion of each competitive bid sub-award in excess of \$25,000 regardless of the period covered by that sub-award.						
2/	All Federal programs which do not require the use of a restricted rate as defined by 34 CFR 75.563 and 34 CFR 76.563.						
3/	All Federal programs which require the use of a restricted rate as defined by 34 CFR 75.563 and 34 CFR-76.563						

Treatment of Fringe Benefits: Fringe benefits applicable to direct salaries and wages are treated as direct costs, however, pursuant to OMB Circular A-87 - Attachment B, Paragraph 8.d.3, terminal leave cost for all employees will be allocated as an indirect cost, except for those employee salaries designated as a direct cost for the restricted rate calculation.

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Capitalization Policy: Items of equipment are capitalized if the initial acquisition cost is in excess of \$5,000 and the useful life is in excess of two years.

SECTION II -- Particulars

SCOPE: The indirect cost rate(s) contained herein are for use with grants, contracts, and other financial assistance agreements awarded by the Federal Government to the Nevada Department of Education and subject to OMB Circular A-87.

LIMITATIONS: Application of the rate(s) contained in this agreement is subject to all statutory or administrative limitations on the use of funds, and payment of costs hereunder are subject to the availability of appropriations applicable to a given grant or contract. Acceptance of the rate(s) agreed herein is predicated on the conditions: (A) that no cost other than those incurred by the Nevada Department of Education were included in the indirect cost pools as finally accepted, and that such costs are legal obligations of the State Agency and allowable under the governing cost principles; (B) that the same costs that have been treated as indirect costs are not claimed as direct costs; (C) that similar types of information which are provided by the agency, and which was used as a basis for acceptance of rates agreed to herein are not subsequently found to be materially incomplete or inaccurate; and (D) that similar types of costs have accorded consistent accounting treatment.

ACCOUNTING CHANGES: Fixed or predetermined rates contained in this agreement are based on the accounting system in effect at the time the agreement was negotiated. When changes to the method of accounting for cost affect the amount of reimbursement resulting from the use of these rates, the changes will require the prior approval of the authorized representative of the cognizant negotiation agency. Such changes include, but are not limited to changing a particular type of cost from an indirect cost a direct charge. Failure to obtain such approval may result in subsequent cost disallowances.

FIXED RATE: The negotiated rate is based on an estimate of the costs which will be incurred during the period to which the rate applies. When the actual costs for such period have been determined, an adjustment will be made in a subsequent negotiation to compensate for the difference between the cost used to establish the fixed rate and the actual costs.

NOTIFICATION TO OTHER FEDERAL AGENCIES: Copies of this document may be provided to other Federal agencies as a means of notifying them of the agreement contained herein.

AUDIT: If a rate in this Agreement contains amounts from a cost allocation plan, future audit adjustments which affect this cost allocation plan will be compensated for during the rate approval process of a subsequent year.

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SECTION III - Special Remarks

1. This agreement is effective on the date of approval by the Federal Government.
2. Questions regarding this agreement should be directed to the negotiator.
3. Approval of the rate(s) contained herein does not establish acceptance of the State Education Agency's total methodology for the computation of indirect cost rates for years other than the year(s) herein cited.
4. Federal programs currently reimbursing indirect costs to this Department/Agency by means other than the rate(s) cited in this agreement should be credited for such costs and the applicable rate cited herein applied to the appropriate base to identify the proper amount of indirect costs allocable to the program.

SECTION IV - Approvals

For the State Education Agency:
 Nevada Department of Education
 700 East Fifth Street
 Carson City, Nevada 89701-5096

James R. Wells
 Signature
 James R. Wells
 Name
 Deputy Superintendent
 Title
 05/20/09
 Date

For the Federal Government:
 US Department of Education
 830 First Street, NE
 Room 21B2, UCP
 Washington, DC 20202-4450

Mary Goughisha
 Signature
 Mary Goughisha
 Name
 Director, Indirect Cost Group
 Title
 May 13, 2009
 Date
 John J. Masaitis
 Negotiator
 (202) 377-3837
 Telephone Number