APPENDIX TABLE OF CONTENTS

Attachment Title	Relevant Selection Criterion	Relevant Narrative Page #
Appendix A, Governor's RTTT Steering Committee Members and Letters of Support	(A)(1)(i); (A)(2)(ii)	14, 21
Appendix B, Bright Futures for Nebraska Students Initiative, Race to the Top by the State of Nebraska, Memorandum of Understanding	(A)(1)(ii)	14
Appendix C, Detailed Participating LEA Table for Criteria (A)(1)	(A)(1)	17
Appendix D, Nebraska progress on NAEP reading and math scores and AYP percentages 2003 – 2009	(A)(3)(ii)(b)	29
Appendix E, Excerpts from 2009 Nebraska Higher Education Progress Report	(A)(3)(ii)(c)	30
Appendix F, Common Core Memorandum of Agreement, Participating States, International Benchmarking Evidence and Draft Standards	(B)(1)(i)	33
Appendix G, MOSAIC Memorandum of Agreement and Balanced Assessment Memorandum of Agreement	(B)(2)(i) and (ii)	40
Appendix H, Teacher Preparation a White Paper, Greater Nebraska Superintendents	(D)(4)(i) and (ii)	96
Appendix I, Growth in Education's Share of State Appropriations from 2008-2009	(F)(1)(i)	124
Appendix J, Tax Equity and Education Opportunities Support Act Certification of 2009/10 Aid	(F)(1)(ii)	126
Appendix K, Nebraska Virtual School and STEM Academy Proposal	(A)(1), (B)(1) and (2), (D)(2) and (3) and Competitive Priority 2 (STEM)	34, 37, 83, 86, 137
Appendix L, Nebraska's Core Competencies for Early Childhood Professionals	Early Learning Invitational Priority	140
Appendix M, Results Matter in Nebraska	Early Learning Invitational Priority	141

Budget Part I: Summary Budget Table

	Project Year 1	Project Year 2	Project Year 3	Project Year 4	Total
Budget Categories	**(a)**	**(b)**	**(c)**	**(d)**	**(e)**
1. Personnel	$3,555,178	$3,694,219	$3,793,747	$3,839,872	$14,883,016
2. Fringe Benefits	$965,425	$1,036,131	$1,099,181	$1,153,117	$4,253,854
3. Travel	$499,936	$444,777	$411,486	$385,062	$1,741,261
4. Equipment	$214,152	$94,920	$94,920	$94,920	$498,912
5. Supplies	$477,874	$435,695	$399,134	$264,958	$1,577,661
6. Contractual	$5,666,982	$5,782,040	$6,499,822	$5,779,147	$23,727,991
7. Training Stipends	$100,000	$1,000,000	$1,110,000	$1,000,000	$3,210,000
8. Other	$824,251	$621,638	$622,960	$601,844	$2,670,693
9. Total Direct Costs (lines 1-8)	$12,303,798	$13,109,420	$14,031,250	$13,118,920	$52,563,388
10. Indirect Costs*	$524,849	$531,222	$532,178	$524,984	$2,113,233
11. Funding for Involved LEAs	$808,000	$808,000	$808,000	$808,000	$3,232,000
12. Supplemental Funding for Participating LEAS	$1,000,000	$1,000,000	$821,789	$821,788	$3,643,577
13. Total Costs (lines 9-12)	$14,636,647	$15,448,642	$16,193,217	$15,273,692	$61,552,198
14. Funding for Participating LEAs (50%)	*$13,670,778*	*$19,265,911*	*$14,281,130*	*$14,334,379*	*$61,552,198*
TOTAL BUDGET (lines 13-14)	$28,307,425	$34,714,553	$30,474,347	$29,608,071	$123,104,396

Budget Part I: Summary Budget Narrative

Nebraska seeks funds for activities in four major areas: standards and assessment, data systems to support instruction, great teachers and leaders, and turning around the lowest achieving schools. Detailed project-level budgets for each of these areas are included below. The budget structure follows the outline contained in the application. However, in its detailed budgets, Nebraska has made a special effort to provide adequate information to support each request. For instance, the budget summary narrative for the standards and assessment provides detailed information on each line item in the budget for that area.

All activities and expenditures will be in support of the state's overall reform effort, which drives expenditures of state and local funds, as well as funds from other federal programs. As noted in the narrative, activities described in RTTT do not stand alone; rather, they are part of a larger, long term effort to dramatically improve student achievement in the state. For instance, funds will support the implementation of the Common Core standards as well as the aligned formative and summative assessments the state, in coordination with others, will develop. Initial efforts in these areas precede RTTT; funds requested under RTTT fit firmly into the state's overall plan.

RTTT funds will be used in coordination with other federal funds to advance Nebraska's reform and build upon efforts already begun. For example, activities requested for data systems rest on a base of state and IES funded efforts to build a State Data Longitudinal System, including Nebraska's Student and Staff Record System. Our December 2009 SLDS application will provide additional support in this area and is completely coordinated with the request in RTTT.

Similarly, all funds for implementation of Common Core standards and development of aligned assessments will be used together to put in place the new standards and assessment system. Funds requested for turning around schools will be used, at both state and local levels, in coordination with funds provided under Title I, including those provided under ARRA.

As described in the project narrative, overall responsibility for the project rests with the State Commissioner of Education and with NDE. However, the broad based steering committee will play a central role in overseeing implementation and providing input to project management. Fiscal oversight will be provided by NDE's Office of Finance and Organizational Services. The office will assign full time personnel to the project to ensure all expenditures are within the grant budget and meet other federal requirements. To accomplish this, NDE will assign specific finance officers to the project. Assigned persons will be trained in the specific activities of RTTT as well as in federal financial requirements. A regular internal reporting system will be instituted to make certain all interest parties are aware of project expenditures. The same persons responsible for internal fiscal accountability will maintain records and submit fiscal reports related to RTTT. The records will be maintained with and aligned with other expenditures under ARRA to ensure that fiscal accountability requirements under these programs are met.

Budget Part II: Project-Level Budget Table
Project Name: Standards and Assessments
Associated with Criteria: (B)

	Project Year 1	Project Year 2	Project Year 3	Project Year 4	Total
Budget Categories	(a)	(b)	(c)	(d)	(e)
1. Personnel	$975,000	$980,625	$986,250	$991,875	$3,933,750
2.Fringe Benefits	$54,079	$56,736	$59,590	$62,659	$233,064
3.Travel	$200,000	$200,000	$200,000	$200,000	$800,000
4. Equipment	$5,000	$5,000	$5,000	$5,000	$20,000
5. Supplies	$10,000	$10,000	$10,000	$10,000	$40,000
6. Contractual	$1,317,257	$1,314,315	$1,311,181	$1,307,834	$5,250,587
7. Training Stipends	$100,000	$100,000	$100,000	$100,000	$400,000
8. Other	$25,000	$25,000	$25,000	$25,000	$100,000
9. Total Direct Costs (lines 1-8)	$2,686,336	$2,691,676	$2,697,021	$2,702,368	$10,777,401
10. Indirect Costs*	$185,414	$185,867	$186,322	$186,776	$744,379
11. Funding for Involved LEAs					
12. Supplemental Funding for Participating LEAs					
13. Total Costs (lines 9-12)	$2,871,750	$2,877,543	$2,883,343	$2,889,144	$11,521,780

Budget Part II: Project-Level Budget Narrative
Project Name: Standards and Assessments
Associated with Criteria: (B)

Personnel: This section consists of two primary parts: three FTE have been budgeted for the next four years. These new hires would be used to coordinate the RTTT project from both the NDE level as an overall project manager, assistant manager, and a Coordinator responsible for coordinating activities from the regional ESU and local District level. The second expenditure is the training of teachers for integration of the Common Core Standards and for training in instructional strategies, data analysis sessions and intervention strategies. Teachers are typically paid $150 per day X 5,000 teachers across the state for a total of 750,000.

Fringe Benefits: Fringe benefits for the three FTE have been budgeted over the four year grant.
Travel: The travel amount would cover travel for the grant project managers and NDE staff to attend consortium meetings, vendor planning sessions, and required federal meetings. Travel costs would also be covered for the teachers working on standards integration and the teachers teaching other teachers. A large amount of the work will occur in local districts or electronically, so will require a minimum of travel; however, teacher trainers and travelers will be reimbursed.

Equipment: The equipment will be used to set up offices for the three new hires.
Supplies: The supplies will cover mailings, materials, and office costs for establishing three new offices, but the cost of developing materials to be stored in the web are included in this figure.

Contractual: The biggest expenditure in the contractual category is 900,000 annually for the contracting software vendor and hosting site for the item bank. This is calculated on the basis of $5.00 per Nebraska student annually. The second large expenditure is an additional 500,000 annually for psychometric and testing services assuring technical quality of the Common Core formative and benchmark assessments. The last 100,000 will be used for materials development and their dissemination.

Training Stipends and Other: These dollars would be used to fund the 18 hour graduate cohort for "Leading Core Standards and Assessment" through the University of Nebraska. Teacher training stipends are included in personnel, as required. Funding will also support other miscellaneous expenses.

Budget Part II: Project-Level Budget Table
Project Name: Data Systems and Use
Associated Criteria: (C)

	Project Year 1	Project Year 2	Project Year 3	Project Year 4	Total
Budget Categories	(a)	(b)	(c)	(d)	(e)
1. Personnel	$513,360	$526,194	$539,348	$552,833	$2,131,735
2. Fringe Benefits	$258,827	$278,753	$300,518	$324,295	$1,162,393
3. Travel	$113,106	$68,009	$70,528	$73,148	$324,791
4. Equipment	$42,250				$42,250
5. Supplies	$31,405	$31,792	$32,962	$34,180	$130,339
6.Contractual	$30,000	$65,000	$755,000	$435,000	$1,285,000
7.Training Stipends			$10,000		$10,000
8. Other	$24,728	$25,579	$26,461	$27,383	$104,151
9.Total Direct Costs (lines 1-8)	$1,013,676	$995,327	$1,734,817	$1,446,839	$5,190,659
10. Indirect Costs*	$85,737	$84,179	$89,234	$88,132	$347,282
11. Funding for Involved LEAs					
12. Supplemental Funding for Participating LEAs					
13. Total Costs (lines 9-12)	$1,099,413	$1,079,506	$1,824,051	$1,534,971	$5,537,941

Budget Part II: Project-Level Budget Narrative
Project Name: Data Systems and Use
Associated Criteria: (C)

Data Project 1: Expanding State Technical Support

This project will support the activities of all of the other proposed data projects. Included in this budget are the costs for continuation and expansion of the training network, additional help desk support and for expansion of the public reporting websites that will enable data to be easily generated for continuous improvement and decision making.

(1) Personnel:

Personnel: The following requested personnel will be hired as employees of the project.	% FTE	Base Salary	Project Total
Trainers: This project requests funding to support four full time trainers to support school districts across Nebraska. One trainer will cover the western part of the state, one the central portions and two trainers, located at NDE headquarters in Lincoln, will cover the eastern part of the state. Each trainer has over three years of experience working with Nebraska schools. The salary for each of these four Program Specialist III positions will be at pay grade 46 at an individual base salary of $52,110.	4.0	$208,400	$865,552
Help Desk Support: NDE has established a very successful help desk program to support school districts in meeting state and federal reporting requirements. It is anticipated that the projects described in this application will require one additional FTE on the help desk. The additional help desk person will be an IT Help Desk Specialist position at pay grade 44.	1.0	$42,955	$178,370
Project Support: NDE will hire a person to provide office support on a four year fixed term contract. The salary for this Office Associate II position will be at pay grade 38.	1.0	$29,927	$124,272

Salary increased each year by 2.5% from the base salary of the first year.

(2) Fringe Benefits:

Personnel: The following requested personnel will be hired as employees of the project.	% FTE	Fringe Benefits	Project Total
Trainers: The fringe benefits each of these four Program Specialist III positions.	4.0	$102,320	$459,072

Help Desk Support: The fringe benefits for the IT Help Desk Specialist.	1.0	$24,095	$108,603
Project Support: The fringe benefits for Office Associate II position.	1.0	$21,982	$99,829

The basis for cost estimates or computations:

- State Retirement Share figured at 7.4880% of gross salary
- FICA is 7.65% of gross salary
- State Health insurance costs increased each year by 10% of first year
- Workers Compensation figured at 1.0827% on gross salary
- State Life Insurance benefit is $23 per year
- Employee Assistance Program is $16 per year

(3) Travel:

The NDE estimates travel budgets based on the amount of travel required of each position as follows: highest $9,000, high $7,745, medium $4,426 and low $1,053. Because the trainers are required to travel extensively for workshops and conferences, we have estimated the travel cost as follows:

Travel: Expenses for trainers to attend workshops and conferences.	Travel for Four Trainers Year One	Total Travel during the Project
The estimated travel budget for each trainer in year one is $9,000. The travel budget is increased by 4% each year. No travel is included for the Help Desk or Support positions.	$36,000	$152,868

(4) Equipment:

Equipment: Consistent with NDE policy, equipment is defined as tangible, non-expendable, personal property having a useful life of more than one year and an acquisition cost of $1,000 or more per unit.	Cost of Item	Item Description	Total
Desktop computers, monitors, office furniture, chairs, file cabinets, etc will be needed to supply the needs of six new employees.	$4,225	Computer including monitor, office furniture	$25,350

(5) Supplies:

NDE estimates supplies at $2,820 per FTE per year, with a 4% increase each year. Total expenses for supplies in year one is $16,920. Total project cost for supplies is $71,850.

(6) Contractual:

Nebraska has two websites for reporting to the public. The first is the *State of the Schools Report* and the second is the *Data Reporting System*. These current reporting sites will need to be expanded to include data that will be generated under projects described in Nebraska's RTTT application and in the SFSF assurances. Nebraska intends to issue a request for proposal to secure a contractor to expand the websites described in this application and will follow all state requirements and the procedures for procurement under 34 CFR Parts 74.40 - 74.48 and Part 80.36. NDE issued a similar RFP in 2008 to secure a contractor to develop the *Data Reporting System*. Based on past experience, it is estimated that this contract will occur in the last two years of the project and will cost a total of $1.1 million.

(7) Training Stipends: None

(8) Other:

Rental of office space of $2,071 per FTE per year and an increase of 4% per year is reported on this line. Total project cost is $52,770.

(9) Total Direct Costs: See worksheet below.

(10) Indirect Costs:

The Indirect Cost Rate is 8.5%. Indirect costs for contracts are figured on the first $25,000 only.

(11) Funding for Involved LEAs: None

(12) Supplemental Funding for Participating LEAs: None

(13) Total Costs: See worksheet below.

Project 1 **Expanding State Technical Support**

Categories	Year 1	Year 2	Year 3	Year 4	Total
1. Personnel	281,322	288,355	295,564	302,953	1,168,194
2. Fringe Benefits	148,397	159,983	172,644	186,480	667,504
3. Travel	36,000	37,440	38,936	40,492	152,868
4. Equipment	25,350	0	0	0	25,350
5. Supplies	16,920	17,598	18,300	19,032	71,850
6. Contractual	0	0	700,000	400,000	1,100,000
7. Training Stipends	0	0	0	0	0
8. Other	12,426	12,924	13,440	13,980	52,770
9. Total Direct Costs(line 1-8)	520,415	516,300	1,238,884	962,937	3,238,536
10. Indirect Costs	44,235	43,886	47,930	47,850	183,901
11. Funding for Involved LEA's	0	0	0	0	0
12. Supplemental Funding for Participating LEAs	0	0	0	0	0
13. Total Costs (line 9-12)	564,650	560,186	1,286,814	1,010,787	3,422,437

Date Project 2: Supporting the Use of Data to Improve Instruction

This project's purpose is to enhance the use and expand the support of instructional support systems. The evidence provided for (C) (3) (ii) (in the application narrative) supports the need to further expand support for LEAs in implementing and using these systems. To enhance support for districts, this project proposes the addition of two FTE to the training network.

(1) Personnel:

Personnel: The following requested personnel will be hired as employees of the project.	% FTE	Base Salary	Project Total
Trainers: This project requests funding to support two full time	2.0	$104,220	$432,776

trainers to support local schools in the use of instructional improvement systems through a series of workshops entitled ***Leadership for Continuous Improvement***. The workshops utilize the seven Standards for Effective Schools from the *National Study of School Evaluation.* The trainers have not been hired but will be well versed in assisting LEAs in implementing the indicators that are part of the ***Leadership for Continuous Improvement*** including: • Establishing performance measures that yield reliable, valid and bias fee information, • Using student assessment data for making decisions for continuous improvement of the learning process, • Using comparison and trend data in student performance in evaluating effectiveness and • Maintaining a secure, accurate and complete student record system in accordance with state and federal regulations. The salary for each of these two Program Specialist III positions will be at pay grade 46 with an individual base salary for year one of $52,110,			

Salary increased each year by 2.5% from the base salary of the first year.

(2) Fringe Benefits:

Personnel: The following requested personnel will be hired as employees of the project.	% FTE	Fringe Benefits	Project Total
The fringe benefits for the Program Specialist III positions.	2.0	$51,160	$229,536

The basis for cost estimates or computations:

- State Retirement Share figured at 7.4880% of gross salary
- FICA is 7.65% of gross salary
- State Health insurance costs increased each year by 10% of first year
- Workers Compensation figured at 1.0827% on gross salary
- State Life Insurance benefit is $23 per year
- Employee Assistance Program is $16 per year

(3) Travel:

The NDE estimates travel budgets based on the amount of travel required of each position as follows: highest $9,000, high $7,745, medium $4,426 and low $1,053. Because the trainers are required to travel extensively for workshops and conferences we have estimated the travel cost as follows:

Travel: expenses for trainers to attend workshops and conferences.	Travel for Two Trainers Year One	Total Travel during the Project
The estimated travel budget for each trainer in year one is $9,000.The travel budget is increase by 4% each year.	$18,000	$76,437

(4) Equipment:

Equipment: Consistent with NDE policy, equipment is defined as tangible, non-expendable, personal property having a useful life of more than one year and an acquisition cost of $1,000 or more per unit.	Cost of Item	Item Description	Total
Desktop computers, monitors, office furniture, chairs, file cabinets, etc will be needed to supply the needs of two new employees.	$4,225	Computer including monitor, office furniture	$8,450

(5) Supplies:

NDE estimates supplies at $2,820 per FTE per year with a 4% increase each year. Total expenses for supplies in year one is $5,640. Total project cost for supplies is $23,950.

(6) Contractual: None

(7) Training Stipends: None

(8) Other:

Rental of office space of $2,071 per FTE per year for year one and an increase of 4% per year is reported on this line. Total project cost is $17,590.

(9) Total Direct Costs: See worksheet below.

(10) Indirect Costs:

The Indirect Cost Rate is 8.5%. Indirect costs for contracts are figured on the first $25,000 only.

(11) Funding for Involved LEAs: None

(12) Supplemental Funding for Participating LEAs: None

(13) Total Costs: See worksheet below.

Project 2 **Supporting the Use of Data to Improve Instruction**

Categories	Year 1	Year 2	Year 3	Year 4	Total
1. Personnel	104,220	106,826	109,496	112,234	432,776
2. Fringe Benefits	51,160	55,064	59,328	63,984	229,536
3. Travel	18,000	18,720	19,469	20,248	76,437
4. Equipment	8,450	0	0	0	8,450
5. Supplies	5,640	5,866	6,100	6,344	23,950
6. Contractual	0	0	0	0	0
7. Training Stipends	0	0	0	0	0
8. Other	4,142	4,308	4,480	4,660	17,590
9. Total Direct Costs(line 1-8)	191,612	190,784	198,873	207,470	788,739
10. Indirect Costs	16,287	16,217	16,904	17,635	67,043
11. Funding for Involved LEA's	0	0	0	0	
12. Supplemental Funding for Participating LEAs	0	0	0	0	
13. Total Costs (line 9-12)	207,899	207,001	215,777	225,105	855,782

Data Project 3: Supplementing Early Learning Data

This project will improve early learning data use by developing an Early Learning Connection Registry. This registry will provide a database accessible to early childhood system stakeholders who are tracking the participation of early childhood practitioners in professional development activities (including data use best practices). This database is part of the quality improvement processes that will advance program quality and lead to expanded outcomes for children in Nebraska.

(1) Personnel:

Personnel: The following requested personnel will be hired as employees of the project.	% FTE	Base Salary	Project Total
Project Manager: The full time Early Childhood Project Manager will have primary responsibility for developing and implementing the Early Learning Connection Registry including project design and management. The Project Manager will serve in a liaison capacity with other potential data sources, support data quality assurance, and provide technical assistance for early childhood constituencies in school-based and school-linked community early childhood programs. The salary for this Program Specialist III position will be at pay grade 47.	1.0	$57,324	$238,039
Early Childhood IT Programmer: This will be a fixed term contract position that will be responsible for the design, development, testing and implementation of the Early Learning Connection Registry. The fixed term contract will be based on the cost of a full time Applications Developer Senior, pay grade 47.	1.0	$57,324	$238,039
Early Childhood Career Development Coordinator: A current staff member will devote .25 FTE to the development of the data system. In addition to staff, expenses are identified to create a project design advisory group consisting of early childhood specialist and practitioners from across the state.	.25	$13,170	$54,687

Salary increased each year by 2.5% from the base salary of the first year.

(2) Fringe Benefits:

Personnel: The following requested personnel will be hired as employees of the project.	% FTE	Fringe Benefits	Project Total
Project Manager: The fringe benefits for this Program Specialist III position.	1.0	$26,426	$118,283
Early Childhood IT Programmer: The fringe benefits for the Applications Developer Senior position.	1.0	$26,426	$118,283
Early Childhood Career Development Coordinator: The fringe benefits for .25 FTE for the Education Specialist II position.	.25	$6,418	$28,787

- The basis for cost estimates or computations:
- State Retirement Share figured at 7.4880% of gross salary
- FICA is 7.65% of gross salary
- State Health insurance costs increased each year by 10% of first year
- Workers Compensation figured at 1.0827% on gross salary
- State Life Insurance benefit is $23 per year
- Employee Assistance Program is $16 per year

(3) Travel:

A project design advisory group consisting of early childhood specialists and practitioners from across the state will be appointed. The expenses for this group are based on a 12-member committee meeting 12 times during Year 1 of the grant.

Travel: Travel expenses include travel of 2.25 FTE and for the design advisory group	Year One Cost	Total Project Cost
Travel costs for project staff (1.25 FTE) at a cost of $4,426 per FTE and 1 FTE of a cost of $1,053.	$6,586	$27,966
The travel expenses for the design group of $45,720 are based on a 12-member committee meeting 12 times during Year 1 of the grant only. An additional $1,800 is included for room rental.	$47,520	$47,520

(4) Equipment:

Equipment: Consistent with NDE policy, equipment is defined as tangible, non-expendable, personal property having a useful life of more than one year and an acquisition cost of $1,000 or more per unit.	Cost of Item	Item Description	Total
Desktop computers, monitors, office furniture, chairs, file cabinets, etc will be needed to supply the needs of two new employees. No equipment will be required for the existing .25 FTE.	$4,225	Computer including monitor and office furniture	$8,450

(5) Supplies:

NDE estimates supplies at $2,820 per FTE per year with a 4% increase each year. Total expenses for supplies in year one is $6,345. Total project cost for supplies is $24,539.

(6) Contractual: None

(7) Training Stipends: None

(8) Other:

This line includes rental of office space for each position (2.25 FTE) of $2,071 for year one with an annual increase of 4%. Total project cost is $19,790.

(9) Total Direct Costs: See worksheet below.

(10) Indirect Costs:

The Indirect Cost Rate is 8.5%. Indirect costs for contracts are figured on the first $25,000 only.

(11) Funding for Involved LEAs: None

(12) Supplemental Funding for Participating LEAs: None

(13) Total Costs: See worksheet below.

Project 3 **Supplementing Early Learning Data**

Categories	Year 1	Year 2	Year 3	Year 4	Total
1. Personnel	127,818	131,013	134,288	137,646	530,765
2. Fringe Benefits	59,270	63,706	68,546	73,831	265,353
3. Travel	54,106	6,849	7,123	7,408	75,486
4. Equipment	8,450	0	0	0	8,450
5. Supplies	6,345	5,828	6,062	6,304	24,539
6. Contractual	0	0	0	0	0
7. Training Stipends	0	0	0	0	0
8. Other	4,660	4,847	5,041	5,243	19,790
9. Total Direct Costs(line 1-8)	260,649	212,243	221,060	230,432	924,384
10. Indirect Costs	22,155	18,041	18,790	19,587	78,573
11. Funding for Involved LEA's	0	0	0	0	
12. Supplemental Funding for Participating LEAs	0	0	0	0	
13. Total Costs (line 9-12)	282,804	230,284	239,850	250,019	1,002,957

Data Project 4: Interoperability/Workforce Analysis

This project will allow the expansion of informal educational data sources and better coordinate relevant data collection and use. The state will enhance the work of *FutureForce Nebraska* by collecting data on programmatic career development interventions from programs in the work force, community based organizations, health and human services, and education to establish a baseline of programmatic interventions that will be available for alignment and analysis.

(1) Personnel: None

(2) Fringe Benefits: None

(3) Travel:

Travel: Travel expenses include costs associated with convening meetings and collecting data for each project year.	# of Trips	$ Per Year	Project Total
NDE has budgeted $5,000 each year for travel of a representative committee to advise NDE on project policies and procedures.	Eight people times four meetings each year.	$5,000	$20,000

(4) Equipment: None

(5) Supplies: Estimated $2,500 per year, total project cost of $10,000.

(6) Contractual:

Contract #1: A developmental contract ($30,000 each year) during Year 1 and Year 2 ($60,000 total). This contract will be with an individual or firm for leading the process of developing the workforce model described in the narrative.

Contract #2: These contracts will be will be with the seven Nebraska community colleges involved with the pilot project ($10,000 x seven colleges) during Year 2 and Year 3 ($35,000/year, total $70,000).

Contract #3: Evaluation contract of the effectiveness of the data analysis model and dissemination of resources to support the longitudinal analysis (Contract $55,000) Year 3, $20,000 and year 4 $35,000).

The above procurements will follow all state requirements and procedures for procurement under 34 CFR Parts 74.40 - 74.48 and Part 80.36. The estimates provided above are based on previous state procurements for similar projects.

(7) Training Stipends: Training stipends intend to support the analysis and use of the longitudinal analysis ($10,000 Year 3).

(8) Other: NDE is estimating that $3,500 will be required in each year to cover meeting expenses such as communications, printing, postage, equipment rental. Total project cost of $14,000. No rental expenses are included here.

(9) Total Direct Costs: See worksheet below.

(10) Indirect Costs:

The Indirect Cost Rate is 8.5%. Indirect costs for contracts are figured on the first $25,000 only.

(11) Funding for Involved LEAs: None

(12) Supplemental Funding for Participating LEAs: None

(13) Total Costs: See worksheet below.

Project 4 **Interoperability/Workforce Analysis**

Categories	Year 1	Year 2	Year 3	Year 4	Total
1. Personnel	0	0	0	0	0
2. Fringe Benefits	0	0	0	0	0
3. Travel	5,000	5,000	5,000	5,000	20,000
4. Equipment	0	0	0	0	0
5. Supplies	2,500	2,500	2,500	2,500	10,000
6. Contractual	30,000	65,000	55,000	35,000	185,000
7. Training Stipends	0	0	10,000	0	10,000
8. Other	3,500	3,500	3,500	3,500	14,000

9. Total Direct Costs(line 1-8)	41,000	76,000	76,000	46,000	239,000
10. Indirect Costs	3,060	6,035	5,610	3,060	17,765
11. Funding for Involved LEA's	0	0	0	0	
12. Supplemental Funding for Participating LEAs	0	0	0	0	
13. Total Costs (line 9-12)	44,060	82,035	81,610	49,060	256,765

Budget Part II: Project Level Budget Table
Project Name: Great Teachers and Leaders (Aggregate Sub-Project Budget)
Associated with Criteria: (D)(1-5))

	Project Year 1	Project Year 2	Project Year 3	Project Year 4	Total
Budget Categories	**(a)**	**(b)**	**(c)**	**(d)**	**(e)**
1. Personnel	$179,250	$235,700	$245,900	$200,975	$861,825
2. Fringe Benefits	$44,813	$58,925	$61,476	$50,244	$215,458
3. Travel	$133,250	$125,750	$97,500	$71,750	$428,250
4. Equipment	$41,500	$60,000	$60,000	$60,000	$221,500
5. Supplies	$27,500	$53,000	$27,000	$18,000	$125,500
6. Contractual	$2,370,000	$2,480,000	$2,535,000	$2,145,000	$9,530,000
7. Training Stipends		$900,000	$1,000,000	$900,000	$2,800,000
8. Other	$34,000	$27,000	$27,000	$27,000	$115,000
9. Total Direct Costs (lines 1-8)	$2,830,313	$3,940,375	$4,053,876	$3,472,969	$14,297,533
10. Indirect Costs*	$32,709	$40,237	$36,709	$28,982	$138,637
11. Funding for Involved LEAs					
12. Supplemental Funding for Participating LEAs					
13. Total Costs (lines 9-12)	$2,863,022	$3,980,612	$4,090,585	$3,501,951	$14,436,170

Budget Part II: Project-Level Budget Table
Project Name: Alternative Program Scale Up/Teacher Supply
Associated with Criteria: (D)(1)

Budget Categories	Project Year 1 (a)	Project Year 2 (b)	Project Year 3 (c)	Project Year 4 (d)	Total (e)
1. Personnel					
2. Fringe Benefits					
3. Travel	**600**	**600**	**600**	**600**	**2,400**
4. Equipment					
5. Supplies	**1,000**				**1,000**
6. Contractual	**40,000**	**115,000**	**115,000**	**40,000**	**310,000**
7. Training Stipends					
8. Other	**1,000**	**1,000**	**1,000**	**1,000**	**4,000**
9. Total Direct Costs (lines 1-8)	**42,600**	**116,600**	**116,600**	**41,600**	**317,400**
10. Indirect Costs*	**136**	**51**	**51**	**51**	**289**
11.Funding for Involved LEAs					
12. Supplemental Funding for Participating LEAs					
13. Total Costs (lines 9-12)	**42,736**	**116,651**	**116,651**	**41,651**	**317,689**

Budget Part II: Project-Level Budget Table
Project Name: Teacher and Leader Evaluation
Associated with Criteria: (D)(2)

Budget Categories	Project Year 1 (a)	Project Year 2 (b)	Project Year 3 (c)	Project Year 4 (d)	Total (e)
1. Personnel	117,500	173,000	182,250	136,375	**609,125**
2. Fringe Benefits	29,375	43,250	45,563	34,094	**152,282**
3. Travel	48,750	41,250	8,750		**98,750**
4. Equipment	8,500				**8,500**
5. Supplies	18,500	45,000	19,000	10,000	**92,500**
6. Contractual		255,000	255,000	85,000	**595,000**
7. Training Stipends			100,000		**100,000**
8. Other	1,000	1,000	1,000	1,000	**4,000**
9. Total Direct Costs (lines 1-8)	**223,625**	**558,500**	**611,563**	**266,469**	**1,660,157**
10. Indirect Costs (8.5% of lines 1-5)	18,201	25,713	21,723	15,340	**80,976**
11.Funding for Involved LEAs					**0**
12. Supplemental Funding for Participating LEAs					
13. Total Costs (lines 9-12)	**241,826**	**584,213**	**633,286**	**281,809**	**1,741,133**

Budget Part II: Project-Level Budget Table

Project Name: Equitable Distribution of Effective Teachers and Principals

Associated with Criteria: (D)(3)

Budget Categories	Project Year 1 (a)	Project Year 2 (b)	Project Year 3 (c)	Project Year 4 (d)	Total (e)
1. Personnel	13,000	13,200	13,400	13,600	**53,200**
2. Fringe Benefits	3,250	3,300	3,350	3,400	**13,300**
3. Travel	14,500	14,500	18,750	18,750	**66,500**
4. Equipment	31,500	60,000	60,000	60,000	**211,500**
5. Supplies	4,000	4,000	4,000	4,000	**16,000**
6. Contractual	80,000	70,000	170,000	160,000	**480,000**
7. Training Stipends		900,000	900,000	900,000	**2,700,000**
8. Other	3,500				**3,500**
9. Total Direct Costs (lines 1-8)	**149,750**	**1,065,000**	**1,169,500**	**1,159,750**	**3,544,000**
10. Indirect Costs* (8.5% of lines 1-5)	2,954	2,975	3,358	3,379	**12,665**
11.Funding for Involved LEAs					**0**
12. Supplemental Funding for Participating LEAs					**0**
13. Total Costs (lines 9-12)	**152,704**	**1,067,975**	**1,172,858**	**1,163,129**	**3,556,665**

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.

Budget Part II: Project-Level Budget Table
Project Name: Accountability and Support for Teacher Prep
Associated with Criteria: (D)(4)

Budget Categories	Project Year 1 (a)	Project Year 2 (b)	Project Year 3 (c)	Project Year 4 (d)	Total (e)
1. Personnel					
2. Fringe Benefits					
3. Travel	**67,000**	**67,000**	**67,000**	**50,000**	**251,000**
4. Equipment					
5. Supplies	**2,000**	**2,000**	**2,000**	**2,000**	**8,000**
6. Contractual	**490,000**	**280,000**	**235,000**	**100,000**	**1,105,000**
7. Training Stipends					
8. Other					
9. Total Direct Costs (lines 1-8)	**559,000**	**349,000**	**304,000**	**152,000**	**1,364,000**
10. Indirect Costs	**5,865**	**5,865**	**5,865**	**4,420**	**22,015**
11.Funding for Involved LEAs					
12. Supplemental Funding for Participating LEAs					
13. Total Costs (lines 9-12)	**564,865**	**354,865**	**309,865**	**156,420**	**1,386,015**

Budget Part II: Project-Level Budget Table

Project Name: Professional Development

Associated with Criteria: (D)(5)

Budget Categories	Project Year 1 (a)	Project Year 2 (b)	Project Year 3 (c)	Project Year 4 (d)	Total (e)
1. Personnel	48,750	49,500	50,250	51,000	**199,500**
2. Fringe Benefits	12,188	12,375	12,563	12,750	**49,876**
3. Travel	2,400	2,400	2,400	2,400	**9,600**
4. Equipment	1,500				**1,500**
5. Supplies	2,000	2,000	2,000	2,000	**8,000**
6. Contractual	1,760,000	1,760,000	1,760,000	1,760,000	**7,040,000**
7. Training Stipends					**0**
8. Other	28,500	25,000	25,000	25,000	**103,500**
9. Total Direct Costs (lines 1-8)	**1,855,338**	**1,851,275**	**1,852,213**	**1,853,150**	**7,411,976**
10. Indirect Costs (8.5% of lines 1-5)	5,554	5,633	5,713	5,793	**22,693**
11.Funding for Involved LEAs					**0**
12. Supplemental Funding for Participating LEAs					**0**
13. Total Costs (lines 9-12)	**1,860,892**	**1,856,908**	**1,857,926**	**1,858,943**	**7,434,669**

Budget Part II: Project Level Budget Narrative
Project Name: Great Teachers and Leaders (Aggregate Sub-Project Budget)
Associated with Criteria: (D)(1-5))

(1) Personnel

Project Coordinator staff to be paid out of funds from this application for D1-5 are generally included at a Program Specialist IV (Level 48) position within the Nebraska Department of Education. Salary is based on 50% of the maximum pay grade for this classification. Salary increases for each subsequent year are included at approximately 1.5-2%.

Support Staff to be paid out of funds from this application for D1-5 are generally included at an Office Associate II (Level 40) position within the Nebraska Department of Education. Salary is based on 40% of the maximum pay grade for this classification. Salary increases for each subsequent year are included at approximately 1.5-2%.

Other Staff calculations for this application for D1-5 are explained below.

A total of $861,825 is requested for personnel for Years 1-4.

- D-1 No additional staff is requested.
- D-2

  Nebraska Professional Educator Standards (NPES) Project Coordinator
  Responsible for overall leadership and management for development and implementation of Nebraska Professional Educator Standards (work with teacher preparation programs, revision of Rules, coordination with educator evaluation process development, collaboration with ESUs for training and in-service. Coordinate with Teacher/Administration Performance Appraisal project, Certification, and Data staff.

  Performance Appraisal Project Coordinator
  Lead development and implementation of evaluation systems. Coordinate with NPES, Teacher Certification, Data, and Standards/ Assessment Staff
  Teacher Certification Redesign Project Coordinator

Oversee development of certification redesign processes based on teacher/principal evaluations; develop and work with ESU staff to develop/implement training for statewide implementation; develop new certification levels (including creation of the Teacher-Leader certification) and provide leadership for associated implementation strategies.

Teacher Certification Analyst Staff

Calculated as a Program Associate III (Level 40) at 40% of the maximum pay scale, with estimated 1.5-2% increase for subsequent years.

Assist with transition of current system, provide technical assistance to users, and provide input to section implementation of redesign decisions.

IT Staff

Calculated as an IT Data/Database Analyst Lead (Level 48) at 50% of the maximum pay scale, with estimated 1.5-2% increases for subsequent years..

System changes for recording, issuing certificates, and data management of certification system, system for public report.

- D-3

  Coordinator for Equitable Distribution Design and Management

  Participant selection/identification development and delivery of support resources and processes for identified teams to work in high-poverty and high minority schools. (Coordinator works in coordination with NDE staff responsible for strategies related to Persistently Low Performing Schools), statewide steering committee management, monitoring and evaluation functions.

  Coordinator for Hard to Staff Program Development

  Manage selection processes for model sites; provide technical assistance, monitoring and evaluation of progress. Manage revision of certification and program approval processes as related to the ELL/SPED strategy.

- D-4

  No additional staff requested.

- D-5

Statewide Coordinator for Professional Development/Mentoring System

Coordinate statewide steering committees and resources to address focus area needs, collaborate with other NDE staff and systems to support ESU staff, monitoring and evaluation functions.

PERSONNEL	Year 1	Year 2	Year 3	Year 4	Total
D-2 NPES Coordinator	50% FTE $32,000	25% FTE $16,250			$48,750
D-2 Performance Appraisal Coordinator	50% FTE $32,500	50% FTE $33,000	50% FTE $33,500	25% FTE $17,000	$116,000
D-2 Teacher Certification Redesign Coordinator	25% FTE $16,250	50% FTE $33,000	50% FTE $33,500	50% FTE $34,000	$116,000
D-2 Teacher Certification Analyst	n/a	100% FTE $32,000	100% FTE $33,000	100% FTE $34,000	$99,000
D-2 IT Staff	33% FTE $21,250	66% FTE $43,500	100% FTE $66,750	64% FTE $43,500	$175,000
D-2 Support Staff	50% FTE $15,000	50% FTE $15,250	50% FTE $15,500	25% FTE $7,875	$53,626
D-3 Equitable Distribution Coordinator	10% $6,500	10% $6,600	10% $6,700	10% $6,800	$26,600
D-3 Hard to Staff Program Development Coordinator	10% $6,500	10% $6,600	10% $6,700	10% $6,800	$26,600
D-5 Coordinator	75%	75%	75%	75%	

for Professional Development and Mentoring System	$48,750	$49,500	$50,250	$51,000	$199,500

2) Fringe Benefits

$215,458 is allocated for fringe benefits for activities described in D1-5 for Years 1-4.

Fringe benefits are based on 25% of salary. Benefits for D1-5 are $44,813 in year one, $58,925 in year two, $61,476 in year three, and $50,244 in year four.

3) Travel

Travel expenses are computed at state approved rates for mileage and will be paid on an actual costs reimbursement basis.

A total of $428,250 is requested for travel for Years 1-4.

D-1 For stakeholder travel to attend meetings to develop expanded survey and to develop monitoring, evaluation and identification of needs based on survey results.	6 individuals-1 day onsite meeting for each of 4 years.	Year 1-$600 Year 2-$600 Year 3-$600 Year 4-$600	Total $2,400
D-2 Stakeholder group to develop NE Professional Educator Standards—preservice through professional status (for teachers and principals).	35 individuals (higher ed rep, state association rep, NDE & ESU staff, practitioners). 2 meetings in year 1, 1 meeting in year 2.	Year 1 =$17,500 Year 2=$8,750	Total $26,250
D-2 Stakeholder group to develop NE Teacher/Administrator Performance Evaluations	30 individuals (state association rep, NDE & ESU staff, practitioners) X 3 meetings in year 1 30 individuals x 2 meetings in year 2	Year 1- 22,500 Year 2 - $15,000	Total $37,500
D-2 Stakeholder group to provide input into redesign of the teacher certification system (recertification based on performance appraisal system,	35 individuals (state association rep, NDE & ESU staff, practitioners, teacher educators) x 1	Year 1 -$8,750	

new categories of certificates)	meeting-Year 1 35 x 2 meetings-Year 2 35 x 1 meeting-Year 3	Year 2 - $17,50 Year 3 - $8,750	Total $35,000
D-3 Steering Committee for Equitable Distribution Strategy Development: Develop strategies, evaluate progress	15 individuals-includes NDE, ESU, state association and local school leaders	Year 1- 4: 2 meetings per year @$6,000	Total: $24,000
D-3 Statewide meetings which include all teacher education institutions to serve as advisory during implementation year and to discuss replication and assimilation of ELL/SPED model and STEM model results.	17 institutions—2 representatives from each institution for each meeting.	Year 1-2: 2meetings per year =$8,500 per year. Year 3-4: 3 meetings per year@$12,750 per year.	Total: $42,500
D-4 Statewide Summit-. Summit focus includes development of: framework for enhanced field-based experience models, strategies to improve educator preparation, collaborative new professional support models	Team of 3 individuals from Teacher Preparation Programs; State Association representation; NDE, ESU and teacher/administrator representatives. 200 participants.	Year 1-4 @$50,000 per year.	Total: $200,000
D-4 Program Improvement Meetings - to revise educator preparation standards and other preparation program requirements consistent with changes proposed in this application (e.g. Professional Standards, field experience, alternative delivery).	17 teacher preparation institutions	Year 1- $17,000 Year 2-$17,000 Year 3-$17,000	Total: $51,000
D-5 NDE staff to attend Statewide Steering Committee Meetings and other regional activities	Estimate 2 trips per month	Year 1- 4 @$2,400 per year	Total: $9,600

(4) Equipment

A total of $221,500 is requested for Years 1-4.

D-2 Computer/monitor and associated peripherals costs for additional staff (7 potential positions; however, some may be combined since not full FTE). Printer (shared)	Year 1 - 4 @1,500 per unit=$6,000. Printer - $2,500	Total: $8,500
D-3 Laptop allowance for virtual meetings with cohort participants, research, data management	Year 1 – 20@$1,500=$30,000 Year 2 – 4: 40@$1,500=$60,000 per each year	Total: $210,000
D-3 Computer/monitor and associated peripherals costs for additional staff	Year 1 -$1,500	Total: $1,500
D-5 Computer/monitor and associated peripherals costs for additional staff	Year 1 -$1,500	Total: $1,500

(5) Supplies

Unless otherwise indicated in the chart below, supplies for general operations are calculated at $4,000 per FTE per year.

D-1 Software for Shortage Survey and Data Collection	Year 1 - $1,000	Total: $1,000
D-2 Printing/Postage: Informational and technical assistance documents regarding NPES, performance appraisals, and certification changes.	Year 2-$32,000 Year 3-$6,000	Total: $38,000
D-2 General Office Supplies	Year 1 - $18,500 Year 2 - $13,000 Year 3 - $13,000 Year 4 - $10,000	Total: $54,500
D-3 General Office Supplies	$4,000 per each year	Total: $16,000
D-4 General Office Supplies, printing, postage	$2,000 per each year	Total: $8,000
D-5 General Office Supplies, printing, postage	$2,000 per each year	Total: $8,000

(6) Contractual

A total of $9,530,000 is requested for Years 1-4.

Nebraska follows the procedures for procurement under 34 CFR Parts 74.40 - 74.48 and Part 80.36.

D-1 UNO TAP Program Scale-up- Provide funds for recruitment and support of UNO TAP program		Year 1-4 @$20,000 per	Total: $80,000

participants and for associated faculty needs to increase capacity		each year.	
D-1 UNK TTT Program Scale-up-Provide funds for program revision to decrease program participant completion time from 3 to 2 year. Will require revision of program components and acquisition of additional field-based staff.		Year 1-4 @$20,000 per each year.	Total: $80,000
D-1 Provide planning and implementation funds to revise post-bac programs to be more responsive to participant needs through alternative delivery (cohort-based, utilization of technology, quality field-based experience/supervision in place of traditional coursework expectations).	15 institutions @ $5,000 for each of two years	Year 2-$75,000 Year 3-$75,000	Total: $150,000
D-2 Regional delivery of training and support to local schools regarding: the Nebraska Professional Educator Standards (NPES); and NE Educator Performance Appraisal	3 FTE Regional Coordinators located across the state during Years 2-3 of project. 1 FTE for Year 4 (Basis $65,000 per FTE for each of 3 years). Include operating/travel/meeting expenses @ $20,000 per year.	Year 1 - n/a Year 2 - $255,000 Year 3 - $255,000 Year 4 - $85,000	Total: $595,000
D-3 Inservice for cohort participants (research-based/best-practice models) presenter and meeting costs for participants, regional support for participants, acquisition of print resources.	(Travel reimbursement based upon actual costs.)	Year 1-4 @$15,000 per year.	Total: $60,000
D-3 Pilot STEM Center development—includes research/development of model,	1 higher education institution for each of 4 years.	Year 1- $25,000	

scholarships (loan forgiveness) for participants in the model, development of teacher resources; leadership for assisting with replication at other Nebraska institutions.		Year 2- $25,000 Year 3- $25,000 Year 4- $25,000	Total: $100,000
D-3 Replication of STEM Center in 5 additional Nebraska institutions.	5 institutions	Year 3 and 4 @$20,000 X =$100,000	Total: $200,000
D-3 ELL Paraprofessional Model: development of program structure, mentoring, field-based experiences, technology support/delivery, and leadership for other institutions seeking to replicate the model.	1 institution: Year 1- Planning, development, recruitment Year 2-program implementation and continuing development Year 3- continuation Year 4-continuation and evaluation	Year 1 - $20,000 Year 2 - $15,000 Year 3 - $15,000 Year 4 - $10,000	Total: $60,000
D-3 SPED Paraprofessional Model: Development of a program structure, mentoring, field-based experiences, technology support/delivery, and leadership for other institutions seeking to replicate the model.	1 institution: Year 1- Planning, development, recruitment Year 2-program implementation and continuing development Year 3- continuation Year 4-continuation and evaluation	Year 1 - $20,000 Year 2 - $15,000 Year 3 - $15,000 Year 4 - $10,000	Total: $60,000
D-4 Implementation of expanded field-based experience models	17 institutions-baseline of $5,000 in years 1 and 2 for program revisions; additional funds ($100,000/yr) for candidate stipends to participate in expanded field-based models will be pro-rated to institutions	Year 1-$185,000 Year 2-$185,000 Year 3-$100,000 Year 4-$100,000	Total: $570,000

	based on number of graduates. Institutions will work with districts to develop collaborative support structure.		
D-4 Implementation of Professional Development School models.	17 institutions with a minimum of 1 partnership school- Year 1-$15,000 per institution to support development and startup costs. Year 2-3 (Continuation, refinement and evaluation) @$5,000 per year per institution.	Year 1 - $255,000 Year 2-$85,000 Year 3 -$85,000	Total: $425,000
D-4 Implementation of collaborative Graduate Follow-up/Induction model (Nebraska institutions work collaboratively (with representatives from districts and ESUs) to create foundational model and to build on that model to meet unique aspects of the institution, with planning and intervention consideration to performance on State Educator Preparation Report Card (when data is available).	17 institutions	Year 1-$50,000 (includes development of foundational model and modifications for individual institutions, development of resources) Year 3-$50,000 (support for continuation, refinement and evaluation)	Total: $100,000
D-4 State Report Card- Integration of IHE data into State Report Card	Contract with IT services for assistance with development.	Year 2-$10,000	Total: $10,000
D-5 Regional Focus Area staff in located in selected ESUs	8 Focus Area staff x 8 ESUs x 20,000 (25% time + benefits) for each Focus	Year 1-4 @$1,280,000 per year.	Total: $5,120,00

	Area. 8 focus areas x 8 regions x $20,000= $1,280,000 /year		0
D-5 Mentoring Induction Support	8 Regional ESU staff x $20,000 (approximately 25% time + benefits). 8 x $20,000=$160,000 per year	Year 1-4 @$160,000 per year.	Total: $640,000
D-5 Travel for ESU staff and for district staff to attend regional activities	Staff from each of 8 regional offices @ $20,000/region	Year 1-4 @$160,000 per year.	Total: $640,000
D-5 Resource acquisition for local school dissemination to support work of ESU staff for mentoring components.	Approximately $20,000/year per 8 regions=$160,000 per year.	Year 1-4 @$160,000 per year.	Total: $640,000

(7) Training Stipends

A total of $2,800.000 is requested for training stipends for Years 1-4.

D-2 Teacher-Leader Field Test Cohort in high need LEAs (application process, cohort provides input into final development of the Teacher-Leader certification and assists with resource development/training for subsequent participants).	20 participants @ $5,000	Year 3 - $100,000	Total: $100,000
D-3 ELL Participants	20 new participants in each of Years 2-4. Average of 100 credit hour equivalent @ $180 (actual cost will depend upon institution selected to create the model program. Each participant will be provided a	Year 2-$450,000 Year 3-$450,000 Year 4-$450,000 (funds will be distributed over the	Total:

	laptop computer with software to support online instruction and virtual cohort activities ($1,500 per participant).	course of the individual's participation in the program)	$1,350,000
D-3 SPED Participants	20 new participants in each of Years 2-4. Average of 100 credit hour equivalent @ $180 (actual cost will depend upon institution selected to create the model program. Each participant will be provided a laptop computer with software to support online instruction and virtual cohort activities ($1,500 per participant)	Year 2-$450,000 Year 3-$450,000 Year 4-$450,000 (funds will be distributed over the course of the individual's participation in the program)	Total: $1,350,000

(8) Other

Funds are requested for Years 1-4 for Virtual and other Statewide Meeting Expenses and Communication costs ($108,000) and office furniture to accommodate additional staff ($7,000).

(9) Total Direct Costs

Total direct cost for this project is 14,297,533. The direct costs per year follow:
Year 1 – $2,830,313; Year 2 - $3, 940,375; Year 3 - $4,053,876; Year 4 - $3,472,969

(10) Indirect Costs

The indirect cost rate is calculated at 8.5%.
Year 1- 32,709; Year 2- 40,237; Year 3- 36,709;Year 4- 28,982

(11) Funding for Involved LEAs: None for this project

12) Supplemental Funding for Participating LEAs: None for this project

Project Level Budget Summary
Project Title: School Turn Around
Criterion: (E)

	Project Year 1	Project Year 2	Project Year 3	Project Year 4	Total
Budget Categories	(a)	(b)	(c)	(d)	(e)
1. Personnel	$444,700	$453,050	$464,378	$475,985	$1,838,113
2. Fringe Benefits	$150,000	$165,000	$181,500	$199,650	$696,150
3. Travel	$30,000	$30,000	$30,000	$30,000	$120,000
4. Equipment	$29,920	$29,920	$29,920	$29,920	$119,680
5. Supplies	$32,000	$32,000	$32,000	$32,000	$128,000
6. Contractual	$1,699,725	$1,688,475	$1,675,828	$1,661,610	$6,725,638
7. Training Stipends					$0
8. Other	$30,000	$30,000	$30,000	$30,000	$120,000
9. Total Direct Costs (lines 1-8)	$2,416,345	$2,428,445	$2,443,626	$2,459,165	$9,747,581
10. Indirect Costs*	$205,389	$206,418	$207,708	$209,029	$828,544
11. Funding for Involved LEAs					
12. Supplemental Funding for Participating LEAs	$1,000,000	$1,000,000	$821,789	$821,788	$3,643,577
13.Total Costs (lines 9-12)	$3,621,734	$3,634,863	$3,473,123	$3,489,982	$14,219,702

Project Level Budget Narrative
Project Title: School Turn Around
Criterion: (E)

1. Personnel

Personnel funding plans for one full time Administrator, two Specialists, two Staff Assistants, one Evaluator and two Evidence Based Practice Specialists.

2. Fringe Benefits

Expenditures	Year 1	Year 2	Year 3	Year 4	Total
1. FRINGE BENEFITS *for State Leadership*	**150,000**	**165,000**	**181,500**	**199,650**	**696,150**
~Administrator	30,000	33,000	36,300	39,930	139,230
~Specialists	40,000	44,000	48,400	53,240	185,640
~Staff Assistant	20,000	22,000	24,200	26,620	92,820
~Evaluator	20,000	22,000	24,200	26,620	92,820

3. Travel

Travel costs will be minimal, but are needed for state leadership activities, including instate & out-of-state travel for the Administrator-1, Specialists-4, Evaluator-1 – 6 x $5,000

Expenditures	Year 1	Year 2	Year 3	Year 4	Total
TRAVEL *for State Leadership*	**30,000**	**30,000**	**30,000**	**30,000**	**120,000**
~Instate & Out-of-State for Administrator-1, Specialists-4, Evaluator-1 – 6 x 5,000	30,000	30,000	30,000	30,000	120,000

4. Equipment

Expenditures	Year 1	Year 2	Year 3	Year 4	Total
EQUIPMENT *for State Leadership*	**29,920**	**29,920**	**29,920**	**29,920**	**119,680**
~Computer hardware & software updates $3,740 X 8	29,920	29,920	29,920	29,920	119,680

5. Supplies

Expenditures	Year 1	Year 2	Year 3	Year 4	Total
2. SUPPLIES *for State Leadership*	**32,000**	**32,000**	**32,000**	**32,000**	**128,000**
~Office Rental (8 x 1,000)	8,000	8,000	8,000	8,000	32,000
~Office support (phone, copying, etc. 8 x 3,000)	24,000	24,000	24,000	24,000	96,000

6. Contractual

Contracts and subcontracts will used for supporting evidence based practices, sub-grants to selected ESUs, school reform specialist, model programs for LEAs, School Leadership Academy Training in reform practices, Leadership Trainees, the Youth Leadership Council, School Reform Training Program, and other purposes.

7. Training Stipends

None planned.

8. Other

Other expenses include four Advisory Council Meetings, including meals, site fees, lodging and mileage at $5,000/meeting. These expenses also include costs associated with Subcommittee of Youth to advise Council Policy Makers (two meetings), including meals, site fees, lodging & mileage at $5,000/meeting.

9. Total Direct Costs

Year One	Year Two	Year Three	Year Four	Total
$2,416,345	$2,428,445	$2,443,626	$2,459,165	$9,747,581

10. Indirect Costs

Year One	Year Two	Year Three	Year Four	Total
$205,389	$206,418	$207,708	$209,029	$828,544

11. Funding for Involved LEAs

None.

12. Supplemental Funding for Participating Districts

The budget estimates nine participating schools (Nebraska's expected number of persistently low performing schools) at an average of $100,000 per grant to supplement their budget, in order to help districts implement one of the four specified reform models.

Budget Part II: Project-Level Budget Table

Project Name: Nebraska Virtual School STEM Academy
Associated with Criteria: Competitive Preference Priority 2; and Selection Criteria (A)(2); (B) (3); (D)(3), (4), and (5); (E)(2); (F)(2)

Budget Categories	Project Year 1 (a)	Project Year 2 (b)	Project Year 3 (c)	Project Year 4 (d)	Total (e)
1. Personnel	$1,394,540	$1,450,322	$1,508,335	$1,568,668	$5,921,865
2. Fringe Benefits	$428,490	$445,629	$463,454	$481,993	$1,819,566
3. Travel	$12,600	$12,600	$5,040	$5,040	$35,280
4. Equipment	$95,482	$0	$0	$0	$95,482
5. Supplies	$321,969	$253,903	$244,172	$117,778	$937,822
6. Contractual	$0	$0	$0	$0	$0
7. Training Stipends	$0	$0	$0	$0	$0
8. Other	$387,906	$191,939	$192,379	$170,341	$942,566
9. Total Direct Costs (lines 1-8)	$2,640,987	$2,354,392	$2,413,381	$2,343,820	$9,752,580
10. Indirect Costs*	$223,257	$200,123	$205,137	$199,225	$827,743
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)	$2,864,244	$2,554,516	$2,618,518	$2,543,045	$10,580,323

PROJECT-LEVEL BUDGET NARRATIVE

(1) Personnel

Personnel: The following requested personnel will all be hired as employees of the project beginning in Year 1. Salary increases of 4% are projected for Years 2, 3, and 4.	**% FTE**	**Base Salary**	**Total (Year 1)**
Independent Study High School Director (1): The Nebraska Virtual School STEM Academy is part of the University of Nebraska Independent Study High School (ISHS). Barbara Shousha is responsible for the administrative leadership of the ISHS and as such would have oversight of the STEM Academy as described in Competitive Preference Priority 2. She has extensive management and administrative experience. Her qualifications are described in the curriculum vitae in Appendix K.	10%	$75,000	$7,500
Independent Study High School Principal (1): Barry Stark serves as the principal of the Independent Study High School (ISHS) and therefore will also serve as principal of the Nebraska Virtual School STEM Academy as described in Competitive Preference Priority 2. He has final authority for student grade appeals and approval of school policies. Mr. Stark reports to the Director of the Independent Study High School and has extensive experience as a school administrator in both large and small Nebraska schools. For a description of his qualifications, see his curriculum vitae in Appendix K.	10%	$58,000	$5,800
Nebraska Virtual School (NVS) STEM Academy Coordinator (Associate Principal) (1): TBA. This position will be responsible for the overall coordination and management of the Nebraska Virtual School STEM Academy, supervising all staff of the STEM Academy and conducting all routine school-related functions. The person in this position will facilitate partnerships with Nebraska schools involved in the STEM Academy. The person hired in this position must have a Nebraska School Administrators Certificate. The position will report to the Independent Study High School principal and will be responsible for all aspects (budgets, teachers, staff, partnerships with local schools, etc.) related to the functioning of the STEM Academy as outlined in the plan associated with Competitive Preference Priority 2 and further described in Appendix K.	100%	$65,000	$65,000
Staff/Project Assistant (1): TBA. This position will provide	100%	$27,000	$27,000

support for the STEM Academy administrators, teachers, and staff, handling for example all ordering of supplies, travel arrangements, project tracking and facilitation, data collection, etc., and will assist the Student/School Support Associates during high enrollment periods. This position will report to NVS STEM Academy Coordinator, and will be responsible for all project-related and front-line support related to the functioning of the STEM Academy in the plan associated with Competitive Preference Priority 2 and further described in Appendix K.			
Student/School Support Associates (2): TBA. These positions will be the front-line connection to Nebraska Schools associated with the STEM Academy. They will support the Learning Coach Coordinator, enroll students in STEM Academy courses, arrange for proctoring of exams, answer school questions, resolve issues, etc. These positions will report to NVS STEM Academy Coordinator, and will be responsible for all front-line school support related to the functioning of the STEM Academy in the plan associated with Competitive Preference Priority 2 and further described in Appendix K.	100%	$27,000	$54,000
Master Lead Teachers (2): TBA. The Master Lead Teachers will provide expertise, leadership, and supervision to the course teachers in effective distance education instruction, student learning, and curriculum. The Master Lead Teachers will have a minimum of 7-10 years of teaching experience, hold a Master's Degree (or above), a valid Nebraska certification, and endorsement in requisite STEM content areas. The Master Lead Teachers will report directly to the NVS Coordinator. The Master Lead Teachers will serve as department chairs for mathematics and technology, and science and engineering. They will work with the Instructional Designer/Faculty Developer to design and delivery teacher training activities involving both STEM Academy teachers and local partner school teachers, coordinate the Professional Learning Community, and coordinate workshops and webinar series. These positions are related to the functioning of the STEM Academy in the plan associated with Competitive Preference Priority 2 and further described in Appendix K. In addition, the master lead teachers assist the state in meeting its goals to ensure equitable distribution of effective teachers (D) (3) and to turn around its lowest achieving schools by providing access to highly effective teachers and a rigorous STEM Curriculum	100%	$50,000	$100,000

(E)(2).			
Master Course Teachers (15): TBA. The Master Course Teachers will provide the course-content expertise in specific STEM content areas. They will hold valid Nebraska certification with endorsement in the area in which they teach. The Master Course Teacher will have a minimum of 5-7 years teaching experience and Master's Degrees. The Master Course Teachers will display knowledge and ability in the areas of effective learning techniques through distance education, maintaining frequent and consistent teacher-to-student interaction, feedback, and encouragement. The Master Course Teacher will report directly to a Master Lead Teacher. The Master Course Teachers will work closely with the Local School Learning Coaches to ensure student success. In conjunction with the STEM Academy academic advisor and local school counselors, they will identify promising STEM students to form connections to college and career recruitment efforts and STEM Academy enrichment activities. The Master Course Teachers will supervise pre-service STEM discipline teachers in student teaching and practicum activities. These positions are related to the functioning of the STEM Academy in the plan associated with Competitive Preference Priority 2 and further described in Appendix K. In addition, the master course teachers assist the state in meeting its goals to ensure equitable distribution of effective teachers (D) (3), to turn around its lowest achieving schools by providing access to highly effective teachers and a rigorous STEM Curriculum (E)(2), and to improve the effectiveness of teacher preparation programs (D)(4) by providing opportunities for pre-service teachers to shadow and work with highly effective STEM teachers.	100%	$45,000	$675,000
Faculty Developer/Instructional Designer (1): TBA. This position will provide training to teachers, tutors, and others in the use of the STEM Academy Learning Management System and in integration of the online resources into the classroom. In cooperation with the Master Lead Teachers, this position will design and implement training opportunities for the Professional Leaning Community, which includes both STEM Academy teachers and local partner school teachers. The position will develop webinars, workshops, and other events in support of teachers and will coordinate the scholarship applications for teacher graduate level course work. This	100%	$45,000	$45,000

position requires a minimum of five years experience in distance education faculty development, instructional design, and online course development, and will report to the Coordinator of High School Curriculum. This position leads all course development teams, heads the "inclusion" peer review team, and facilitates faculty development activities related to the functioning of the STEM Academy in the plan associated with Competitive Preference Priority 2 and as described in Appendix K. In addition, the faculty developer in facilitating teacher training opportunities within the Professional Learning Community assists the state in meeting its goals to provide effective support to its partner school administrators and teachers (D)(5) and to support the transition to enhanced standards and the use of assessments to inform teaching practice (B)(3).			
Learning Coach Coordinator/Academic Advisor (1): TBA. This position will work with the NVS STEM Academy schools to identify and train the local school learning coaches. The position will provide support to and guidance for the local school learning coaches and serve as the primary point of contact for the learning coaches. The person in this position will also work closely with the local school counselors to develop individual learning plans for their school's students involved with the STEM Academy, to identify students who will benefit from involvement in STEM Academy courses and activities, to connect students with a variety of college preparatory services, and to facilitate connections to college and career recruitment activities. This position will coordinate the scholarship programs for STEM Academy students to enroll in college credit courses, participate in enrichment activities, and to take non-STEM distance courses (if necessary). The position will report to the NVS Stem Academy Coordinator and requires a Nebraska counselor's certification. The position will coordinate all activities associated with the local school learning coaches as related to the functioning of the STEM Academy in the plan associated with Competitive Preference Priority 2 and as described in Appendix K. In addition, this position will help the state meet its goal of closing the achievement gap between groups of students and between schools (E)(2) by working with partner schools to develop a caring and supportive learning environment for students in the STEM Academy.	100%	$45,000	$45,000
Tutoring Services Coordinator (1): TBA. This position	100%	$35,000	$35,000

supervises and manages the tutoring center, hiring and training tutors, establishing processes and procedures, reviewing the functioning of the center, identifying center hours, determining needed applications and resources, collecting data and modifying tutoring support as needed. This position will report to the NVS STEM Academy Coordinator and will be responsible for the smooth running of the tutoring center as related to the functioning of the STEM Academy in the plan associated with Competitive Preference Priority 2 and described in more detail in Appendix K. In addition, this position assists the state in meeting its goals to provide effective support to its partner school administrators and teachers (D)(5) and to turn around its lowest achieving schools by providing access to students needing additional support to be successful in STEM courses (E)(2).			
Tutors (5): TBA. The individuals in these positions will provide tutoring to the NVS STEM Academy students. They will be subject area pre-service teachers or majors and may be located across the state. They will ensure support for all STEM Academy students, using the online resource library, communicating via email, phone, whiteboards, chats, etc. Tutors will available during school and prime homework hours. In general, the tutors will be part-time, representing a total of 5 full time equivalent hours. The tutors will report to the Tutor Center Coordinator and will assist students in understanding the concepts presented in their STEM Academy courses. These positions are related to the functioning of the STEM Academy in the plan associated with Competitive Preference Priority 2. In addition, these positions assist the state in providing increased opportunities for STEM discipline pre-service teachers and subject area majors to gain experience in online teaching, the integration of technology into teaching, and best instructional practices in the STEM disciplines (D)(4) and to turn around its lowest achieving schools by providing access to students needing additional support to be successful in STEM courses (E)(2).	100%	$25,000	$125,000
Technical Services Coordinator (1): TBA. This position will coordinate a technical help center that provides STEM Academy students, teachers, and tutors with assistance in resolving technical issues related to the STEM Academy Learning Management System, applications used within the STEM Academy courses, and other technical issues that make completing the course activities difficult. The Technical Help Center will provide technical support for and training on all	100%	$45,000	$45,000

applications and equipment used by the teachers, staff, tutors, and students involved with the STEM Academy. This position will report to the Director of Information Services and will be responsible for all Tech Help Center functions, procedures, training, support, data tracking, etc. The work of this position is related to the functioning of the STEM Academy in the plan associated with Competitive Preference Priority 2.			
Technical Services Support Specialist (1): TBA. Together with the Technical Services Coordinator, this position will, provide technical support to the STEM Academy students, teachers, and students, resolving technical issues, providing training, coordinating with schools to ensure appropriate connections and equipment is available for students and learning coaches, and ensuring appropriate connections for all involved with the STEM Academy. The position reports to the Technical Services Coordinator and assists students in resolving technical issues encountered when working with the STEM Academy courses. The work of this position is related to the functioning of the STEM Academy in the plan associated with Competitive Preference Priority 2.	100%	$30,000	$30,000
LMS Administrator (1): TBA. This position will be responsible for the overall leadership and management of the LMS (learning management system) application(s) and the server(s) that support the application. This includes configuration, installation of software, documentation, and security for the server set-ups and the application. The person in this position will enter the position with at least five years experience in supporting server-based applications. The position will report to the Director of Information Technology for Extended Education & Outreach. The work of this position is related to the functioning of the STEM Academy in the plan associated with Competitive Preference Priority 2.	100%	$55,000	$55,000
LMS Programmer Analyst (1): TBA. This position will analyze, develop and maintain modifications to the LMS (learning management system) software and associated applications and integrate third party software and back-end business systems. Within a team, the person in this position will determine scope and requirements for development projects and work with other technical staff to implement/integrate products as well as design, code, and test software used to support the LMS. The position will report to the Director of Information Technology for Extended Education & Outreach. The work of this position is related to the functioning of the STEM Academy in the plan associated with Competitive Preference Priority 2.	100%	$55,000	$55,000

Extended Education & Outreach Business Affairs Director (1): Randal Leach will be responsible for leadership and management on financial, human resources and facility issues. This includes development of job descriptions and recruitment of staff related to the grant as well as financial reporting and monitoring. He will also manage all work space issues including furniture, equipment, phones, etc. Mr. Leach has had responsibility for these types of functions for over 16 years within UNL as well as multiple years of private industry experience. His work for this project is related to the functioning of the STEM Academy in the plan associated with Competitive Preference Priority 2.	5%	$96,000	$4,800
Extended Education & Outreach Business Affairs Supervisor (1): Lee Manns will be responsible for processing, or supervising the processing of, payroll/employment records, including bi-weekly and monthly reporting; as well as the processing of all non-payroll related expenses. She has over 22 years of accounting experience within UNL as well as over nine years of experience supervising staff in the business office. Her work on this project is related to the functioning of the STEM Academy in the plan associated with Competitive Preference Priority 2.	10%	$33,969	$3,397
Extended Education & Outreach Information Systems Director (1): Keith Bartels will provide supervision and guidance to the LMS Administrator and Programming Analyst and Technical Services staff. Throughout his more than 20 years at the University of Nebraska, he has gained extensive experience in the supervision, coordination, and guidance of programming, application development, and information systems. He will provide expert assistance in selecting and implementing software and other applications as related to the functioning of the STEM Academy in the plan associated with Competitive Preference Priority 2.	5%	$92,000	$4,600
Extended Education & Outreach Marketing Director (1): Danielle Dubuc-Pedersen will be the project manager for the NVS STEM Academy website development and the development of collateral and promotional items related to the functioning of the STEM Academy in the plan associated with Competitive Preference Priority 2. She has more than 20 years in public relations, marketing, account management in both business and education.	5%	$78,000	$3,900
Extended Education & Outreach Instructional Design & Development Director (1): Marie Barber will provide overarching guidance in curriculum development, online teaching strategies, online resource identification and	5%	$76,613	$3,831

management, faculty training, and distance education instructional design related to the functioning of the STEM Academy in the plan associated with Competitive Preference Priority 2. She has over 30 years experience in distance education curriculum and course development and faculty development.			
Extended Education & Outreach High School Curriculum Coordinator (1): Lucinda (Cindy) Roiné will be responsible for coordinating and leading the instructional designer/faculty developer in the development of STEM Academy courses and professional development opportunities for teachers. She will also serve as a resource and consultant in curriculum standards and trends as well as distance education instructional design, teaching strategies, and technology. She will guide the review of courses selected for inclusion in the STEM Academy. She has 23 years of experience in instructional design including 9 years experience as Curriculum Coordinator. She reports to the Director of Instructional Design & Development, and will provide general guidance on all instructional design and faculty development activities related to the functioning of the STEM Academy in the plan associated Competitive Preference Priority 2 and as described in detail in Appendix K.	10%	$47,127	$4,713

(2) Fringe Benefits

Faculty and managerial/professional staff benefits are estimated at 30% of salary while office/clerical staff benefits are estimated at 42%. The actual cost of benefits for each person will be charged to the project.

(3) Travel

Travel: The federal reimbursement rates for mileage, meals, and lodging would apply for Years 1, 2, 3, and 4. As of January 1, 2010, the mileage rate is $0.55 per mile. For travel within Nebraska, the rate for meals and incidentals is $46 and the lodging rate is approximately $70. The University of Nebraska-Lincoln requires actual expenses for reimbursement; thus, no per diem applies.	**# Trips**	**$ per Trip**	**Total**
Years 1 and 2: The NVS STEM Academy Coordinator, the Learning Coach Coordinator/Academic Advisor, and the Master Lead Teachers will visit the partner schools to explain the workings of the STEM Academy, to develop partner agreements, to review status of the programs processes and success, to discuss the professional development activities	5 trips in each of Years 1 and 2	$2,520	$12,600 per year in each of Years 1 and 2

offered for the local school teachers, to touch base with the local school academic advisors and learning coaches, and in general facilitate connections between the schools and the academy. Each trip would result in visits to an average of 10-15 schools per trip with schools grouped by districts and regions. In Years 1 and 2, the group listed above would conduct 5 separate trips of an average of 4 to 5 days per trip. This travel will ensure smooth communications, clear understanding between partner schools and the STEM Academy, provide support for local school administrators and teachers in training and the carrying out of their functions, and provide a face-to-face forum to resolve any issues that may arise. The travel thus supports the functioning of the STEM Academy in the plan associated with Competitive Preference Priority 2 and as described in detail in Appendix K.			
Years 3 and 4: The NVS STEM Academy Coordinator, the Learning Coach Coordinator/Academic Advisor, and the Master Lead Teachers will visit the partner schools during Years 3 and 4 to evaluate status of the programs progress, to examine the impact of the professional development activities offered for the local school teachers, to resolve and work through any issues with the local school academic advisors and learning coaches, and in general facilitate the on-going improvement of the program. Each trip would result in visits to up to 10 schools per trip with schools grouped by districts and regions. Schools would be chosen based on student performance and school needs. In Years 3 and 4, 2 separate trips of an average of 4 days per trip would be conducted. This travel will provide a face-to-face forum to resolve any student and/or teacher support issues, review of student performance, and ensure smooth communications and clear understanding between partner schools and the STEM Academy. The travel thus supports the functioning of the STEM Academy in the plan associated with Competitive Preference Priority 2 and as described in detail in Appendix K.	2 trips in each of Years 3 and 4	$2,520	$5,040 in each of Years 4 and 5

(4) Equipment

Equipment: Consistent with policy, equipment is defined as tangible, non-expendable, personal property having a useful life of more than one year and an acquisition cost of	**Cost of Item**	**Item Description**	**Total**

$1,000 or more per unit.			
Desktop Computer (1): One desktop computer and printer will be needed to supply the needs of the NVS STEM Academy Coordinator.	$2,350	Computer including monitor and printer	$2,350
Desktop Computers (4): Four desktop computers will be needed to expand our current office and supply the needs of four new employees (Faculty Developer, Learning Coach Coordinator/Academic Advisor, Tutoring Services Coordinator, Technical Services Coordinator). The configuration of these computers requires the capability to support multimedia applications, web conferencing hosting, and other development applications.	$2,200	Computer including monitors	$8,800
Desktop Computers (7): Seven desktop computers will be needed to expand our current office and supply the needs of seven new employees (Staff/Project Assistant, Student/School Support Associates [2], and several part-time tutors officed at the STEM Academy facility).	$1,450	Computer including monitor	$10,150
Desktop Computers (2): Two desktop computers will be needed to expand our current office and supply the needs of two new programming employees (LMS administrator and LMS Programming Analyst). These computers require the power and capabilities to support the programming work done by the LMS administrator and programmer.	$2,500	Computer including monitors	$5,000
Networked printer (1): One networked printer will be needed to expand our current office and supply the needs of all NVS STEM Academy new employees officed at its facility.	$1,200	Networked printer	$1,200
Laptop Computers (17): Seventeen tablet PC computers will be needed to supply the needs of the two Master lead Teachers and the fifteen Master Course Teachers. The Tablet PCs will allow teachers to easily draw graphs and equations on the whiteboards within the LMS and the web conferencing applications to better support distance students in STEM courses. In addition, teachers will be working from across the state and having tablet PC laptops allow them to work from any location home, school, office, while traveling, etc.	$3,150	Tablet PCs and printers	$53,550
Severs (2): Two servers will be needed to support the Learning Management System used to deliver the instruction for the NVS STEM Academy. One server will be needed to host the Learning Management System application. This is the application that provides the platform for delivery of instructional material, grades, assignments, messages from instructors, etc., to students. It is also the platform that course developers use to input instructional material for the courses.	$7,216	Servers	$14,432

One server will be needed to host the database for the Learning Management System application. While the application server provides the platform for input and output of material and data, the database server holds the actual data within a database management system.			

(5) Supplies

	Cost of Item	Item Description	Total
Instructional Materials (Online Resources): In addition to the free resources categorized in the NVS STEM Academy online resource library, licenses for online library resources such as PowerMedia Plus, Discovery Education Streaming Plus, PBS Online, or NASA Online Resources will be purchased. These online resources will be used by the NVS STEM Academy teachers and tutors to enhance, supplement, and clarify concepts and by STEM Academy students as part of projects and presentations. They will also be available for use by the local partner school teachers and learning coaches. The Faculty Developer will use these resources as part of professional development on the integration of technologies into the classroom. These resources help support the goal of providing equitable access to all students and teachers to high-quality STEM resources and a rigorous STEM curriculum as outlined under Competitive Preference Priority 2, in Appendix K and in criteria (E)(2).	Varies by resource	Online Resource Licenses	$110,000 per year for four years.
Instructional Materials (Textbooks): Instructional materials for the STEM Academy include access to course textbooks for NVS STEM students. Textbook costs vary, ranging from $75 to $150 depending on the course. In most cases, the textbooks will be online. Textbook purchases follow established school purchase procedures and regulations. Number of student participants per year = $4,500; access codes timeframes vary from 2 to 4 years.	Varies by course and textbook	Online Textbooks	$204,469 Year 1; $136,313 Year 2; $126,490 Year 3
Office Supplies (Software): Software applications and upgrades needed for instruction and/or course development, such as multimedia, graphic, and web development applications; screen and lecture capture applications; video and audio editing applications, etc.	Varies by application	Software Applications	$4,500 per year for each of 4 years
Office Supplies (Miscellaneous): Office supplies for	Varies by	Miscellaneous	$3,000

teachers, administrators, and staff of the NVS STEM Academy including computer supplies (such as CDs, headphones and webcams for teachers and other staff) and miscellaneous office supplies, such as paper, pens, paper clips, markers, etc.	item	Office Supplies	Year 1 (a 3% increase in each of Years 2, 3, and 4)

(6) Contractual

None

(7) Training Stipends

None

(8) Other

Course Development and Expansion

All of the following assist the state in meeting its goal to provide a high-quality, rigorous STEM curriculum (Competitive Preference Priority 2) to meets its education reform agenda (A)(2).

- New STEM course development = $22,500 per year for Years 1, 2, and 3. The Nebraska Virtual School STEM Academy will expand its curriculum by developing new NVS online courses. Specifically, new NVS STEM course development (up to 5 developed per year in Years 1, 2, and 3) could include such courses as Principles of Engineering, Digital Electronics, Principles of Biomedical Sciences, or Engineering: The Digital Future, which is focused on engineering and design concepts in wireless and telecommunications, the Internet, electronic music, and other multimedia technologies. In addition, new science and technology courses—such as Principles of Biomedical Sciences, Human Body Systems, Scientific Research, the Science of Technology, or Biotechnology—would be considered for development.

- Learning Object Production = $30,000 per year for Years 1, 2, 3, and 4. Additional learning objects (an average of 3 per year), particularly those focused on engineering concepts, will be developed for use in all NVS STEM courses. These learning objects will be used by teachers to infuse mathematics, science, and technology courses with engineering concepts.

Operating Expenses: The purpose of the following expenditures is to support the on-going operations of the NVS STEM Academy and relate only to the support for administrators, staff, and teachers of the STEM Academy. An estimated 3% increase in each of Years 2, 3, and 4 is applied to each of the following expenditures.

- Postage and delivery services = $1,011 Year 1 (includes regular and special delivery costs for correspondence to schools and promotional items)
- Communications = $8,151 Year 1 (telephone, data ports, wireless connections for 13 NVS STEM Academy administrators, staff, and master lead teachers).
- Printing = $2,500 Year 1 (includes printing of correspondence to schools, reports, supplemental lesson materials, promotional items)
- Copier Charges = $750 Year 1
- Dues/Subscriptions = $2,500 Year 1 (includes subscriptions to journals, such as Online Teaching; membership in organizations such as iNACOL, ASCD, Teacher Subject Area Associations, etc.; as well as photo and image databases used in the courses by teachers and students)

No annual increases are applied to each of the following expenditures

- Professional Development for NVS STEM Academy Administrators, Staff, and Teachers = $49,000 per year for Years 1, 2, 3, and 4. ($2,100 per year designated for 2 Master Lead Teachers and 1 NVS STEM Coordinator, $2,000 for 15 Master Course Teachers,; $1,200 per year for 6 managerial/professional staff; $2,000 per year for 1 LMS Administrator and 1 LMS Coordinator; and $500 per year for 3 office/clerical staff to provide on-going professional development activities targeted at each groups special development needs to ensure currency in skills and knowledge)

- In-depth technical training for LMS Administrator and LMS Programmer = $15,000 Year 1 and $5,000 per year for Years 2, 3, and 4 (Specialty training on server support and back-end programming for Learning Management System, the web conferencing application, and the tracking and help desk ticket system that supports the development and delivery of all courses, instruction, and training provided by the NVS STEM Academy)

- Learning Management System (LMS) = $74,880 Year 1 (Initial set up and purchase of LMS and first year delivery license); $12,480 per year for Years 2, 3, and 4 for delivery license for 4,500 students plus NVS STEM Academy teachers, staff, and administrators.

- Web Conferencing Application (such as Elluminate, Adobe Connect, or Wimba) = $36,000 per year for each of 4 years (license for 3,500 students plus NVS STEM Academy teachers, staff, and administrators to hold real-time office hours; present projects, student work, speeches and presentations; conduct webinars for professional development; provide tutoring; hold meetings among teachers, tutors, learning coaches, schools, and NVS STEM Academy staff, etc.

- Tracking and ticket system = $12,000 Year 1; $2,000 per year for Years 2, 3, and 4 (An application to track and process help desk questions; tutoring requests; school, parent, student, counselor, or teacher inquiries; or service issues from schools or students)

- Website Development and Maintenance = $35,000 Year 1 ($10,000 per year for Years 2, 3, and 4). The NVS STEM Academy will utilize Extended Education and Outreach's sophisticated web content management system to develop its website. The website includes information about the program, courses, or professional development opportunities for partner schools; enrollment forms; links to electronic communication applications and courses; information for the Learning Coaches; and/or links to tutors, online resources, teachers, and others. In essence, it serves as the portal to NVS STEM Academy. The first year development expenses include the complete design of the website, which are defined as follows:
    - Discovery - The phase of development that includes defining the work and building a work plan schedule. The website must be designed in such a way as to meet all needs of the program with minimal rework for a period 4+ years.
    - Scope Definition - Identifies and outlines all work necessary to produce the final website. The scope is detailed enough to provide a good overview of the work and steps involved to bring the website to full deployment and ensures everyone understands what is expected. This phase should also outline who will work on the project and who will be responsible for maintenance.
    - Graphical Design/Presentation and Wireframes - This phase of the project entails defining the 'look and feel' of the website, purchasing and/or photographing any pictures, producing any videos, or other graphical and media elements necessary to communicate the content for the website. Wireframes are the visual guidelines needed to suggest a website structure and the relationships among pages.
    - Design and Copywriting - This phase involves the actual production of the content (text, video, pictures, other media) needed for the site.
    - Programming - This phase involves the actual programming necessary to set up the page templates and fill with the content.
    - Maintenance - Includes the people involved who must be able to correct, update, change, add, or delete any content, media, page, etc., as needed.
    - Software Licensing - Staff who need to update sections of the WCMS may entail additional software licensing.

  For subsequent years, minor changes, updates, and upgrades will be required. These changes include updating media, adding new content, creating new web forms, creating new templates, and other general maintenance issues. No major upgrades or development is planned. In all instances, the maintenance will require copy writing, media development and some programming, as well as annual licensing fees for the WCMS.

- Collateral and Promotional Items = $32,000 Year 1 ($10,000 per year for Years 2, 3, 4). Major expenditures in the first year include the following:
    - Concept Development and Planning - This phase entails defining the overall 'look and feel' of the program and identifies the communication vehicles, which will be used to deliver communications to all prospective audiences. Collateral may include

public relations materials, direct mail, brochures, post cards, e-mail blasts, and social media such as blogs, twitters, Facebook site, etc.

- Media Purchase & Copy Writing - Once the communications vehicles are determined, the collateral will need to be developed in terms of content. This involves the purchase and/or production of photography, videos, testimonials, and other forms of media necessary for each identified form of collateral.
- Production - The cost of graphics layout and printing.

Subsequent year expenses include primarily minor update costs such as copy-writing and new media, and printing of new collateral.

- Office Space = $67,003 Year 1 only. (Office Set Up for 14 NVS STEM Academy staff officed in facilities at Extended Education and Outreach, University of Nebraska-Lincoln.)

(9) Total Direct Costs

The total direct costs for each year of the budget are as follows:

Year 1	Year 2	Year 3	Year 4	Total
$2,640,987	$2,354,392	$2,413,381	$2,343,820	$9,752,580

(10) Indirect Costs

The indirect cost rate is 8.5%.

(11) Funding for Involved LEAs

None

(12) Supplemental Funding for Participating LEAs

None

(13) Total Costs

The total costs for each year of the budget are as follows:

Year 1	Year 2	Year 3	Year 4	Total
$2,864,244	$2,554,516	$2,618,518	$2,543,045	$10,580,323

Budget Part II: Project-Level Budget Table

Project Name: Nebraska Early Learning Quality Initiative

Associated with Criteria: Invitational Priority

Budget Categories	Project Year 1 (a)	Project Year 2 (b)	Project Year 3 (c)	Project Year 4 (d)	Total (e)
1. Personnel	48,328	48,328	49,536	49,536	195,728
2. Fringe Benefits	29,216	31,088	32,643	34,276	127,223
3. Travel	10,980	8,418	8,418	5,124	32,940
4. Equipment					
5. Supplies	5,000	5,000	3,000	3,000	16,000
6. Contractual	125,000	103,000	85,000	85,000	398,000
7. Training Stipends					
8. Other (ESU's for ECPDPs)	300,000	300,000	300,000	300,000	1,200,000
9. Total Direct Costs (lines 1-8)	518,524	495,834	478,597	476,936	1,969,891
10. Indirect Costs*	15,600	14,521	12,205	12,065	54,391
11.Funding for Involved LEAs	808,000	808,000	808,000	808,000	3,232,000
12. Supplemental Funding for Participating LEAs					
13. Total Costs (lines 9-12)	1,342,124	1,318,355	1,298,802	1,297,001	5,256,282

Budget Part II: Project-Level Budget Table
Project Name: Nebraska Early Learning Quality Initiative
Associated with Criteria: Invitational Priority

(1) Personnel

- The professional development coordinator will be paid out of the funds from this application. This is an Education Specialist II position within the Nebraska Department of Education. Salary is based on the Level 46 of the NDE pay structure (Specialist II) and begins at the 40% of the maximum pay grade for this position. In years three and four, the salary increases 2.5% in anticipation of a cost of living increase.

- The position is 1.0 FTE and will be responsible for facilitating and providing support to the statewide professional development system. Specifically, this position will be responsible for the transition of Regional Training Coalitions into Early Childhood Professional Development Partnerships and then the ongoing support of the entire network of ECPDP's.

Personnel: The following requested personnel will all be hired as employees of the project.	% FTE	Salary Year 1	Salary Year 2	Salary Year 3	Salary Year 4	Total
Professional Development Coordinator (1)	1.0%	48,328	48,328	49,536	49,536	$195,728

(2) Fringe Benefits

- $127,223 is allocated for fringe benefits.

- Fringe benefits are based on 17% of salary + $21,000 medical insurance cost in year one. Benefits costs are computed with a 5% increase per year. Benefits are calculated to be $29,216 in year one, $31,088 in year two, $32,643 in year three, and $24,276 in year four.

(3) Travel

- Travel for Professional Development Coordinator is budgeted at $4,400 per year.
- The Professional development Coordinator must meet with existing professional development partnerships throughout the state and will need to periodically visit the each area to monitor their success and provide support.
- Travel expenses include cost to rent state car at $10.60 per day + mileage at .30 cents per mile. Trips over 150 miles one way also include lodging at $70. Per night and meal expenses of $36. per day. The average cost of a trip is calculated at $183. The budget includes 24 trips per year for the Professional Development Coordinator.

- Early Childhood Education Specialists who work at the Nebraska Department of Education and provide technical assistance to local Early Childhood Education Specialists will be traveling to meet with the local district staff, early education and care staff and the Local Early Childhood Education Specialist. Trips for NDE early childhood specialists are budgeted in the same way as those for the Professional Development Coordinator. A total of 36 trips are budgeted for year one since each Local Early Childhood Specialist will need significant support in the first year. Fewer trips for NDE specialists are budgeted in subsequent years since Local Specialists will require less outside assistance. Twenty-two trips by NDE specialists are budgeted for years two and three. Only four trips are budgeted for NDE specialists for year four.

Travel: Average cost of trip is $183	# Trips	$ per Trip	Total
Professional Development Coordinator	96	$183	$17,568
Early Childhood Specialists	84	$183	$15,372

(4) Equipment

No equipment will be purchased with grant funds for this project

(5) Supplies

Provide:

- The grant funds will pay for resource books and training materials

- Five Thousand dollars has been allocated in years one and two. A reduction in the need for large training events in years three and four allows the supplies allocation to be reduced to $3,000 for each of the final two years of the grant.

- A total of $16,000 has been budgeted for supplies.

(6) Contractual

- A total of $398,000 will be contracted for this project

- Trainers will be contracted to deliver training to the local early childhood specialists in the area of effective coaching techniques.
    - Coaching training is being estimated at 25,000 in year one. This amount will include 2 trainers at $1000 per day per trainer for an initial 3 days of training and then one day of follow-up training per month for the next 9 months as well as contracted space. (Goals 1,2)

- Training in the use of early childhood curriculum and assessment will be delivered across the state.
    - In years one and two, a multi-day institute will be held in a metropolitan area of the state. Forty thousand dollars is budgeted for each of these events. This amount will cover the cost of multiple trainers, the venue, and foodservice for participants. (Goal 1)

    - Additionally, in year two, $3,000 and in each of years three and four, $25,000 has been budgeted for training in addition to the opportunities outlined above. Contracts will be with trainers who have expertise in early childhood mental health, classroom environments, early literacy and numeracy, or other specialty areas. Contracts will be individually written based on need in areas across the state. An allocation of approximately $1000 per day per trainer is planned. (Goals 1,2)

- This project will be evaluated by an outside evaluator. The services of the evaluator will be contracted. Sixty thousand dollars is budgeted per year.
    - The evaluator will analyze all child progress and all program quality data. Evaluator will also collect and analyze data regarding the effectiveness of the coaching provided by Early Childhood Specialists. (Goals 1,2)
    - Evaluator will report the aggregated results of child progress, coaching effectiveness, and program quality for this project annually. (Goals 1,2)
    - Evaluator will also compile and report annually on training provided in the Early Childhood Professional Development Partnerships. (Goal 3)

- Nebraska follows the procedures for procurement under 34 CFR Parts 74.40 - 74.48 and Part 80.36.

Purpose	Activity	Cost	Project total
Train early childhood specialists in evidence based coaching techniques to be used with participating early education and care providers.	Coaching training	$25,000 in year one	$25,000
Early Childhood Curriculum and Assessment training will be provided for participating early childhood education and care providers so high quality education and care practices can be implemented in local settings.	Early Childhood Curriculum and Assessment Training	$40,000 in each of years1 and 2	$80,000
Specialized training will be offered to participating education and care providers to hone their education and care skills and improve the outcomes of children enrolled in their program.	Training will be offered in specialized areas such as; early childhood mental health, early learning guidelines, early literacy, early numeracy	$3000 in year 2, and $25,000 in each of years 3 and 4.	$53,000
An evaluator will be contracted to analyze child, program, and project level data and report of effectiveness of project.	Project Evaluation	$60,000 per year	$240,000

(7) Training Stipends

None

(8) Other

- Grant awards will be provided to selected ESU's to expand the Early Childhood Professional Development Partnerships in high need areas and transform the current Regional Training Coalitions into Early Childhood Professional Development Partnerships. Three hundred thousand dollars per year has been budgeted for a total of 1,200,000. The grant funding will be braided with current funding sources (more than $650,000 per year)

(9) Total Direct Costs

Total direct cost for this project is 1,969,891. The direct costs per year follow:
Year 1 – $518,524,
Year 2 - $ 495,834
Year 3 - $ 478,597
Year 4 - $ 476,936

(10) Indirect Costs

- The indirect cost rate is calculated at 8.5%. The indirect costs per year follow:
  Year 1- 15,600
  Year 2- 14,521
  Year 3- 12,205
  Year 4- 12,065

(11) Funding for Involved LEAs

- Ten Local Early Childhood Specialists will be hired. Salary and benefits for each specialist is budgeted at $70,000 for a total of $700,000 per year. Over the life of the grant the total amount budgeted for this item is $2,800,000. The Local Early Childhood Specialists will use coaching techniques to assist early education and care providers in the area served by the lowest achieving schools to improve the quality of the learning environment for enrolled children. Districts in the same geographic area with Persistently Lowest Achieving Schools may join together to employ a Local Early Childhood Specialist if they are in a sparsely populated area with few licensed or license exempt early childhood education and care providers. Larger LEA's may employ more than one specialist.

- LEAs will receive $24,000 per early childhood specialist for operations related to the work of the specialists with the local early education and care providers. This item totals $240,000 for the project. Early childhood specialists will use the operations money to buy subscriptions to online assessments for each child in the participating early education and care programs. The operations money will also be used to sub-contract with reliable observers to assess the quality of the early childhood environment in the participating early education and care programs.

- Stipends for participating early education and care providers are budgeted at $800 dollars per year. Sixty early childhood education and care providers are expected to participate in each of the four years. The total amount budgeted to LEAs for stipends is $192,000

- There will be a maximum of ten LEAs involved in this project. The stipends provide resources for education and care providers to equip and supply the early childhood education environment with enriching materials may be used to supplement the salaries of education and care providers.

For example:

Purpose	Activity	Cost	# LEAs involved	Total per year	Project total
Provide coaching and individualized training to education and care providers	Employment of Early childhood specialists	$70,000 per specialist per year	Up to 10	700,000 per year	$2,800,000
Provide allocated resources for program activities including purchase of subscriptions to online assessments, program evaluation, mileage, etc.	Operations	$6,000 per specialist per year	Up to 10	$60,000	240,000
Provide resources to supplement learning materials, and education provider salary	Stipends for early education and care providers	$800 dollars per year per provider. (60 providers)	Up to 10	$48,000	$192,000

(12) Supplemental Funding for Participating LEAs

None for this project

Appendix A

Governor's RTTT Steering Committee Members and Letters of Support

RACE TO THE TOP
STEERING COMMITTEE

Dave Heineman *Governor – State of Nebraska*	Governor State of Nebraska State Capitol Office of the Governor P.O. Box 94848 Lincoln, NE 68509-4848 (402) 471-2244 kathy.graham@nebraska.gov
Roger Breed *Nebraska Department of Education*	Commissioner of Education Nebraska Department of Education 301 Centennial Mall South P.O. Box 94987 Lincoln, NE 68509-4987 (402) 471-5020 roger.breed@nebraska.gov denise.fisher@nebraska.gov
Senator Greg Adams *Nebraska Legislature—Education Committee*	Education Committee (Chairperson) Nebraska Legislature State Capitol – Room 1107 P.O. Box 94604 Lincoln, NE 68509-4604 (402) 471-2756 gadams @leg.ne.gov rcollins@leg.ne.gov
Manuel Alvarez, Jr. ("Junior") *Citizen Advocate (Retired Gering Teacher)*	1570 Yucca Drive Gering, Nebraska Home: (308) 436-7587 jalvarez@scottsbluff.net
Dennis B. Baack *Nebraska Community College Association*	Executive Director 601 Soth 12th Street, Suite 200 Lincoln, NE 68508 402-471-4685 402-471-4726 FX dennisgb@neb.rr.com

Dr. Ken Bird *Bright Futures Foundation*	President/CEO 7101 Mercy Road, Suite 240 Omaha, NE 68106 (402) 505-6814 kbird@bffoundation.com
Matt Blomstedt *Educational Service Units Coordinating Council*	Executive Director Educational Service Units Coordinating Council 455 S. 11th Street Lincoln, NE 68508 (402) 499-6756 mblomstedt2@neb.rr.com
John A. Bonaiuto *Nebraska Association of School Boards*	Executive Director Nebraska Association of School Boards 1311 Stockwell Street Lincoln, NE 68502 (402) 423-4951 jbonaiuto@nasbonline.org
Susie Buffett *Sherwood Foundation*	3555 Farnam Street Omaha, NE 68131 susie@sherwoodfoundation.org
Stan Carpenter *Nebraska State College System*	Chancellor of the Nebraska State College System 1115 K Street Suite 102 Lincoln, NE 68509 402-471-2505 scarpenter@nscs.edu

John Cavanaugh *Building Bright Futures*	1004 Farnam Street, Suite 102 Omaha, NE 68102 (402) 715 4145 jjc@buildingbrightfutures.org
Michael S. Dulaney *Nebraska Council of School Administrators*	Executive Director Nebraska Council of School Administrators 455 South 11th Street – Suite A Lincoln, NE 68508 (402) 476-8055 mike@ncsa.org
Don Hague *Gering Public Schools*	Superintendent 1800 8th Street Gering, NE 69341 (308) 436-3125 dhague@geringschools.net
Liz S. Koop *EducationQuest Foundation*	President and CEO EducationQuest Foundation P.O. Box 82552 1300 "O" Street Lincoln, NE 68505 (402) 479-6902 lizk@educationquest.org
Marty Mahler *Nebraska P-16 Initiative*	Executive Director Nebraska P-16 Initiative 143 Varner Hall 3835 Holdrege Street Lincoln, NE 68583-0743 (402) 472-5991 mmahler@nebraska.edu

James B. Milliken *University of Nebraska*	President 3835 Holdrege Street Lincoln, NE 68583 (402) 472-8636 president@nebraska.edu
Marilyn Moore *Lincoln Public Schools*	Associate Superintendent for Instruction 5901 O Street Lincoln, NE 68510 402-436-1625 mmoore@lps.org
Thomas "Tip" O'Neill, Jr. *Association of Independent Colleges and Universities of Nebraska*	President 635 South 14th Street, Suite 310 Lincoln, NE 68508 402-434-2818 402-434-2825 FX tip@aicunebraska.org
Kevin Riley *Gretna Public Schools*	Superintendent kriley@esu3.org
Mike Teahon *Gothenburg Public Schools*	Superintendent Gothenburg Public Schools 1322 Ave I Gothenburg, NE 69138 (308) 537-3651 Phone (308) 537-3965 Fax mteahon@esu10.org

Rebecca Valdez *Latino Center of the Midlands*	4821 South 24th Street Omaha, NE 68107 402-733-2720 402-733-6720FX rvaldez@latinocenterofthemidlands.org
Thomas H. Warren, Sr *Urban League of Nebraska*	3040 Lake Street Omaha, NE 68111 402-451-1066 twarren@urbanleagueneb.org
Katie Weitz White *Sherwood Foundation*	3555 Farnam Street Omaha, NE 68131 (402) 341-1717 katiew@sherwoodfoundation.org
Jess Wolf *Nebraska State Education Association*	President Nebraska State Education Association 605 South 14th Street Lincoln, NE 68508 (402) 475-7611 jess.wolf@nsea.org
Larry Wright Jr. *Ponca Tribe of Nebraska*	Chairman 5321 Drew Place Lincoln, Ne 68516 cell: (402)540-7122 fax: (402)857-3736 ldwrightjr@gmail.com

Matt Eash *State Budget Division*	Budget Management Analyst State Capitol – Room 1320 P.O. Box 94664 Lincoln, NE 68509-4664 (402) 471-4175 matthew.eash@nebraska.gov
Rachel Wise *Building Bright Futures*	1004 Farnam Street, Suite 102 Omaha, NE 68102 (402) 715 4145 r.wise@buildingbrightfutures.org
Cheryl Wolff *Governor's Policy Research Office*	Policy Advisor Governor's Policy Research Office State Capitol – Room 1319 P.O. Box 94601 Lincoln, NE 68509-4601 (402) 471-2575 cheryl.wolff@nebraska.gov

Letters of Support Index

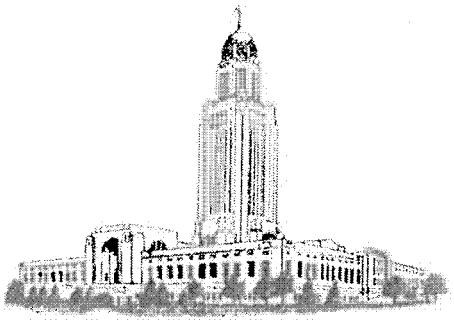
1. Nebraska State Legislature – Education Committee (Senator Greg Adams, Chairperson)
2. Nebraska State Education Association (Jess Wolf, President)
3. Nebraska Association of School Boards (John Bonaiuto, Executive Director)
4. Nebraska Council of School Administrators (Michael Dulaney, Executive Director)
5. Nebraska P-16 Initiative (Marty Mahler, Executive Director)
6. Nebraska Educational Service Unit Coordinating Council (Matthew Blomstedt, Executive Director)
7. Ponca Tribe of Nebraska (Larry Wright, Jr., Tribal Chairman)
8. Latino Center of the midlands (Rebecca Valdez, Executive Director)
9. Urban League of Nebraska (Thomas H. Warren, Sr., President and CEO)
10. University of Nebraska (James B. Milliken, President)
11. Nebraska State College System (Stan Carpenter, Chancellor)
12. University of Nebraska, College of Education – Kearney (Ed Scantling, Dean)
13. Wayne State College (Richard Collings, President)
14. Nebraska Community College Association (Dennis Baack, Executive Director
15. Campaign for Nebraska, University of Nebraska Foundation (Susan Schnase, Director of Development)
16. Gretna Public School District #37 (Kevin M. Riley, Superintendent)
17. Learning Community of Douglas and Sarpy Counties (Rick Kolowski, Chair)
18. Manuel Alvarez, Jr. (Retired Teacher, Gering Public Schools)
19. Gering Public Schools (Don Hague, Superintendent)
20. Building Bright Futures (John Cavanaugh, Executive Director)
21. Avenue Scholars (Ken Bird, President/CEO)
22. The Sherwood Foundation (Susan Buffett, Chairman, Katie Weitz White, Director of Education Initiatives)
23. EducationQuest (Liz Koop, President and CEO)
24. Concordia University (Ron Bork, Dean College of Education)
25. York College Education Department (Kathleen Wheeler, Education Department Chair)
26. York College Education Department (Alfred Arth)

Nebraska State Legislature

SENATOR GREG L. ADAMS

District 24
831 West 4th Street
York, Nebraska 68467
(402) 362-2153

Legislative Address:
State Capitol
PO Box 94604
Lincoln, Nebraska 68509-4604
(402) 471-2756
gadams@leg.ne.gov



COMMITTEES

Chairperson - Education
Revenue
Committee on Committees
Education Commission of the States
Midwestern Higher Education Commission

January 13, 2010

Dr. Roger Breed, Ed.D
Commissioner of Education
Nebraska Department of Education
301 Centennial Mall South, 6th Floor
Lincoln, NE 68509-4987

Dear Commissioner Breed:

I am writing to offer support for Nebraska's Race to the Top Grant Application.

The Nebraska Legislature takes the education of Nebraska's students seriously. We have a great deal of experience in education, and we know education is rapidly changing and improving with the advancements in technology and new information. It is imperative for Nebraska to adapt to these changes for it to remain competitive and offer quality education programs.

Nebraska prides itself on being at the forefront of standards development. The Nebraska's Race to the Top application is a positive step toward creating a statewide system to support school districts to close achievement gaps while increasing overall student achievement, and improving high school graduation and college going rates. This is a comprehensive state-led package that has the potential of significantly and positively impacting the Nebraska public education system.

Although no formal grant has been signed at the time this letter, we are in full support of your four main goals and Nebraska's plan for each of the reform areas:

Excellent Standards and Assessments – Develop and implement rigorous, internationally benchmarked standards and a high quality balanced assessment system that results in improved achievement for all Nebraska students.

Superior Teachers and Leaders – Assure every Nebraska student excellent teachers and education leaders supported by mentoring/induction programs, consistent professional development centered on teaching and learning, professional teacher standards, and an evaluation system with multiple measures including effectiveness in terms of student learning.

First Class Data System -- By expanding the Nebraska Student and Staff Record System, we can improve the quality of information collected on student and teachers and more quickly identify and respond to problems. Further, links will be created for pre-K, K-12, and postsecondary so that students can be tracked P-16.

Turning Around Our Low Performing Schools – Nebraska will implement a support system with professional development and expertise, resources, and incentives to transform low performing schools and support school districts in improving overall student achievement.

I look forward to working with the Nebraska Board of Education and my local education agency to insure Nebraska's students receive the best education possible.

Sincerely,

(b)(6)

Senator Greg Adams
District 24

GA:ja

Nebraska State Education Association

Jess Wolf
President

Craig R. Christiansen
Executive Director

605 S. 14 St. Suite 200
Lincoln, NE 68508-2742
www.nsea.org

402.475.7611
800.742.0047
fax 402.475.2630

January 12, 2010

Dr. Roger Breed, Ed.D
Commissioner of Education
Nebraska Department of Education
301 Centennial Mall South, 6th Floor
Lincoln, NE 68509-4987

Dear Commissioner Breed,

I am writing to offer support for Nebraska's Race to the Top Grant Application.

The Nebraska State Education Association takes the education of Nebraska's students seriously. We have a great deal of experience in education, and we know education is rapidly changing and improving with the advancements in technology and new information. It is imperative for Nebraska to adapt to these changes for it to remain competitive and offer quality education programs.

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Turning Around Our Low Performing Schools - Nebraska will implement a support system with professional development and expertise, resources, and incentives to transform low performing schools and support school districts in improving overall student achievement.
The NSEA supports the rights of its local affiliates to bargain contracts that affect working conditions for educational employees. In supporting this Race to the Top application, the NSEA does not waive the rights of locals to bargain collectively.

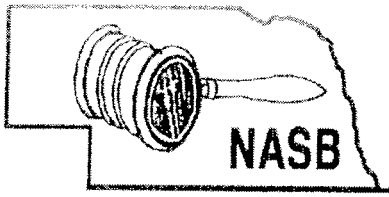
The NSEA looks forward to working with the Nebraska Board of Education and the educational policy partners who have been part of this "Steering Committee" as we jointly insure Nebraska's students receive the best education possible.

Sincerely,

(b)(6)

Jess Wolf, President
Nebraska State Education Association

RECEIVED 2009



Nebraska Association of
School Boards

December 16, 2009

Dr. Roger Breed, Ed.D
Commissioner of Education
Nebraska Department of Education
301 Centennial Mall South, 6th Floor
Lincoln, NE 68509-4987

Dear Commissioner Breed,

I am writing to offer support for Nebraska's Race to the Top Grant Application.

The Nebraska Association of School Boards has been part of the education landscape in Nebraska for over ninety years! Therefore, we believe we have a great deal of experience in education governance, and we know education is rapidly changing and improving with the advancements in technology and new information. It is imperative for Nebraska to adapt to these changes in order to remain competitive and reinvigorate our quality education programs.

Nebraska prides itself on being at the forefront of standards development. Nebraska's Race to the Top application is a positive step toward creating a statewide system to support school districts in their efforts to close achievement gaps while increasing overall student achievement, and improving high school graduation and college-going rates. This effort looks to be a comprehensive state-led package that has the potential of significantly and positively impacting the Nebraska public education system.

Although no formal grant has been signed at the time this letter, we are in full support of your four main goals and Nebraska's plan for each of the reform areas:

Excellent Standards and Assessments – Develop and implement rigorous, internationally benchmarked standards and a high-quality balanced assessment system that results in improved achievement for all Nebraska students.

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1311 Stockwell Street, Lincoln, NE 68502 • (800) 422-4572 • FAX (402) 423-4961
http://www.nebr-schoolboards.org

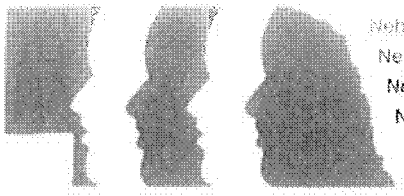
First Class Data System – By expanding the Nebraska Student and Staff Record System, we can improve the quality of information collected on students and teachers and more quickly identify and respond to problems. Further, links will be created for pre-K, K-12, and postsecondary, so that students can be tracked P-16.

Turning Around Our Low Performing Schools – Nebraska will implement a support system with professional development and expertise, resources, and incentives to transform low performing schools and support school districts in improving overall student achievement.

I look forward to continuing our working relationship with our Policy Partners the Nebraska Board of Education and the Nebraska Department of Education (NDE) to insure Nebraska's students receive the best education possible.

Respectfully,

Dr. John A. Bonaiuto
NASB Executive Director



Nebraska Association of School Administrators (NASA)
Nebraska Association of School Business Officials (NASBO)
Nebraska Association of Elementary School Principals (NAESP)
Nebraska Association of Special Education Supervisors (NASES)
Nebraska Association of Retired School Administrators (NARSA)
Nebraska State Association of Secondary School Principals (NSASSP)

Nebraska Council of School Administrators

455 So. 11th Street, Suite A • Lincoln, Nebraska 68508-2105 • 402.476.8055 or 800.793.6272 • FAX 402.476.7740

Michael S. Dulaney, J.D., Ph.D.
Executive Director
mike@ncsa.org

Dan E. Ernst, Ed.D.
Associate Executive Director
dan@ncsa.org

Web Site:
http://ncsa.org

Matt Fisher
Chairperson
mfisher@esu15.org

Ryan Ruhl
Vice Chairperson
ryan.ruhl@norris160.org

January 12, 2010

Dr. Roger Breed
Commissioner of Education
Nebraska Department of Education
PO Box 94987
Lincoln, NE 68509

Dear Dr. Breed,

On behalf of the membership of the Nebraska Council of School Administrators (NCSA) and with authorization by the NCSA Executive Board, I hereby offer my organization's general support of the Bright Future for Nebraska Students Initiative and the Nebraska Race to the Top application.

We believe the Bright Future for Nebraska Students Initiative seeks sustainable and systemic changes in the Nebraska education system that will result in documented higher levels of achievement for Nebraska public school students, a clear reduction in learning gaps, and increased graduation and college going rates.

We urge you to include this letter of support in the official application.

Best regards,

Dr. Michael Dulaney
NCSA Executive Director

Cc: NCSA Executive Board
Governor Dave Heineman

Nebraska P-16 Initiative
Nebraska's Coalition for Student Success

January 12, 2010

Roger Breed, Ed.D.
Commissioner of Education
Nebraska Department of Education
301 Centennial Mall South, 6th Floor
Lincoln, NE 68509-4987

Dear Commissioner Breed:

I am writing to offer support for Nebraska's Race to the Top Grant Application.

Race to the Top offers an opportunity to strategically build upon Nebraska's current P-16 efforts and invest in key supports that: 1) refine our current rigorous state standards; 2) provide new supports for teachers and principals aimed at improving effectiveness; 3) enhance local data systems and coordinate those systems with state data systems; and 4) dramatically improve Nebraska's persistently lowest-achieving schools. Nebraska's Race to the Top application is built on a strong history of education reform that is grounded in some of the highest standards in the country.

Nebraska's Race to the Top application is directly aligned with the recently adopted Nebraska P-16 Goals to improve education statewide. The P-16 goals in Nebraska are:

1. Adopt a college and career preparation core curriculum that requires four years of English and three years each of math, science and social studies in Nebraska school districts by the 2014-2015 school year.

2. Eliminate the academic achievement gap between Nebraska's K-12 Caucasian students and its African American, Hispanic, and Native American students.

3. Develop an effective longitudinal data system that provides information on the Nebraska education system from preschool through post-graduate degree attainment and entry into the workforce to help align resources with strategic goals.

4. Improve Nebraska's high school graduation rate to 90 percent.

5. Improve Nebraska's college-going rate to the top-10 tier nationally.

6. Provide affordable access for Nebraska students to attend Nebraska's postsecondary institutions.

7. Improve time to degree completion and increase graduation rates of Nebraska's postsecondary institutions.

8. Increase the number of graduates in the areas of science, technology, engineering and mathematics (STEM).

Although no formal grant has been signed at the time this letter, we are in full support of your four main goals and Nebraska's plan for each of the reform areas:

Excellent Standards and Assessments – Develop and implement rigorous, internationally benchmarked standards and a high quality balanced assessment system that results in improved achievement for all Nebraska students.

Superior Teachers and Leaders – Assure every Nebraska student excellent teachers and education leaders supported by mentoring/induction programs, consistent professional development centered on teaching and learning, professional teacher standards, and an evaluation system with multiple measures including effectiveness in terms of student learning.

First Class Data System – By expanding the Nebraska Student and Staff Record System, we can improve the quality of information collected on student and teachers and more quickly identify and respond to problems. Further, links will be created for pre-K, K-12, and postsecondary so that students can be tracked P-16.

Turning Around Our Low Performing Schools – Nebraska will implement a support system with professional development and expertise, resources, and incentives to transform low performing schools and support school districts in improving overall student achievement.

I look forward to working with the Nebraska Board of Education and my local education agency to insure Nebraska's students receive the best education possible.

Sincerely,

(b)(6)

Marty Mahler, Ph.D.
Executive Director
Nebraska P-16 Initiative

NEBRASKA EDUCATIONAL SERVICE UNIT
COORDINATING COUNCIL
455 South 11th St.; Suite C
Lincoln, NE 68508

Dr. Roger Breed, Ed.D
Commissioner of Education
Nebraska Department of Education
301 Centennial Mall South, 6th Floor
Lincoln, NE 68509-4987

January 12, 2010

Dear Commissioner Breed,

I am writing to offer support for Nebraska's Race to the Top Grant Application.

The Educational Service Unit Coordinating Council takes the education of Nebraska's students seriously. We have a great deal of experience in education, and we know education is rapidly changing and improving with the advancements in technology and new information. It is imperative for Nebraska to adapt to these changes for it to remain competitive and offer quality education programs.

Nebraska prides itself on being at the forefront of standards development. The Nebraska's Race to the Top application is a positive step toward creating a statewide system to support school districts to close achievement gaps while increasing overall student achievement, and improving high school graduation and college going rates. This is a comprehensive state-led package that has the potential of significantly and positively impacting the Nebraska public education system.

Although no formal grant has been signed at the time this letter, we are in full support of your four main goals and Nebraska's plan for each of the reform areas:

Excellent Standards and Assessments – Develop and implement rigorous, internationally benchmarked standards and a high quality balanced assessment system that results in improved achievement for all Nebraska students.

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Turning Around Our Low Performing Schools – Nebraska will implement a support system with professional development and expertise, resources, and incentives to transform low performing schools and support school districts in improving overall student achievement.

I look forward to working with the Nebraska Board of Education, ESUs, and school districts to insure Nebraska's students receive the best education possible.

Sincerely,

Matthew L. Blomstedt
Executive Director

Ponca Tribe of Nebraska

P.O. Box 288
Niobrara, NE 68760

402 857-3391
FAX: 402 857-3736

January 14, 2010

Dr. Roger Breed, Ed.D
Commissioner of Education
Nebraska Department of Education
301 Centennial Mall South, 6th Floor
Lincoln, NE 68509-4987

Dear Commissioner Breed,

I am writing to offer support for Nebraska's Race to the Top Grant Application.

The Ponca Tribe of Nebraska takes the education of Nebraska's students seriously. We have a great deal of experience in education, and we know education is rapidly changing and improving with the advancements in technology and new information. It is imperative for Nebraska to adapt to these changes for it to remain competitive and offer quality education programs.

Nebraska prides itself on being at the forefront of standards development. The Nebraska's Race to the Top application is a positive step toward creating a statewide system to support school districts to close achievement gaps while increasing overall student achievement, and improving high school graduation and college going rates. This is a comprehensive state-led package that has the potential of significantly and positively impacting the Nebraska public education system.

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Excellent Standards and Assessments – Develop and implement rigorous, internationally benchmarked standards and a high quality balanced assessment system that results in improved achievement for all Nebraska students.

Superior Teachers and Leaders – Assure every Nebraska student excellent teachers and education leaders supported by mentoring/induction programs, consistent professional development centered on teaching and learning, professional teacher standards, and an evaluation system with multiple measures including effectiveness in terms of student learning.

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problems. Further, links will be created for pre-K, K-12, and postsecondary so that students can be tracked P-16.

Turning Around Our Low Performing Schools – Nebraska will implement a support system with professional development and expertise, resources, and incentives to transform low performing schools and support school districts in improving overall student achievement.

I look forward to working with the Nebraska Board of Education and my local education agency to insure Nebraska's students receive the best education possible.

Sincerely,

(b)(6)

Larry Wright, Jr.
Tribal Chairman

LATINO CENTER
OF THE MIDLANDS

January 12, 2010

Dr. Roger Breed, Ed.D
Commissioner of Education
Nebraska Department of Education
301 Centennial Mall South, 6th Floor
Lincoln, NE 68509-4987

Dear Dr. Breed,

Thank you for the opportunity to join with the Nebraska State Department of Education in its attempt to address the critical need for Nebraska to remain competitive and offer a quality education for all - particularly racial and ethnic minorities. The Latino Center of the Midlands is writing to offer our support for Nebraska's Race to the Top Grant Application.

Nebraska prides itself on being at the forefront of standards development. The Nebraska's Race to the Top application is a positive step toward creating a statewide system to support school districts to close achievement gaps while increasing overall student achievement, and improving high school graduation and college going rates. This is a comprehensive state-led package that has the potential of significantly and positively impacting the Nebraska public education system.

The consortia of educational and community-based entities participating in this effort can only serve to significantly enhance the value of our proposal. Through our collaboration, we will be able to better prepare students from disadvantaged backgrounds to increase their competitiveness for entry into the Nebraska workforce.

The Latino Center of the Midlands looks forward to our continued work together and the promise of even greater success.

Sincerely,

Rebecca Valdez
Executive Director

4821 South 24th Street ▪ Omaha Nebraska 68107 ▪ (402) 733-2720 ▪ (402) 733-6720 FAX

Urban League of
Nebraska

Empowering Communities.
Changing Lives.

Family Resource Center
3040 Lake Street *Omaha, NE 68111
*(402) 451-1066 *(402) 451-1342 Fax

www.urbanleaguene b.org

Chair, Thomasina Skipper
Vice-Chair, Sherrye Hutcherson
Secretary, Percy Kirk
Treasurer, Cheryl Stice

Tawanna Black
Selwyn Bachus
Tim Clark
Davida Dickson
James Freeman
Janice Garnett
Bridget Hadley
Betty Harris
Cecil Hicks, Jr.
Gloria Jensen
Angela Jones
Deborah Keating
Kelvin Levert
Ralph D. Marasco
Dr. Jerry Moskus
Dr. Rubens Pamies
Edward Patterson
Idrian Proby
Derek Vaughn
Barbara Weitz
Edwin Willis
Tracy Zaiss
Thomas H. Warren, Sr.

December 28, 2009

Dr. Roger Breed, Ed.D
Commissioner of Education
Nebraska Department of Education
301 Centennial Mall South, 6th Floor
Lincoln, NE 68509-4987

RE: "Race to the Top" grant application

Dear Commissioner Breed,

I am submitting this letter in support of the State of Nebraska's "Race to the Top" (RTTT) grant application.

The Urban League of NE (ULN) is a private, Non-profit organization that serves as a unique community resource offering direct services in education through programming and advocacy. By focusing on youth empowerment, we want to ensure that all of our students are well educated as they prepare themselves to become productive citizens. With funding provided by the "Race to the Top" grant, the State of Nebraska's educational institutions will be able to implement innovative strategies that address the achievement gap, lead to social equality, economic independence and growth for our students.

We are in full support of the four main goals and the State of Nebraska's plan for reform in each of the areas:

Excellent Standards and Assessments
Superior Teachers and Leaders
First Class Data System
Turning Around Our Low Performing Schools

I have had an opportunity to serve on the Governor's Steering Committee that prepared the grant application, and I would look forward to working with the Nebraska Department of Education and my local school district to administer the programs that will be developed.

Sincerely,

Thomas H. Warren Sr.

Thomas H. Warren, Sr.
President and CEO

University of Nebraska

OFFICE OF THE PRESIDENT

January 14, 2010

Roger Breed, Ed.D.
Commissioner of Education
Nebraska Department of Education
301 Centennial Mall South, 6th Floor
Lincoln, NE 68509-4987

Dear Commissioner Breed:

I am writing to express my strong support for Nebraska's Race to the Top (RTTT) Grant Application.

The University of Nebraska has been a leader in helping to establish the statewide P-16 initiative over a decade ago, and has helped lead the way to a new structure under the leadership of Governor Heineman with the development of a new set of education goals for Nebraska. RTTT funding will put Nebraska in a position to be successful in its ambitious plans to offer educational opportunity to every Nebraskan.

The University of Nebraska is the state's only public and land-grant university, and it has a special role in Nebraska with regard to research, teaching and outreach. This mission has important implications for the state's education efforts, from birth to lifelong learning. Three of our campuses have colleges of education that are leaders in rural education, family issues, research-based measurement and assessment, expanding access to science and math disciplines, and many other areas pertinent to the state's RTTT grant application. Centers in math and science education; children, youth, family and schools; and testing have expertise important to this effort.

The University of Nebraska is directly involved with the RTTT initiative through development of the Nebraska Virtual Academy. The Nebraska Virtual Academy is achievable because of the University's century-long experience with distance learning for high school students. NU has been a pioneer in the area, first through correspondence and then via digital content over the internet. We are positioned to not only serve Nebraska but as a national model for access to essential curricula, particularly in the STEM disciplines. The Nebraska Virtual Academy will ensure that students across Nebraska will have access to a full array of STEM courses further enhancing their opportunity to attain additional education or be career-ready after high school. The University will also play a critical role by enhancing professional development and teacher training opportunities for current and future teachers through its distance education capacity.

Varner Hall / 3835 Holdrege Street / P.O. Box 830745 / Lincoln, NE 68583-0745
(402) 472-8636 / FAX (402) 472-1237 / www.nebraska.edu

We are in support of the four main goals and Nebraska's plan for reform:

Excellent Standards and Assessments – Develop and implement rigorous, internationally benchmarked standards and a high quality balanced assessment system that results in improved achievement for all Nebraska students. As I have indicated, the University has relevant and important experience in these areas and can be a great resource for the RTTT efforts.

Superior Teachers and Leaders – Assure every Nebraska student excellent teachers and education leaders supported by mentoring/induction programs, consistent professional development centered on teaching and learning, professional teacher standards, and an evaluation system with multiple measures including effectiveness in terms of student learning. The University of Nebraska is the largest provider of teachers and school leaders in the state and is obviously an integral partner in successful reform efforts.

First Class Data System – By expanding the Nebraska Student and Staff Record System, we can improve the quality of information collected on students and teachers and more quickly identify and respond to problems. Further, links will be created for pre-K, K-12, and postsecondary so that students can be tracked P-16. NU leaders have been early and consistent advocates for data-based evaluation and decision making at all levels of education.

Turning Around Our Low Performing Schools – Nebraska will implement a support system with professional development and expertise, resources, and incentives to transform low performing schools and support school districts in improving overall student achievement. The University's involvement in teacher education, preparation of administrative leadership, and research-based assessment will be imperative to success in this area as well.

I look forward to working with Governor Heineman, the Nebraska Board of Education, and local education leaders across Nebraska to insure Nebraska's students receive the best education possible, from birth through lifelong learning.

Sincerely,

(b)(6)

James B. Milliken
President

JBM:jbs

RECD DEC 16 2009

Nebraska State College System

Stan Carpenter, Chancellor System Office 1115 K. Street, Box 94605
Lincoln, NE 68509 Phone: (402) 471-2505 Fax: (402) 471-2669
www.nscs.edu

NSCS
Nebraska State College System

December 15, 2009

Dr. Roger Breed, Ed.D
Commissioner of Education
Nebraska Department of Education
301 Centennial Mall South, 6th Floor
Lincoln, NE 68509-4987

Dear Commissioner Breed,

I am writing to offer support for Nebraska's Race to the Top Grant Application.

The Nebraska State College System takes the education of Nebraska's students seriously. We have a great deal of experience in education, and we know education is rapidly changing and improving with the advancements in technology and new information. It is imperative for Nebraska to adapt to these changes for it to remain competitive and offer quality education programs.

Nebraska prides itself on being at the forefront of standards development. The Nebraska's Race to the Top application is a positive step toward creating a statewide system to support school districts to close achievement gaps while increasing overall student achievement, and improving high school graduation and college going rates. This is a comprehensive state-led package that has the potential of significantly and positively impacting the Nebraska public education system.

Although no formal grant has been signed at the time this letter, we are in full support of your four main goals and Nebraska's plan for each of the reform areas:

Excellent Standards and Assessments – Develop and implement rigorous, internationally benchmarked standards and a high quality balanced assessment system that results in improved achievement for all Nebraska students.

Superior Teachers and Leaders – Assure every Nebraska student excellent teachers and education leaders supported by mentoring/induction programs, consistent professional development centered on teaching and learning, professional teacher standards, and an evaluation system with multiple measures including effectiveness in terms of student learning.

First Class Data System – By expanding the Nebraska Student and Staff Record System, we can improve the quality of information collected on student and teachers and more quickly identify and respond to problems. Further, links will be created for pre-K, K-12, and postsecondary so that students can be tracked P-16.

Turning Around Our Low Performing Schools – Nebraska will implement a support system with professional development and expertise, resources, and incentives to transform low performing schools and support school districts in improving overall student achievement.

I look forward to working the Nebraska Board of Education and my local education agency to insure Nebraska's students receive the best education possible.

Sincerely,

(b)(6)

Stan Carpenter
Chancellor

University of Nebraska
Kearney

COLLEGE OF EDUCATION
Office of the Dean

December 17, 2009

Roger Breed, Ed.D.
Commissioner of Education
Nebraska Department of Education
301 Centennial Mall South, 6th Floor
P.O. Box 94987
Lincoln, NE 68509-4987

Dear Commissioner Breed:

I am writing to offer support for Nebraska's Race to the Top Grant Application.

The College of Education at the University of Nebraska at Kearney takes the education of Nebraska's students and their teachers seriously. We have a great deal of experience in education, and we know education is rapidly changing and improving with the advancements in technology and new information. It is imperative for Nebraska to adapt to these changes for it to remain competitive and offer quality education programs.

Nebraska prides itself on being at the forefront of standards development. The Nebraska's Race to the Top application is a positive step toward creating a statewide system to support school districts to close achievement gaps while increasing overall student achievement, and improving high school graduation and college going rates. This is a comprehensive state-led package that has the potential of significantly and positively impacting the Nebraska public education system.

Although no formal grant has been signed at the time this letter, we are in full support of your four main goals and Nebraska's plan for each of the reform areas:

Excellent Standards and Assessments – Develop and implement rigorous, internationally benchmarked standards and a high quality balanced assessment system that results in improved achievement for all Nebraska students.

Superior Teachers and Leaders – Assure every Nebraska student excellent teachers and education leaders supported by mentoring/induction programs, consistent professional development centered on teaching and learning, professional teacher standards, and an evaluation system with multiple measures including effectiveness in terms of student learning.

First Class Data System – By expanding the Nebraska Student and Staff Record System, we can improve the quality of information collected on student and teachers and more quickly identify and respond to problems. Further, links will be created for pre-K, K-12, and postsecondary so that students can be tracked P-16.

Turning Around Our Low Performing Schools - Nebraska will implement a support system with professional development and expertise, resources, and incentives to transform low performing schools and support school districts in improving overall student achievement.

I look forward to working with the Nebraska Department of Education and my colleagues at the University of Nebraska at Kearney to insure Nebraska's students receive the best education possible.

Sincerely,

(b)(6)

Ed Scantling, Dean
College of Education
University of Nebraska at Kearney
Kearney, NE. 68849

Wayne State

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1111 Main Street • Wayne, Nebraska 68787 • www.wsc.edu • Member of the Nebraska State College System

December 21, 2009

Roger Breed, Ed.D.
Commissioner of Education
Nebraska Department of Education
301 Centennial Mall South, 6th Floor
P.O. Box 94987
Lincoln, NE 68509-4987

Dear Commissioner Breed:

I am writing to offer support for Nebraska's Race to the Top Grant Application.

Wayne State College takes the education of Nebraska's students seriously. We have a great deal of experience in education and we know education is rapidly changing and improving with the advancements in technology and new information. It is imperative for Nebraska to adapt to these changes for it to remain competitive and offer quality education programs.

Nebraska prides itself on being at the forefront of standards development. The Nebraska's Race to the Top application is a positive step toward creating a statewide system to support school districts to close achievement gaps while increasing overall student achievement, and improving high school graduation and college going rates. This is a comprehensive state-led package that has the potential of significantly and positively impacting the Nebraska public education system.

Although no formal grant has been signed at the time of this letter, we are in full support of your four main goals and Nebraska's plan for each of the reform areas:

Excellent Standards and Assessments – Develop and implement rigorous, internationally benchmarked standards and a high quality balanced assessment system that results in improved achievement for all Nebraska students.

Superior Teachers and Leaders – Assure every Nebraska student excellent teachers and education leaders supported by mentoring/induction programs, consistent professional development centered on teaching and learning, professional teacher standards, and an evaluation system with multiple measures including effectiveness in terms of student learning.

First Class Data System – By expanding the Nebraska Student and Staff Record System, we can improve the quality of information collected on student and teachers and more quickly identify and respond to problems. Further, links will be created for pre-K, K-12, and postsecondary so that students can be tracked P-16.

Turning Around Our Low Performing Schools – Nebraska will implement a support system with professional development and expertise, resources, and incentives to transform low performing schools and support school districts in improving overall student achievement.

We look forward to working with the Nebraska Department of Education to insure Nebraska's students receive the best education possible.

Sincerely

(b)(6)

Dr. Richard J. Collings
President

Equal Opportunity Employer

NEBRASKA COMMUNITY COLLEGE ASSOCIATION

Dennis G. Baack, Executive Director
dennisgb@neb.rr.com
601 South 12th Street, Suite 200
Lincoln, NE 68508
Phone: 402-471-4685

December 16, 2009

Dr. Roger Breed, Ed.D
Commissioner of Education
Nebraska Department of Education
301 Centennial Mall South, 6th Floor
Lincoln, NE 68509-4987

Dear Commissioner Breed,

I am writing to offer support for Nebraska's Race to the Top Grant Application.

The Nebraska Community College Association takes the education of Nebraska's students seriously. We have a great deal of experience in education, and we know education is rapidly changing and improving with the advancements in technology and new information. It is imperative for Nebraska to adapt to these changes for it to remain competitive and offer quality education programs.

Nebraska prides itself on being at the forefront of standards development. The Nebraska's Race to the Top application is a positive step toward creating a statewide system to support school districts to close achievement gaps while increasing overall student achievement, and improving high school graduation and college going rates. This is a comprehensive state-led package that has the potential of significantly and positively impacting the Nebraska public education system.

Although no formal grant has been signed at the time this letter, we are in full support of your four main goals and Nebraska's plan for each of the reform areas:

Excellent Standards and Assessments – Develop and implement rigorous, internationally benchmarked standards and a high quality balanced assessment system that results in improved achievement for all Nebraska students.

Superior Teachers and Leaders – Assure every Nebraska student excellent teachers and education leaders supported by mentoring/induction programs, consistent professional development centered on teaching and learning, professional teacher standards, and an evaluation system with multiple measures including effectiveness in terms of student learning.

First Class Data System – By expanding the Nebraska Student and Staff Record System, we can improve the quality of information collected on student and teachers and more quickly identify and respond to problems. Further, links will be created for pre-K, K-12, and postsecondary so that students can be tracked P-16.

Turning Around Our Low Performing Schools – Nebraska will implement a support system with professional development and expertise, resources, and incentives to transform low performing schools and support school districts in improving overall student achievement.

CAMPAIGN for
NEBRASKA
UNIVERSITY of NEBRASKA FOUNDATION

December 17, 2009

Roger Breed, Ed.D.
Commissioner of Education
Nebraska Department of Education
301 Centennial Mall South, 6th Floor
P.O. Box 94987
Lincoln, NE 68509-4987

Dear Commissioner Breed:

I am writing to offer support for Nebraska's Race to the Top Grant Application.

The University of Nebraska Foundation takes the education of Nebraska's students seriously. We have a great deal of experience in education, and we know education is rapidly changing and improving with the advancements in technology and new information. It is imperative for Nebraska to adapt to these changes for it to remain competitive and offer quality education programs.

Nebraska prides itself on being at the forefront of standards development. The Nebraska's Race to the Top application is a positive step toward creating a statewide system to support school districts to close achievement gaps while increasing overall student achievement, and improving high school graduation and college going rates. This is a comprehensive state-led package that has the potential of significantly and positively impacting the Nebraska public education system.

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CAMPAIGN for
NEBRASKA
UNIVERSITY of NEBRASKA FOUNDATION

Turning Around Our Low Performing Schools – Nebraska will implement a support system with professional development and expertise, resources, and incentives to transform low performing schools and support school districts in improving overall student achievement.

I look forward to working the Nebraska Department of Education and my local education agency to insure Nebraska's students receive the best education possible.

Sincerely,

(b)(6)

Susan Schnase
Director of Development
University of Nebraska Foundation

Gretna Public School District #37
Office of the Superintendent

11717 South 216th Street
Gretna, Nebraska 68028

402-332-3806
fax 332-5833

Dr. Roger Breed, Ed.D
Commissioner of Education
Nebraska Department of Education
301 Centennial Mall South, 6th Floor
Lincoln, NE 68509-4987

January 12, 2010

Dear Commissioner Breed,

I am writing to offer support for Nebraska's Race to the Top Grant Application.

Gretna Public Schools takes the education of Nebraska's students seriously. We have a great deal of experience in education, and we know education is rapidly changing and improving with the advancements in technology and new information. It is imperative for Nebraska to adapt to these changes for it to remain competitive and offer quality education programs.

Nebraska prides itself on being at the forefront of standards development. The Nebraska's Race to the Top application is a positive step toward creating a statewide system to support school districts to close achievement gaps while increasing overall student achievement, and improving high school graduation and college going rates. This is a comprehensive state-led package that has the potential of significantly and positively impacting the Nebraska public education system.

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Turning Around Our Low Performing Schools – Nebraska will implement a support system with professional development and expertise, resources, and incentives to transform low performing schools and support school districts in improving overall student achievement.

I look forward to working with the Nebraska Board of Education and my local education agency to insure Nebraska's students receive the best education possible.

Sincerely,

(b)(6)

Kevin M. Riley, Ed. D.
Superintendent of Schools

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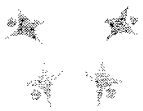

LEARNING
COMMUNITY
OF DOUGLAS AND SARPY COUNTIES

January 8, 2010

Roger Breed, Ed.D.
Commissioner of Education
Nebraska Department of Education
301 Centennial Mall South, 6th Floor
P.O. Box 94987
Lincoln, NE 68509-4987

Dear Commissioner Breed:

On behalf of the Learning Community Coordinating Council, I am writing to formerly offer our support for Nebraska's Race to the Top Grant Application.

The Learning Community of Douglas and Sarpy Counties takes the education of Nebraska's students seriously. We know education is rapidly changing and improving with the advancements in technology and new information. It is imperative for Nebraska to adapt to these changes for it to remain competitive and offer quality education programs.

Nebraska prides itself on being at the forefront of standards development. The Nebraska's Race to the Top application is a positive step toward creating a statewide system to support school districts to close achievement gaps while increasing overall student achievement, and improving high school graduation and college going rates. This is a comprehensive state-led package that has the potential of significantly and positively impacting the Nebraska public education system.

Although no formal grant has been signed at the time of this letter, we are in full support of your four main goals and Nebraska's plan for each of the reform areas:

Excellent Standards and Assessments – Develop and implement rigorous, internationally benchmarked standards and a high quality balanced assessment system that results in improved achievement for all Nebraska students.

Superior Teachers and Leaders – Assure every Nebraska student excellent teachers and education leaders supported by mentoring/induction programs, consistent professional development centered on teaching and learning, professional teacher standards, and an evaluation system with multiple measures including effectiveness in terms of student learning.

6949 SOUTH 110TH STREET • OMAHA, NEBRASKA • 68128-5721 • 402.964.2405

First Class Data System – By expanding the Nebraska Student and Staff Record System, we can improve the quality of information collected on student and teachers and more quickly identify and respond to problems. Further, links will be created for pre-K, K-12, and postsecondary so that students can be tracked P-16.

Turning Around Our Low Performing Schools – Nebraska will implement a support system with professional development and expertise, resources, and incentives to transform low performing schools and to support school districts in improving overall student achievement.

I look forward to working with the Nebraska Department of Education and my local education agency to ensure Nebraska's students receive the best education possible.

Sincerely,

(b)(6)

Rick Kolowski
Chair
Learning Community of Douglas and Sarpy Counties

MANUEL ALVAREZ, JR.
1570 Yucca Drive
Gering, NE 69341

January 12, 2010

Dr. Roger Breed, Ed.D
Commissioner of Education
Nebraska Department of Education
301 Centennial Mall South, 6th Floor
Lincoln, NE 68509-4987

Dear Commissioner Breed,

I am writing to offer support for Nebraska's Race to the Top Grant Application.

Junior Alvarez takes the education of Nebraska's students seriously. We have a great deal of experience in education, and we know education is rapidly changing and improving with the advancements in technology and new information. It is imperative for Nebraska to adapt to these changes for it to remain competitive and offer quality education programs.

Nebraska prides itself on being at the forefront of standards development. The Nebraska's Race to the Top application is a positive step toward creating a statewide system to support school districts to close achievement gaps while increasing overall student achievement, and improving high school graduation and college going rates. This is a comprehensive state-led package that has the potential of significantly and positively impacting the Nebraska public education system.

Although no formal grant has been signed at the time this letter, we are in full support of your four main goals and Nebraska's plan for each of the reform areas:

Excellent Standards and Assessments – Develop and implement rigorous, internationally benchmarked standards and a high quality balanced assessment system that results in improved achievement for all Nebraska students.

Superior Teachers and Leaders – Assure every Nebraska student excellent teachers and education leaders supported by mentoring/induction programs, consistent professional development centered on teaching and learning, professional teacher standards, and an evaluation system with multiple measures including effectiveness in terms of student learning.

First Class Data System – By expanding the Nebraska Student and Staff Record System, we can improve the quality of information collected on student and teachers and more quickly identify and respond to problems. Further, links will be created for pre-K, K-12, and postsecondary so that students can be tracked P-16.

Turning Around Our Low Performing Schools – Nebraska will implement a support system with professional development and expertise, resources, and incentives to transform low performing schools and support school districts in improving overall student achievement.

I look forward to working with the Nebraska Board of Education and my local education agency to insure Nebraska's students receive the best education possible.

Sincerely,

(b)(6)

GERING PUBLIC SCHOOLS
1800 Eighth Street · Gering, NE 69341 · Phone: 308-436-3125 · Fax: 308-436-4301

Dr. Roger Breed, Ed.D
Commissioner of Education
Nebraska Department of Education
301 Centennial Mall South, 6th Floor
Lincoln, NE 68509-4987

January 12, 2010

Dear Commissioner Breed,

I am writing to offer support for Nebraska's Race to the Top Grant Application.

Gering Public Schools takes the education of Nebraska's students seriously. We have a great deal of experience in education, and we know education is rapidly changing and improving with the advancements in technology and new information. It is imperative for Nebraska to adapt to these changes for it to remain competitive and offer quality education programs.

Nebraska prides itself on being at the forefront of standards development. The Nebraska's Race to the Top application is a positive step toward creating a statewide system to support school districts to close achievement gaps while increasing overall student achievement, and improving high school graduation and college going rates. This is a comprehensive state-led package that has the potential of significantly and positively impacting the Nebraska public education system.

We are in full support of your four main goals and Nebraska's plan for each of the reform areas:

Excellent Standards and Assessments – Develop and implement rigorous, internationally benchmarked standards and a high quality balanced assessment system that results in improved achievement for all Nebraska students.

Superior Teachers and Leaders – Assure every Nebraska student excellent teachers and education leaders supported by mentoring/induction programs, consistent professional development centered on teaching and learning, professional teacher standards, and an evaluation system with multiple measures including effectiveness in terms of student learning.

First Class Data System – By expanding the Nebraska Student and Staff Record System, we can improve the quality of information collected on student and teachers and more quickly identify and respond to problems. Further, links will be created for pre-K, K-12, and postsecondary so that students can be tracked P-16.

Turning Around Our Low Performing Schools – Nebraska will implement a support system with professional development and expertise, resources, and incentives to transform low performing schools and support school districts in improving overall student achievement.

I look forward to working with the Nebraska Board of Education. to insure Nebraska's students receive the best education possible.

Sincerely,

(b)(6)

Don Hague
Superintendent

EXECUTIVE COMMITTEE MEMBERS

Richard "Dick" Holland, Chairman

Michael Yanney, President

Susie Buffett

Mayor Mike Fahey

Mary Ann "Andy" Holland

Dianne Seeman Lozier

Wallace Weitz, Treasurer

Barbara Weitz

Katie Weitz White, Secretary

John Cavanaugh, Executive Director

Dr. Roger Breed, Ed.D
Commissioner of Education
Nebraska Department of Education
301 Centennial Mall South, 6th Floor
Lincoln, NE 68509-4987

January 12, 2010

Dear Commissioner Breed,

I am writing to offer support for Nebraska's Race to the Top Grant Application.

Building Bright Futures is a privately funded organization committed to comprehensive improvement in educational outcomes for students in the Omaha Metropolitan area. We have a great deal of experience in education, and we know education is rapidly changing and improving with the advancements in technology and new information. It is imperative for Nebraska to adapt to these changes for it to remain competitive and offer quality education programs.

Nebraska prides itself on being at the forefront of standards development. The Nebraska's Race to the Top application is a positive step toward creating a statewide system to support school districts to close achievement gaps while increasing overall student achievement, and improving high school graduation and college going rates. This is a comprehensive state-led package that has the potential of significantly and positively impacting the Nebraska public education system.

Although no formal grant has been signed at the time this letter, we are in full support of your four main goals and Nebraska's plan for each of the reform areas:

Excellent Standards and Assessments – Develop and implement rigorous, internationally benchmarked standards and a high quality balanced assessment system that results in improved achievement for all Nebraska students.

Superior Teachers and Leaders – Assure every Nebraska student excellent teachers and education leaders supported by mentoring/induction programs, consistent professional development centered on teaching and learning, professional teacher standards, and an evaluation system with multiple measures including effectiveness in terms of student learning.

First Class Data System – By expanding the Nebraska Student and Staff Record System, we can improve the quality of information collected on student and teachers and more quickly identify and respond to problems. Further, links will be created for pre-K, K-12, and postsecondary so that students can be tracked P-16.

Turning Around Our Low Performing Schools – Nebraska will implement a support system with professional development and expertise, resources, and incentives to transform low performing schools and support school districts in improving overall student achievement.

I look forward to working with the Nebraska Board of Education and the school districts of Douglas and Sarpy Counties to insure Nebraska's students receive the best education possible.

Sincerely,

(b)(6)

John Cavanaugh
Executive Director
Building Bright Futures

avenue scholars

BRIGHTFUTURESFOUNDATION
7101 MERCY ROAD, SUITE 240 OMAHA, NE 68106 402.916.9777 FAX 402.614.5977

January 13, 2010

Roger Breed, Ed.D.
Commissioner of Education
Nebraska Department of Education
301 Centennial Mall South, 6th Floor
P. O. Box 94987
Lincoln, NE 68509-4987

Dear Commissioner Breed:

This letter is written in support for Nebraska's Race to the Top Grant Application.

Bright Futures Foundation takes the education of Nebraska's students seriously. The Foundation staff has a great deal of experience in education, and we know education is rapidly changing and improving with the advancements in technology and new information. It is imperative for Nebraska to adapt to these changes for it to remain competitive and offer quality education programs.

Nebraska prides itself on being at the forefront of standards development. The Nebraska's Race to the Top application is a positive step toward creating a statewide system to support school districts to close achievement gaps while increasing overall student achievement and improving high school graduation and post-secondary attendance. This is a comprehensive state-led package that has the potential of significantly and positively impacting the Nebraska public education system.

Although no formal grant has been signed at this time, we are in full support of your four main goals and Nebraska's plan for each of the reform areas:

Excellent Standards and Assessments – Develop and implement rigorous, internationally benchmarked standards and a high-quality balanced assessment system that results in improved achievement for all Nebraska students.

Superior Teachers and Leaders – Assure every Nebraska student excellent teachers and administrators supported by mentoring/induction programs, consistent professional development centered on teaching and learning, professional teacher standards, and an evaluation system with multiple measures including effectiveness in terms of student learning.

First Class Data System – By expanding the Nebraska Student and Staff Record System, we can improve the quality of information collected on student and teachers and more quickly identify and respond to concerns. Further, links will be created for pre-K, K-12, and postsecondary so that students can be tracked P-16.

Turning Around Low Performing Schools – Nebraska will implement a support system with professional development and expertise, resources, and incentives to transform low performing schools and support school districts in improving overall student achievement.

I look forward to working with the Nebraska Board of Education to assure Nebraska's students receive the best education possible.

Sincerely,

Kenneth M. Bird, Ed.D.
President/CEO

THE SHERWOOD FOUNDATION

3555 FARNAM STREET

OMAHA, NEBRASKA 68131

TELEPHONE (402) 341-1717

FAX (402) 341-0977

Dr. Roger Breed, Ed.D
Commissioner of Education
Nebraska Department of Education
301 Centennial Mall South, 6th Floor
Lincoln, NE 68509-4987

January 12, 2010

Dear Commissioner Breed,

I am writing in support for Nebraska's Race to the Top Grant Application. The Sherwood Foundation takes the education of Nebraska's students seriously. We have a great deal of experience in education, and we know education is rapidly changing and improving with the advancements in technology and new information. It is imperative for Nebraska to adapt to these changes for it to remain competitive and offer quality education programs. Although no formal grant has been signed at the time this letter, we are in full support of your four main goals and Nebraska's plan for each of the reform areas:

- Excellent Standards and Assessments – Develop and implement rigorous, internationally benchmarked standards and a high quality balanced assessment system that results in improved achievement for all Nebraska students particularly those in our urban areas.
- Superior Teachers and Leaders – Assure every Nebraska student excellent teachers and education leaders supported by mentoring/induction programs, innovative professional development centered on teaching and learning, professional teacher standards, and developing an evaluation system with multiple measures including student engagement in learning.
- First Class Data System – By expanding the Nebraska Student and Staff Record System, we can improve the quality of information collected on student and teachers and more quickly identify and respond to problems. Further, links will be created for Early Childhood-K, K-12, and postsecondary so that students can be tracked from as early as birth-16.
- Turning Around Our Low Performing Schools – Nebraska will implement a support system with professional development and expertise, resources, and incentives to transform low performing schools and support school districts in improving overall student achievement.

I look forward to working with the Nebraska Board of Education and my local education agency to insure Nebraska's students receive the best education possible.

Sincerely,

(b)(6)

Susan A. Buffett
Chairman

Katie Weitz White
Director of Education Initiatives

JAN

EducationQuest
FOUNDATION

January 12, 2010

Dr. Roger Breed, Ed.D
Commissioner of Education
Nebraska Department of Education
301 Centennial Mall South, 6th Floor
Lincoln, NE 68509-4987

Dear Commissioner Breed:

I am writing to offer support for Nebraska's Race to the Top Grant Application. EducationQuest Foundation takes the education of Nebraska's students seriously. We have a great deal of experience in education, and we know education is rapidly changing and improving with the advancements in technology and new information. It is imperative for Nebraska to adapt to these changes for it to remain competitive and offer quality education programs.

Nebraska prides itself on being at the forefront of standards development. The Nebraska's Race to the Top application is a positive step toward creating a statewide system to support school districts, to close achievement gaps while increasing overall student achievement, and improving high school graduation and college going rates. This is a comprehensive state-led package that has the potential of significantly and positively impacting the Nebraska public education system.

Although no formal grant has been signed at the time this letter, we are in full support of your four main goals and Nebraska's plan for each of the reform areas as follows:

Excellent Standards and Assessments—Develop and implement rigorous, internationally benchmarked standards and a high quality balanced assessment system that results in improved achievement for all Nebraska students.

Superior Teachers and Leaders—Assure every Nebraska student excellent teachers and education leaders supported by mentoring/induction programs, consistent professional development centered on teaching and learning, professional teacher standards, and an evaluation system with multiple measures including effectiveness in terms of student learning.

First Class Data System—By expanding the Nebraska Student and Staff Record System, we can improve the quality of information collected on students and teachers and more quickly identify and respond to problems. Further, links will be created for pre-K, K-12, and postsecondary so that students can be tracked P-16.

Turning Around Our Low Performing Schools—Nebraska will implement a support system with professional development and expertise, resources, and incentives to transform low performing schools and support school districts in improving overall student achievement.

I look forward to working with the Nebraska Board of Education and my local education agency to ensure Nebraska's students receive the best education possible.

Sincerely,

Liz S. Koop
President and CEO

Kearney
2706 Second Avenue
Kearney, NE 68847
308.234.6310
800.666.3721
fax: 308.234.2113

Lincoln
1300 O Street
Lincoln, NE 68508
402.475.5222
800.303.3745
fax: 402.479.6658

Omaha
Rockbrook Village
11031 Elm Street
Omaha, NE 68144
402.391.4033
888.357.6300
fax: 402.391.7376

CONCORDIA UNIVERSITY
NEBRASKA

December 21, 2009

Roger Breed, Ed.D.
Commissioner of Education
Nebraska Department of Education
301 Centennial Mall South, 6th Floor
P.O. Box 94987
Lincoln, NE 68509-4987

Dear Commissioner Breed:

I am writing to offer support for Nebraska's Race to the Top Grant Application.

Concordia University, Nebraska takes the education of Nebraska's students seriously. We have a great deal of experience in education, and we know education is rapidly changing and improving with the advancements in technology and new information. It is imperative for Nebraska to adapt to these changes for it to remain competitive and offer quality education programs.

Nebraska prides itself on being at the forefront of standards development. The Nebraska's Race to the Top application is a positive step toward creating a statewide system to support school districts to close achievement gaps while increasing overall student achievement, and improving high school graduation and college going rates. This is a comprehensive state-led package that has the potential of significantly and positively impacting the Nebraska public education system.

Although no formal grant has been signed at the time this letter, we are in full support of your four main goals and Nebraska's plan for each of the reform areas:

Excellent Standards and Assessments – Develop and implement rigorous, internationally benchmarked standards and a high quality balanced assessment system that results in improved achievement for all Nebraska students.

Superior Teachers and Leaders – Assure every Nebraska student excellent teachers and education leaders supported by mentoring/induction programs, consistent professional development centered on teaching and learning, professional teacher standards, and an evaluation system with multiple measures including effectiveness in terms of student learning.

First Class Data System – By expanding the Nebraska Student and Staff Record System, we can improve the quality of information collected on student and teachers and more quickly identify and respond to problems. Further, links will be created for pre-K, K-12, and postsecondary so that students can be tracked P-16.

Turning Around Our Low Performing Schools – Nebraska will implement a support system with professional development and expertise, resources, and incentives to transform low performing schools and support school districts in improving overall student achievement.

I look forward to working the Nebraska Department of Education and my local education agency to insure Nebraska's students receive the best education possible.

Sincerely,

(b)(6)

Ron Bork, Ed.D.
Dean, College of Education
Concordia University, Nebraska

EDUCATION DEPARTMENT
1125 E. 8th St. York, NE 68467-2699
402-363-5694 www.york.edu

December 16, 2009

DEC 18 2009

Roger Breed, Ed.D.
Commissioner of Education
Nebraska Department of Education
301 Centennial Mall South, 6th Floor
P.O. Box 94987
Lincoln, NE 68509-4987

Dear Commissioner Breed:

I am writing to offer support for Nebraska's Race to the Top Grant Application.

York College takes the education of Nebraska's students seriously. We have a great deal of experience in education, and we know education is rapidly changing and improving with the advancements in technology and new information. It is imperative for Nebraska to adapt to these changes for it to remain competitive and offer quality education programs.

Nebraska prides itself on being at the forefront of standards development. The Nebraska's Race to the Top application is a positive step toward creating a statewide system to support school districts to close achievement gaps while increasing overall student achievement, and improving high school graduation and college going rates. This is a comprehensive state-led package that has the potential of significantly and positively impacting the Nebraska public education system.

Although no formal grant has been signed at the time this letter, we are in full support of your four main goals and Nebraska's plan for each of the reform areas:

Excellent Standards and Assessments – Develop and implement rigorous, internationally benchmarked standards and a high quality balanced assessment system that results in improved achievement for all Nebraska students.

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Turning Around Our Low Performing Schools – Nebraska will implement a support system with professional development and expertise, resources, and incentives to transform low performing schools and support school districts in improving overall student achievement.

I look forward to working the Nebraska Department of Education and my local education agency to insure Nebraska's students receive the best education possible.

Sincerely,

(b)(6)

Kathleen B. Wheeler, Ed. D.
Education Department Chair

NCATE
The Standard of Excellence in Teacher Preparation

EDUCATION DEPARTMENT
1125 E. 8th St. York, NE 68467-2699
402-363-5694 www.york.edu

DEC 18 2009

December 16, 2009

Roger Breed, Ed.D.
Commissioner of Education
Nebraska Department of Education
301 Centennial Mall South, 6th Floor
P.O. Box 94987
Lincoln, NE 68509-4987

Dear Commissioner Breed:

I am writing to offer support for Nebraska's Race to the Top Grant Application.

York College takes the education of Nebraska's students seriously. We have a great deal of experience in education, and we know education is rapidly changing and improving with the advancements in technology and new information. It is imperative for Nebraska to adapt to these changes for it to remain competitive and offer quality education programs.

Nebraska prides itself on being at the forefront of standards development. The Nebraska's Race to the Top application is a positive step toward creating a statewide system to support school districts to close achievement gaps while increasing overall student achievement, and improving high school graduation and college going rates. This is a comprehensive state-led package that has the potential of significantly and positively impacting the Nebraska public education system.

Although no formal grant has been signed at the time this letter, we are in full support of your four main goals and Nebraska's plan for each of the reform areas:

Excellent Standards and Assessments – Develop and implement rigorous, internationally benchmarked standards and a high quality balanced assessment system that results in improved achievement for all Nebraska students.

Superior Teachers and Leaders – Assure every Nebraska student excellent teachers and education leaders supported by mentoring/induction programs, consistent professional development centered on teaching and learning, professional teacher standards, and an evaluation system with multiple measures including effectiveness in terms of student learning.

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Turning Around Our Low Performing Schools – Nebraska will implement a support system with professional development and expertise, resources, and incentives to transform low performing schools and support school districts in improving overall student achievement.

I look forward to working the Nebraska Department of Education and my local education agency to insure Nebraska's students receive the best education possible.

Sincerely,

(b)(6)

Alfred A. Arth, Ed. D.

NCATE
The Standard of Excellence in Teacher Preparation

Appendix B

Bright Futures for Nebraska Students Initiative, Race to the Top by the State of Nebraska, Memorandum of Understanding

BRIGHT FUTURES FOR NEBRASKA STUDENTS INITIATIVE
RACE TO THE TOP BY THE STATE OF NEBRASKA
LEA Memorandum of Understanding

This Memorandum of Understanding ("MOU") is entered into by and between **The Nebraska State Department of Education** ("State") and _____ ("Participating LEA"). 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 LEA is agreeing to implement. (Note that, in order to participate, the LEA must agree to implement all or significant portions of the State Plan.)

II. PROJECT ADMINISTRATION

A. PARTICIPATING LEA RESPONSIBILITIES

In assisting the State in implementing the tasks and activities described in the State's Race to the Top application, the Participating LEA subgrantee will:

1) Implement the LEA 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; and
7) Complete the Final Scope of Work as set forth in **III (4)** of this MOU before it will considered a participating LEA for purposes of determining (i) sub-grant shares of funding and (ii) eligibility to receive funding.

B. STATE RESPONSIBILITIES

In assisting Participating LEAs 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 LEA in carrying out the LEA Plan as identified in Exhibits I and II of this agreement;
2) Timely distribute the LEA's portion of Race to the Top grant funds during the course of the project period and in accordance with the LEA Plan identified in Exhibit II;
3) Provide feedback on the LEA'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 LEA will each appoint a key contact person for the Race to the Top grant.
2) These key contacts from the State and the Participating LEA will maintain frequent communication to facilitate cooperation under this MOU.
3) State and Participating LEA grant personnel will work together to determine appropriate timelines for project updates and status reports throughout the whole grant period.
4) State and Participating LEA 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 LEA, or when the LEA Plan requires modifications.

D. STATE RECOURSE FOR LEA NON-PERFORMANCE

If the State determines that the LEA 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 LEA, or any of the enforcement measures that are detailed in 34 CFR section 80.43 including putting the LEA on reimbursement payment status, temporarily withholding funds, or disallowing costs.

III. ASSURANCES

The Participating LEA 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 LEA 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 LEA's specific goals, activities, timelines, budgets, key personnel, and annual targets for key performance measures ("LEA 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 Name _____ County/District Number _____

LEA Superintendent (or equivalent authorized signatory) - required:

Signature _____ Date _____

Print Name _____ Title _____

President of Local School Board (or equivalent, if applicable) Optional*:

Signature _____ Date _____

Print Name _____ Title _____

Local Teachers' Union Leader (if applicable) Optional*:

Signature _____ Date _____

Print Name _____ Title _____

Authorized State Official - required:

By its signature below, the State hereby accepts the LEA as a Participating LEA.

Roger D. Breed, Commissioner of Education _____ Date _____

*****PLEASE return this page only by December 16, 2009*****
PDF Format: roger.breed@nebraska.gov
FAX: 402-471-4433

*** Additional Note provided by the Nebraska State Department of Education regarding optional signatures for this form agreement:**

This form agreement is reproduced from the U. S. Department of Education (USDOE) website at: http://www.ed.gov/programs/racetothetop/applicant.html. The USDOE has also provided a "Race to the Top Guidance and FAQ" document on its website at: http://www.ed.gov/programs/racetothetop/faq.pdf. Page 16 of that document states that: "A signature is required from an authorized LEA representative; however, criterion (A)(1)(ii)(c) encourages LEAs to demonstrate the support of their leadership by obtaining signatures from as many as possible of the following: the LEA superintendent (or equivalent); the president of the local school board (or equivalent, if applicable); and the local teachers' union leader (if applicable)".

This agreement is between the State of Nebraska and the school district, and a signature by the Superintendent or other representative of the district authorized to sign on behalf of the local School Board is required, as is a signature by a representative of NDE. Other signatures are optional. The signature of a bargaining unit leader does not make the bargaining unit, or such individual, a party to the agreement.

EXHIBIT I – PRELIMINARY SCOPE OF WORK

LEA hereby agrees to participate in implementing the State Plan in each of the areas identified below.

Elements of State Reform Plans	LEA Participation (Y/N)	Comments from LEA (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 LEA

Authorized LEA Signature/Date

Print Name/Title

For the State

Authorized State Signature/Date

Print Name/Title

Appendix C

Detailed Participating LEA Table for Criteria (A)(1)

	LEA Demographics			Signatures on MOUs			MOU Terms	Preliminary Scope of Work - Participation in each applicable Plan Criterion																
Participating LEAs	# Of Schools	# of K-12 Students	# of K-12 Students in Poverty	LEA Supt (or equivalent)	board (if applicable) President of local school	Teachers Union (if applicable) President or local	Uses Standard Terms & Conditions	(B)(3)	(C)(3)(i)	(C)(3)(ii)	(C)(3)(iii)	(D)(2)(i)	(D)(2)(ii)	(D)(2)(iii)	(D)(2)(iv)(a)	(D)(2)(iv)(b)	(D)(2)(iv)(c)	(D)(2)(iv)(d)	(D)(3)(i)	(D)(3)(ii)	(D)(5)(i)	(D)(5)(ii)	(E)(2)
ADAMS CENTRAL PUBLIC SCHOOLS	6	844	125	Y	N	N	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
AINSWORTH COMMUNITY SCHOOLS	3	500	205	Y	N	N	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
ALLEN CONSOLIDATED SCHOOLS	2	248	108	Y	N	N	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
ALLIANCE PUBLIC SCHOOLS	4	1,427	606	Y	N	N	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
AMHERST PUBLIC SCHOOLS	2	253	76	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
ANSELMO-MERNA PUBLIC SCHOOLS	2	225	101	Y	N	N	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
ANSLEY PUBLIC SCHOOLS	2	176	95	Y	Y	N	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
ARAPAHOE PUBLIC SCHOOLS	2	304	144	Y	Y	N	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
ARCADIA PUBLIC SCHOOLS	2	133	71	Y	Y	N	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
ARLINGTON PUBLIC SCHOOLS	2	567	85	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
ARNOLD PUBLIC SCHOOLS	2	123	41	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
ARTHUR COUNTY SCHOOLS	3	90	0	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
ASHLAND-GREENWOOD PUBLIC SCHS	3	846	257	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
AUBURN PUBLIC SCHOOLS	3	807	333	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y
AURORA PUBLIC SCHOOLS	3	1,210	342	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
AXTELL COMMUNITY SCHOOLS	3	288	68	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
BANNER COUNTY PUBLIC SCHOOLS	2	178	96	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
BATTLE CREEK PUBLIC SCHOOLS	2	448	92	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
BAYARD PUBLIC SCHOOLS	2	425	268	Y	N	N	Yes	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	N
BEATRICE PUBLIC SCHOOLS	6	2,136	804	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
BELLEVUE PUBLIC SCHOOLS	20	9,390	2,550	Y			Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
BENNINGTON PUBLIC SCHOOLS	3	1,171	111	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y
BERTRAND PUBLIC SCHOOLS	2	246	78	Y	Y	Y	Yes	Y	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	Y	Y	Y	Y
BLAIR COMMUNITY SCHOOLS	7	2,304	499	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
BLOOMFIELD COMMUNITY SCHOOLS	2	240	109	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
BOONE CENTRAL SCHOOLS	3	551	199	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
BRIDGEPORT PUBLIC SCHOOLS	2	505	275	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
BROKEN BOW PUBLIC SCHOOLS	5	815	308	Y	N	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
BRUNING-DAVENPORT UNIFIED SYS	4	136	48	Y			Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
BURWELL PUBLIC SCHOOLS	4	348	136	Y	N	N	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
CALLAWAY PUBLIC SCHOOLS	3	197	76	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
CAMBRIDGE PUBLIC SCHOOLS	2	330	146	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
CENTENNIAL PUBLIC SCHOOLS	2	460	158	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
CENTRAL CITY PUBLIC SCHOOLS	3	738	340	Y	Y	Y	Yes																

CENTURA PUBLIC SCHOOLS	2	486	148	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
CHADRON PUBLIC SCHOOLS	8	957	387	Y	Y	Y	Yes	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
CHAMBERS PUBLIC SCHOOLS	2	158	49	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	N	N	Y	N	N	N	Y	Y	Y	Y	Y
CLARKSON PUBLIC SCHOOLS	2	182	57	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
CODY-KILGORE PUBLIC SCHS	2	113	66	Y	N	N	Yes																	
COLERIDGE COMMUNITY SCHOOLS	3	100	29	Y	N	N	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
COLUMBUS PUBLIC SCHOOLS	7	3,521	1,699	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
CONESTOGA PUBLIC SCHOOLS	2	601	160	Y	N	N	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	Y	N	N	Y	Y	N
CRAWFORD PUBLIC SCHOOLS	2	216	111	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N
CREEK VALLEY SCHOOLS	3	247	97	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	Y	Y	Y	Y	Y	Y
CREIGHTON PUBLIC SCHOOLS	2	365	139	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
CRETE PUBLIC SCHOOLS	3	1,499	749	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
CROSS COUNTY COMMUNITY SCHOOLS	3	342	106	Y	N	N	Yes	Y	Y	Y	Y	Y	N	N	Y	N	N	Y	Y	N	Y	Y	Y	N
DAVID CITY PUBLIC SCHOOLS	3	657	307	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
DESHLER PUBLIC SCHOOLS	2	225	86	Y	N	N	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
DILLER-ODELL PUBLIC SCHOOLS	2	244	79	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
DODGE PUBLIC SCHOOLS	2	148	58	Y	Y	N	Yes																	
DORCHESTER PUBLIC SCHOOLS	2	207	79	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
DOUGLAS CO WEST COMMUNITY SCHS	3	639	233	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
DUNDY CO STRATTON PUBLIC SCHS	4	390	174	Y	N	N	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
EAST BUTLER PUBLIC SCHOOLS	3	273	64	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
ELBA PUBLIC SCHOOLS	2	114	63	Y	Y	N	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
ELGIN PUBLIC SCHOOLS	2	149	85	Y	Y	Y	Yes	Y	Y	Y	Y	Y	N	N	N	N	N	N	Y	Y	Y	Y	Y	N
ELKHORN PUBLIC SCHOOLS	9	5,149	460	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
ELKHORN VALLEY SCHOOLS	2	255	106	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
ELM CREEK PUBLIC SCHOOLS	2	315	103	Y	N	N	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
ELMWOOD-MURDOCK PUBLIC SCHOOLS	2	409	90	Y	N	N	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
ELWOOD PUBLIC SCHOOLS	2	248	88	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
EMERSON-HUBBARD PUBLIC SCHOOLS	2	286	124	Y	N	N	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
EUSTIS-FARNAM PUBLIC SCHOOLS	2	198	84	Y	Y	Y	Yes	Y	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y
EXETER-MILLIGAN PUBLIC SCHOOLS	3	236	82	Y	N	N	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
FAIRBURY PUBLIC SCHOOLS	3	847	402	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
FILLMORE CENTRAL PUBLIC SCHS	3	541	178	Y	Y	N	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
FORT CALHOUN COMMUNITY SCHS	2	558	100	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
FRANKLIN PUBLIC SCHOOLS	2	326	168	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
FREEMAN PUBLIC SCHOOLS	2	352	71	Y	N	N	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
FREMONT PUBLIC SCHOOLS	10	4,462	2,148	Y	N	N	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
FRIEND PUBLIC SCHOOLS	2	287	74	Y	Y	N	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
FULLERTON PUBLIC SCHOOLS	2	329	139	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
GARDEN COUNTY SCHOOLS	3	250	162	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
GERING PUBLIC SCHOOLS	6	2,013	852	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
GIBBON PUBLIC SCHOOLS	2	564	273	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
GILTNER PUBLIC SCHOOLS	2	193	46	Y	N	N	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
GORDON-RUSHVILLE PUBLIC SCHS	9	703	355	Y	N	N	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
GOTHENBURG PUBLIC SCHOOLS	2	901	278	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

GRAND ISLAND PUBLIC SCHOOLS	18	8,408	5,073	Y	N	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
GRETNA PUBLIC SCHOOLS	5	2,803	206	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
HAMPTON PUBLIC SCHOOLS	2	164	47	Y	Y	N	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
HARVARD PUBLIC SCHOOLS	2	252	171	Y	N	N	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
HASTINGS PUBLIC SCHOOLS	8	3,319	1,790	Y	Y	N	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
HAY SPRINGS PUBLIC SCHOOLS	4	162	82	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
HAYES CENTER PUBLIC SCHOOLS	2	140	65	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
HEARTLAND COMMUNITY SCHOOLS	2	309	100	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
HEMINGFORD PUBLIC SCHOOLS	2	367	136	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
HERSHEY PUBLIC SCHOOLS	2	511	136	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
HIGH PLAINS COMMUNITY SCHOOLS	4	253	107	Y	N	N	Yes	Y	Y	Y	Y	N	Y	Y	Y	N	N	N	Y	Y	Y	Y	Y	Y
HITCHCOCK CO SCH SYSTEM	2	258	150	Y	Y	Y	Yes	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
HOLDREGE PUBLIC SCHOOLS	5	1,088	358	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
HOMER COMMUNITY SCHOOLS	2	386	106	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
HOWELLS PUBLIC SCHOOLS	2	160	43	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
HUMBOLDT TABLE ROCK STEINAUER	3	412	190	Y	N	N	Yes																	
HUMPHREY PUBLIC SCHOOLS	3	255	99	Y	Y	Y	Yes	Y	Y	Y	N	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	Y	Y
HYANNIS AREA SCHOOLS	2	123	49	Y	Y	Y	Yes																	
JOHNSON CO CENTRAL PUBLIC SCHS	4	477	209	Y	Y	N	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
JOHNSON-BROCK PUBLIC SCHOOLS	2	295	110	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
KEARNEY PUBLIC SCHOOLS	14	5,059	1,910	Y	Y	Y	Yes																	
KEYA PAHA COUNTY SCHOOLS	3	97	49	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
KIMBALL PUBLIC SCHOOLS	3	538	280	Y	Y	N	Yes																	
LAKEVIEW COMMUNITY SCHOOLS	4	700	257	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
LAUREL-CONCORD PUBLIC SCHOOLS	3	340	102	Y	N	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
LEIGH COMMUNITY SCHOOLS	2	147	43	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
LEWISTON CONSOLIDATED SCHOOLS	2	184	121	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
LEXINGTON PUBLIC SCHOOLS	6	2,618	2,021	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
LEYTON PUBLIC SCHOOLS	2	221	78	Y	Y	Y	Yes	Y	Y	Y	Y	Y	N	Y	Y	N	N	Y	Y	Y	Y	Y	Y	Y
LINCOLN PUBLIC SCHOOLS	53	33,698	14,057	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
LITCHFIELD PUBLIC SCHOOLS	2	156	87	Y	N	N	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
LOGAN VIEW PUBLIC SCHOOLS	4	515	214	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
LOUISVILLE PUBLIC SCHOOLS	3	510	70	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
LOUP CITY PUBLIC SCHOOLS	2	279	161	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
LOUP COUNTY PUBLIC SCHOOLS	2	103	62	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y
LYNCH PUBLIC SCHOOLS	2	106	59	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
MADISON PUBLIC SCHOOLS	3	508	279	Y	N	N	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
MALCOLM PUBLIC SCHOOLS	2	475	68	Y	Y	N	Yes	Y	Y	Y	Y	Y	N	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y
MAYWOOD PUBLIC SCHOOLS	2	143	54	Y	N	N	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
MC COOL JUNCTION PUBLIC SCHS	2	245	117	Y	N	N	Yes	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y
MC PHERSON COUNTY SCHOOLS	2	83	0	Y	N	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
MEAD PUBLIC SCHOOLS	2	229	82	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
MEDICINE VALLEY PUBLIC SCHOOLS	2	202	67	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
MILLARD PUBLIC SCHOOLS	34	22,005	3,109	Y	N	N	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
MINATARE PUBLIC SCHOOLS	2	226	190	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

MINDEN PUBLIC SCHOOLS	3	754	238	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
MITCHELL PUBLIC SCHOOLS	2	627	326	Y	Y	N	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
MORRILL PUBLIC SCHOOLS	2	392	232	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
MULLEN PUBLIC SCHOOLS	2	194	90	Y	N	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
NEBRASKA UNIFIED DISTRICT 1	6	464	216	Y	Y	N	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
NEWCASTLE PUBLIC SCHOOLS	3	134	63	Y	N	N	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
NEWMAN GROVE PUBLIC SCHOOLS	2	188	102	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
NIOBRARA PUBLIC SCHOOLS	2	145	113	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
NORFOLK PUBLIC SCHOOLS	12	3,877	1,772	Y	Y	N	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
NORRIS SCHOOL DIST 160	3	2,013	241	Y	Y	N	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	N	N
NORTH BEND CENTRAL PUBLIC SCHS	2	480	163	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
NORTH LOUP SCOTIA PUBLIC SCHS	2	174	114	Y	N	N	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
NORTH PLATTE PUBLIC SCHOOLS	13	4,055	1,654	Y	N	N	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
NORTHWEST PUBLIC SCHOOLS	5	1,408	462	Y	N	N	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
OAKLAND CRAIG PUBLIC SCHOOLS	3	403	150	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
OGALLALA PUBLIC SCHOOLS	5	940	379	Y	Y		Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
OMAHA PUBLIC SCHOOLS	83	46,246	31,434	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
O'NEILL PUBLIC SCHOOLS	4	751	380	Y	Y	Y	Yes																	
ORD PUBLIC SCHOOLS	4	504	180	Y	Y	N	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
OSCEOLA PUBLIC SCHOOLS	3	290	91	Y	N	N	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
OSMOND PUBLIC SCHOOLS	2	243	88	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
OVERTON PUBLIC SCHOOLS	2	295	153	Y	N	N	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
PALMER PUBLIC SCHOOLS	2	250	107	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
PALMYRA DISTRICT O R 1	2	411	117	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
PAPILLION-LA VISTA PUBLIC SCHS	18	9,598	1,872	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
PAWNEE CITY PUBLIC SCHOOLS	2	265	135	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
PAXTON CONSOLIDATED SCHOOLS	2	230	94	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
PENDER PUBLIC SCHOOLS	2	293	104	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
PERKINS COUNTY SCHOOLS	3	385	139	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
PIERCE PUBLIC SCHOOLS	2	659	135	Y	N	N	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
PLAINVIEW PUBLIC SCHOOLS	2	343	147	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
PLATTSMOUTH COMMUNITY SCHOOLS	3	1,651	643	Y	N	N	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
PLEASANTON PUBLIC SCHOOLS	2	200	60	Y	Y	N	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
PONCA PUBLIC SCHOOLS	3	413	98	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
POTTER-DIX PUBLIC SCHOOLS	2	191	87	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
PRAGUE PUBLIC SCHOOLS	2	111	38	Y	N	N	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y
RALSTON PUBLIC SCHOOLS	8	2,931	1,220	Y	N	N	Yes																	
RANDOLPH PUBLIC SCHOOLS	2	284	112	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
RAVENNA PUBLIC SCHOOLS	2	437	149	Y	N	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
RED CLOUD COMMUNITY SCHOOLS	2	218	118	Y	N	N	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
RISING CITY PUBLIC SCHOOLS	2	105	57	Y	N	N	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SANTEE COMMUNITY SCHOOLS	2	152	119	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SARGENT PUBLIC SCHOOLS	2	167	63	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SCHUYLER COMMUNITY SCHOOLS	6	1,626	1,143	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SCOTTSBLUFF PUBLIC SCHOOLS	7	2,793	1,445	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

SCRIBNER-SNYDER COMMUNITY SCHS	2	268	96	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SEWARD PUBLIC SCHOOLS	3	1,348	326	Y	Y	N	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SHELBY PUBLIC SCHOOLS	2	334	132	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SHELTON PUBLIC SCHOOLS	2	323	138	Y	Y	Y	Yes																	
SIDNEY PUBLIC SCHOOLS	6	1,227	408	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SILVER LAKE PUBLIC SCHOOLS	2	217	97	Y	N	N	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SIOUX COUNTY PUBLIC SCHOOLS	5	89	29	Y	N	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SO CENTRAL NE UNIFIED SYSTEM 5	4	582	282	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SO SIOUX CITY COMMUNITY SCHS	8	3,676	2,362	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SOUTHERN VALLEY SCHOOLS	2	458	237	Y	N	N	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SOUTHWEST PUBLIC SCHOOLS	2	321	170	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SPALDING PUBLIC SCHOOLS	2	92	74	Y	N	N	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
ST EDWARD PUBLIC SCHOOLS	2	153	43	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
ST PAUL PUBLIC SCHOOLS	3	611	217	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
STANTON COMMUNITY SCHOOLS	2	462	184	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
STAPLETON PUBLIC SCHOOLS	2	174	73	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
STERLING PUBLIC SCHOOLS	3	215	76	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
STUART PUBLIC SCHOOLS	2	148	102	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUPERIOR PUBLIC SCHOOLS	3	427	183	Y	N	N	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUTHERLAND PUBLIC SCHOOLS	2	372	116	Y	Y	N	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SUTTON PUBLIC SCHOOLS	2	405	120	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	N	N	N	N	Y	Y	Y	Y	Y	Y	Y
TEKAMAH-HERMAN COMMUNITY SCHS	3	562	178	Y	Y	N	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
THAYER CENTRAL COMMUNITY SCHS	3	376	119	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
THEDFORD PUBLIC SCHOOLS	3	89	42	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
TRI COUNTY PUBLIC SCHOOLS	2	381	150	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
TWIN RIVER PUBLIC SCHOOLS	3	485	170	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
VALENTINE COMMUNITY SCHOOLS	11	688	287	Y	N	N	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
WAHOO PUBLIC SCHOOLS	3	893	251	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
WAKEFIELD PUBLIC SCHOOLS	2	401	196	Y	N	N	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
WALLACE PUBLIC SCH DIST 65 R	2	186	63	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
WALTHILL PUBLIC SCHOOLS	2	314	277	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
WAUNETA-PALISADE PUBLIC SCHS	4	186	94	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
WAUSA PUBLIC SCHOOLS	2	207	94	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
WAVERLY SCHOOL DISTRICT 145	5	1,741	281	Y	N	N	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
WAYNE COMMUNITY SCHOOLS	3	870	256	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
WEEPING WATER PUBLIC SCHOOLS	2	363	107	Y	N	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
WEST BOYD SCHOOL DISTRICT	3	231	110	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
WEST POINT PUBLIC SCHOOLS	3	732	396	Y	Y	N	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
WESTSIDE COMMUNITY SCHOOLS	12	5,983	1,468	Y	N	N	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
WHEELER CENTRAL SCHOOLS	2	116	66	Y	N	N	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
WILCOX-HILDRETH PUBLIC SCHOOLS	3	230	76	Y	Y	N	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
WILBER-CLATONIA PUBLIC SCHOOLS	2	541	163	Y	Y	Y	Yes																	
WINNEBAGO PUBLIC SCHOOLS	2	461	359	Y	N	N	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
WINSIDE PUBLIC SCHOOLS	2	246	84	Y	N	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
WISNER-PILGER PUBLIC SCHOOLS	3	455	176	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

WOOD RIVER RURAL SCHOOLS	4	528	229	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
WYNOT PUBLIC SCHOOLS	3	154	78	Y	N	N	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
YORK PUBLIC SCHOOLS	3	1,187	439	Y	Y	Y	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
YUTAN PUBLIC SCHOOLS	2	455	112	Y	N	N	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SCHOOL AND STUDENT COUNTS	892	268,696	111,751																					
COUNT OF Yes/Y				218	154	139	218	207	206	207	205	206	200	203	204	192	198	204	202	206	207	206	201
COUNT OF No/N				0	64	79	0	0	1	0	2	1	7	4	3	15	9	3	5	1	0	1	6
No Response								11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11

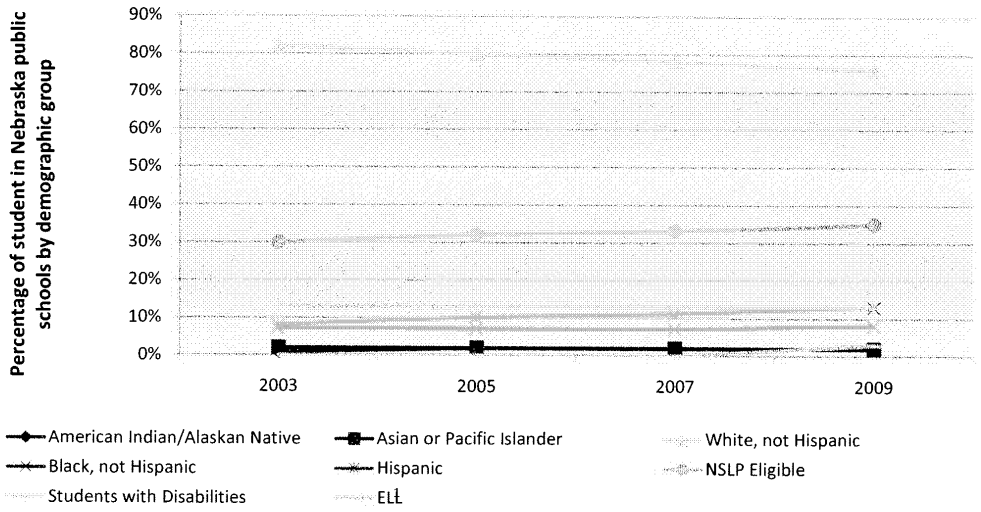
Appendix D

Nebraska progress on NAEP reading and math scores and AYP percentages 2003 – 2009

Nebraska progress on NAEP reading and math scores and AYP percentages 2003 - 2009

January, 2010

The line graph displays the changing demographics in the student population for Nebraska public schools, various years, 2002 to 2009

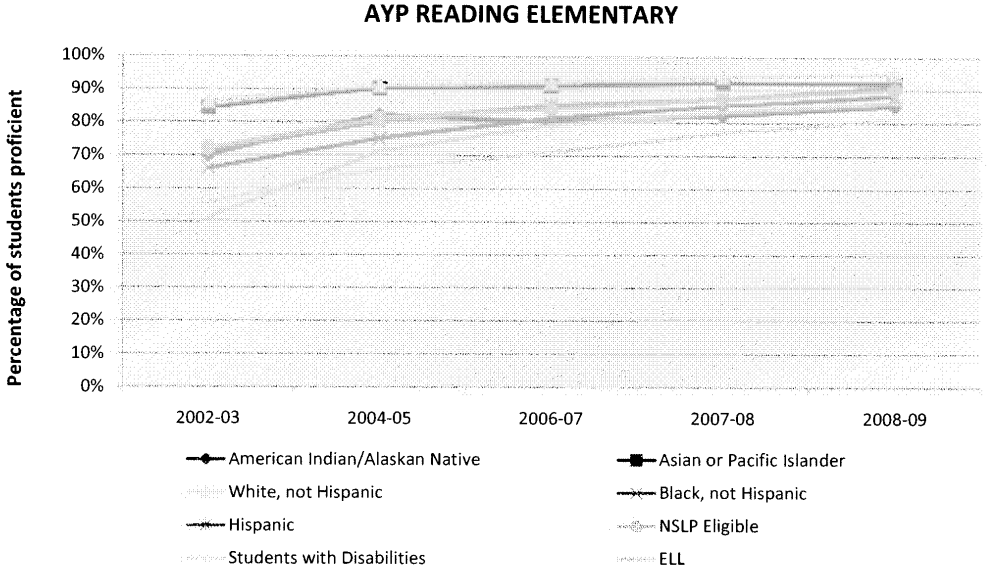


	2003	2005	2007	2009
American Indian/Alaskan Native	1%	2%	2%	2%
Asian or Pacific Islander	2%	2%	2%	2%
White, not Hispanic	82%	80%	78%	76%
Black, not Hispanic	7%	7%	7%	8%
Hispanic	8%	10%	11%	13%
NSLP Eligible	30%	32%	33%	35%
Students with Disabilities	13%	13%	13%	13%
ELL[1]	NA	NA	NA	3%

[1] Information for English Language Learners only available for 2009

Source: Nebraska Student and Staff Record System

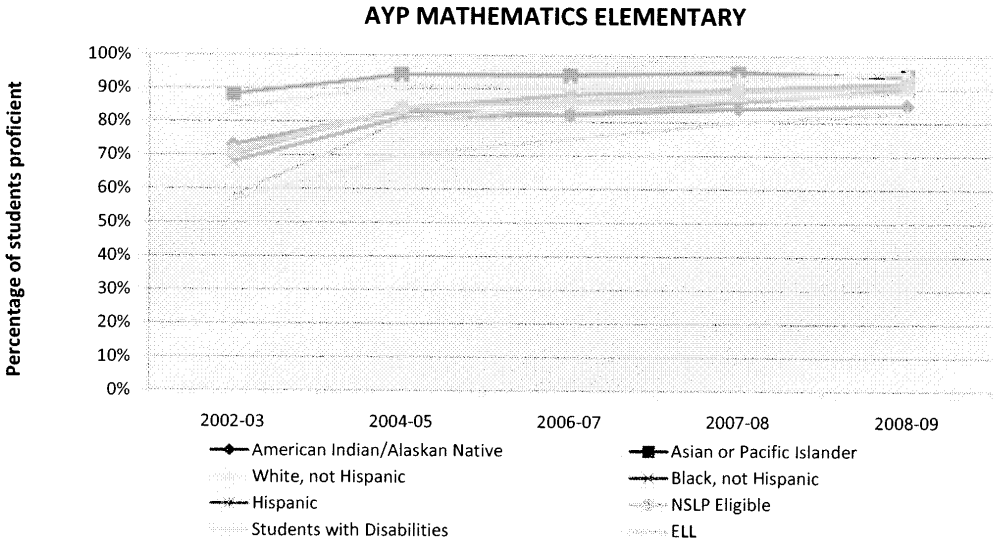
The line graph displays the student performance of students meeting AYP in the elementary grades in reading for various years based on ethnicity



	2002-03	2004-05	2006-07	2007-08	2008-09
American Indian/Alaskan Native	70%	82%	80%	82%	85%
Asian or Pacific Islander	84%	90%	91%	92%	92%
White, not Hispanic	86%	91%	92%	94%	95%
Black, not Hispanic	66%	75%	81%	85%	88%
Hispanic	71%	80%	85%	87%	91%
NSLP Eligible	72%	81%	84%	87%	90%
Students with Disabilities	56%	66%	71%	77%	81%
ELL	51%	71%	79%	83%	86%

Source: Nebraska Student and Staff Record System

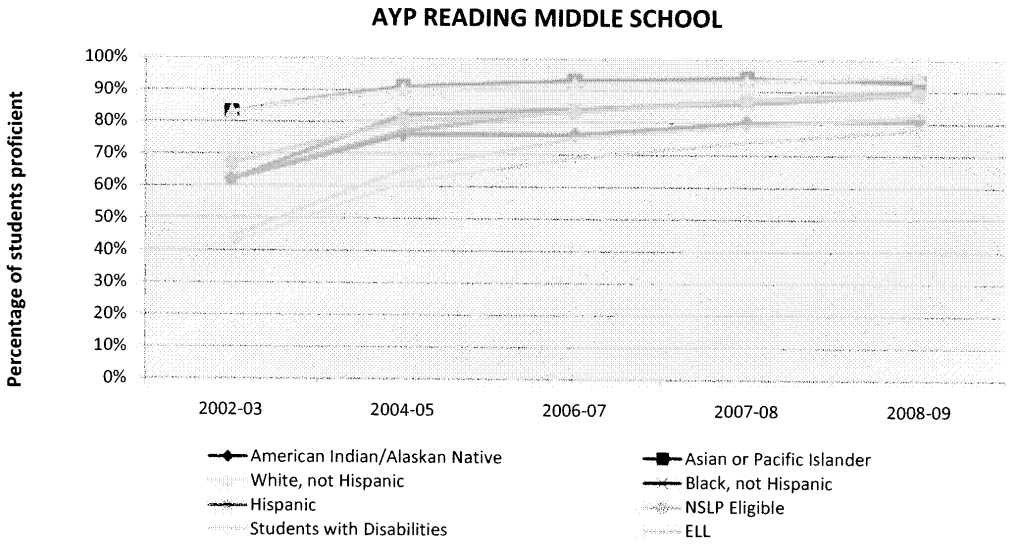
The line graph displays the student performance of students meeting AYP in the elementary grades in mathematics for various years based on ethnicity



	2002-03	2004-05	2006-07	2007-08	2008-09
American Indian/Alaskan Native	73%	83%	82%	84%	85%
Asian or Pacific Islander	88%	94%	94%	95%	94%
White, not Hispanic	84%	91%	91%	93%	95%
Black, not Hispanic	68%	81%	82%	86%	90%
Hispanic	70%	84%	88%	90%	92%
NSLP Eligible	71%	84%	86%	89%	91%
Students with Disabilities	57%	70%	75%	80%	83%
ELL	58%	80%	85%	87%	89%

Source: Nebraska Student and Staff Record System

The line graph displays the student performance of students meeting AYP in the middle school grades in reading for various years based on ethnicity

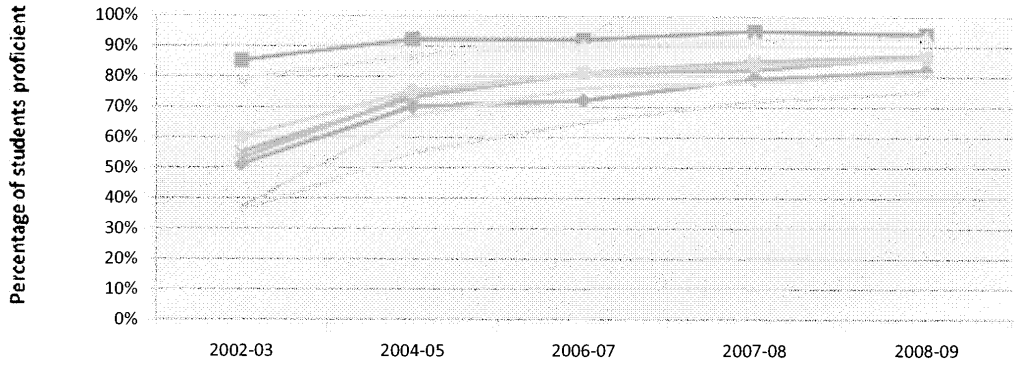


	2002-03	2004-05	2006-07	2007-08	2008-09
American Indian/Alaskan Native	62%	76%	76%	80%	81%
Asian or Pacific Islander	83%	91%	93%	94%	93%
White, not Hispanic	83%	90%	92%	93%	95%
Black, not Hispanic	62%	82%	84%	86%	89%
Hispanic	62%	77%	84%	87%	90%
NSLP Eligible	67%	80%	83%	87%	89%
Students with Disabilities	42%	61%	69%	74%	78%
ELL	44%	65%	75%	79%	82%

Source: Nebraska Student and Staff Record System

The line graph displays the student performance of students meeting AYP in the middle school grades in mathematics for various years based on ethnicity

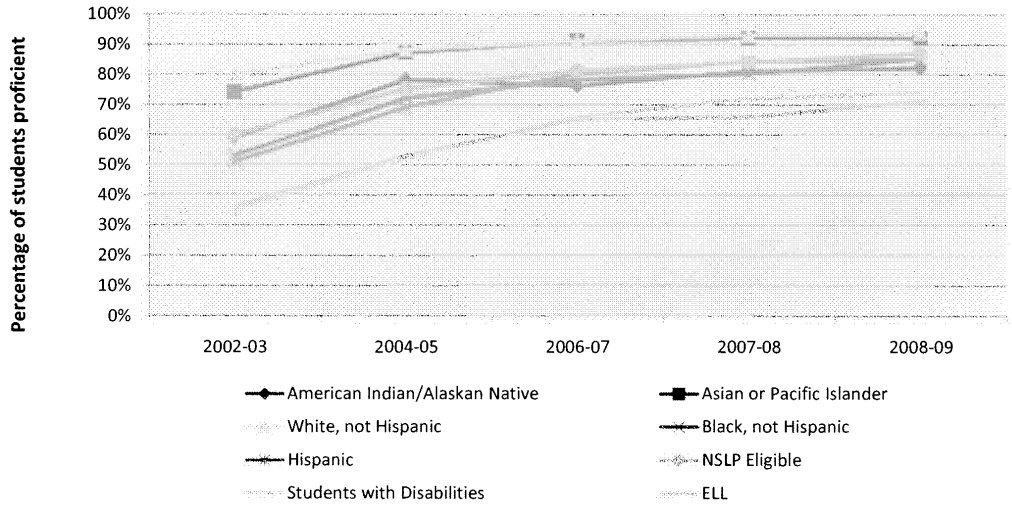
AYP MATHEMATICS MIDDLE SCHOOL



	2002-03	2004-05	2006-07	2007-08	2008-09
American Indian/Alaskan Native	51%	70%	72%	79%	82%
Asian or Pacific Islander	85%	92%	92%	95%	94%
White, not Hispanic	79%	87%	90%	92%	93%
Black, not Hispanic	55%	73%	81%	82%	87%
Hispanic	53%	74%	81%	85%	87%
NSLP Eligible	60%	75%	81%	84%	86%
Students with Disabilities	36%	55%	65%	72%	75%
ELL	37%	67%	76%	78%	81%

Source: Nebraska Student and Staff Record System

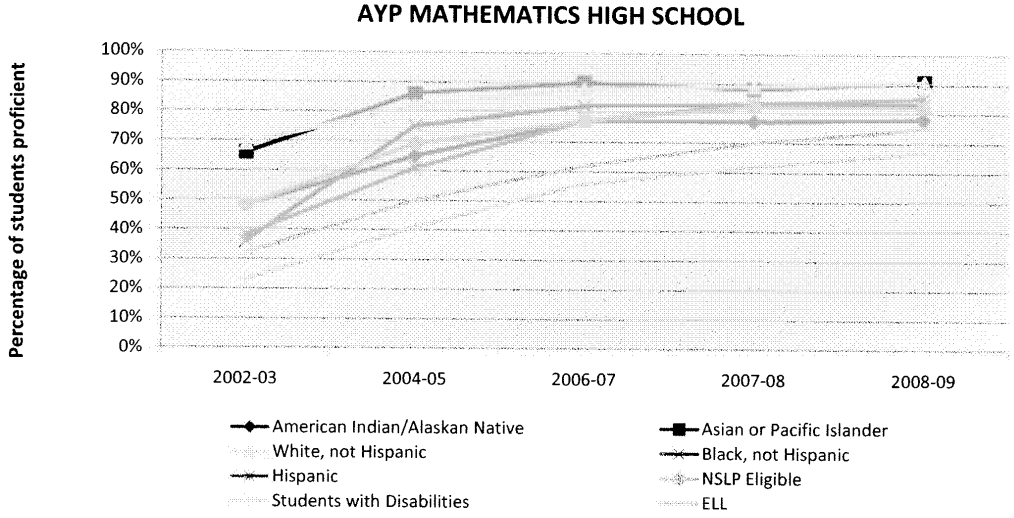
The line graph displays the student performance of students meeting AYP at the high school level in reading for various years based on ethnicity



	2002-03	2004-05	2006-07	2007-08	2008-09
American Indian/Alaskan Native	59%	78%	76%	81%	82%
Asian or Pacific Islander	74%	87%	91%	92%	92%
White, not Hispanic	80%	88%	91%	93%	94%
Black, not Hispanic	53%	72%	78%	80%	85%
Hispanic	51%	69%	80%	84%	85%
NSLP Eligible	60%	75%	81%	84%	87%
Students with Disabilities	35%	52%	66%	72%	74%
ELL	36%	53%	65%	66%	71%

Source: Nebraska Student and Staff Record System

The line graph displays the student performance of students meeting AYP at the high school level in mathematics for various years based on ethnicity

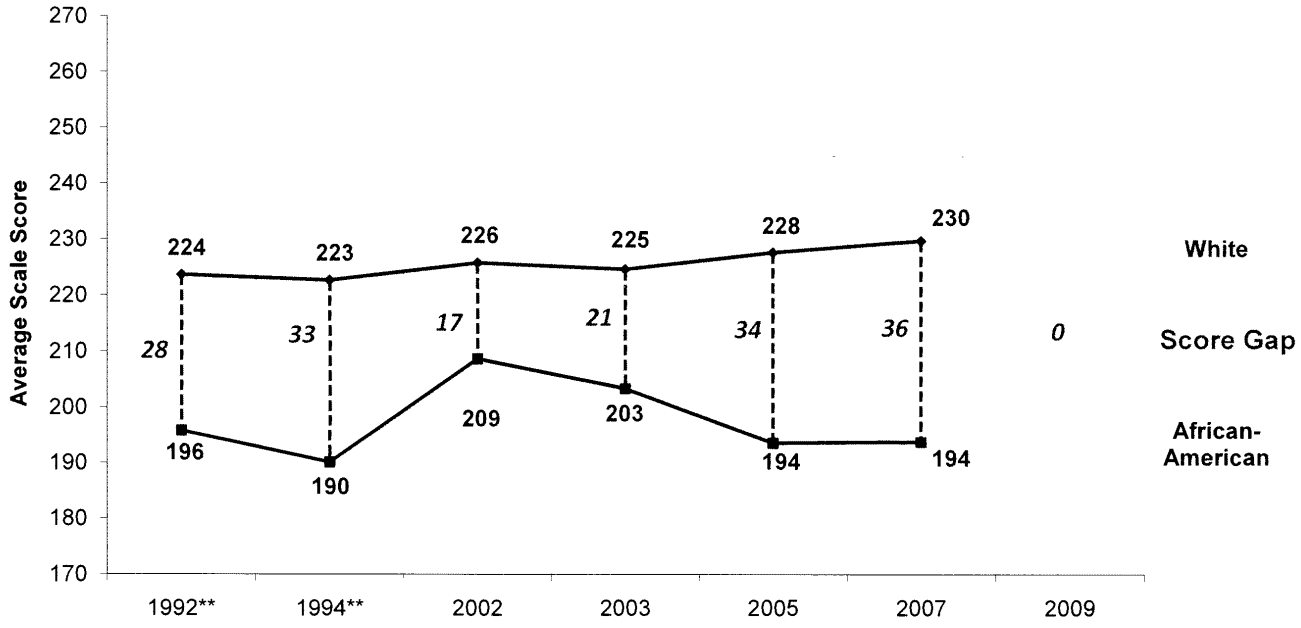


	2002-03	2004-05	2006-07	2007-08	2008-09
American Indian/Alaskan Native	48%	65%	77%	77%	78%
Asian or Pacific Islander	66%	86%	90%	88%	91%
White, not Hispanic	69%	82%	88%	89%	91%
Black, not Hispanic	36%	75%	82%	83%	83%
Hispanic	38%	61%	77%	83%	85%
NSLP Eligible	48%	69%	77%	82%	82%
Students with Disabilities	23%	41%	56%	62%	67%
ELL	32%	50%	62%	70%	75%

Source: Nebraska Student and Staff Record System

NAEP Reading Grade 4
Nebraska White - African-American Gaps

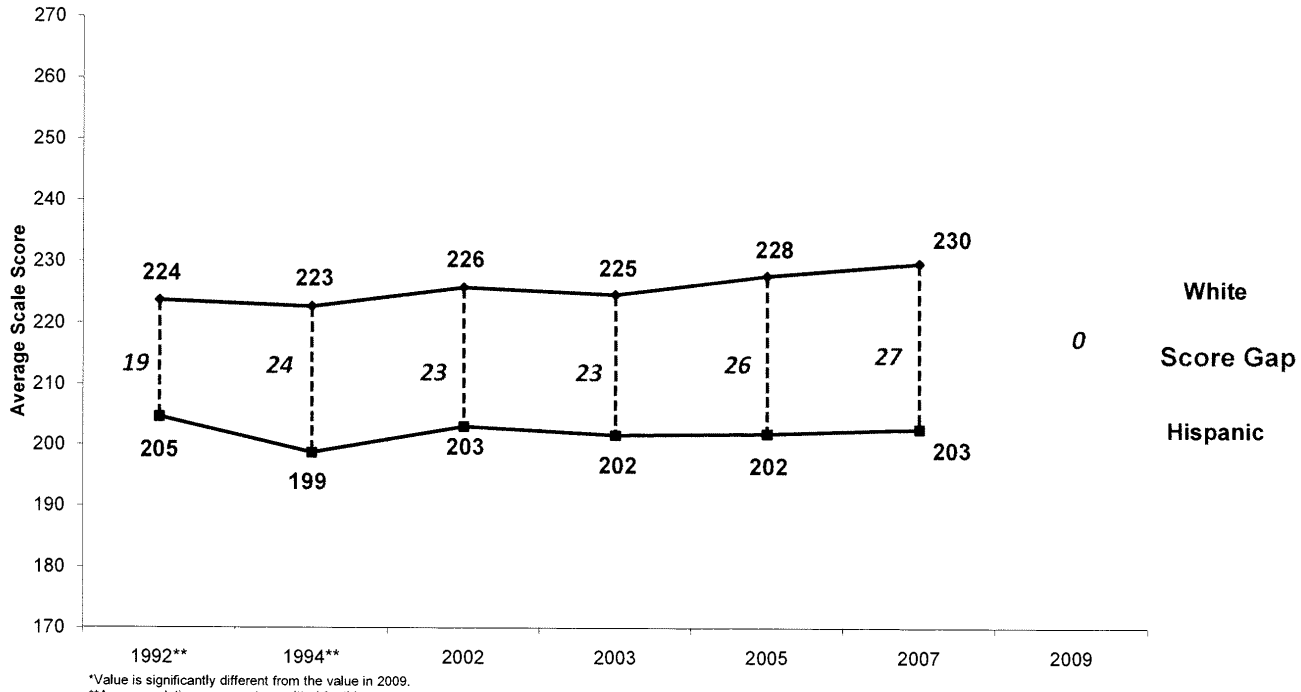
Average reading scale scores and score gaps for White - African-American students, grade 4: Various years, 1992-2009



*Value is significantly different from the value in 2009.
**Accommodations were not permitted for this assessment.
NOTE: The NAEP Reading scale ranges from 0 to 500. Observed differences are not necessarily statistically significant. 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), 1992, 1994, 2000, 2003, 2005, 2007 and 2009 Reading Assessments.

NAEP Reading Grade 4
Nebraska White - Hispanic Gaps

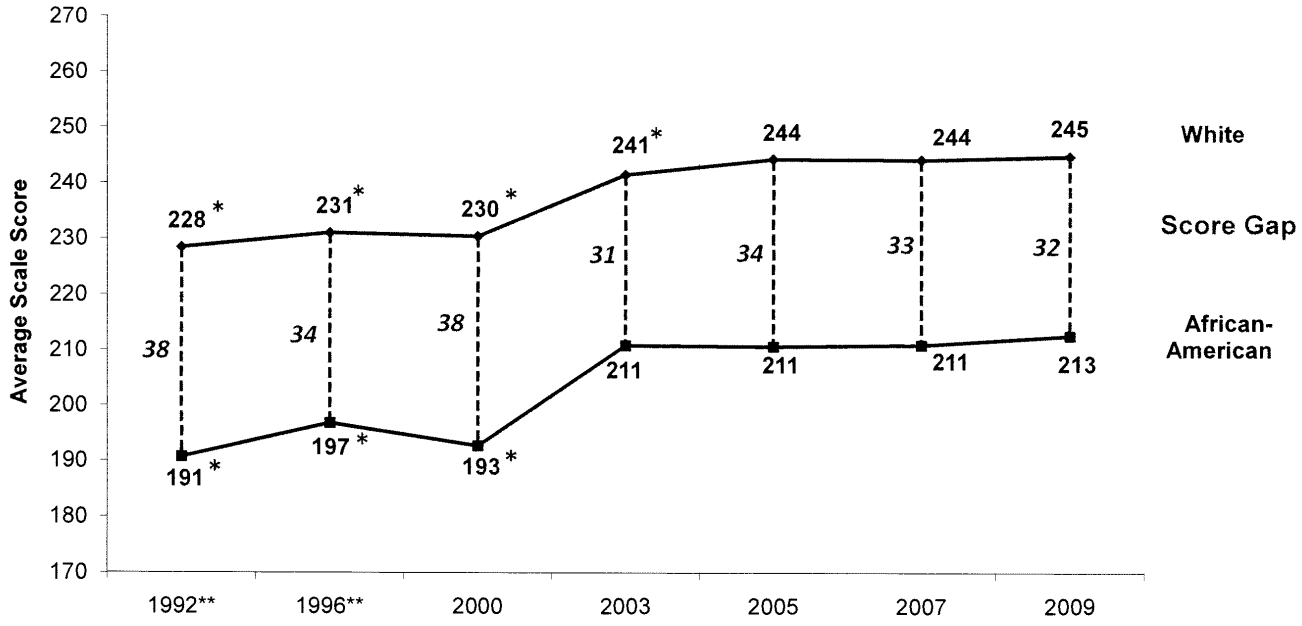
Average reading scale scores and score gaps for White - Hispanic students, grade 4: Various years, 1992-2009



*Value is significantly different from the value in 2009.
**Accommodations were not permitted for this assessment.
NOTE: The NAEP Reading scale ranges from 0 to 500. Observed differences are not necessarily statistically significant. 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), 1992, 1994, 2000, 2003, 2005, 2007 and 2009 Reading Assessments.

NAEP Mathematics Grade 4
Nebraska White - African-American Gaps

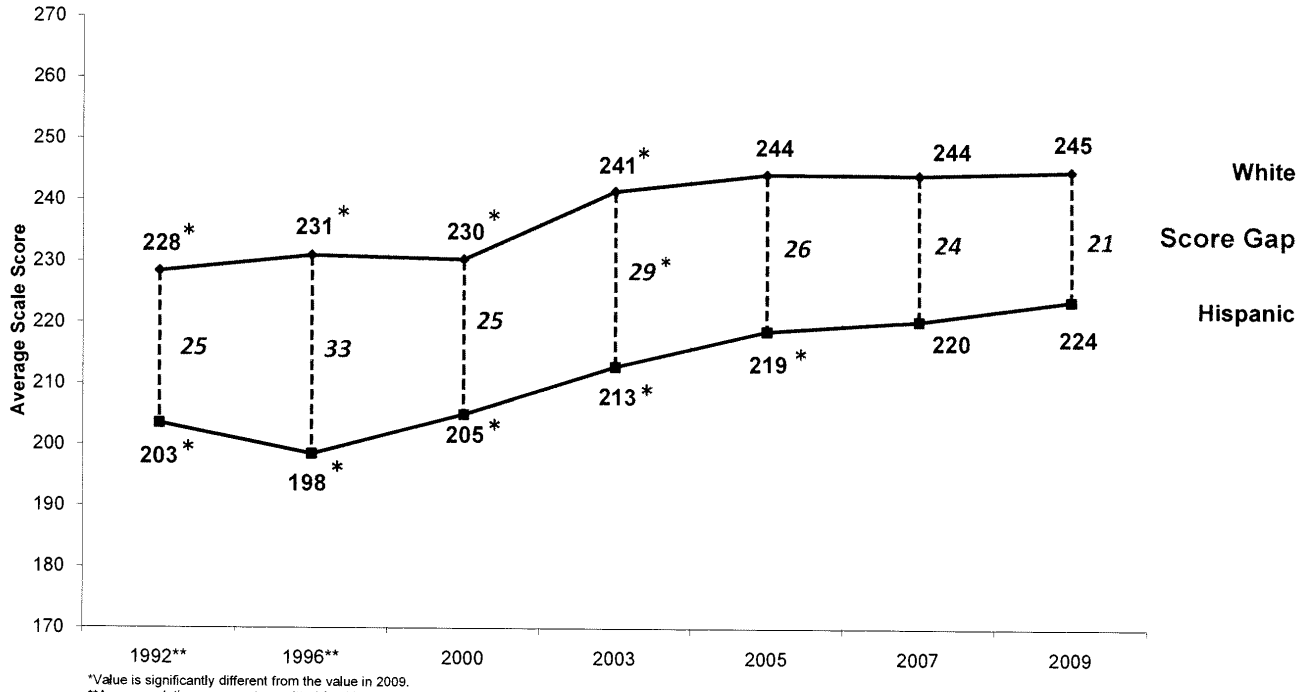
Average mathematics scale scores and score gaps for White - African-American students, grade 4: Various years, 1992-2009



*Value is significantly different from the value in 2009.
**Accommodations were not permitted for this assessment.
NOTE: The NAEP Mathematics scale ranges from 0 to 500. Observed differences are not necessarily statistically significant. 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), 1992, 1996, 2000, 2003, 2005, 2007 and 2009 Mathematics Assessments.

NAEP Mathematics Grade 4
Nebraska White - Hispanic Gaps

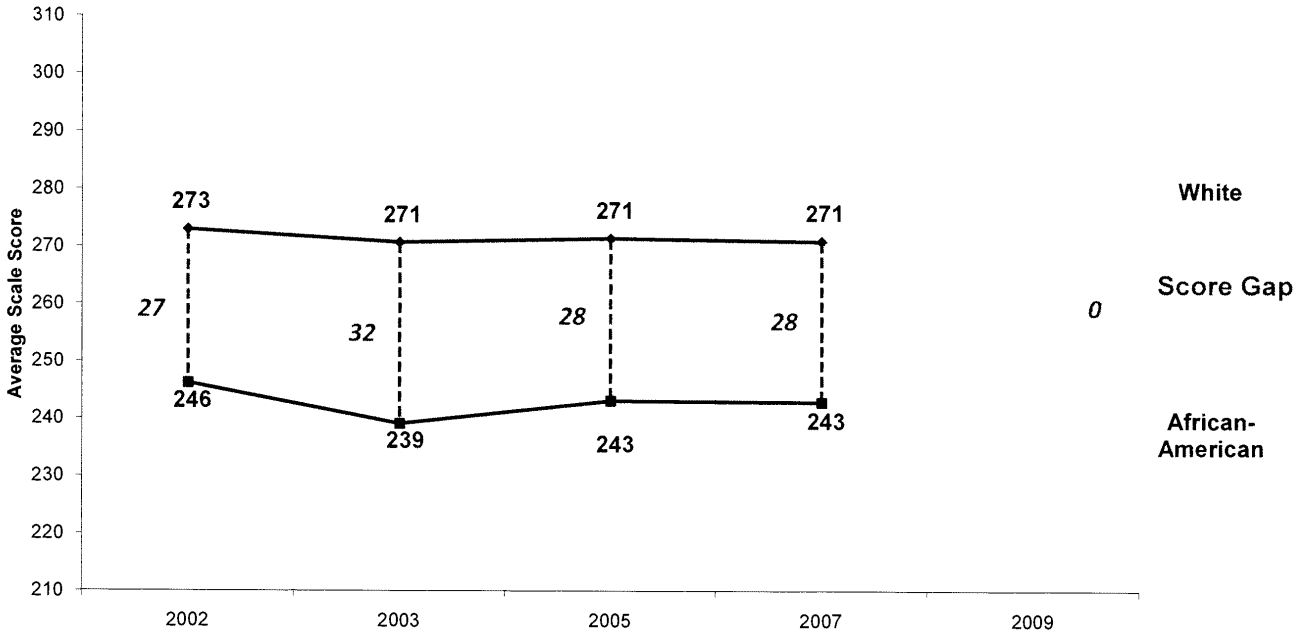
Average mathematics scale scores and score gaps for White - Hispanic students, grade 4: Various years, 1992-2009



*Value is significantly different from the value in 2009.
**Accommodations were not permitted for this assessment.
NOTE: The NAEP Mathematics scale ranges from 0 to 500. Observed differences are not necessarily statistically significant. 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), 1992, 1996, 2000, 2003, 2005, 2007 and 2009 Mathematics Assessments.

Scores for Nebraska 4th Grade White and Hispanic students showed a significant improvement from 2003 to 2009, with Hispanic students showing a significant improvement from 2005. There were significant differences in the achievement gap between White and Hispanic students, 2003 to 2009.

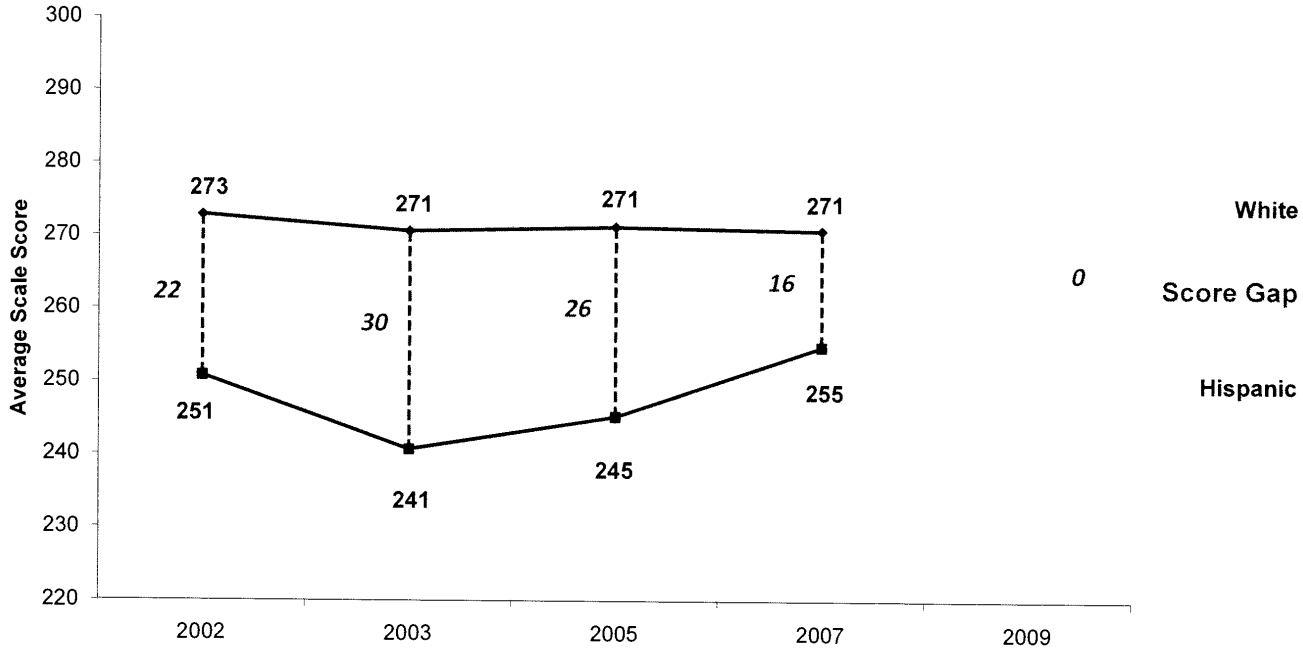
NAEP Reading Grade 8
Nebraska White - African-American Gaps
Average reading scale scores and score gaps for White - African-American students, grade 8: Various years, 2002-2009



*Value is significantly different from the value in 2009.
**Accommodations were not permitted for this assessment.
NOTE: The NAEP Reading scale ranges from 0 to 500. Observed differences are not necessarily statistically significant. 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), 2002, 2003, 2005, 2007 and 2009 Reading Assessments.

NAEP Reading Grade 8
Nebraska White - Hispanic Gaps

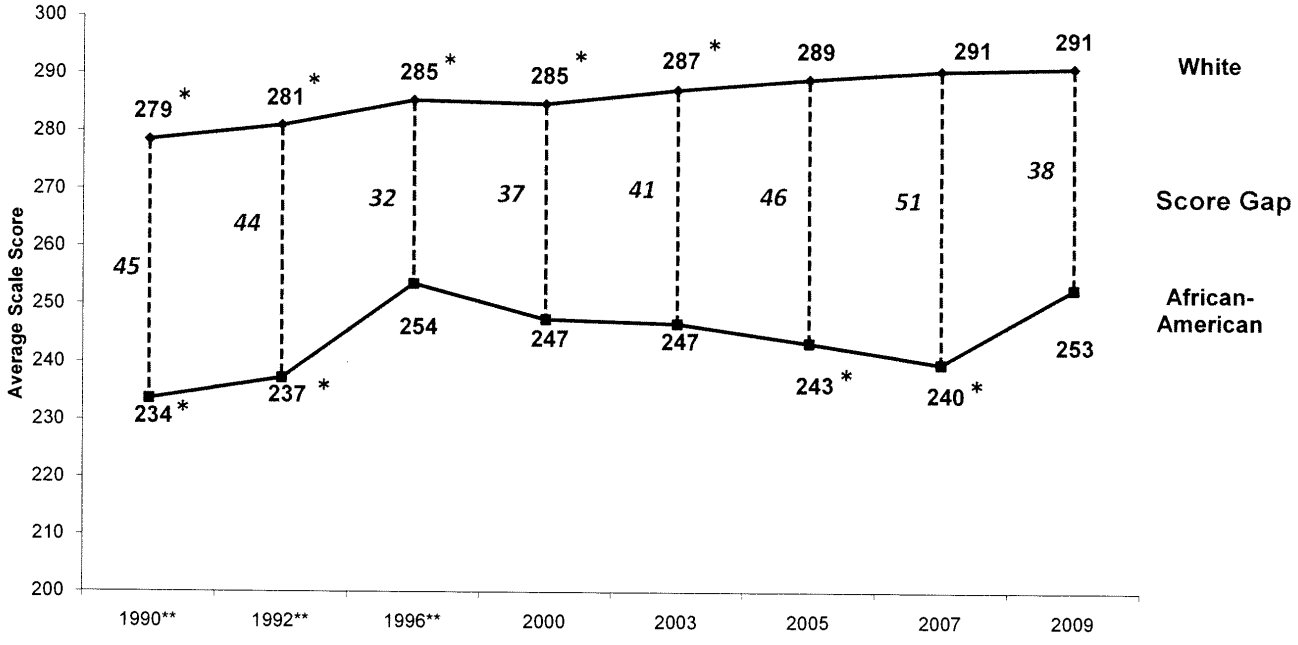
Average reading scale scores and score gaps for White - Hispanic students, grade 8: Various years, 2002-2009



*Value is significantly different from the value in 2009.
**Accommodations were not permitted for this assessment.
NOTE: The NAEP Reading scale ranges from 0 to 500. Observed differences are not necessarily statistically significant. 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), 2002, 2003, 2005, 2007 and 2009 Reading Assessments.

NAEP Mathematics Grade 8
Nebraska White - African-American Gaps

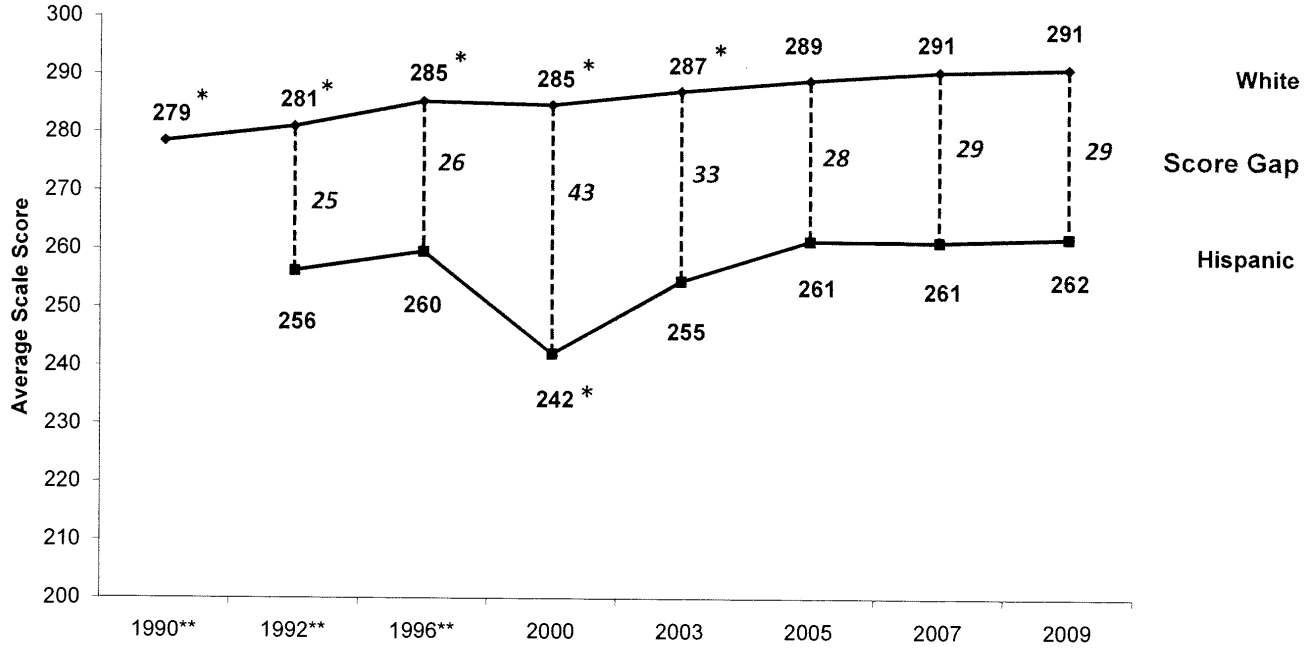
Average mathematics scale scores and score gaps for White - African-American students, grade 8: Various years, 1990-2009



*Value is significantly different from the value in 2009.
**Accommodations were not permitted for this assessment.
NOTE: The NAEP Mathematics scale ranges from 0 to 500. Observed differences are not necessarily statistically significant. 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), 1990, 1992, 1996, 2000, 2003, 2005, 2007 and 2009 Mathematics Assessments.

NAEP Mathematics Grade 8
Nebraska White - Hispanic Gaps

Average mathematics scale scores and score gaps for White - Hispanic students, grade 8: Various years, 1990-2009

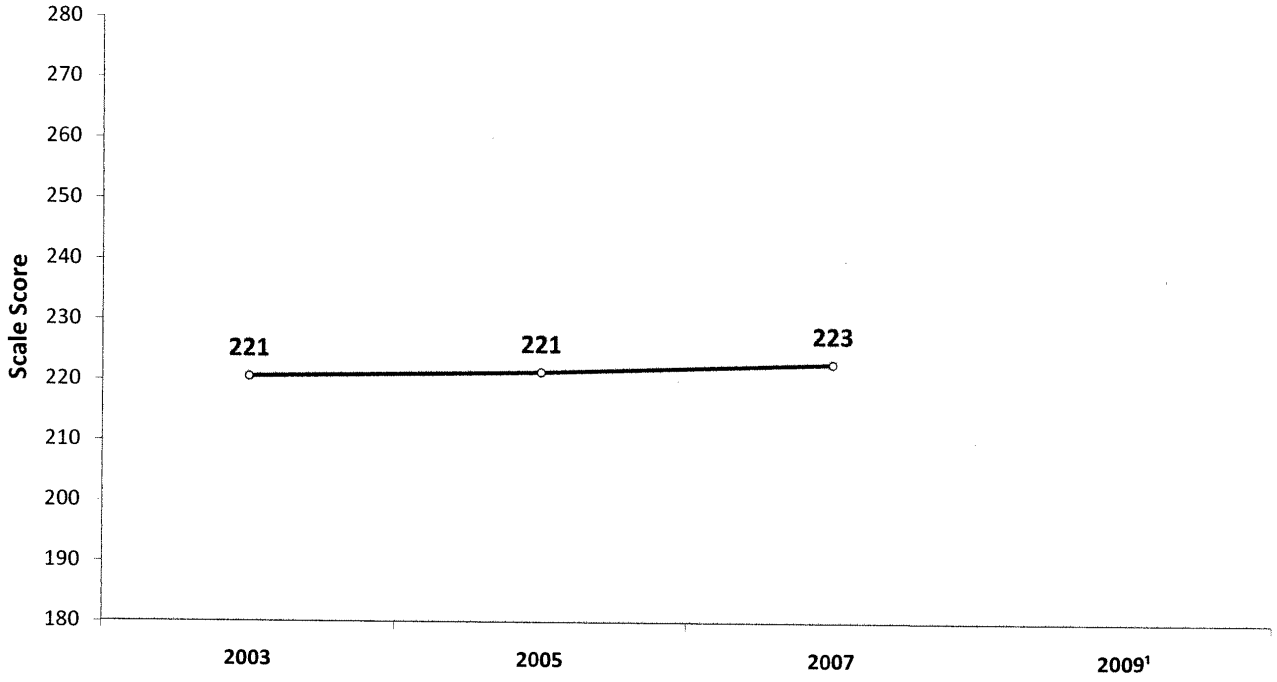


*Value is significantly different from the value in 2009.
**Accommodations were not permitted for this assessment.
NOTE: The NAEP Mathematics scale ranges from 0 to 500. Observed differences are not necessarily statistically significant. Detail may not sum to totals because of rounding.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1990, 1992, 1996, 2000, 2003, 2005, 2007 and 2009 Mathematics Assessments.

Scores for Nebraska 8th Grade White and Hispanic students showed no significant change from 2005 to 2009, but were significantly higher in 2009 than in 2000. There were significant differences in the achievement gap between White and Hispanic students, 1992 to 2009.

Nebraska NAEP Reading Grade 4 — Overall

Average Scale Score: 2003-2009



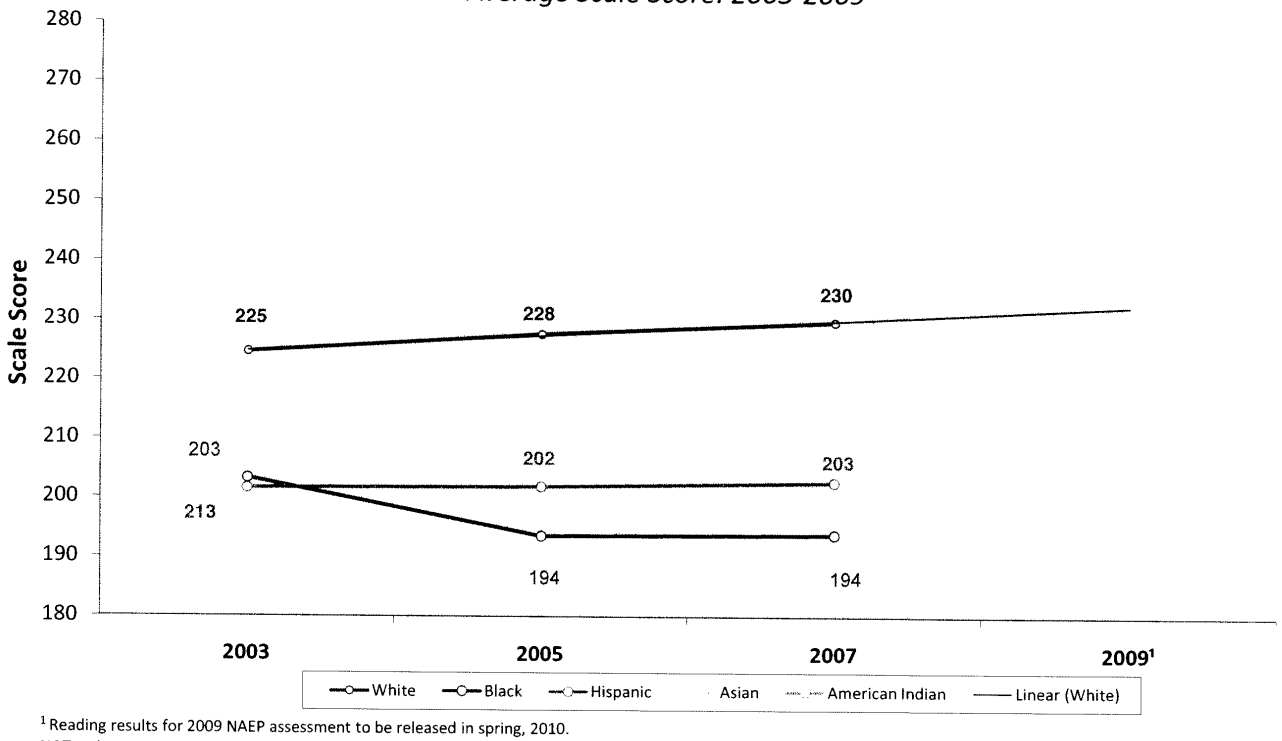
[1] Reading results for 2009 NAEP assessment to be released in spring, 2010.

NOTE: The NAEP Reading scale ranges from 0 to 500. Observed differences are not necessarily statistically significant.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP).

Nebraska NAEP Reading Grade 4 — Race/Ethnicity

Average Scale Score: 2003-2009



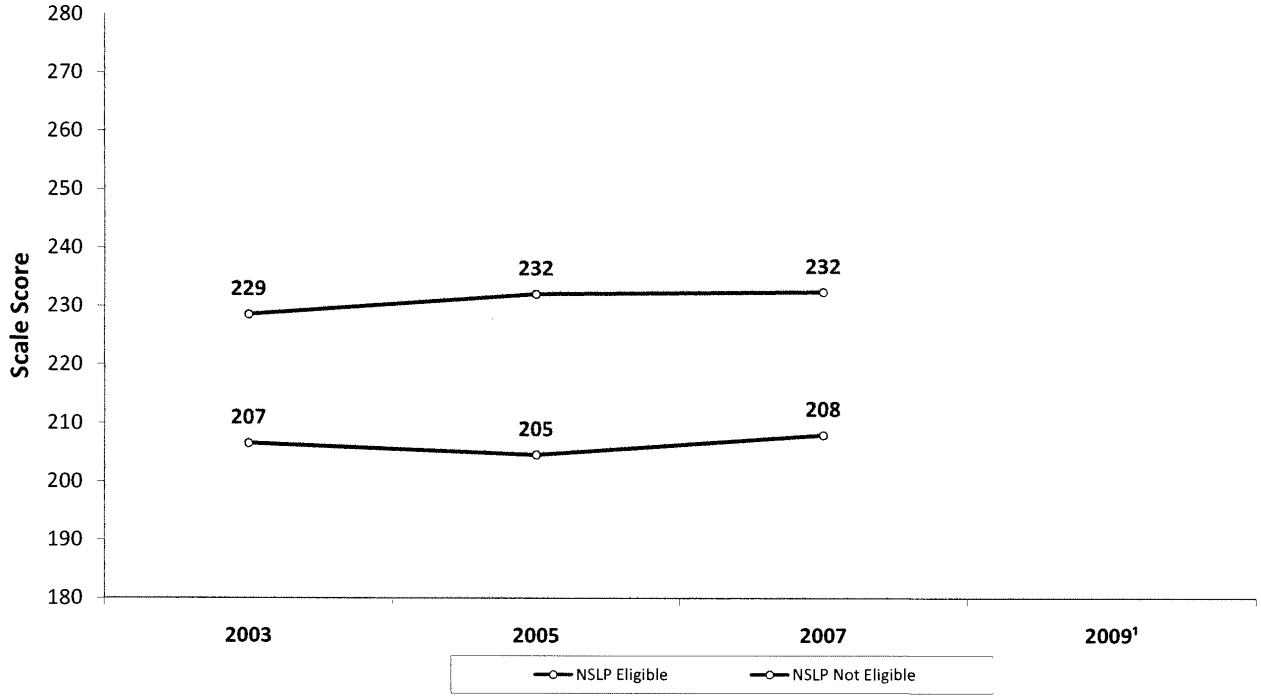
[1] Reading results for 2009 NAEP assessment to be released in spring, 2010.

NOTE: The NAEP Reading scale ranges from 0 to 500. Observed differences are not necessarily statistically significant.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP).

Nebraska NAEP Reading Grade 4 — National School Lunch Program

Average Scale Score: 2003-2009



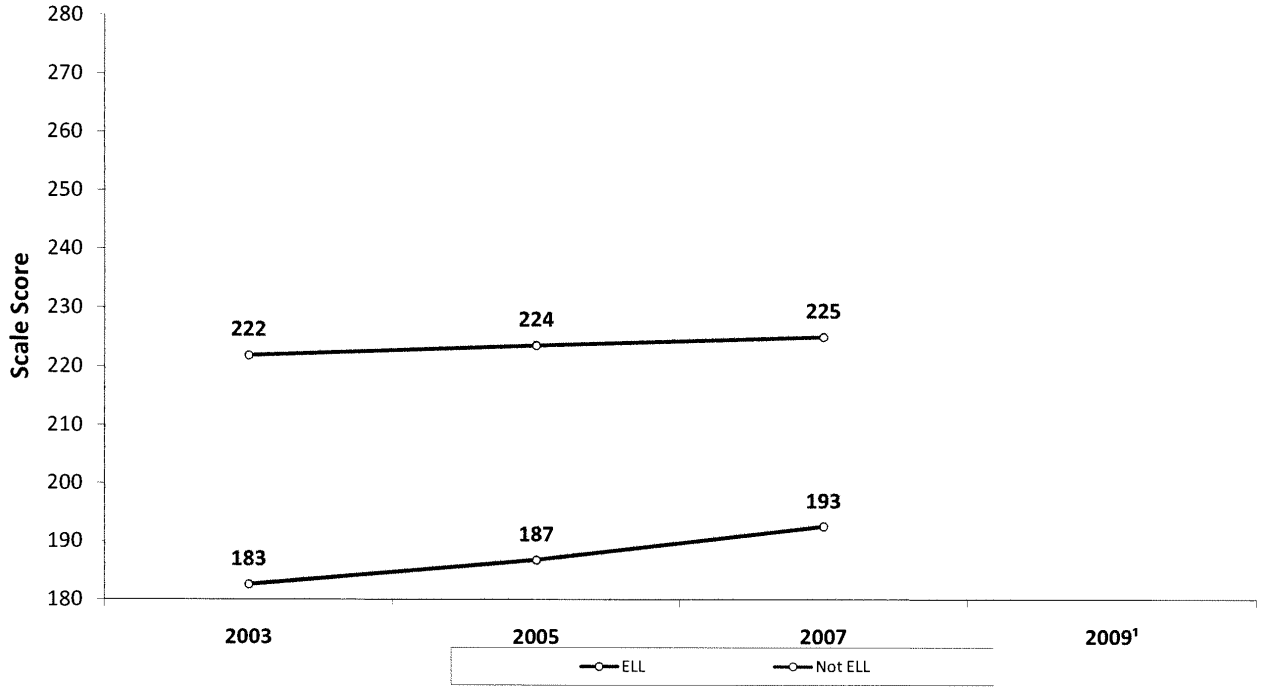
[1] Reading results for 2009 NAEP assessment to be released in spring, 2010.

NOTE: The NAEP Reading scale ranges from 0 to 500. Observed differences are not necessarily statistically significant.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP).

Nebraska NAEP Reading Grade 4 — English Language Learners

Average Scale Score: 2003-2009



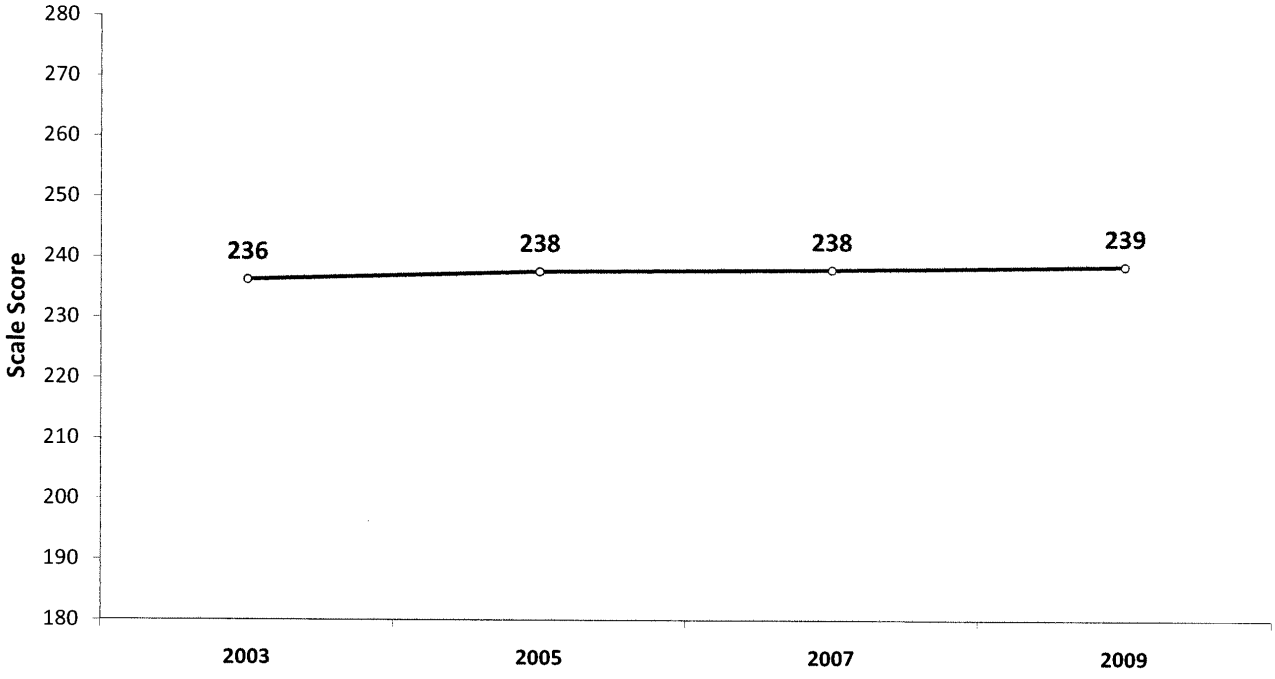
[1] Reading results for 2009 NAEP assessment to be released in spring, 2010.

NOTE: The NAEP Reading scale ranges from 0 to 500. Observed differences are not necessarily statistically significant.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP).

Nebraska NAEP Mathematics Grade 4 — Overall

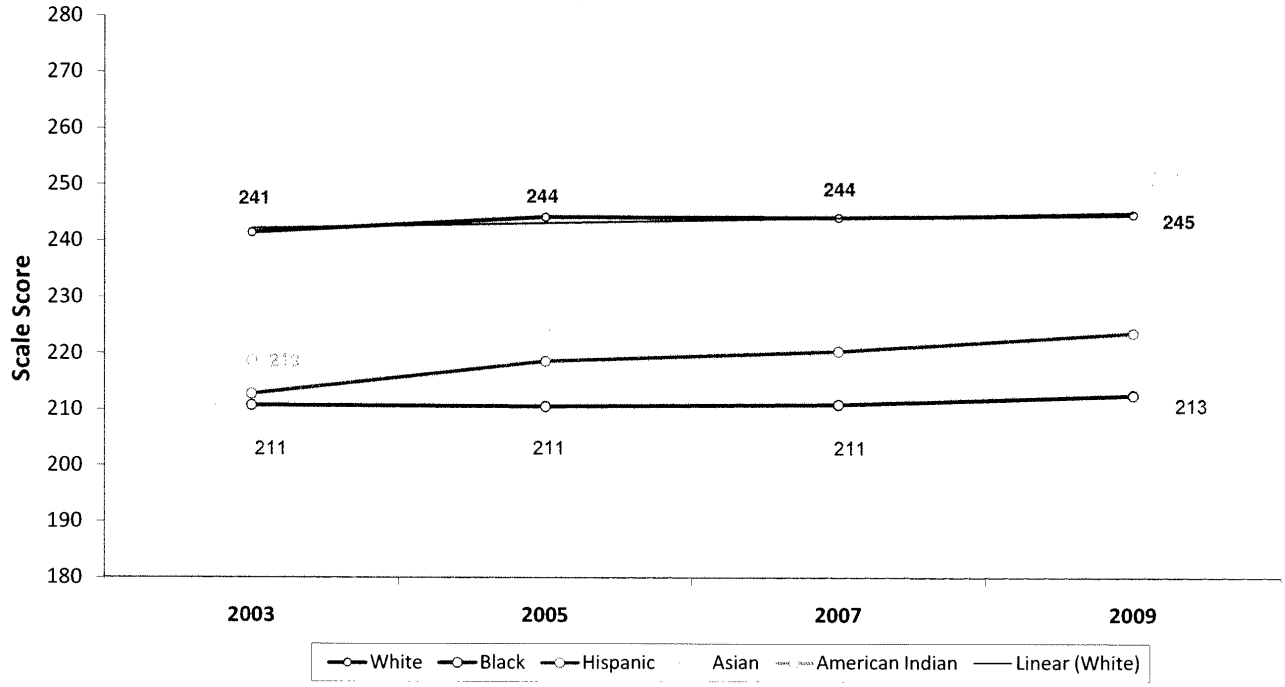
Average Scale Score: 2003-2009



NOTE: The NAEP Mathematics scale ranges from 0 to 500. Observed differences are not necessarily statistically significant.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP).

Nebraska NAEP Mathematics Grade 4 — Race/Ethnicity

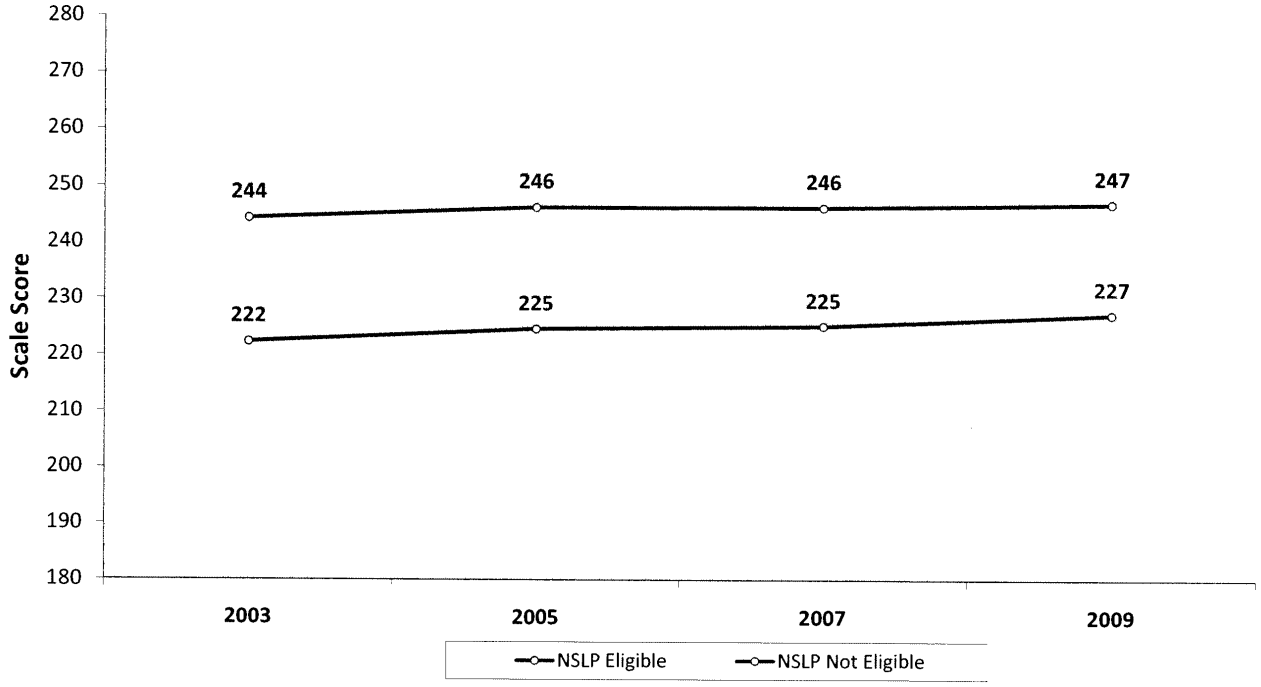
Average Scale Score: 2003-2009



NOTE: The NAEP Mathematics scale ranges from 0 to 500. Observed differences are not necessarily statistically significant.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP).

Nebraska NAEP Mathematics Grade 4 — National School Lunch Program

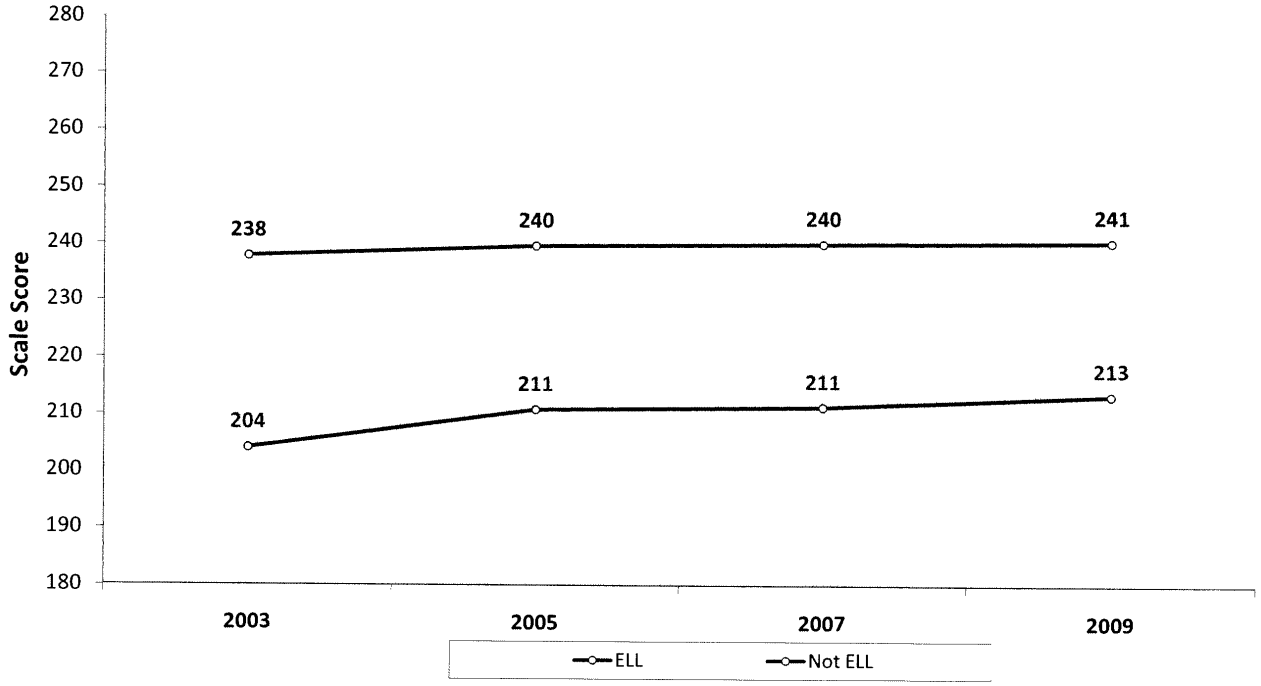
Average Scale Score: 2003-2009



NOTE: The NAEP Mathematics scale ranges from 0 to 500. Observed differences are not necessarily statistically significant.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP).

Nebraska NAEP Mathematics Grade 4 — English Language Learners

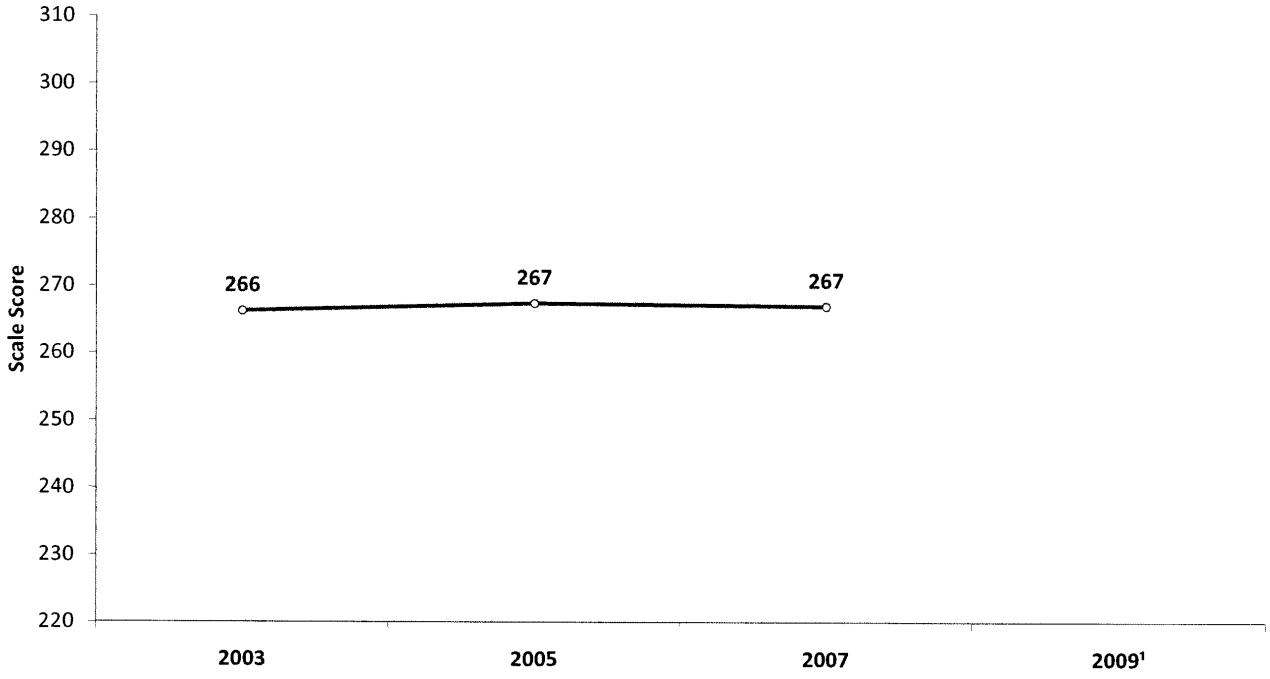
Average Scale Score: 2003-2009



NOTE: The NAEP Mathematics scale ranges from 0 to 500. Observed differences are not necessarily statistically significant.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP).

Nebraska NAEP Reading Grade 8 — Overall

Average Scale Score: 2003-2009



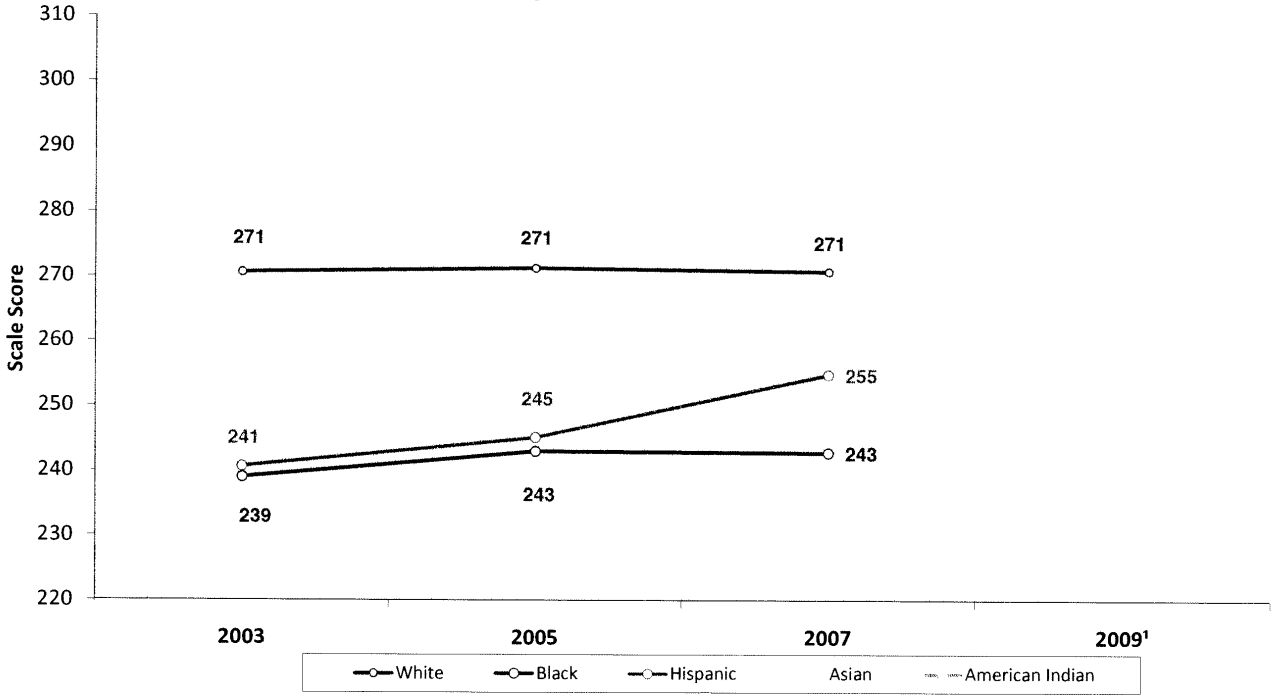
[1] Reading results for 2009 NAEP assessment to be released in spring, 2010.

NOTE: The NAEP Reading scale ranges from 0 to 500. Observed differences are not necessarily statistically significant.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP).

Nebraska NAEP Reading Grade 8 — Race/Ethnicity

Average Scale Score: 2003-2009



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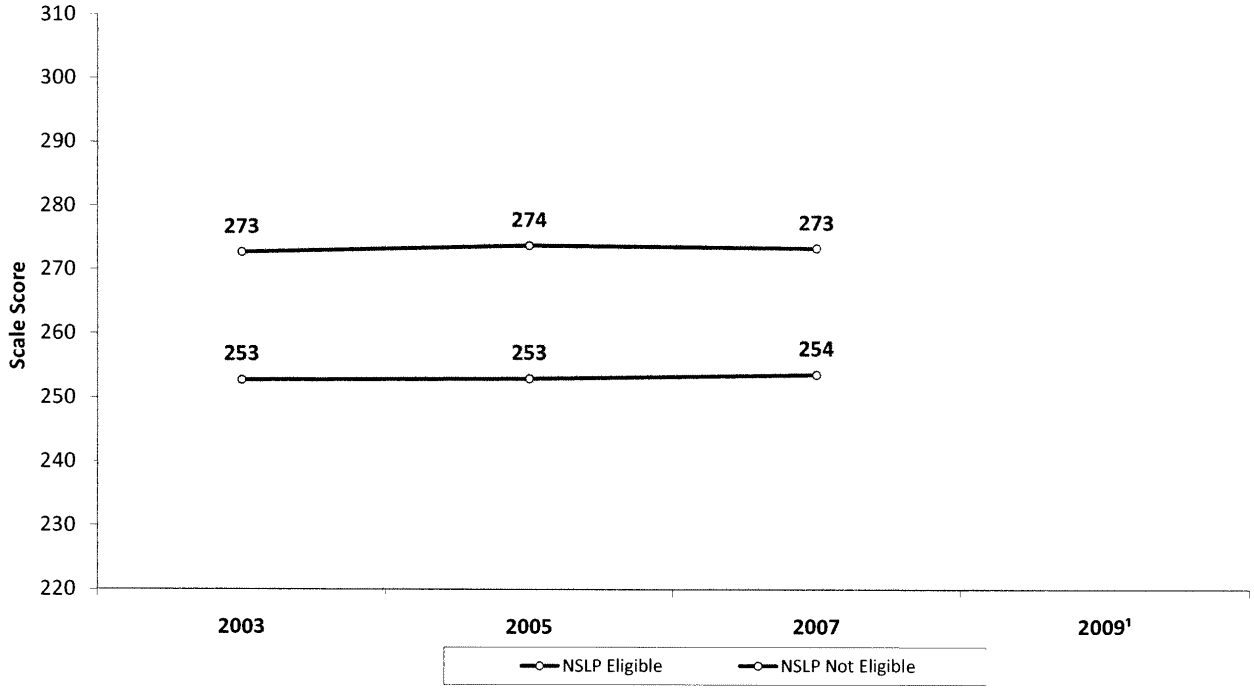
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP).

Nebraska NAEP Reading Grade 8 — National School Lunch Program

Average Scale Score: 2003-2009



[1] Reading results for 2009 NAEP assessment to be released in spring, 2010.

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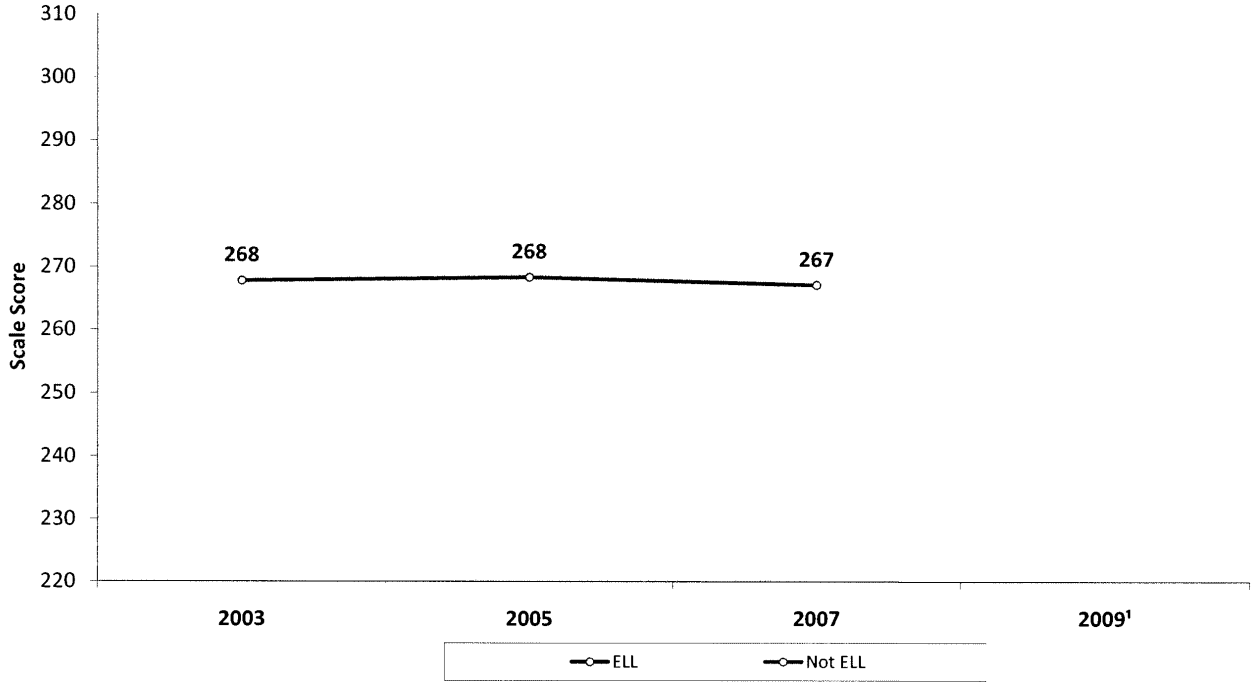
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP).

Nebraska NAEP Reading Grade 8 — English Language Learners

Average Scale Score: 2003-2009



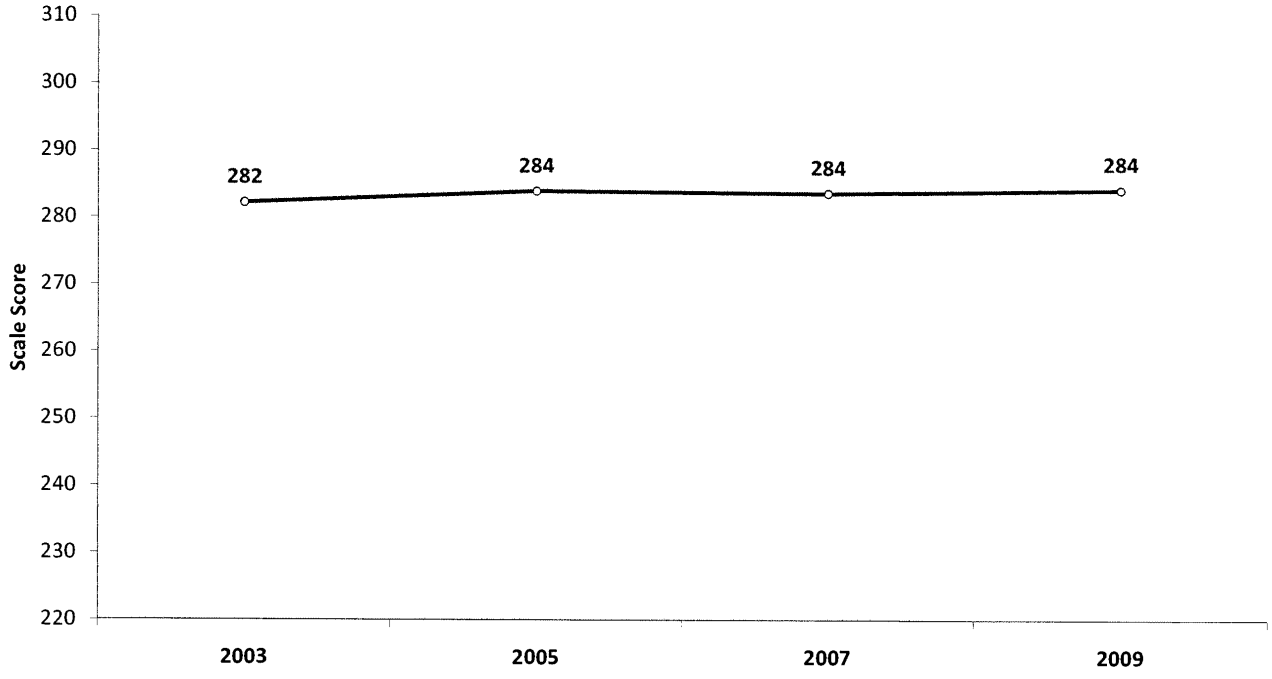
[1] Reading results for 2009 NAEP assessment to be released in spring, 2010.

NOTE: The NAEP Reading scale ranges from 0 to 500. Observed differences are not necessarily statistically significant.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP).

Nebraska NAEP Mathematics Grade 8 — Overall

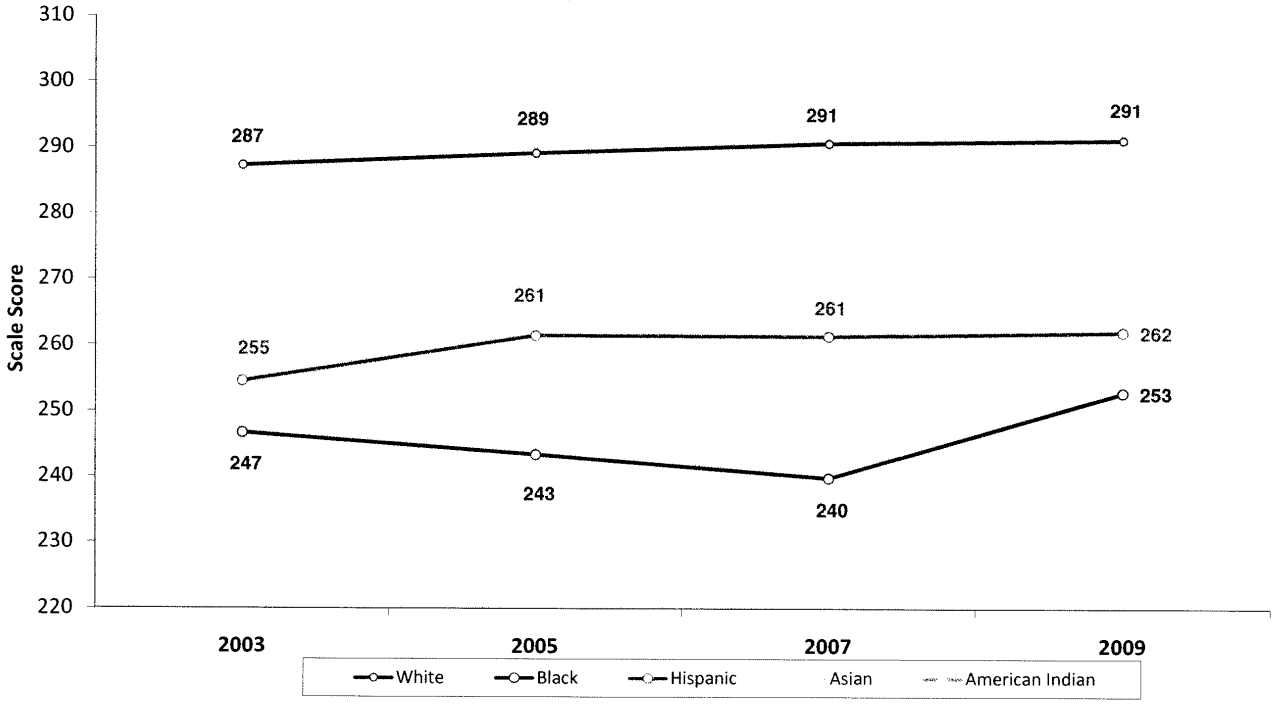
Average Scale Score: 2003-2009



NOTE: The NAEP Mathematics scale ranges from 0 to 500. Observed differences are not necessarily statistically significant.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP).

Nebraska NAEP Mathematics Grade 8 — Race/Ethnicity

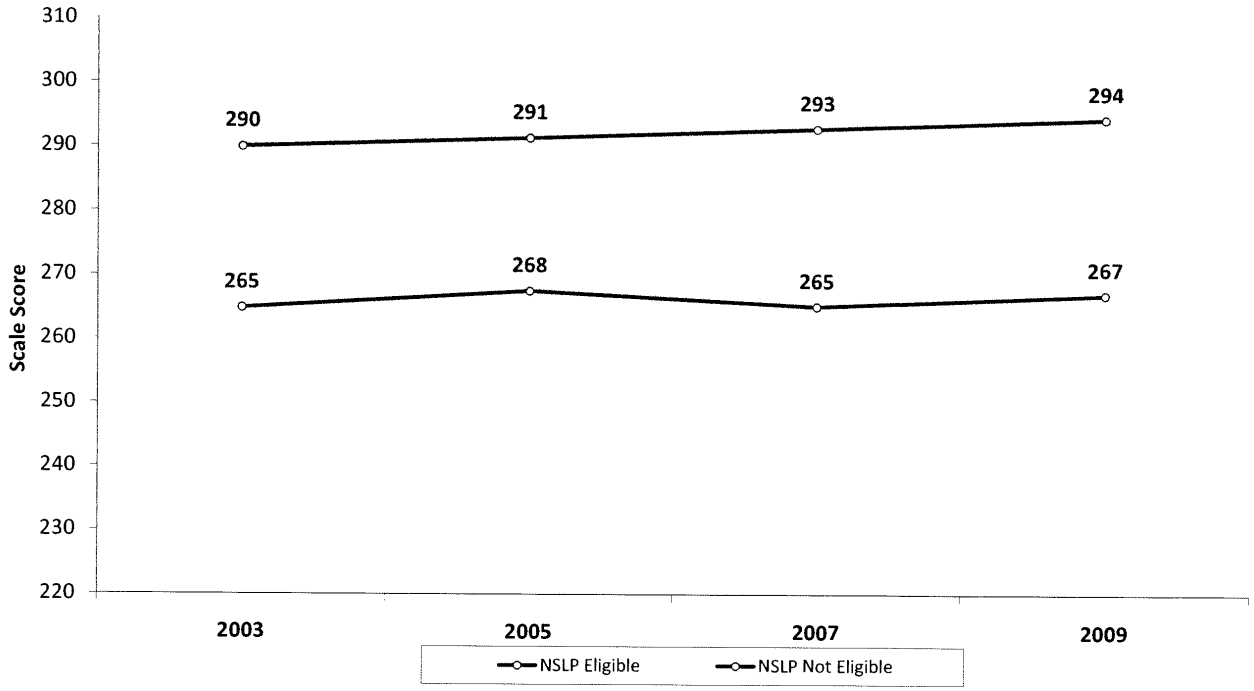
Average Scale Score: 2003-2009



NOTE: The NAEP Mathematics scale ranges from 0 to 500. Observed differences are not necessarily statistically significant.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP).

Nebraska NAEP Mathematics Grade 8 — National School Lunch Program

Average Scale Score: 2003-2009



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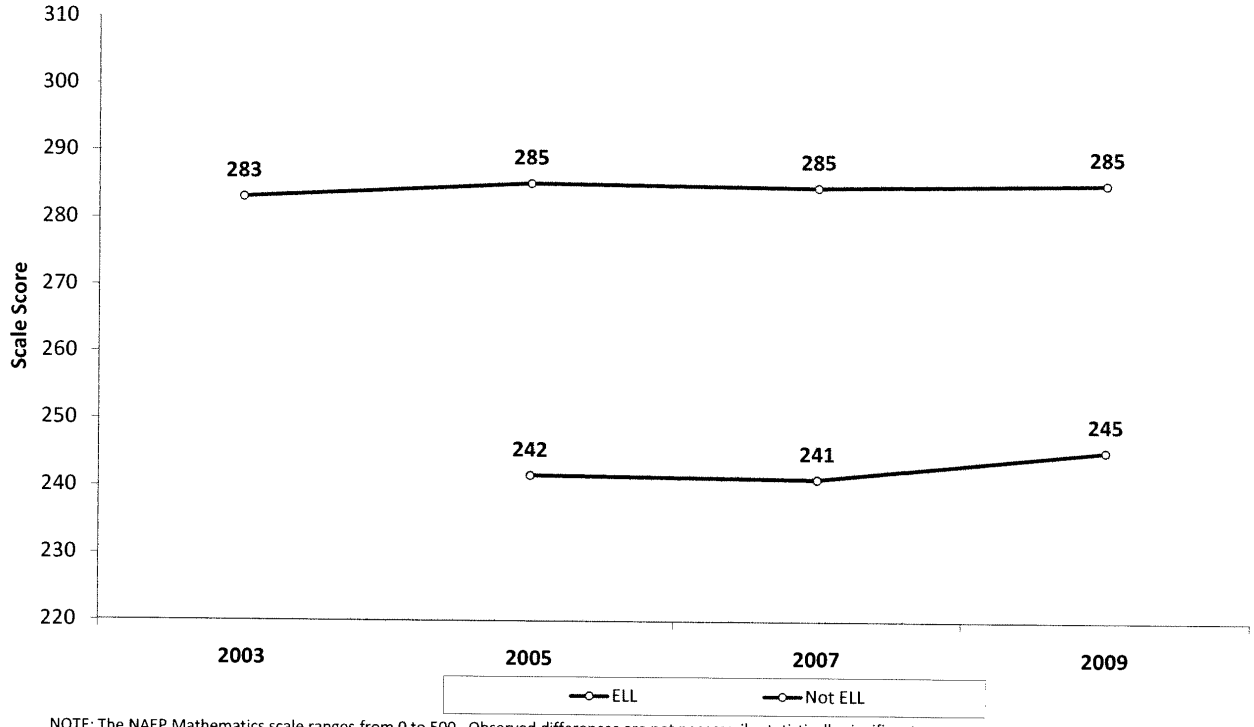
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP).

Nebraska NAEP Mathematics Grade 8 — English Language Learners

Average Scale Score: 2003-2009



NOTE: The NAEP Mathematics scale ranges from 0 to 500. Observed differences are not necessarily statistically significant.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP).

Appendix E

Excerpts from 2009 Nebraska Higher Education Progress Report

2009
Nebraska Higher Education Progress Report

Nebraska's
Coordinating Commission
for
Postsecondary Education

CCPE

Approved by the Commission
March 5, 2009

1.1.a High School Graduation Rate

Increase the proportion of students who graduate from Nebraska high schools.

One strategic approach to increasing the number of students who enter postsecondary education in Nebraska is to increase the proportion of students who graduate from the state's high schools. In other words, increase Nebraska's high school graduation rate and, in the process, increase the percentage of high school students who could potentially attend college.

Past and Present Trends in the Total Number of Nebraska High School Graduates

- As shown in Figure 1.1.a.1, the number of students who graduated from Nebraska high schools started to decline slightly after the 2002–2003 school year, the latest year for which official data were available from the Nebraska Department of Education for the *2004 Baseline Report for the LR 174 Higher Education Task Force*.

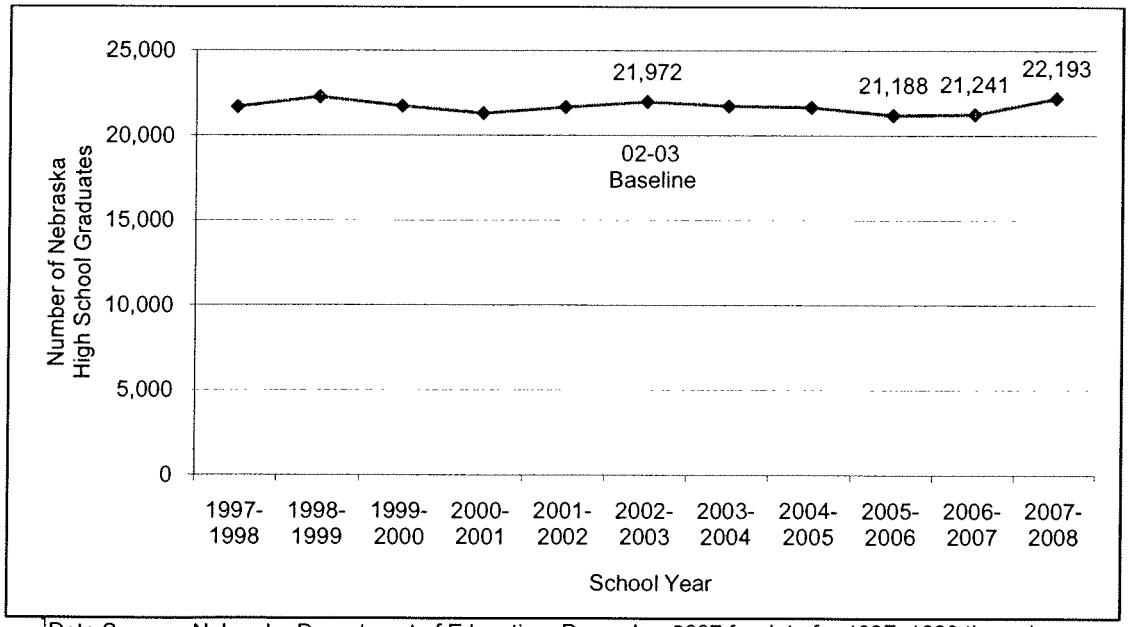
- Over the next four years, the number of students receiving regular diplomas decreased 3.3%, from 21,972 in 2002–2003 to 21,188 in 2005–2006.

- The number of graduates from Nebraska high schools increased 0.3% in 2006–2007 and 4.5% in 2007–2008 for a two-year increase of 4.7%.

- As a result of the 4.5% increase in 2007–2008, 221 or 1% more students graduated in 2007–2008 than in 2002–2003, which is the baseline for this progress report.

Figure 1.1.a.1

Total Number of Nebraska High School Graduates 1997–1998 through 2007–2008[1]



[1]Data Source: Nebraska Department of Education, December 2007 for data for 1997–1998 through 2005–2006 and January 2009 for data for 2006–2007 and 2007–2008. Counts include graduates of public schools, nonpublic (private) schools, educational service units, and state-operated schools. Graduates do not include GED recipients or completers who did not receive regular diplomas. See Table A2.1 in Appendix 2 for supporting data.

The Proportion of Graduates from Public and Nonpublic Nebraska High Schools

- Since 2002–2003, about 90% of Nebraska's high school graduates have received their diplomas from public schools while the remaining 10% have graduated from nonpublic (private) schools.

Table 1.1.a.1
Numbers of Nebraska High School Graduates
2006-2007 and 2007-2008 Compared to 2002-2003 Baseline[1]

Type of School	Baseline 2002–2003		2006–2007		2007–2008	
	No. of Graduates	% of Graduates	No. of Graduates	% of Graduates	No. of Graduates	% of Graduates
Public	19,604	89.8%	18,951	89.7%	19,995	90.3%
Nonpublic	2,234	10.2%	2,186	10.3%	2,158	9.7%
Subtotal	21,838	100.0%	21,137	100.0%	22,153	100.0%
ESU & SO[2]	134		104		40	
State Total	21,972		21,241		22,193	

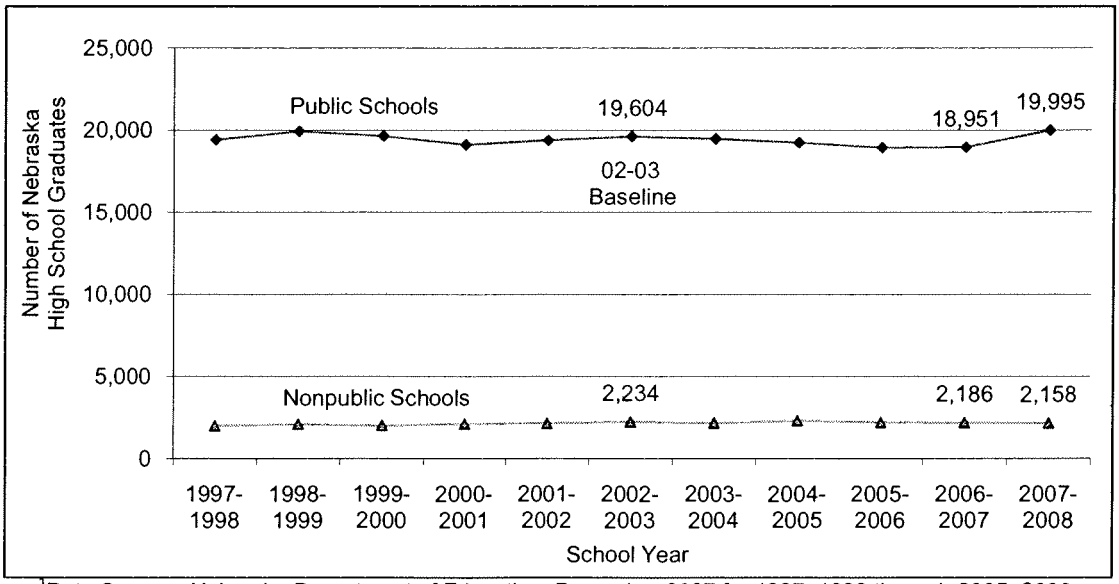
[1]Data Source: Nebraska Department of Education, December 2007 for 2002–2003 data and January 2009 for 2006–2007 and 2007–2008 data. Graduates do not include GED recipients or completers who did not receive regular diplomas.

[2]ESU = Educational Service Units; SO = State-Operated Schools.

- Between 2002–2003 and 2007–2008, the number of public high school graduates increased 2.0% to 19,995, while the number graduating from private high schools decreased 3.4%.

Figure 1.1.a.2

Numbers of Nebraska Public and Nonpublic High School Graduates
1997–1998 through 2007–2008[1]



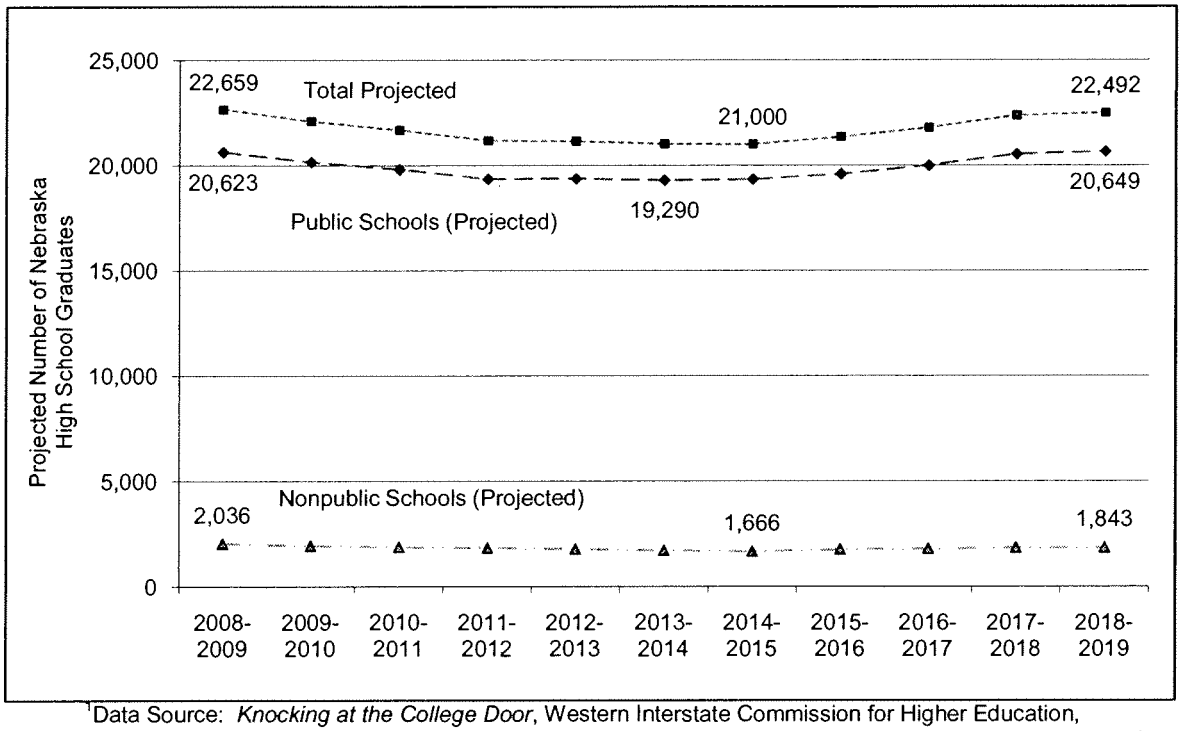
[1]Data Source: Nebraska Department of Education, December 2007 for 1997–1998 through 2005–2006 data and January 2009 for 2006–2007 and 2007–2008 data. Graduates do not include GED recipients or completers who did not receive regular diplomas.

Projected Trends in the Total Number of Nebraska High School Graduates

- Based on projections by the Western Interstate Commission for Higher Education:
  - About 340 more students will be graduating from Nebraska public and nonpublic high schools in 2018–2019 than graduated during the 2007–2008 school year.
  - As in the past, public schools are projected to account for about 90% of Nebraska's high school graduates through the 2018–2019 school year.[1]

Figure 1.1.a.3

Projected Numbers of Graduates from Nebraska Public and Nonpublic High Schools 2008–2009 through 2018–2019[1]



[1]Data Source: *Knocking at the College Door*, Western Interstate Commission for Higher Education, March 2008, page 91. Projections do not include graduates of educational service units or state-operated schools. Graduates do not include GED recipients or completers who did not receive regular diplomas. See Table A2.2 in Appendix 2 for supporting data.

[1] *Knocking at the College Door, Projections of High School Graduates by State and Race/Ethnicity*, Western Interstate Commission for Higher Education, March 2008, page 121. See Table A2.2 in Appendix 2 for supporting data.

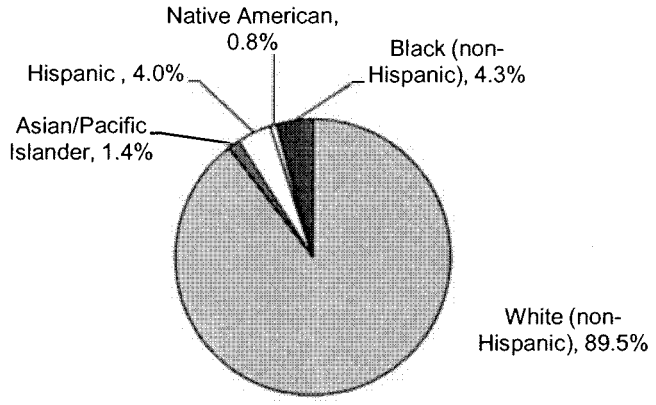
Projected and Recent Changes in Nebraska High School Graduates by Race/Ethnicity

- Although the number of graduates from Nebraska high schools is projected to increase only 1.5% over the next decade, minority students, especially Hispanics, are projected to account for much higher percentages of the graduates from the state's public schools in 2018–2019 than they did in 2002–2003, as illustrated in Figure 1.1.a.4. This is projected to be the case, despite the fact that Hispanic students tend to graduate from high school at lower rates than white and Asian students. Conversely, white non-Hispanics are projected to account for a significantly lower percentage of the students who will graduate from Nebraska's public high schools in 2018–2019.

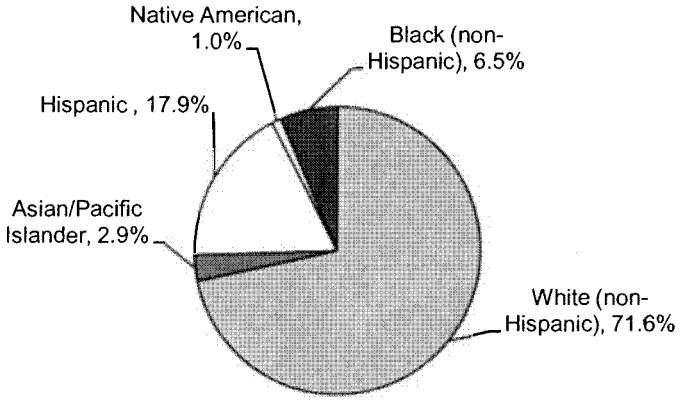
Figure 1.1.a.4

Actual and Projected Percentages of Nebraska Public High School Graduates by Race/Ethnicity in 2002–2003 and 2018–2019[1]

Actual Percentages of Graduates: 2002–2003 Baseline



Projected Percentages of Graduates: 2018–2019



[1]Data Sources: 2002–2003 percentages are based on the numbers of graduates obtained from the Nebraska Department of Education, December 2007. Projected percentages are based on data from *Knocking at the College Door*, Western Interstate Commission for Higher Education, March 2008, page 91. Actual counts and projections do not include graduates of educational service units or state-operated schools. Graduates do not include GED recipients or completers who did not receive regular diplomas See Table A2.3 in Appendix 2 for supporting data.

- As shown in Figure 1.1.a.5 below, actual changes in the racial/ethnic distribution of Nebraska's high school graduates over the past four years have been in the direction of the projected trend.

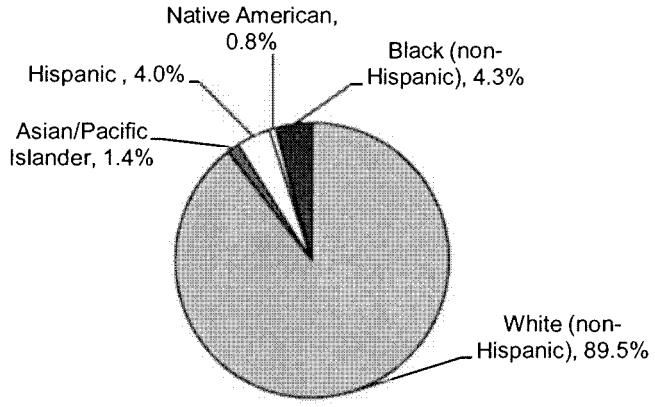
  - The number of white non-Hispanic graduates decreased 3.4% from 2002–2003 to 2007–2008, and white non-Hispanics accounted for a lower percentage of Nebraska's high school graduates in 2007–2008 than they did in 2003–2002.

  - In comparison, the total number of minority students who graduated from Nebraska's high schools increased 48.1% from 2002–2003 to 2007–2008. Minorities accounted for higher percentages of the total number of graduates than they did five years earlier.

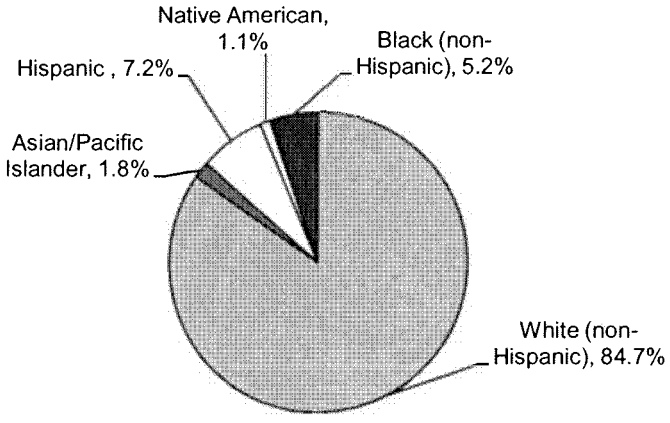
Figure 1.1.a.5

Actual Percentages of Nebraska Public High School Graduates by Race/Ethnicity in 2006–2007 Compared to 2002–2003[1]

Actual Percentages of Graduates: 2002–2003 Baseline



Actual Percentages of Graduates: 2007–2008



[1]Data Sources: Nebraska Department of Education, December 2007 for 2002-2003 data and January 2009 for 2007-2008 data. Counts do not include graduates of educational service units or state-operated schools. Graduates do not include GED recipients or completers who did not receive regular diplomas. See Table A2.4 in Appendix 2 for supporting data.

Trends in the Nebraska State Four-Year, High School Graduation Rates

- Although the total number of students who graduated from Nebraska high schools increased only 1% between 2002–2003 and 2007–2008, the state's graduation rate increased significantly.

- The Nebraska Department of Education uses the **four-year high school graduation rate** to measure the proportion of high school students who receive regular diplomas.

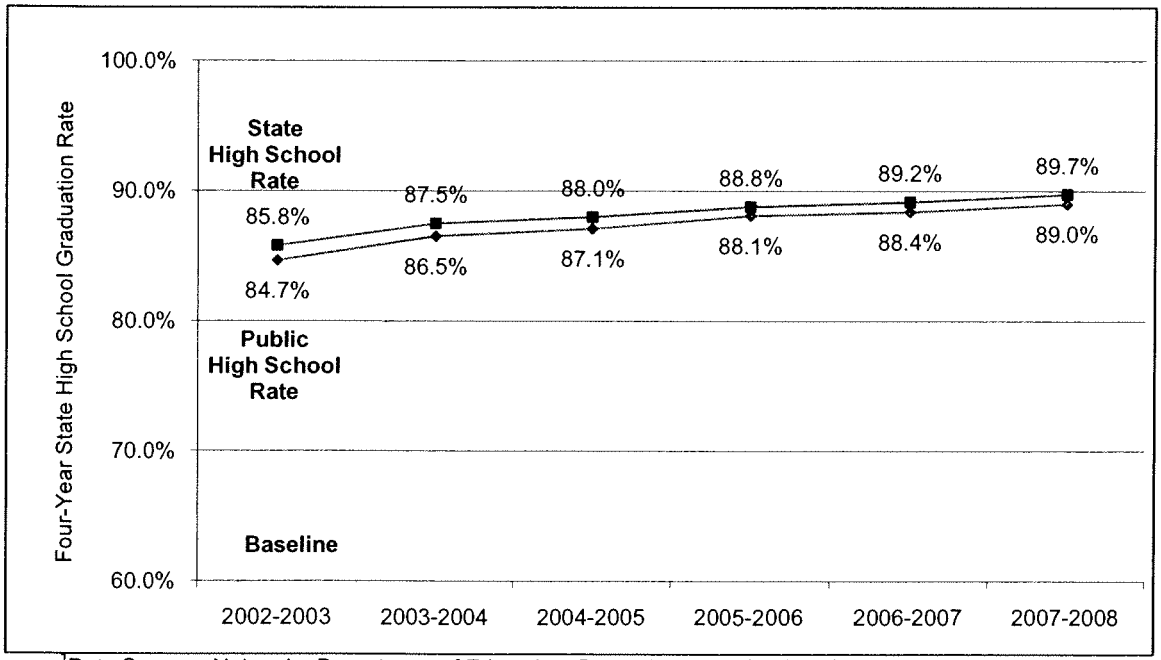
  - Nebraska's **state four-year graduation rate** is based on data that include the graduates of educational service units, state-operated schools and nonpublic (private) schools as well as the graduates of the state's public schools.
  - In comparison, the **public four-year graduation rate** is also a statewide rate, but it is limited to data from Nebraska's public high schools.
  - See Explanatory Note A3.1 in Appendix 3 for information on how four-year graduation rates are calculated.

- As shown in Figure 1.1.a.6 below, Nebraska's state graduation rate increased from 85.8% in 2002–2003, which is the baseline for this progress report, to 89.7% in 2007–2008, or 3.9% over the five-year period.

- In comparison, the graduation rate for the public high schools rose 4.3%, from 84.7% in 2002–2003 to 89.0% in 2007–2008, narrowing the gap between the state and public four-year graduation rates.

Figure 1.1.a.6

Nebraska State and Public High School Four-Year Graduation Rates 2002–2003 through 2007–08[1]



[1]Data Source: Nebraska Department of Education, December 2007 for data for 2002–2003 through 2005–2006 and January 2009 for data for 2006–2007 and 2007–2008. See Table A3.3 in Appendix 3 for supporting data.

- The graduation rate for Nebraska's public high schools is lower than the overall state rate, whereas the graduation rate for Nebraska's nonpublic (private) schools is significantly higher than the state rate.[1] Nevertheless, Nebraska's public high school graduation rate is among the highest rates in the United States.[2]

- As shown in Table 1.1.a.3 below, 45.8% of Nebraska's 254 public school districts had four-year high school graduation rates of 100%, and 61.0% had graduation rates in the range of 96% to 100% for the 2007–2008 school year. In contrast, only 11.8% of Nebraska's public high school districts had graduation rates that were equal to or below the statewide rate of 89.0% for public schools in 2007–2008.

- See Table A3.2 in Appendix 3 for a list of the 30 public school districts with graduation rates below the public statewide rate of 89.0% in 2007–2008.

Table 1.1.a.3
Distribution of the Four-Year, High School Graduation Rates of Nebraska Public High School Districts 2007–2008[1]

Four-Year High School Graduation Rate	No. of School Districts	Percentage of School Districts	Subtotaled Percentages of School Districts	Cumulative % of School Districts
100.0%	116	45.8%	61.0%	45.7%
96.0% - 99.9%	39	15.4%		61.0%
93.0% - 95.9%	45	17.8%	27.2%	78.7%
89.1% - 92.9%	24	9.5%		88.2%
85.0% - 89.0%	17	6.7%	11.8%	94.9%
80.0% - 84.9%	8	3.2%		98.0%
75.0% - 79.9%	1	0.8%		98.4%
Less than 75.0%	4	0.8%		100.0%
	254	100.0%	100.0%	

[1]Four-year graduation rates by district obtained from the Nebraska Department of Education, January 2009. See Table A3.1 in Appendix 3 for the comparable baseline distribution of public high school graduation rates for 2002–2003.

[2]The statewide public high school graduation rate for 2007–2008 was 89.0%.

[1]Compared to the public high school graduation rates of 84.7% in 2002–2003 and 89.0% in 2007–2008, the four-year graduation rates for nonpublic (private) high schools were 99.4% for 2002–2003 and 97.4% for 2007–2008, based on data obtained from the Nebraska Department of Education, January 2009. See Table A3.3 in Appendix 3 for supporting data.

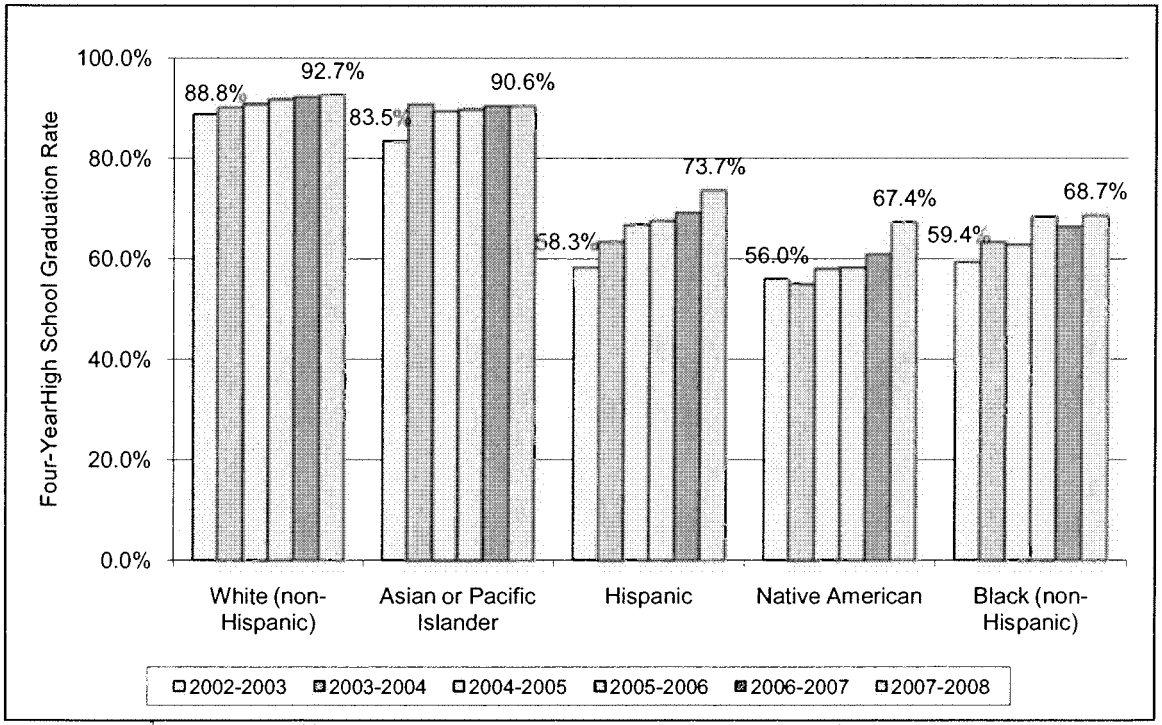
[2]Compared to the other 49 states and the District of Columbia, Nebraska had the fifth highest public high school graduation rate in 2004, and the sixth highest rate in 2003, 2005 and 2006, the most recent years for which national comparisons are available. Data for these comparisons are published on the *Postsecondary Education OPPORTUNITY* Web site, www.postsecondary.org, in the spreadsheet titled Public High School Graduation Rates by State, updated April 10, 2008.

Nebraska Four-Year, Public High School Graduation Rates by Race/Ethnicity

- The relatively high four-year graduation rates that characterize most of the state's public high schools mask the fact that graduation rates within the state vary significantly by race/ethnicity.
- As illustrated in Figure 1.1.a.7, the four-year high school graduation rate for each of the five reported racial/ethnic groups generally increased between 2002–2003 and 2007–2008.
- Among the minorities, the largest increase in graduation rates between 2002–2003 and 2007–2008 was evidenced among Hispanics, while less improvement was reported for Native Americans and black non-Hispanics.
- Although graduation rates have improved for all racial/ethnic groups, the four-year graduation rates for Hispanics, blacks and Native Americans have continued to be significantly lower than the graduation rates for whites and Asians/Pacific Islanders since 2002–2003.
- The net effect of the lower graduation rates for black non-Hispanics, Hispanics and Native Americans is that these minorities continue to account for disproportionately high percentages of the students who drop out of the public high schools in Nebraska, compared to their representation among the graduates of these schools. This is an important finding because minorities, and Hispanics in particular, are projected to account for higher percentages of Nebraska's high school students in the future.

Figure 1.1.a.7

Nebraska Four-Year, Public High School Graduation Rates by Race/Ethnicity 2002–2003 through 2007–2008[1]



[1]Data Source: Nebraska Department of Education, December 2007 for 1997–1998 through 2005–2006 data and January 2009 for 2006–2007 and 2007–2008 data. See Table A3.3 in Appendix 3 for supporting data.

- For the purposes of computing four-year graduation and dropout rates for any given high school class, the numbers of students who dropped out of the class in the ninth, tenth, eleventh and twelfth grades are added together to determine the total number of students who dropped out over the four years. The resulting total number of dropouts can then be compared to the number of graduates in the class, as shown in Table 1.1.a.4 for the class of 2007–2008.

Table 1.1.a.4
Distributions of Public High School Graduates and Dropouts by Race/Ethnicity Based on Four-Year Graduation Rate Data 2007–2008[1]

Race/Ethnicity	No. of Graduates	% of Graduates	No. of Dropouts 9th – 12th Grades	% of Dropouts
White (non-Hispanic)	16,939	84.7%	1,328	54.0%
Asian/Pacific Islander	355	1.8%	37	1.5%
Hispanic	1,430	7.2%	510	20.7%
Native American	225	1.1%	109	4.4%
Black (non-Hispanic)	1,046	5.2%	476	19.3%
Nebraska Public Total	19,995	100.0%	2,460	100.0%

[1]Data Source: Nebraska Department of Education, December 2007. See Table A3.4 in Appendix 3 for the distributions of public high school graduates and dropouts by race/ethnicity for 2002–2003 through 2005–2006.

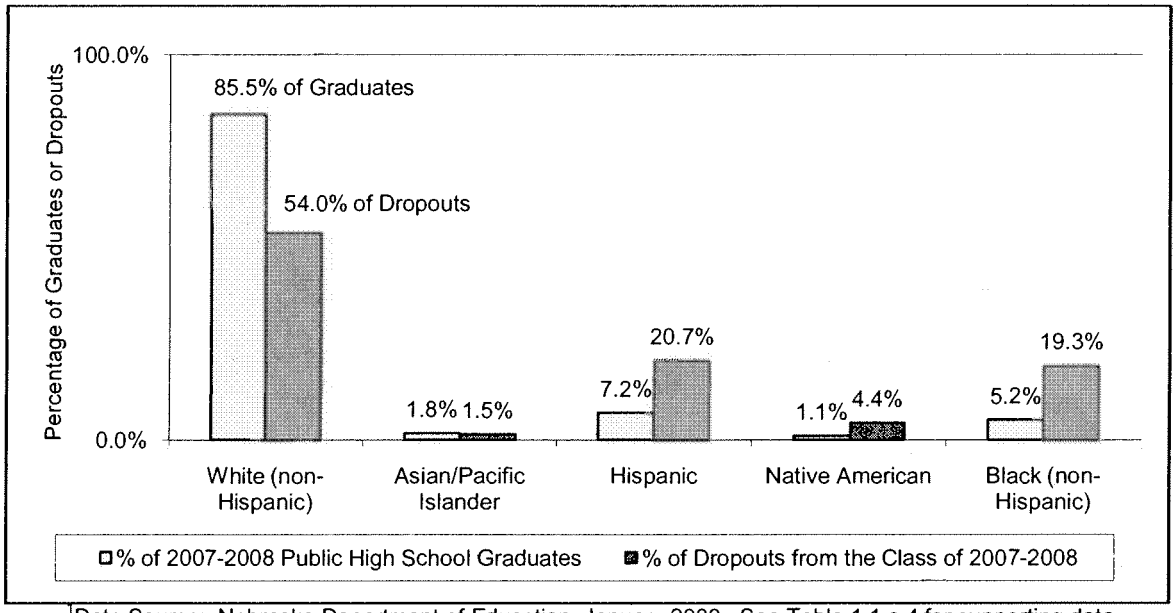
- As evidenced in Table 1.1.a.4 above and illustrated in Figure 1.1.a.8 on the next page, white non-Hispanics accounted for the largest number and percentage of dropouts from the class of 2007–2008. However, Hispanics, Native Americans and blacks accounted for a disproportionately higher percentage of students who dropped out of the class relative to the number of students who graduated in 2007–2008.

- Furthermore, as shown in Figure 1.1.a.9 on the next page, Hispanics, Native Americans and blacks accounted for higher percentages of the dropouts from the class of 2007–2008 than they did from the class of 2002–2003. This increase is a result of both the higher number of minority students and their lower graduation rates, relative to their white and Asian/Pacific Islander classmates.

- Consequently, although the four-year graduation rates for Hispanics, Native Americans and blacks increased between 2002–2003 and 2007–2008, these minorities continue to account for disproportionate and increasing percentages of Nebraska's public high school dropouts compared to the extent they are represented among the graduates of the state's public high schools.

Figure 1.1.a.8

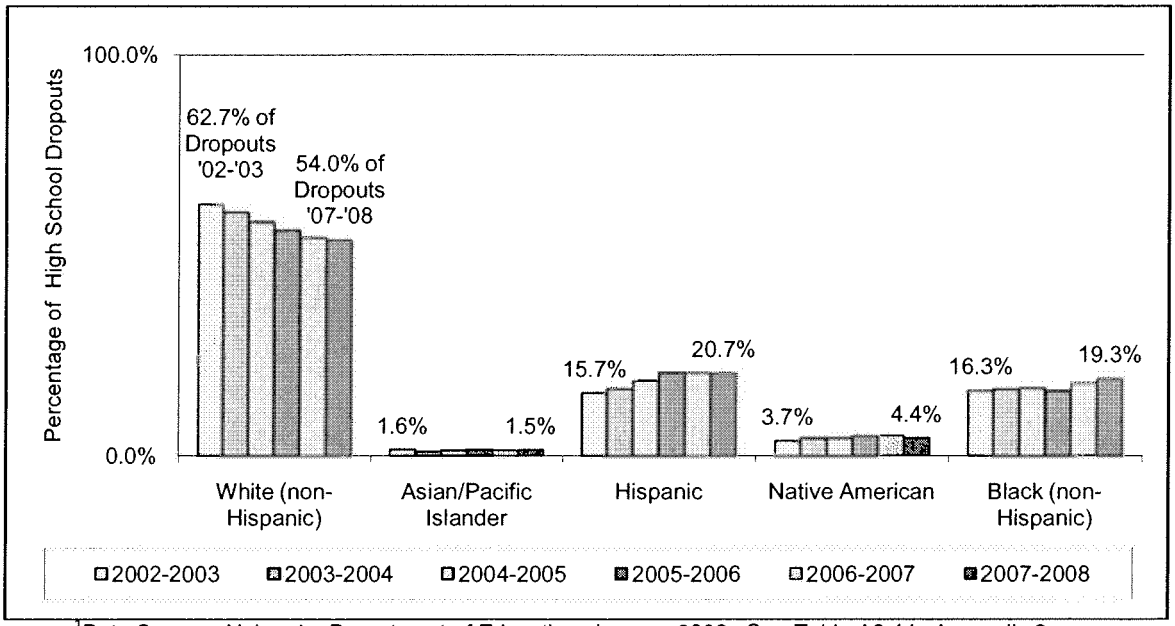
Percentages of Public High School Graduates and Dropouts by Race/Ethnicity Based on Four-Year Graduation Rate Data 2007–2008[1]



[1]Data Source: Nebraska Department of Education, January 2009. See Table 1.1.a.4 for supporting data.

Figure 1.1.a.9

Percentages of Public High School Dropouts by Race/Ethnicity Based on Four-Year Graduation Rate Data 2002–2003 through 2007–2008[1]



[1]Data Source: Nebraska Department of Education, January 2009. See Table A3.4 in Appendix 3 for supporting data.

Nebraska Four-Year, Public High School Graduation Rates by Gender

- Analyses of the four-year, public high school graduation rate data obtained from the Nebraska Department of Education reveal that females continue to have higher graduation rates than males who attend Nebraska's public high schools.

- As evidenced in Figure 1.1.a.10, the graduation rates for males and females both gradually increased from 2002–2003 to 2007–2008. Beginning in 2005–2006, the gender gap in graduation rates slightly narrowed.

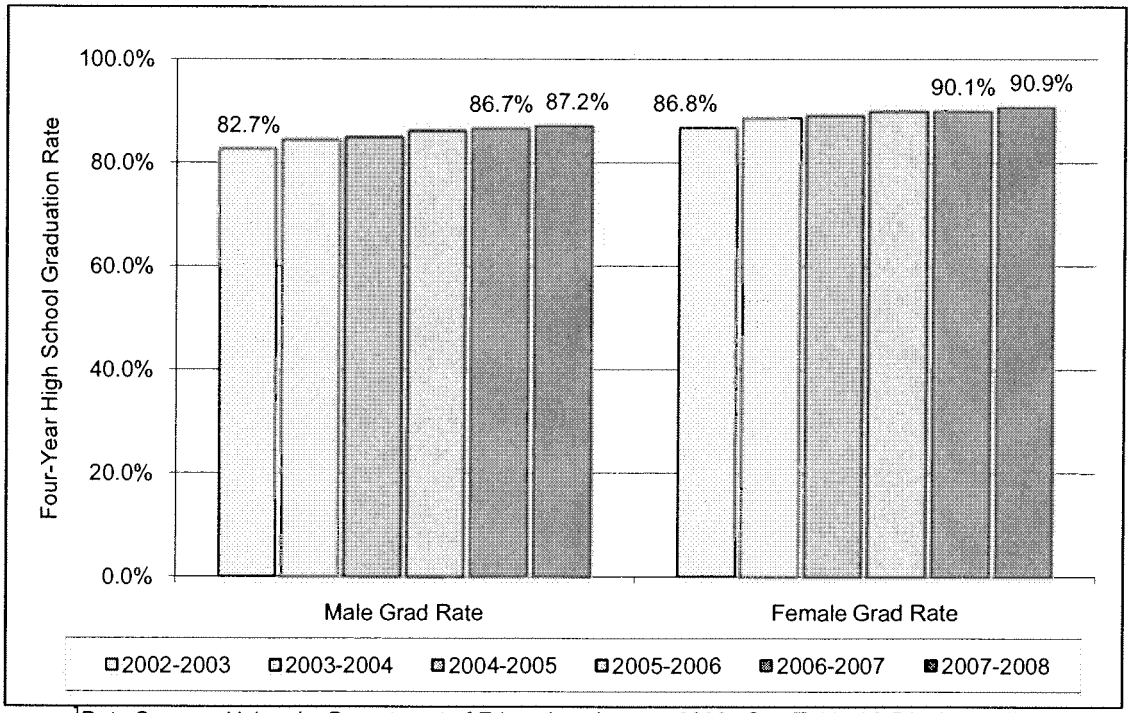
- Over the three years from 2002–2003 through 2004–2005, there was a 4.1 percentage difference between the graduation rates of males and females who completed high school in Nebraska.

- The difference between the graduation rates of males and females narrowed slightly to 3.9 percentage points in 2005–2006 and the difference narrowed to 3.4 percentage points in 2006–2007, due to a slightly higher increase in the graduation rate for males than for females in 2005–2006 and no change in the graduation rate for females in 2006–2007.

- However, the difference between the graduation rates of males and females increased from 3.4 percentage points in 2006–2007 to 3.7 percentage points in 2007–2008, indicating that the gender gap in Nebraska high school graduation rates continues to persist.

Figure 1.1.a.10

Nebraska Four-Year, Public High School Graduation Rates by Gender 2002–2003 through 2007–2008[1]



[1]Data Source: Nebraska Department of Education, January 2009. See Table A3.5 in Appendix 3 for supporting data.

Nebraska Public School Districts Selected for Further Analysis

An analysis of the four-year public high school graduation rate data for 2002–2003 through 2007–2008 indicates that Nebraska's statewide public graduation rate has increased and that the graduation rates for students in all of the reported racial/ethnic groups have improved. However, more than 2,400 students in the class of 2007–2008 dropped out of Nebraska's public high schools before they completed the requirements for graduation.

Further analysis of the four-year graduation rate data reveals that 14 (5.5%) of the state's 254 public high school districts currently account for 73% of the state's dropouts from public high schools. Consequently, efforts to further increase graduation rates and reduce dropout rates might best focus on these selected districts in order for the graduation rates for each racial/ethnic group and the state as a whole to continue to improve.

The 14 public school districts that currently account for more than 70% of the state's dropouts are located in the 12 counties highlighted on the map of Nebraska in Figure 1.1.a.11.

Figure 1.1.a.11

The 12 Nebraska Counties Where the 14 Selected School Districts that Account for More than 70% of the States Dropouts are Located

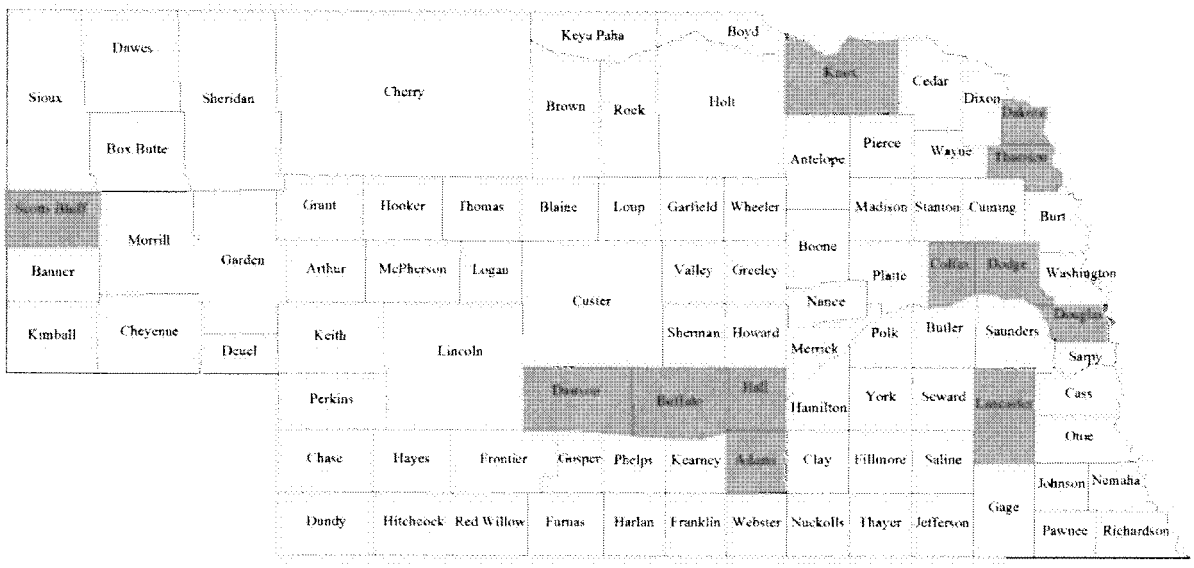


Table 1.1.a.5 lists the school districts that have accounted for 70% or more of the state's dropouts from public high schools since 2002–2003, which is the baseline for this report. To be included initially among the 14 school districts selected for analysis, a district had to meet one or both of the following criteria:

(1) The district's four-year graduation rate was lower than the statewide rate for Nebraska public schools in 2002–2003 and 2003–2004, and the district reported more than 15 dropouts from the class of 2002–2003.

(2) The district's four-year graduation rate was one of the five lowest in the state for the 2002–2003 or 2003–2004 school year.

The school districts listed in Table 1.1.a.5 included North Platte Public Schools for the analysis of data from 2002–2003 through 2006–2007. However, for this year's analysis, North Platte Public Schools was removed from the list of monitored districts because the school district had a graduation rate that was higher than the statewide rate for Nebraska public schools in 2006–2007 and 2007–2008. We congratulate them for this significant improvement. Conversely, Kearney Public Schools was added to the list this year because the district had a graduation rate that was lower than the statewide rate for Nebraska public schools and the district reported more than 15 dropouts from the classes of 2007 and 2008.

- As shown in Table 1.1.a.5, the 14 selected school districts represented about 31% of the states public high school graduates but almost 73% of all of the dropouts from Nebraska's public high schools in 2002–2003 and 2007–2008.

- Although 14 districts continue to account for 73% of the state's high school dropouts, the number of dropouts from the districts decreased 30.2% between 2002–2003 and 2007–2008. During the same period, the number of graduates from the districts increased 4.3%.

Table 1.1.a.5
Number of High School Graduates and Dropouts for the 14 Selected Nebraska School Districts 2007–2008 Compared to 2002–2003[1]

County	District or School Name	No. of **Graduates**		No. of **Dropouts** 9th – 12th Grades	
		2002–03	2007–08	2002–03	2007–08
Adams	Hastings Public Schools	233	246	54	34
Buffalo	Kearney Public Schools		354		56
Colfax	Schuyler Central High School	74	96	30	24
Dakota	South Sioux City Community Schools	176	252	64	35
Dawson	Lexington Public Schools	130	158	32	36
Dodge	Fremont Public Schools	286	282	65	44
Douglas	Omaha Public Schools	2,336	2,336	1,342	955
Hall	Grand Island Public Schools	367	378	123	105
Knox	Santee Community Schools	8	0	4	masked
Lancaster	Lincoln Public Schools	1,883	1,958	716	445
Lincoln	North Platte Public Schools	297		57	
Scotts Bluff	Scottsbluff Public Schools	207	175	39	24
Thurston	Walthill Public Schools	18	18	7	10
Thurston	Umo^{n}ho^{n} Nation Public School	9	15	18	17
Thurston	Winnebago Public Schools	21	35	16	7
	Total for 14 School Districts	6,045	6,303	2,567	1,792
	% of Nebraska Public School Total	**30.8%**	**31.5%**	**72.7%**	**72.8%**
	Nebraska Public School Total	19,604	19,995	3,531	2,460

[1]Data Source: Nebraska Department of Education, January 2009.

- As illustrated in Figure 1.1.a.12 below, the combined graduation rate for the 14 districts increased from 70.2% in 2002–2003 to 77.9% in 2007–2008, an increase of 7.7 percentage points.[1]

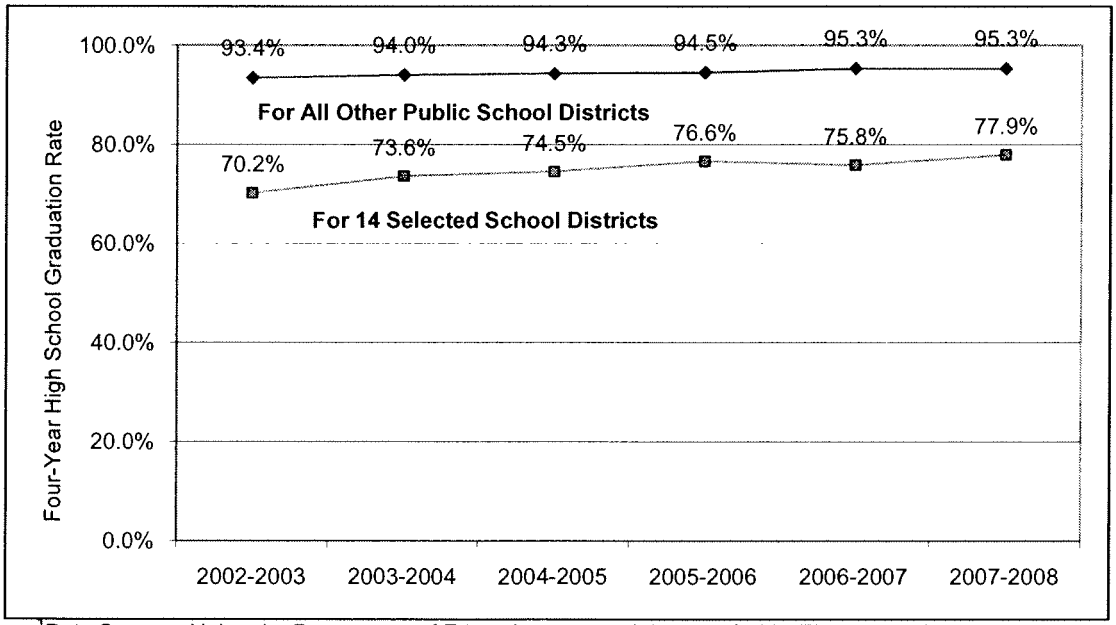
- As also evidenced in Figure 1.1.a.12, the overall four-year graduation rate for the 14 selected school districts continues to be significantly lower than the combined graduation rate for all of Nebraska's other public high schools. However, the difference between the overall graduation rate for the 14 monitored districts and the graduation rate for all other Nebraska public school districts generally narrowed between 2002–2003 and 2007–2008. This means that, in general, the percentage of students receiving regular high school diplomas in the 14 districts has increased at a higher rate than the graduation rate for all of the other public school districts.

- With the exception of the North Platte Public Schools, which had graduation rates of 90.2% in 2005–2006 and 93.7% in 2006–2007, the selected school districts have continued to have relatively low graduation rates, compared to the graduation rates of all but a few of the state's other public high schools.

- See Table A3.6 and Table A3.7 in Appendix 3 for detailed four-year graduation rate statistics for 2002–2003 through 2007–2008 for the 14 monitored school districts.

Figure 1.1.a.12

Four-Year Graduation Rates for 14 Selected Nebraska School Districts and All Other Nebraska Public High School Districts 2002–2003 through 2007–2008[1]



[1]Data Source: Nebraska Department of Education, updated January 2009. The selected districts are Fremont Public Schools, Grand Island Public Schools, Hastings Public Schools, Kearney Public Schools (beginning in 2007–2008), Lexington Public Schools, Lincoln Public Schools, North Platte Public Schools through (2006–2007), Omaha Public Schools, Santee Community Schools, Schuyler Central High School, Scottsbluff Public Schools, South Sioux City Community Schools, UNO ^ HO ^ Nation Public Schools, Walthill Public Schools and Winnebago Public Schools. See Table A3.7 in Appendix 3 for supporting data.

[1]If North Platte and Kearney Public Schools are excluded from the analysis, the combined graduation rate of the remaining 13 districts increased 7.8 percentage points, from 69.6% in 2002–2003 to 77.4% in 2007–2008.

1.1.b Preparation for College

Increase the proportion of Nebraska high school graduates who are adequately prepared to enroll in postsecondary education and proceed through degree completion.

The results of the ACT Assessment and the SAT Reasoning Test™ are summarized in this section as indicators of the extent to which Nebraska high school graduates are prepared academically to enter and proceed through postsecondary education. Of particular interest are (1) the estimated percentages of Nebraska high school graduates who are prepared for college-level coursework and (2) the significantly higher average ACT scores achieved by students who take the "core" high school courses recommended to prepare them for college.

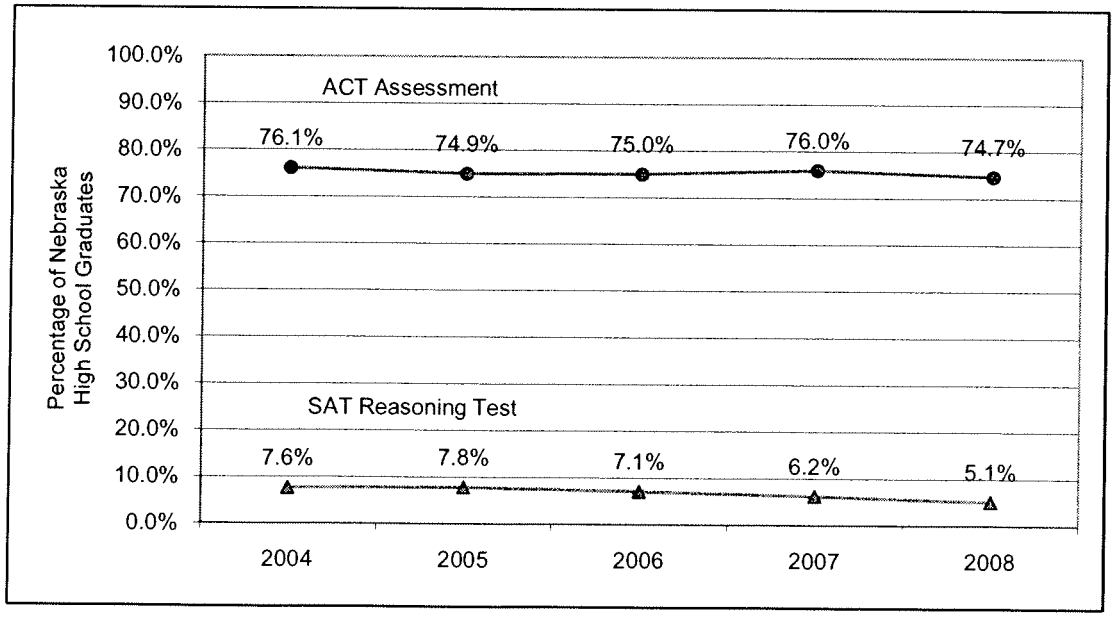
Nebraska Participation Rates for the ACT Assessment and the SAT Reasoning Test

- The ACT Assessment is the predominant college entrance exam available to measure the extent to which Nebraska students are prepared for academic coursework beyond high school. As shown in Figure 1.1.b.1, 74.7% of the Nebraska high school students in the graduating class of 2008 took the ACT Assessment. In comparison, 5.1% of the students took the SAT Reasoning Test.

- As also illustrated in Figure 1.1.b.1, the participation rates for the ACT Assessment and the SAT Reasoning Test were, respectively, 1.4 and 2.5 percentage points lower in 2008 than in 2004, which is the baseline for this annual progress report. (See Table A4.1 in Appendix 4 for supporting data.)

Figure 1.1.b.1

Percentages of Nebraska High School Graduates Who Took the ACT Assessment and/or the SAT Reasoning Test 2004–2008[1]



[1]Data Sources: ACT, Inc., College Examination Board and the Nebraska Department of Education. See Table A4.1 in Appendix 4 for supporting data.

Appendix F

Common Core Memorandum of Agreement, Participating States, International Benchmarking Evidence, and Draft Standards

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.

Dave Heineman
Governor Dave Heineman
Governor of Nebraska

5-11-09
Date

Robert D. Breed
Robert D. Breed, Ed.D.
Commissioner of Education Nebraska

5-11-09
Date

Common Core Standards Initiative Participants

1. Alabama
2. Arizona
3. Arkansas
4. California
5. Colorado
6. Connecticut
7. Delaware
8. District of Columbia
9. Florida
10. Georgia
11. Hawaii
12. Idaho
13. Illinois
14. Indiana
15. Iowa
16. Kansas
17. Kentucky
18. Louisiana
19. Maine
20. Maryland
21. Massachusetts
22. Michigan
23. Minnesota
24. Mississippi
25. Missouri
26. Montana
27. Nebraska
28. Nevada
29. New Hampshire
30. New Jersey
31. New Mexico
32. New York
33. North Carolina
34. North Dakota
35. Ohio
36. Oklahoma
37. Oregon
38. Pennsylvania
39. Puerto Rico
40. Rhode Island
41. South Carolina
42. South Dakota

43. Tennessee
44. Utah
45. Vermont
46. Virgin Islands
47. Virginia
48. Washington
49. West Virginia
50. Wisconsin
51. Wyoming.

International Benchmarking and the Common Core

The Common Core State Standards (CCSS) are designed to be **college- and career-ready** and **internationally benchmarked**. To that end, the development process included the review and consideration of many sources, including research studies, existing standards from the U.S and abroad, and the professional judgment of teachers, content area experts, and college faculty. This paper will briefly describe how international benchmarking was used to develop the CCSS.

What documents were used to ensure that the CCSS were internationally benchmarked?

To ensure that the standards prepare students to be globally competitive, the development team used a number of sources, including: the frameworks for PISA and TIMSS; the International Baccalaureate syllabi; the American Institutes for Research report , *Informing Grades 1-6 Mathematics Standards Development: What Can Be Learned From High-Performing Hong Kong, Korea, and Singapore* and; the A+ Composite found in *A Coherent Curriculum: The Case for Mathematics* by Bill Schmidt, Richard Houang, and Leland Cogan.

In addition, the development team looked to the standards of a number of individual countries and provinces to inform the content, structure and language of the CCSS. In *mathematics*, twelve set of standards were selected to help guide the writing of the standards: Belgium, Canada [Alberta], China, Chinese Taipei, England, Finland, Hong Kong, India, Ireland, Japan, Korea, and Singapore.[i] In *English language arts*, the writing team looked closely at ten sets of standards from Australia (New South Wales and Victoria), Canada (Alberta, British Columbia, and Ontario), England, Finland, Hong Kong, Ireland, and Singapore.[ii]

How were the international benchmarks used to inform the development of the CCSS?

The goal of the international benchmarking in the common core state standards development process was to ensure that the CCSS are as rigorous as comparable standards in the high-performing and other countries. However, the use of international benchmarks as evidence is no easy feat; it is not simply a matter of identifying the "best" source and copying it, or of aggregating all viable sources to find some set of shared expectations. Rather, international benchmarks were used to guide critical decisions in the following areas:

- *Whether particular content should be included:* One of the principal ways international standards were used in this development process was as a guide when making tough decisions about whether content should be included or excluded.

- *When content should be introduced and how that content should progress*: The progression of topics in the international mathematics standards helped the development team make decisions about when to introduce topics in the CCSS as well as when to stop focusing on them.

- *Ensuring focus and coherence*: Standards from other countries tend to be very focused, including only what is absolutely necessary.

- *Organizing and formatting the standards*: Certain organizational aspects or characteristics of international standards that promoted clarity and ease of reading and use served as a model for the CCSS.

- *Determining emphasis on particular topics in standards*: Where emphasis on particular topics was found repeatedly in international standard, this was instructive in determining their importance for inclusion in the CCSS.

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When the final version of the K-12 Common Core State Standards is released, it will be accompanied by a discussion of the evidence that was used in their development. In the meantime, the evidence from the September 2009 draft of the College and Career Ready Standards is available: The URL for the ELA document is http://www.corestandards.org/Files/ELAEvidence.pdf, and the URL for the mathematics document is http://www.corestandards.org/Files/MathEvidence.pdf.

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[i] Eight of these were high-performers on either TIMSS, PISA or both: Belgium, Canada [Alberta], Chinese Taipei, Finland, Hong Kong, Japan, Korea, and Singapore. England and Ireland, which have uneven performances on international assessments, were included because of their cultural links to the United States. China and India were included because of their growing global competitiveness.

[ii] Differences in language have a greater impact on the teaching and learning of language arts than of mathematics, so the teams looked primarily at English-speaking countries. All were high-performers on PISA except Singapore, which did not participate, and England, which as in mathematics was selected partly for its cultural links to the United States.

The Common Core K-12 Mathematics Standards

This document provides grade level standards for mathematics in grades K–8, and high school standards organized under the headings of the *College and Career Readiness Standards in Mathematics*. Students reaching the readiness level described in that document (adjusted in response to feedback) will be prepared for non-remedial college mathematics courses and for training programs for career-level jobs. Recognizing that most students and parents have higher aspirations, and that ready for college is not the same as ready for mathematics-intensive majors and careers, we have included in this document standards going beyond the readiness level. Most students will cover these additional standards. Students who want the option of entering STEM fields will reach the readiness level by grade 10 or 11 and take precalculus or calculus before graduating from high school. Other students will go beyond readiness through statistics to college. Other pathways can be designed and available as long as they include the readiness level. The final draft of the K–12 standards will indicate which concepts and skills are needed to reach the readiness level and which go beyond. We welcome feedback from states on where that line should be drawn.

English Language Learners in Mathematics Classrooms

English language learners (ELLs) must be held to the same high standards expected of students who are already proficient in English. However, because these students are acquiring English language proficiency and content area knowledge concurrently, 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, socio-economic status, quality of prior schooling, and levels of English language proficiency. Effectively educating these students requires adjusting instruction and assessment in ways that consider these factors. 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. On the other hand, ELLs with limited or interrupted schooling will need to acquire background knowledge prerequisite to educational tasks at hand. As they become acculturated to US schools, ELLs who are newcomers will need sufficiently scaffolded instruction and assessments to make sense of content delivered in a second language and display this content knowledge.

While some ELLs are economically and educationally advantaged, this is not the case for many of these students. Moreover, once in the U.S., the majority of ELLs attend high poverty schools with high percentages of other ELLs. These schools often lack the resources and capacity needed to help ELLs reach high academic standards. However, schools and districts can be assisted in providing a positive learning environment that capitalizes on the linguistic and cultural diversity of the student body.

Language proficiency is a complex construct that can reflect proficiency in multiple contexts, modes, and academic disciplines. Current measures of language proficiency may not give an accurate picture of an individual's language competence. In particular, we do not have measures or assessments for language proficiency related to competence in mathematics for different ages or mathematical topics. These two facts can confuse discussions of mathematics instruction for ELLs. In particular, because of the complexity of language proficiency and the limitations of the label "English Language Learner" as currently implemented, instructional decisions should not be made solely based on that label. However, research on language and mathematics education for this student population does provide a few clear results to guide practices for teaching ELLs mathematics:

- English learners can participate in mathematical discussions as they learn English (Moschkovich, 1999a, 2002, 2007a, 2007b, 2007d).

- Mathematics instruction for students who are learning English 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.

Basic principles for improving the mathematics achievement of ELLs

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 (English, Spanish, Tagalog,etc.) and language varieties (different dialects, home or everyday ways of talking, vernacular, slang, etc.) 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 crucial to ELLs' success in mathematics, and that ELLS can produce explanations, presentations, etc. and participate in classroom discussions *as they are learning English* (Moschkovich, 1999 and 2007).

- ELLs, like English-speaking students, require regular access to teaching practices that are most effective for improving student achievement. These practices include: a) Keeping mathematical tasks at high-cognitive demand (Henningsen & Stein, 1997; Silver & Stein, 1996); b) teachers and students attend explicitly to concepts (Hiebert & Grouws, 2007), and c) students wrestle with important mathematics (Hiebert & Grouws, 2007).
- See the evidence of ELLs' mathematical thinking, hear how ELLs use language to communicate about mathematics, understand the competence that ELLS bring to the classroom, build on this competence, and provide access to opportunities for advancing their mathematics learning.

Overall, research suggests that:

- Classroom instruction should allow bilingual students to choose the language they prefer for arithmetic computation. 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 English learners. Although it is crucial 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. Instead, 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 (Blachowicz, Camille, and Peter Fisher, 2000). 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 (Moschkovich, 2009).

References

Blachowicz, Camille, and Peter Fisher, "Vocabulary Instruction." In *Handbook of Reading Research*, Volume III, edited by Michael Kamil, Peter Mosenthal, P. David Pearson, and Rebecca Barr, pp. 503-523. Mahwah, NJ: Lawrence Erlbaum Associates, 2000.

Gándara, Patricia, and Frances Contreras. *The Latino Education Crisis: The Consequences of Failed Social Policies*. Cambridge, Ma: Harvard University Press, 2009.

Moschkovich, Judit N. "Supporting the Participation of English Language Learners in Mathematical Discussions." *For the Learning of Mathematics* 19 (March 1999): 11-19.

Moschkovich, J. N. (in press). Language, culture, and equity in secondary mathematics classrooms. To appear in F. Lester & J. Lobato (Ed.), Teaching and Learning Mathematics: Translating Research to the Secondary Classroom, Reston, VA: NCTM.

Moschkovich, Judit N. "Examining Mathematical Discourse Practices," *For the Learning of Mathematics* 27 (March 2007): 24-30.

Moschkovich, Judit N. "Using Two Languages when Learning Mathematics: How Can Research Help Us Understand Mathematics Learners Who Use Two Languages?" *Research Brief and Clip*, National Council of Teachers of Mathematics, 2009
http://www.nctm.org/uploadedFiles/Research_News_and_Advocacy/Research/Clips_and_Briefs/Research_brief_12_Using_2.pdf (accessed November 25, 2009).

Moschkovich, J.N. (2007) Bilingual Mathematics Learners: How views of language, bilingual learners, and mathematical communication impact instruction. In N. Nasir and P. Cobb (Eds.), *Diversity, Equity, and Access to Mathematical Ideas*. New York: Teachers College Press, 89-104.

Schleppegrell, M.J. (2007). The linguistic challenges of mathematics teaching and learning: A research review. *Reading & Writing Quarterly*, 23:139-159.

Access for Students with Disabilities

The Common Core Standards articulate rigorous expectations in the areas of mathematics, reading, writing, and speaking and listening in order to prepare students to be college- and career-ready. These standards identify the knowledge and skills students must acquire in order to be successful. Research shows that students with disabilities are capable of high levels of learning and should not be limited by low expectations and watered down curriculum. It is imperative that these highly capable students—regardless of their disability—are held to the same expectations articulated in the Core Standards as other students.[1]

However, *how* these high standards are taught is of the utmost importance in reaching students with special needs. When learning the knowledge and skills represented in the Core Standards, students with disabilities may need accommodations or—in exceptional cases—modified goals, incorporated in an individualized education program (IEP),[2] to help them access information or demonstrate their knowledge. Students might be precluded from reaching particular standards given the nature of the standard itself. In instances when a standard asks students to perform actions they are physically incapable of, students will need to be presented with alternative options to demonstrate similar knowledge and skills within the range of their abilities. Accommodations based on individual needs allow students of all disability levels to learn within the framework of the Core.

Meeting English Language Arts (ELA) Standards

Reading, writing, speaking, and listening standards often require accommodations for students with disabilities. In the case of students who are deaf, a standard that calls for "listening" should be interpreted to include reading sign language. In a similar vein, "speaking" as it occurs in standards for certain students with speech impairments should be read broadly to include "communication" or "self-expression." Students who are blind or have low vision should be able to read via Braille, screen reader technology, or other assistive technology to demonstrate their comprehension

[1] Research suggests that the vast majority of the population of students with intellectual impairments *can* achieve proficiency when they receive high quality instruction in the grade-level content and appropriate accommodations.
[2] According to the Individuals with Disabilities Act (IDEA), an IEP includes appropriate accommodations that are necessary to measure the individual achievement and functional performance of a child.

skills. "Writing" should not preclude the use of a scribe, computer, or speech-to-text technology for students with disabilities that interfere with putting pen to paper. In the case of students with intellectual impairments—less than 2 percent of the total population of all students and less than 20 percent of students with disabilities—accommodations should allow them to demonstrate their knowledge and skills through alternative modes like text to speech software or reading aloud. For these students, writing may involve the use of pictures to assist in illustrating plot or argument, or offering them the opportunity to "choose words and phrases" by selecting from options rather than generating direct answers. With appropriate accommodations and support, students with all levels of disabilities can participate in the general education curriculum and achieve grade-level proficiency with regard to the ELA content and skills articulated in the Core.

Meeting Mathematics Standards

In curriculum for students with disabilities, ELA skills often take precedence over mathematics understanding. However, most of these students can master mathematical concepts with accommodations in instructional delivery and the use of specialized technology, including computers and calculators. For example, students with visual disabilities might require enhanced verbal descriptions from teachers and the use of large-print to demonstrate subsequent knowledge. Students who are deaf might require visual aids such as charts, diagrams, and mental images and increased reliance on computers and calculators. Manipulatives can enable students with intellectual impairments to grasp abstract concepts and continue learning. Evidence suggests that students with disabilities, even those with full intellectual abilities, tend to lag behind their peers in mathematics achievement; strong curriculum that gives equal priority to mathematics and ELA will help these students succeed.

In short, while the standards remain and retain high expectations of students, they may need to be translated and occasionally modified to appropriately apply to students with disabilities, including all levels of intellectual impairment. Every student deserves to be treated with respect, and every student deserves an outstanding education. Promoting a culture of high expectations for all students is a fundamental goal of the Core Standards. Reaching students with disabilities requires broadening our understanding of what the standards say and being ready to make appropriate accommodations and/or modifications to meet individual students' needs.

How to read this document

The K–8 standards are organized by grade level. Within each grade level there are several headings, each one the title of a single progression having significant presence in the grade in question. Under each of these progression headings, there appear **core standards**, divided into standards describing concepts students should understand and standards describing skills students should acquire. A typical progression spans a number of grades, but does not span all of K-8. The progressions and their grade spans are listed at the end of the document.

The high school standards are not organized by grade level or by course, but rather are organized under headings of the *College and Career Ready Standards for Mathematics*: Expressions, Equations, Functions, Coordinates, Modeling, Statistics, Probability, and Geometry.[3] Subheadings under each heading refer either to mathematical practices or to principle topics, and core standards are listed under each subheading, as in the K-8 standards. The subheadings are not necessarily curricular units, but rather can describe concepts and skills that are revisited throughout a student's high school career. This design necessitates a future effort to develop course sequences (either traditional or integrated).

[3] Number and Quantity are not included, since they are principally the domain of K–8. In response to feedback, the headings have been reordered and Shape has been renamed to Geometry.

Mathematical Practice[4]

Proficient students 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 carry through. They are experimenters and inventors, and can adapt known strategies to new problems. They think strategically.

Students who engage in these practices discover ideas and gain insights that spur them to pursue mathematics beyond the classroom walls. They learn that effort counts in mathematical achievement.[a] These are practices that expert mathematical thinkers encourage in apprentices. Encouraging these practices in our students should be as much a goal of the mathematics curriculum as is teaching specific content topics and procedures.[b] Taken together with the Standards for Mathematical Content, they support productive entry into college courses or career pathways.

Core Standards · Students can and do:

1 Attend to precision.

Mathematically proficient students organize their own ideas in a way that can be communicated precisely to others, and they analyze and evaluate others' mathematical thinking and strategies noting the assumptions made. They clarify definitions. They state the meaning of the symbols they choose, are careful about specifying units of measure and labeling axes, and express their answers with an appropriate degree of precision. Rather than saying, "let r be speed and let t be time," they would say "let r be the speed in meters per second and let t be the elapsed time in seconds from a given starting time." They recognize that when someone says the population of the United States in June 2008 was 304,059,724, the last few digits indicate unwarranted precision.

2 Construct viable arguments.

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 break things down into cases and can recognize and use counterexamples. They use logic to 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.

3 Make sense of complex 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 consider analogous problems, try special cases and work on simpler forms. They evaluate their progress and change course if necessary. They try putting algebraic expressions into different forms or try changing the viewing window on their calculator to get the information they need. They look for correspondences between equations, verbal descriptions, tables, and graphs. They draw diagrams of relationships, graph data, search for regularity and trends, and construct mathematical models. They check their answers to problems using a different method, and they continually ask themselves, "Does this make sense?"

4 Look for and make use of structure.

Mathematically proficient students look closely to discern a pattern. For example, in $x^2 + 5x + 6$ they can see the 5 as $2 + 3$ and the 6 as 2×3. They recognize the significance of an existing line in a geometric figure and can add an auxiliary line to make the solution of a problem clear. They also can step back for an overview and shift perspective. They can see complicated things, such as some algebraic expressions, as single objects. For example, by seeing $5 - 3(x$

[4] Slated for review and editing, based on feedback to the College and Career Readiness Standards, and in order to apply more naturally to elementary school as well.

$- y)^2$ as 5 minus a positive number times a square, they see that it cannot be more than 5 for any real numbers x and y.[b]

5 Look for and express regularity in repeated reasoning.

Mathematically proficient students pay attention to repeated calculations as they carry them out, and look both for general algorithms and for shortcuts. For example, by paying attention to the calculation of slope as they repeatedly check whether points are on the line through $(1, 2)$ with slope 3, they might abstract the equation $(y - 2)/(x - 1) = 3$. Noticing the regularity in the way terms cancel in the expansions of $(x - 1)(x + 1)$, $(x - 1)(x^2 + x + 1)$, and $(x - 1)(x^3 + x^2 + x + 1)$ leads to the general formula for the sum of a geometric series. As they work through the solution to a problem, proficient students maintain oversight of the process, while attending to the details. They continually evaluate the reasonableness of their intermediate results.[b]

6 Reason quantitatively.

Quantitative reasoning is a way of thinking by which one reasons with quantities and about relations among quantities. It entails habits of creating a coherent image of the problem at hand; considering the units involved; continually attending to the meaning of quantities, not just how to compute them; and having multiple images of a concept and being flexible in transitioning among them. In problems dealing with quantitative relationships, students exercise two inseparable abilities: 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 referential meanings for the symbols involved in the manipulation.

7 Make strategic decisions about the use of technological tools.

Mathematically proficient students consider the available tools when solving a mathematical problem, whether pencil and paper, ruler, protractor, graphing calculator, spreadsheet, computer algebra system, statistical package, or dynamic geometry software. They are familiar enough with all of these tools to make sound decisions about when each might be helpful. They use mathematical understanding and estimation strategically, attending to levels of precision, to ensure appropriate levels of approximation and to detect possible errors. They are able to use these tools to explore and deepen their understanding of concepts.

Mathematics: Kindergarten[5]

Developing Coherent Understanding

[Temporarily removed for editing.]

Counting and Cardinality

Core Standards · Students understand that:

1. The number words have a standard order.
2. In counting, each object receives one and only one number word.
3. The last number word tells the number of objects.
4. Numbers said later in the count refer to larger quantities.
5. Counting on 1 more is the same as adding 1. That is, one more than a number is the next number in the count.

Core Standards · Students can and do:

a. Count by ones from 1 to 100; count by tens to 100.[6]
b. Count forward from a given number within the known sequence (instead of always counting forward from 1).[7]
c. See collections of up to 10 objects as being composed of subgroups.
d. Count to answer "how many?" questions with up to 10 things in various arrangements (e.g., array, circular, scattered), or up to 25 things if in a row.
e. Write numerals from 1 to at least 30.

Base Ten Computation

Core Standards · Students understand that:

1. Ten ones make a tens unit (ten things can be thought of as bundled into a single unit).
2. Decade words refer to groups of tens units. For example, thirty refers to a group of three tens units.
3. A teen number[8] is a ten and some ones. The number 10 can be thought of as a ten and no ones.
4. Any teen number is larger than any single digit number. Teen numbers are ordered according to their ones digits.
5. A two-digit number is some tens and some ones. For example, 29 is two tens and nine ones.

Core Standards · Students can and do:

a. Make 10 with each number from 1 to 9 (i.e., know the number that makes 10 with the given number).
b. Show each teen number as a ten and some ones.

Early Relations and Operations

Core Standards · Students understand that:

[5] Some material is used verbatim from National Research Council. (2009). *Mathematics Learning in Early Childhood: Paths Toward Excellence and Equity*. Committee on Early Childhood Mathematics, Christopher T. Cross, Taniesha A. Woods, and Heidi Schweingruber, Editors. Center for Education, Division of Behavioral and Social Sciences and Education. Washington, DC: The National Academies Press.
[6] To "count" here means only to say the number words, not to determine how many objects are in a collection.
[7] To "count" here means only to say the number words, not to determine how many objects are in a collection.
[8] Glossary: Teen number. A whole number that is greater than or equal to 11 and less than or equal to 19.

1. Adding is putting two groups together or putting some more with a group, and subtracting is taking some from a group.
2. Addition and subtraction can be represented with physical or mental objects (including fingers), pictures, drawings, sounds (e.g. number words), motions, or equations.
3. Adding can be recorded by an expression, as when "three more than six" is recorded as $6 + 3$, or by an equation that also shows the answer ($6 + 3 = 9$). Likewise, subtracting can be recorded by an expression, as when "how much more than 9 is 5" is recorded as $9 - 5$, or by an equation that also shows the answer ($9 - 5 = 4$).
4. Breaking apart a group can be recorded in an equation such as $8 = 5 + 3$. Breaking apart a group in more than one way can be recorded in an equation such as $7 + 6 = 10 + 3$.
5. In all equations, the equals sign indicates that the values on either side are the same.

Core Standards · Students can and do:

a. Use matching and counting strategies to decide whether one set is more than, less than, or equal to another set in number of objects (less than or equal to 10).
b. Compare and order numbers less than or equal to 10.
c. Use concrete objects to determine the answer to addition and subtraction word problems and additions and subtractions with totals less than or equal to 10.
d. Experience enough problem situations so that additions to five and the corresponding subtractions and some additions and subtractions within ten become well known.

Quantity and Measurement

Core Standards · Students understand that:

1. Things have attributes—such as length, weight, capacity, loudness, softness, and so on. A single thing might have several attributes of interest (as when we focus on a child's height and gender).

Core Standards · Students can and do:

a. Directly compare two objects to see which one has "more of" a shared attribute.
b. Rank three objects by a shared attribute (especially length), and use transitivity[9] to compare two objects indirectly.
c. ♦ Classify objects or people into predetermined categories, and count the numbers in each category. List the categories and counts in order by count. (Each category count less than or equal to 10.)[10]

Shapes

Core Standards · Students understand that:

1. Names refer to shapes regardless of orientation or overall size.[11]

Core Standards · Students can and do:

a. Study a range of 2D and 3D shapes, in different sizes and orientations, and discuss their properties, similarities, and differences using informal language.

[9] Glossary: Transitive property of measurement order: If one object is bigger than a second, and the second object is bigger than a third object, then the first object is bigger than the third object.
[10] The symbol ♦ indicates material in data analysis and statistics that appears under another progression heading in order to make an important connection.
[11] For example, a square rotated to form a "diamond" is still a square, even though it is rotated. Students at this grade might need to physically rotate a shape until it is "level" before they can correctly name it.

b. Move shapes using translations, reflections and rotations.[12]

[12] This is not meant to be assessed by showing students a picture of a shape and asking them to draw or select a translated, reflected or rotated version of it.

Mathematics: First Grade[13]

Developing Coherent Understanding

[Temporarily removed for editing.]

Early Relations and Operations

Core Standards · Students understand that:

1. Counting on is an efficient method of counting all, in which the initial count of the first addend is omitted.
2. Addition and subtraction apply to situations of joining, separating, part-part-whole, and comparing quantities to one another.[14] These situations can be represented by addition and subtraction equations such as $7 + 5 = 12$, $10 = 5 + 5$, and so on.
3. Addition and subtraction are inverse operations; that is $10 - 8$ can be found by thinking $8 + 2 = 10$.
4. When any two of the numbers in an addition or subtraction equation are known, the unknown number can be found.
5. One-to-one dealing of objects in a collection (e.g., "One for you, one for me, one for him, ...") creates fair shares.

Core Standards · Students can and do:

a. Use counting on strategies or decomposing strategies for additions and subtractions within 20.
b. Solve addition problems containing three addends.
c. Use objects, pictures and story contexts to explain what happens when the order of addends in a sum is changed, when 0 is added to a number, and when one addend in a sum is increased by 1 and another decreased by 1.
d. Experience enough problem situations so that many or all sums and differences within 20 become well known.
e. Use drawings and equations to represent and solve word problems involving addition and subtraction.[15]
f. ♦ 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
g. Create n fair shares from a collection of objects. Identify the size of one share, and recognize the original collection as n copies of a single share.

Quantity and Measurement

Core Standards · Students understand that:

1. Lengths can be added by placing long objects, rods, or unit cubes end to end in a straight line. The total length is the same in whatever order the rods are placed.

[13] Some material is used verbatim from National Research Council. (2009, op. cit.)
[14] In join and separate problems, there is change over time. In part-part-whole problems, two quantities make up a whole in a static situation. Compare problems involve two quantities and the difference between them. Compare problems add specificity to the notions of greater than and less than.
[15] Include join, separate, part-part-whole, and compare problems, with unknowns in all positions. Represent these situations with equations that use a small square or a ? for the unknown.

2. Lengths can be compared by placing rods side by side, with one end lined up. The difference in length is how far the longer extends beyond the end of the shorter.
3. Lengths are measured (assigned numerical values) by comparing them to other lengths—that is, by using another object as a length unit. The length of an object can be expressed numerically by counting the number of length units that span it with no gaps or overlaps.
4. When an object or figure is decomposed into several pieces, the length of the whole can be found by placing the pieces end to end in any order.
5. A sum of two whole numbers represents a total length; a difference of two whole numbers represents a difference in length.
6. Durations of time are measured by comparing them to other durations of time, such as the earth's rotation period, or the time a minute hand takes to complete a circle around a clock face.

Core Standards · Students can and do:

a. Using an object as a length unit, measure, compare and estimate length.[16]
b. Using an object as a length unit, determine total length by adding lengths of two parts.[17] Compare lengths using addition and subtraction.
c. Decompose circles and rectangles into 2 and 4 equal parts. Describe the parts using the words "halves" and "quarters," and using the phrases "half of" and "quarter of." Describe the wholes as twice or four times as large as the parts.
d. Tell time in hours from clocks; subtract to find whole-hour durations on a clock (within AM or within PM).

Base Ten Computation

Core Standards · Students understand that:

1. In comparing two-digit numbers, the number with more tens units is larger; if the number of tens units is the same in each, the number of ones units decides.
2. In adding or subtracting 2-digit numbers, one adds or subtract like units (tens units and tens units, or ones units and ones units).

Core Standards · Students can and do:

a. Count to 100 or beyond, switching appropriately to the new decade after a 9 has been said in the ones place.
b. Compare and order numbers to 100 based on meanings of the tens and ones places.
c. Easily write numerals to 20; write numerals to 100.
d. Use break-apart and make-a-ten strategies to add and subtract with teen totals as in $7 + 6 = 10 + 3$ and $17 - 9 = 17 - 7 - 2$.
e. Find 10 more or 10 less than a number without having to count.
f. Add one-digit numbers to two-digit numbers, and add multiples of 10 to one-digit and two-digit numbers.
g. Represent addition of two-digit numbers using 10-rods and unit cubes,[18] including rearranging rods and cubes to show regrouping when needed.
h. Add two-digit numbers to two-digit numbers using strategies based on place value, Properties of Arithmetic, or the inverse relationship between addition and subtraction.

Shapes

[16] Select and iterate units, partition into equal parts, and compare lengths indirectly by using a reference length.
[17] Restrict to whole-unit lengths.
[18] Any concrete model that can show individual units and ten connected units will do.

Core Standards · Students understand that:

1. Several shapes can be joined together to form a larger shape. A single shape can also be visualized as a collection of smaller shapes joined together.
2. Decomposing larger shapes into equal-sized parts creates fair shares.
3. When an identical figure is decomposed into more fair shares, the shares are smaller than in the first instance.

Core Standards · Students can and do:

a. Form different 2D figures with cutouts of rectangles, squares, triangles, semicircles, and quarter-circles.[19]
b. Form different 3D figures with concrete models of cubes, rectangular prisms, cones, and cylinders.[20]
c. Decompose 2D shapes into rectangles, squares, triangles, semicircles, and quarter-circles, including decomposing into fair shares.

[19] From Singapore Primary 2
[20] From Singapore Primary 2

Mathematics: Second Grade

Developing Coherent Understanding

[Temporarily removed for editing.]

Operations and the Problems They Solve

Core Standards · Students understand that:

1. Addition and subtraction apply to situations of joining, separating, part-part-whole, and comparing quantities to one another.[21] These situations can be represented by addition and subtraction equations such as 17 + 5 = 22, 36 = 56 – 26, and so on.
2. Addition and subtraction are inverse operations; that is 100 – 98 can be found by thinking 98 + 2 = 100.
3. Numbers can be added and subtracted only when they refer to the same underlying unit.

Core Standards · Students can and do:

a. Use representations (objects, pictures, story contexts) to describe and justify properties of addition and subtraction.[22]
b. Produce full sets of related equations for addition and subtraction, as in the set 5 + 3 = 8, 3 + 5 = 8, 8 = 5 + 3, 8 = 3 + 5, 8 – 5 = 3, 8 – 3 = 5, 3 = 8 – 5, 5 = 8 – 3.
c. Solve up to two-step addition/subtraction word problems with whole numbers and whole number quantities within 100.[23]

Base Ten Computation

Core Standards · Students understand that:

1. A three-digit number is made up of hundreds, tens and ones units. Digits in each place are worth ten times as much as digits in the place to the right.
2. Comparison of numbers is decided by the leftmost digit, with subsequent digits breaking ties.
3. Three-digit numbers can be expanded into sums of hundreds, tens and ones units. In adding or subtracting, one adds or subtracts the units of each size; regrouping might be needed to write a total in standard form if there are too many of a unit, or to get enough of a unit to subtract from it.
4. The scheme for regrouping is the same at each place, because each unit is composed of ten of the smaller unit.

Core Standards · Students can and do:

a. Compare and order numbers to 1,000.

[21] In join and separate problems, there is change over time. In part-part-whole problems, two quantities make up a whole in a static situation. Compare problems involve two quantities and the difference between them. Compare problems add specificity to the notions of greater than and less than.

[22] Include properties such as that the sum is the same when multiple addends are added in a different order; if adding two numbers gives a certain sum, then subtracting one of the addends from the sum results in the other addend; that if more is subtracted from a number, the difference is decreased and if less is subtracted the difference is increased; that in an addition problem, each addend can be taken apart and the parts can be recombined in any order without changing the sum.

[23] Include join, separate, part-part-whole, and compare problems, with unknowns in all positions. Represent these situations with equations that use a small square or a ? for the unknown.

b. Given a three-digit number, quickly find 10 more or 10 less than the number, and quickly find 100 more or 100 less than the number.
c. Rapidly add and subtract within 20.[24]
d. Add and subtract three-digit numbers to three-digit numbers using strategies based on place value, Properties of Arithmetic, or the inverse relationship between addition and subtraction.
e. Add and subtract three-digit numbers using an algorithm[25] based on place value and regrouping, such as the standard algorithm.
f. Explain why addition and subtraction strategies and algorithms work, using place value and the Properties of Arithmetic (including explanations supported by drawings or objects).

Quantity and Measurement

Core Standards · Students understand that:

1. 1 inch, 1 foot, 1 centimeter and 1 meter are conventionally defined lengths that allow standardized length measurements.
2. When measuring a length, if a smaller unit is chosen, more units must be iterated to measure the length in those units. But the length of an object itself does not depend on the choice of unit.
3. Units can be decomposed into smaller units, e.g. a foot contains 12 inches and a meter contains 100 centimeters. A small number of long units might form a greater total length than a large number of small units.
4. Sharing a circle or rectangle fairly among 2-6 shares creates equal parts, each of which is a single unit. Copying one unit by the number of pieces measures the whole in terms of the units.
5. A half, a third, or a quarter of a given rectangle encloses the same amount of space regardless of its shape.

Core Standards · Students can and do:

a. Measure, compare and estimate whole-unit lengths in units of inches, feet centimeters and meters.
b. Construct a number line with an origin (0) and a unit (1), marking off whole numbers one unit distance apart. Use a number line to represent sums and differences; determine lengths of intervals on the number line.
c. Decompose circles and rectangles into 2-6 equal parts. Describe the parts using the words "halves," "thirds," "half of," "a third of," etc. Describe the wholes as 2-6 times as large as the parts.
d. Construct a number line to 100 using tens-unit lengths, showing ones-unit lengths within a decade of interest. Explain regrouping by composing and decomposing concrete lengths.
e. ♦ Draw a bar graph (with single-unit scale) to represent a data set with several categories. Solve simple part-part-whole and compare problems using information presented in a bar graph.[26]
f. ♦ Identify correspondences in different representations of a data set with several categories.
g. Solve word problems involving dollar bills, quarters, dimes, nickels and pennies.

Shapes

Core Standards · Students understand that:

[24] Acceptable strategies include: mental strategies such as making a ten, use of fingers to assist in rapid counting-on, and producing sums or differences from memory.

[25] Glossary: Algorithm. A step by step routine that always gives some answer, rather than ever giving no answer; that always gives the right answer, and never gives a wrong answer; that can always be completed in a finite number of steps, rather than in an infinite number of steps; and that applies to all problems of a given type (e.g., adding any two multidigit whole numbers, or bisecting any angle). Cf. Wikipedia's "effective procedure," from which this definition is adapted.

[26] For part-part-whole problems, only sum-unknown problems are required to meet this standard. For compare problems, only difference-unknown problems are required to meet the standard.

1. A given category of shapes (e.g., triangles) can be divided into subcategories (e.g., isosceles triangles) on the basis of special properties. Conversely, different classes of shapes (e.g., squares and rectangles) can be united into a larger category (e.g., quadrilaterals) on the basis of shared properties.

Core Standards · Students can and do:

a. Draw and identify equilateral triangles, isosceles triangles,[27] squares and rectangles.[28]
b. Recognize squares and rectangles as examples of quadrilaterals; draw examples of quadrilaterals that are neither squares nor rectangles.
c. Draw and identify radii and diameters of a circle.
d. Recognize objects that resemble spheres, cylinders and rectangular prisms.

[27] Students at this grade need not understand that equilateral triangles are isosceles.
[28] Students at this grade need not understand that squares are rectangles.

Mathematics: Third Grade

Developing Coherent Understanding

[Temporarily removed for editing.]

Operations and the Problems They Solve

Core Standards · Students understand that:

1. Multiplication and division apply to situations of equal grouping, fair sharing, measuring, and comparing ("times as much").
   - An equation of the form $a \times b = n$ applies to a situation in which a groups of b things each make n things in all, or in which a copies of a continuous quantity of size b form a continuous quantity of size n. (See table for examples.)
   - An equation of the form $n \div a = b$ tells how many things, b, are in each group when n things are divided equally into a groups, or tells how large a quantity b results when a continuous quantity of size n is shared fairly into a shares. (See table for examples.)
   - An equation of the form $n \div b = a$ tells how many groups, a, result when n things are divided into equal groups of b things each, or tells how many fair shares, a, a quantity of size n yields when each share has size b. (See table for examples.)
   - Two quantities can be compared by multiplication or division. An equation of the form $a \times b = n$ means n is a times as much as b and b times as much as a.
2. Multiplication is commutative: The total number of things in a groups of b things each is the same as the total number of things in b groups of a things each, that is, $a \times b = b \times a$. Likewise, a copies of a continuous quantity of size b are equal in size to b copies of a continuous quantity of size a.
3. The area of a rectangle with whole number side lengths can be calculated by multiplying because the rectangle can be decomposed into equal rows (or columns) of unit squares.
4. Multiplication and division are inverse operations; that is $35 \div 7$ can be found by thinking $5 \times 7 = 35$. When any two of the numbers in a multiplication or division equation are known, the unknown number can be found.

	3 × 6 = 18	**18 ÷ 3 = 6**	**18 ÷ 6 = 3**
Collections	3 rows of apples with 6 apples in each row are 18 apples.	If 18 apples are arranged into 3 equal rows, each row will have 6 apples in it.	If 18 apples are arranged into equal rows of 3 apples, there will be 6 rows.
Continuous Quantities	If you have enough ribbon to make 6 bows, then 3 times as much ribbon will make 18 bows.	If you have enough ribbon to make 18 bows and share the ribbon fairly among 3 kids, then each kid has enough ribbon to make 6 bows.	If each kid wants to make 6 bows and there's enough ribbon to make 18 bows, then 3 kids can make bows.

Core Standards · Students can and do:

a. Use representations (objects, pictures, story contexts) to describe and justify properties of multiplication and division.[29]
b. Solve simple multiplication and division word problems involving equal groups, length and area.
c. Solve up to two-step word problems involving the four operations with whole numbers and whole number quantities. (Whole number quotients only)
d. Solve multiplicative comparison problems with whole numbers (problems involving the notion of "times as much").
e. ♦ Draw a scaled bar graph to represent a data set with several categories. Solve "how many more"/"how many less" problems (two-step problems) using information presented in scaled bar graphs.[30]

Base Ten Computation

Core Standards · Students understand that:

1. Patterns in the multiplication table can be explained by the Properties of Arithmetic. For example, the distributive property explains why, for any row, the entries in the 7 column are the sums of the entries in the 5 and 2 columns.
2. The Properties of Arithmetic can be used to derive new multiplications and divisions from known ones.

Core Standards · Students can and do:

a. Explain strategies for multiplying and dividing that use the Properties of Arithmetic and properties of the base ten system.
b. Rapidly multiply and divide within 100.[31]
c. Produce full sets of fact families for multiplication and division, as in the set $6 \times 7 = 42$, $7 \times 6 = 42$, $42 = 7 \times 6$, $42 = 6 \times 7$, $42 \div 7 = 6$, $42 \div 6 = 7$, $6 = 42 \div 7$, $7 = 42 \div 6$.
d. Find the factor pairs for a given number, as in the factor pairs for the number 42: {42, 1}, {21, 2}, {14, 3}, {7, 6}.

Fractions

Core Standards · Students understand that:

1. When a whole, 1, is divided into b equal parts, the size of the parts is written $1/b$. To show $1/b$ of something, divide the thing into b equal parts.
2. For a whole number a and a positive whole number b, a/b is defined as a copies of $1/b$.[32] This can be thought of as the sum $1/b + 1/b + \ldots + 1/b$ (with a summands).
3. Whole numbers can be written as fractions, as in $b/b = 1$, $n/1 = n$, and cases such as $(4 \times 7)/4 = 7$.
4. Fractions are numbers and can be seen as lengths on a number line.[33]

[29] Include properties such as that the product is the same when the order of the factors is changed; that multiplication problems involving 1-digit numbers can be solved by breaking one factor apart additively and multiplying each part by the other factor; and that multiplying a quantity by a number, then dividing by the same number, leaves the original quantity unchanged.

[30] Include single-unit scales and multiple-unit scales. For multiple-unit scales, all counts should be evenly divisible by the scale factor. No count should represent more than ten of the scale unit, and no scale unit should represent more than ten counts.

[31] A variety of mental strategies are acceptable, including derived fact strategies and producing products or quotients from memory.

[32] This includes fractions greater than 1. For example, $17/5$ is 17 copies of $1/5$.

[33] For example, $17/5$ is 17 copies of the subinterval $1/5$ laid end to end.

5. Two fractions are equal when they represent the same portion of a whole, or when they have the same length on a number line. One fraction is greater than another when it represents a greater portion of the whole than the other, or lies to the right of the other on the number line.
6. Given two unit fractions, the fraction with the larger denominator is smaller, because dividing a whole into a larger number of parts leads to smaller parts.
7. Fractions with the same denominator can be added or subtracted by adding or subtracting the units indicated by the unit fraction. 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 $6/3$.
8. The decimal 0.1 denotes the fraction $1/10$, 0.2 denotes $2/10$, and so on through 0.9, which denotes $9/10$.

Core Standards · Students can and do:

a. Use fractions to describe quantities and parts of wholes.
b. Compare and order fractions with equal numerators or equal denominators, including in contextual situations, using the fractions themselves, bar strip drawings, number line representations, and area models.
c. Reason about fractions to establish equivalences between fractions with unlike denominators 2, 3, 4 and 6 (e.g. $1/2 = 2/4$, $4/6 = 2/3$).
d. Add and subtract fractions with like denominators.
e. Solve word problems that involve adding, subtracting, ordering and comparing fractions.
f. Represent fractions of the form $d/10$ in decimal notation; compare and order to tenths in decimal notation.

Quantity and Measurement

Core Standards · Students understand that:

1. A unit of measure can be partitioned into equal-sized parts, whose sizes can be represented as fractions of the unit.
2. The area of a closed plane figure is a measure of how much space it encloses. A square with side length 1 unit is said to enclose "one square unit" of area.
3. The area of a closed plane figure can be measured (expressed numerically) by the number of square units that fit inside it with no gaps or overlaps.
4. Area is a model for multiplication because tiling a rectangle with unit squares shows that a rectangle a units long by b units wide encloses an area of $a \times b$ square units.

Core Standards · Students can and do:

a. Measure lengths using rulers marked with halves and fourths of inches. Make a dot plot to show repeated measurements.
b. Convert compound units to a smaller or a larger unit, and solve problems involving mixed units (feet and inches, yards and feet).
c. Using customary units, demonstrate and justify correct processes for measuring, comparing, and estimating length, mass, capacity, and durations of time, including unit selection, partitioning and iterating units, and transitivity.
d. Compute perimeters of polygons by adding given side lengths, and find an unknown length in a polygon given the perimeter and all other side lengths. Represent these problems with equations involving a symbol for the unknown quantity.
e. Determine and compare areas by counting square units (improvised units, cm^2, m^2, in^2, ft^2).
f. Compute elapsed time and solve problems involving elapsed time (to the nearest minute).

Mathematics: Fourth Grade

Developing Coherent Understanding

[Temporarily removed for editing.]

Operations and the Problems They Solve

Core Standards · Students understand that:

1. 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 whatever numbers are involved.
2. The distributive property (of multiplication over addition) relates addition and multiplication. The distributive property can be shown numerically and visually, using arrays and area models.

Core Standards · Students can and do:

a. Solve multistep word problems involving the four operations with whole numbers.[34]
b. Estimate answers to computations and compute mentally to assess reasonableness of results.
c. Solve problems that involve comparing, ordering, adding and subtracting fractions with like denominators. Compare fractions to benchmark fractions.
d. Solve problems that involve comparing and ordering decimal numbers to hundredths. Compare decimals to benchmark decimals.
e. *Make a table from given data, ask and answer questions about data in a table, solve multi-step problems using information presented in tables, and find patterns in tables.[35]

Fractions

Core Standards · Students understand that:

1. The fraction a/b can be written as $a \times 1/b$ because a/b is a copies of $1/b$.
2. When a identical things are divided into b equal parts, each of a things contributes $1/b$. So $a \div b = a/b$.[36]
3. A fraction can be multiplied by a whole number as $n \times a/b = n \cdot a/b$. For example, $3 \times 2/5$ can be seen as 3 groups of 2 unit fractions $1/5$.[37]
4. A decimal of two digits stands for a sum of fractions whose denominators are 10 and 100. For example, 0.34 stands for $3/10 + 4/100$.

Core Standards · Students can and do:

a. Reason about fractions to establish equivalences between related fractions[38] (e.g. $4/10 = 40/100$, $9/12 = 3/4$).

[34] Use the properties of multiplication (commutative, associative, identity) or the inverse relationship between multiplication and division (multiplying a number by b then dividing by b, and vice versa, leaves the number unchanged) to make sense of single digit multiplication and division situations and solve problems.
[35] Include tables with data from proportional relationships.
[36] This definition agrees with previous understandings of division in cases like $28 \div 7$ (i.e., when a is a multiple of b), but also gives meaning to quotients such as $3 \div 4$ or $7 \div 2$.
[37] Using the Properties of Arithmetic, $n \cdot a/b = n \cdot (a \cdot 1/b) = (n \times a) \times 1/b = (n \times a)/b$.

b. Add and subtract related fractions in simple cases within one whole (e.g. $1/2 + 1/4$, $3/10 + 4/100$).
c. Solve word problems posed with whole numbers that have fractional answers.
d. Represent multiplication of whole numbers by fractions and fractions by whole numbers, using length and area models.
e. Solve word problems involving multiplying fractions by whole numbers and multiplying whole numbers by fractions.[39]
f. Use decimals to hundredths to describe quantities and parts of wholes, compare and order decimals to hundredths, and write fractions of the form $a/10$ or $a/100$ in decimal notation.
g. Round decimals (to hundredths) to the nearest whole number.
h. Solve addition and subtraction story problems involving fractions with related denominators (situations familiar from whole number work).

Base Ten Computation

Core Standards · Students understand that:

1. The product of a one-digit number times a multidigit number is the sum of the products of the one-digit number times each place value component. This is an instance of the distributive property.
2. Multi-digit multiplication algorithms can be derived and explained by decomposing numbers into their place value components and applying the distributive property.
3. Digits in each place are worth ten times as much as digits in the place to the right and a tenth as much as digits to the left; comparison of numbers is decided by the leftmost digit, with subsequent digits breaking ties.
4. Given whole numbers a and b, find whole numbers Q and R so that $a = Q \times b + R$. For example, given 325 and 7, express 325 in the form $325 = 46 \times 7 + 3$.

Core Standards · Students can and do:

a. Demonstrate place value understanding for whole numbers to 1,000,000 and compare numbers within this range.
b. Round whole numbers to the nearest 10 or 100 and use rounding to estimate computations.
c. Multiply single place numbers (to 9000) by single digit numbers.[40]
d. Multiply two-, three- and four-digit numbers by single-digit whole numbers, and multiply two-digit numbers by two-digit numbers, using strategies based on place value, Properties of Arithmetic, or the inverse relationship between multiplication and division.
e. Multiply two-digit numbers by two-digit numbers using an algorithm based on place value and regrouping, such as the standard algorithm.
f. Divide two-, three- and four-digit numbers by single-digit numbers, with or without remainder. In the case of remainders, express results in the form of an equation, as in $325 = 46 \times 7 + 3$.
g. Explain why multiplication and division strategies and algorithms work, using place value and the Properties of Arithmetic (including explanations supported by drawings or objects).

Quantity and Measurement

Core Standards · Students understand that:

[38] Glossary: Related fractions. Two fractions are *related* if one denominator is a factor of the other. (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.)
[39] Include sharing multiple continuous wholes a fairly among b people, naming an individual share as a/b. For example 5 meters of pink ribbon shared among 3 people results in $5/3$ meters each.
[40] Glossary: Single-place number. The numbers that result when a whole number between 1 and 9 (inclusive) is multiplied by the numbers 10, 100, 1000, etc.

1. Area is additive: If a figure is decomposed into several pieces, then the area of the whole figure can be found by adding the areas of the pieces (expressed in common units).
2. An angle is two rays with a common endpoint, and is measured by the relative amount of a circle that you trace when turning from one ray to the other.
3. A one-degree angle turns through 1/360 of a circle, where the circle is centered at the origin of the rays; the measure of an angle is the number of one-degree angle turned with no gaps or overlaps.

Core Standards · Students can and do:

a. Apply the formula for area of squares and rectangles. Measure and compute whole-square-unit areas of objects and geometric figures decomposable into rectangles.[41]
b. * Make a dot plot to show repeated measurements in common 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 (e.g., finding the difference in length between the longest and shortest specimens in an insect collection).
c. Draw scales (number line representations) of problem situations involving length, height and distance including fractional units or decimal numbers.
d. Find one dimension of a rectangle given the other dimension and its area or perimeter; find the length of one side of a square given its area or perimeter. Represent these problems with equations involving a symbol for the unknown quantity.
e. 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; represent these problems with equations involving a symbol for the unknown quantity.

Shapes

Core Standards · Students understand that:

1. Shapes can be analyzed and classified using concepts of parallelism, perpendicularity and angle measure.

Core Standards · Students can and do:

a. Draw points, lines, line segments, rays and angles; identify these in geometric figures.
b. Associate angles of a quarter turn (subtending $1/4$ of a circle) with angle measure 90°, a half turn ($1/2$ of a circle) with angle measure 180°, $3/4$ turn ($3/4$ of a circle) with angle measure 270°, and a full turn (complete circle) with angle measure 360°.[42]
c. Draw perpendicular and parallel lines; identify these in geometric figures.
d. Identify right angles and angles smaller than/greater than a right angle in geometric figures; recognize right triangles.
e. Given a quadrilateral, say whether it is a square, whether it is a rectangle, and whether it is a parallelogram (with an understanding that a given shape may fit more than one category).

[41] using one-digit or two-digit numbers times two-digit numbers
[42] From Singapore Primary 4

Mathematics: Fifth Grade

Developing Coherent Understanding

[Temporarily removed for editing.]

Fractions

Core Standards · Students understand that:

1. Fractions a/b and $(n \times a)/(n \times b)$ are equal: for $1/b$ is n copies of $1/(n \times b)$, so a/b is $n \times a$ copies of $1/(n \times b)$. Example: $1/4$ is 4 copies of $1/12$, so $2/3$ is 8 copies of $1/12$; thus $2/3 = 8/12$.
2. Fractions can be added or subtracted by replacing each with an equal fraction so that the resulting fractions have the same denominator. Example: $2/4 + 5/4 = 8/12 + 15/12 = 23/12$.
3. Multiplying unit fractions gives a new unit fraction with denominator equal to the product of the initial denominators. For example, $1/3 \times 1/2 = 1/(3 \times 2)$. The product $1/3 \times 1/2$ is 1 part when a whole of size $1/2$ is divided into 3 parts, i.e. it is "$1/3$ of $1/2$."[43]
4. Multiplying unit fractions can be extended to multiplying fractions in general. For example, $2/3 \times 4/5$ can be seen as 2 groups of 4 unit fractions $1/15$, hence the product is $8/15$.[44] The product $2/4 \times 4/5$ is 2 parts when a whole of size $4/5$ is divided into 3 parts, i.e. it is "$2/4$ of $4/5$."[45]
5. Dividing a unit fraction $1/b$ by a whole number n gives a unit fraction with denominator $n \times b$, because when $1/b$ is divided into n equal parts, the size of each part is $1/(n \times b)$. For example, $1/3 \div 2 = 1/6$.
6. Dividing a whole number n by a unit fraction $1/b$ gives a whole number $n \times b$, because, as there are b units of $1/b$ in 1, there are $n \times b$ units of $1/b$ in n. For example, $2 \div 1/4 = 6$.
7. A mixed number stands for the sum of its whole number part and a fractional part less than 1. A mixed number can be written as a fraction greater than 1, such as $17/5$. This equivalence can be shown using area, length, and number line models.
8. The ratio of two whole number quantities a and b, written $a:b$ or a/b, is a multiplicative comparison telling how much of one quantity there is for a given amount of the other, or how many times as much one is than the other.[46]

Core Standards · Students can and do:

a. Use area models and length models (such as strip drawings or the number line) to represent multiplication of fractions, division of unit fractions by whole numbers, and division of whole numbers by unit fractions.
b. Multiply fractions, divide unit fractions by whole numbers, and divide whole numbers by unit fractions, and solve word problems involving these operations.
c. Divide whole numbers by single digit decimals by seeing that they are fractions with denominator 10 or 100.
d. Rename fractions and mixed numbers to equivalent forms and identify equivalent fractions.
e. Compare and order fractions and mixed numbers with like or unlike denominators, including in contextual situations, using the fractions themselves, strip drawings or number line representations, and area models. Describe the size of fractional quantities with reference to the problem situation.
f. Make tables of equal ratios relating whole number quantities, and find missing values in the tables. Plot pairs of values on the coordinate plane. Example

[43] On the number line, $1/n \times 1/d$ is 1 part when the interval from 0 to $1/d$ is divided into n parts. This is the same as 1 part when the interval from 0 to 1 is divided into $n \times d$ parts, and thus $1/n \times 1/d = 1/n \times d$.
[44] Using the Properties of Arithmetic, $2/3 \times 4/5 = (2 \times 1/3) \times (4 \times 1/5) = (2 \times 4) \times (1/3 \times 1/5) = (2 \times 4) \times 1/3 \times 5 = 2 \times 4/3 \times 5$.
[45] On a number line, $m/n \times c/d$ means m parts when the interval from 0 to c/d is divided into n parts.
[46] For example, in a mixture of 5 cups of flour and 2 cups of sugar, the ratio is 5 cups flour to 2 cups sugar. There is $5/2$ times as much flour as sugar (equivalently, 2 $1/2$ times as much or 2.5 times as much).

Cups of Flour	5	10	?	20
Cups of Sugar	2	?	6	8
Flour:Sugar (fraction form)	5/2	10/4	?	20/8
Flour:Sugar (decimal form)	?	?	?	?

Hours of Snowfall	5	10	?	20
Inches of Snow	2	?	6	8
Inches:Hours (fraction form)	2/5	4/10	?	8/20
Inches:Hours (decimal form)	?	?	?	?

Base Ten

Computation

Core Standards · Students understand that:

1. The standard division algorithm is based on successively finding the largest single digit multiple of the divisor that is less than the dividend, regrouping to the next lower unit if necessary, and then subtracting the multiple and repeating to find the next digit in the quotient.
2. The division algorithm can be used to express a fraction in decimal form by carrying the division into the decimal places.
3. The features of the place value system for whole numbers extend to the decimal positions and the combined system is symmetric around the ones place.
4. In adding or subtracting decimal numbers, one operates separately with the units of each size, except when regrouping is needed; the scheme for regrouping is the same at each place, because each unit is composed of ten of the next smaller unit.
5. Numbers in decimal notation can be shown on the number line by dividing and sub-dividing the unit intervals as many times as needed to locate the number. This process can be visualized as zooming in on the number line.

Core Standards · Students can and do:

a. Divide two, three and four digit numbers by two digit numbers, with remainder, using an algorithm based on place value and regrouping, such as the standard algorithm. In the case of remainders, express results in the form of an equation, as in $145 = 11 \times 13 + 2$.
b. Understand very large and very small numbers (from millionths to hundreds of millions); round very large numbers.
c. Quickly 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.
d. Add and subtract decimals using an algorithm based on place value and regrouping, such as the standard algorithm, and solve problems involving these operations.
e. Write fractions in decimal notation for denominators 2, 3, 4, 5, 6, 8, 10 and 100.
f. Explain why strategies and algorithms for decimals work, using place value and the Properties of Arithmetic (including explanations supported by drawings or objects).

Quantity and Measurement

Core Standards · Students understand that:

1. The volume of a solid figure is a measure of how much space it encloses. A cube with side length 1 unit is said to contain "one cubic unit" of volume. The volume of a solid figure can be measured (expressed numerically) by the number of cubic units that fit inside it with no gaps or overlaps.
2. Packing a rectangular prism with unit cubes and decomposing the prism into layers shows that a rectangular prism ℓ units long by w units wide by h units tall contains a volume $V = \ell \times w \times h$ cubic units. The base of the prism has area $A = \ell \times w$ square units, and the prism can be viewed as h layers, each containing $\ell \times w$ cubic units, so the volume of the prism can also be expressed as $V = A \times h$ cubic units.
3. Volume is additive: If a solid figure is decomposed into several pieces, then the volume of the whole figure can be found by adding the volumes of the pieces (expressed in common units).
4. Quantities with like units can be added or subtracted giving a sum or difference with the same unit; quantities with unlike units can be multiplied or divided giving products or quotients with derived units.
5. The ratio of a length, area or amount to another length, area or amount is the same regardless of the size of the unit used for measurement.
6. The number line is a scale that can be used to show units such as pounds, liters, etc.

Core Standards · Students can and do:

a. Measure and compute whole-cubic-unit volumes for rectangular prisms and for objects well described as rectangular prisms.
b. Convert among different-sized standard measurement units within a given measurement system (e.g. feet to yards, centimeters to meters) and use conversion to solve story problems.
c. Form ratios of lengths, areas, and other quantities, including when quantities being compared are measured in different units.
d. Solve word problems involving addition, subtraction, multiplication and/or division using quantities expressed as whole numbers, fractions, or decimals with measurement units.
e. Solve multi-step problems involving units of weight, capacity, money, volume and area.

Coordinate Geometry

Core Standards · Students understand that:

1. A pair of perpendicular number lines ("axes") defines a coordinate system. A given point in the plane has a separate position along each of the two axes; the two positions of the point are called its coordinates.
2. Graphs on coordinate axes can be used to make sense of relationships among quantities in complex problems.

Core Standards · Students can and do:

a. Graph points in the first quadrant the coordinate plane, and read off the coordinates of graphed points.[47]
b. Determine the lengths of horizontal and vertical segments in the plane, given the coordinates of their endpoints.
c. • Collect data on continuous covarying quantities and display the data in a line graph with broken lines; distinguish bar graphs from line graphs; ask and answer questions from line graphs, including comparisons of ratios.

Statistics

Core Standards · Students understand that:

[47] The axes should sometimes represent dimensioned quantities, and the units of measure should not always be the same for both axes. Coordinates may be whole numbers, fractions or decimals.

1. Data are collected purposefully to answer a predefined question (e.g., "How tall are the fifth graders in our school?")
2. A set of data typically shows variability—not all of the values are the same—and yet the values also typically show some tendency to cluster. Identifying a "center" for a data set is a way to describe its many values using a single number.
3. The median is a measure of center in the sense that approximately half the data values are less than median, while approximately half are greater.
4. Variation in a data set can be measured by the range and by typical deviations from the center.

Core Standards · Students can and do:

a. Collect data to answer a predefined question about a measurement quantity. Make a dot plot to display the data, and describe the data using the median and typical deviations from the it.

Mathematics: Sixth Grade

Developing Coherent Understanding

[Temporarily removed for editing.]

Ratios and Proportional Relationships

Core Standards · Students understand that:

1. Multiplicative comparisons can be extended from whole numbers to fractions and decimals. When the ratio q/m is formed, or when q is r times as much as m, the numbers q, r and m can be fractions or decimals.
2. p% of a quantity means $p/100$ times as much as the quantity. The number p can be a fraction or decimal, as in 3.75%.
3. A unit rate is the multiplicative factor relating the two quantities in a ratio. Two quantities q and m can be compared by $q = r \times m$, where the unit rate r tells how much q per m.
4. Given two quantities in a ratio (e.g. distance and time), finding the unit rate produces a new type of quantity (e.g. speed).

Core Standards · Students can and do:

a. Solve for an unknown quantity in a problem involving two equal ratios.
b. Find a percentage of a quantity; solve problems involving finding the whole given a part and the percentage.
c. Solve unit rate problems including unit pricing and constant speed. (See table.)

$D = s \times T$	$D \div T = s$	$D \div s = T$
A car driving at a speed of 30 miles per hour for 6 hours travels a distance of 180 miles.	If a car drives 180 miles for 6 hours at a constant speed, that speed is 30 miles per hour.	When a car drives 180 miles at a speed of 30 miles per hour, the trip takes 6 hours.

d. Represent unit rate problems on a coordinate plane where each axis represents one of the two quantities involved, 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.

The Number System

Core Standards · Students understand that:

1. The Properties of Arithmetic govern operations on all numbers.
2. Division of fractions follows the "invert and multiply" rule because multiplication and division are inverse operations. For example, $(2/3) \div (5/7) = 14/15$ because $(14/15) \times (5/7) = 2/3$.
3. Every nonzero fraction has a unique multiplicative inverse,[48] namely its reciprocal. Division can be defined as "multiplying by the multiplicative inverse." Then $(2/3) \div (5/7) = 14/15$ because the division symbol indicates multiplication by the multiplicative inverse.
4. A two-sided number line can be created by reflecting the fractions across zero. Numbers located to the left of zero on the number line are called negative numbers and are labeled with a negative sign.

[48] Glossary: Multiplicative inverses. Two numbers whose product is 1 are multiplicative inverses of one another. Example: 3/4 and 4/3 are multiplicative inverses of one another because $3/4 \times 4/3 = 4/3 \times 3/4 = 1$.

5. Two different numbers, such as 7 and –7, that are equidistant from zero are said to be opposites of one another. The opposite of 7 is –7 and the opposite of –7 is 7. The opposite of the opposite of a number is the number itself. The opposite of 0 is 0. The operation of attaching a negative sign to a number can be interpreted as reflecting the number across zero on the number line.

6. The absolute value of a number is its distance from zero on the number line. For any positive number q, there are two numbers whose absolute value is q, namely q and $-q$.

7. The absolute value of a signed quantity (e.g. account balance, elevation) tells the size of the quantity irrespective of its sense (debit or credit; above or below sea level).

8. Comparison of numbers can be extended to the full number system. The statement $p > q$ means that p is located to the right of q on the number line, while $p < q$ means that p is located to the left of q on the number line. The statement $p > q$ does not mean $|p| > |q|$.

Core Standards · Students can and do:

a. Divide fractions, and divide finite decimals by expressing them as fractions.
b. Solve problems requiring arithmetic with fractions presented in various forms, converting between forms as appropriate and estimating to check reasonableness of answers.
c. Find and position rational numbers[49] on the number line.
d. Use rational numbers to describe quantities such as elevation, temperature,[50] account balance and so on. Compare these quantities using > and < symbols and also in terms of absolute value.
e. Graph points and identify coordinates of points on the Cartesian coordinate plane in all four quadrants.

Statistics

Core Standards · Students understand that:

1. The mean is a measure of center in the sense that it is the balance point; the mean is the value each data point would take on if the total value of all the data points were redistributed fairly.

2. When the mean and median of a data set differ substantially, both measures should be provided, and the difference explained in terms of the data values.

Core Standards · Students can and do:

a. Collect data to answer a predefined question about a measurement quantity. Make a dot plot to display the data, and describe the data using measures of center and measures of variation.[51]

Geometry

Core Standards · Students understand that:

1. Triangles and parallelograms can be dissected and reassembled into rectangles with the same area; this leads to a formula for area in terms of base and height.

2. Polygons can be dissected into triangles in order to find their area.

Core Standards · Students can and do:

[49] Glossary: Rational number. A number expressible in the form a/b for integers a and $b \neq 0$. The rational numbers include positive and negative integers, positive and negative fractions, and 0.
[50] A caution for temperature problems: The rational numbers are not a good model for a temperature scale. There is no temperature that solves the equation $T + 1000°C = 0$.
[51] Data sets should include fractional values at this grade but not negative values.

a. Find the area of right triangles, other triangles, special quadrilaterals, and polygons (by dissection into triangles and other shapes).
b. Find surface area of cubes, prisms and pyramids (include the use of nets to represent these figures).
c. Solve problems involving area, volume and surface area of objects.
d. Examine the relationship between volume and surface area. Exhibit rectangular prisms with the same surface area and different volume, and with the same volume and different surface area.
e. 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 the side length, and to express the side length in terms of the area or volume.

Expressions and Equations

Core Standards · Students understand that:

1. A number that is the result of a sequence of operations with other numbers can be expressed in different ways using conventions about order of operations and parentheses, rules for working with fractions, and the Properties of Arithmetic. All such expressions are equivalent.

2. A letter is used to stand for a number in an expression in cases where one doesn't know what the number is, or where, for the purpose at hand, it can be any number in the domain of interest. Such a letter is called a variable.

3. An equation is a statement that two expressions are equal, and a solution to an equation is a value of the variable (or a set of values for each variable if there is more than one variable) that makes the equation true.

Core Standards · Students can and do:

a. Represent an unknown number using a letter in simple expressions such as $y + 2$, $y - 3$, $6 + y$, $5 - y$, $3y$, $y/2$, and $(3+y)/5$.
b. Interpret $3y$ as $y + y + y$ or $3 \times y$, $y/2$ as $y - 2$ or $1/2 \times y$, $(3+y)/5$ as $(3 + y) - 5$ or $1/5 \times (3 + y)$.[52]
c. Evaluate simple expressions when values for the variables in them are specified (exclude expressions with a variable in denominator).
d. Choose variables to represent quantities in a word problem and construct simple equations to solve the problem by reasoning about the quantities.
e. Solve equations of the form $x + p = q$ (for $p < q$) and $px = q$ where p and q are fractions.

[52] From Singapore Secondary 1

Mathematics: Seventh Grade

Developing Coherent Understanding

[Temporarily removed for editing.]

Ratios and Proportional Relationships

Core Standards · Students understand that:

1. Two variable quantities x and y are said to be proportional to one another if the ratio x/y is always equal to the same quantity k, so that $y = kx$. The constant k is the unit rate, and tells how much of y per unit of x.

Core Standards · Students can and do:

a. Compare proportional relationships represented in different ways (e.g. compare a graph to an equation to determine which of two objects has greater speed).
b. Decide whether two quantities that vary together have a proportional relationship, analyze proportional relationships using the unit rates that characterize them, and solve word problems involving proportional relationships.
c. Plot pairs (x, y) from a proportional relationship $y = kx$, and pass a straight line through them and the origin. Observe that increases in y are proportional to increases in x, and calculate [increase in y]/[increase in x] = k.

The Number System

Core Standards · Students understand that:

1. On the number line, the sum $p + q$ is defined to be the number lying 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 (add to zero).[53]
2. Sums of signed numbers can be computed using the Properties of Arithmetic.[54]
3. The additive inverse of a sum is the sum of the additive inverses.[55]
4. Subtraction is defined as adding the additive inverse. This definition of subtraction allows subtraction of rational numbers and agrees with previous understandings of subtraction with positive numbers.[56] On the number line, the difference $p - q$ lies distance $|q|$ from p, to the left of p if q is positive and to the right of p if q is negative.
5. The absolute value of $p - q$ equals the distance between p and q on the number line.
6. Products of signed numbers can be computed using the Properties of Arithmetic.[57] In particular, multiplying a number by -1 produces its additive inverse.[58]

[53] Glossary: Additive inverses. Two numbers whose sum is 0 are additive inverses of one another. Example: $3/4$ and $-3/4$ are additive inverses of one another because $3/4 + (-3/4) = (-3/4) + 3/4 = 0$.
[54] For example, $7 + (-3) = 4$ because $7 + (-3) = (4 + 3) + (-3) = 4 + [3 + (-3)] = 4 + [0] = 4$. And $(-2) + (-3) = -5$ because $5 + [(-2) + (-3)] = (2 + 3) + [(-2) + (-3)] = [2 + (-2)] + [3 + (-3)] = [0] + [0] = 0$ so $(-2) + (-3)$ is the additive inverse of 5, that is -5.
[55] For example, $-(6 + -2) = (-6) + 2$ because $[6 + (-2)] + [(-6) + 2] = [6 + (-6)] + [(-2) + 2] = [0] + [0] = 0$.
[56] For example, the subtraction $7 - 3$ means 7 plus the additive inverse of 3, i.e. $7 + (-3)$, which equals 4. The subtraction $9 - (-4)$ means 9 plus the additive inverse of -4, i.e. $9 + 4$, which equals 13.
[57] For example, $(-1) \times (-1) = 1$ because $(-1) + (-1) \times (-1) = 1 \times (-1) + (-1) \times (-1) = [1 + (-1)] \times (-1) = 0 \times (-1) = 0$.
[58] Because $(-1) \times a + a = (-1) \times a + (1) \times a = [(-1) + (1)] \times a = 0 \times a = 0$.

7. Every nonzero rational number has a multiplicative inverse. Division of rational numbers is defined as multiplying by the multiplicative inverse.
8. The operation of adding the rational number q to points on the number line is a translation: it shifts points to the right if $q > 0$, to the left if $q < 0$, and not at all if $q = 0$. The operation of adding $-q$ undoes the operation of adding q.
9. The operation of multiplying points on the number line by a positive rational number k is a dilation: it scales points further away from zero if $k > 1$, closer to zero if $k < 1$, and not at all if $k = 1$. The operation of multiplying by $1/k$ undoes the operation of multiplying by k.

Core Standards · Students can and do:

a. Explore and explain with number lines the rules for adding rational numbers, e.g., $r + s = s + r$; $r + (-s) = r - s$; $p - (q + r) = p - q - r$.
b. Use the rules of arithmetic to explore and explain with specific numbers the rules for multiplying rational numbers, e.g., 4×-5 is -5 added to itself 4 times, so equal to -20; $-3 \times (-2 + 2) = -3 \times 0 = 0$, so $-3 \times -2 = -(-3) \times 2 = -(-6) = 6$.
c. Add and subtract rational numbers, and use these operations to solve word problems (including signed quantities such as elevation, temperature, account balance, and so on).
d. Multiply and divide rational numbers, and use these operations to solve word problems (including signed quantities).

Expressions and Equations

Core Standards · Students understand that:

1. Expressing a quantity in different forms serves a purpose in analyzing quantitative situations.
2. The distributive property can be used in two directions, both to expand linear expressions, and to factor a sum of terms with a common factor.

Core Standards · Students can and do:

a. Construct algebraic expressions for simple real-world situations and generate equivalent expressions to interpret their meaning (e.g., $P + 0.05P = 1.05P$ means that "increase by 5% is the same as "multiply by 1.05").
b. Generate equivalent expressions from a given expression, including putting linear expressions in standard form and taking out a common factor. Include expressions involving negative numbers and exponents 2 and 3.
c. Solve multi-step word problems that lead to equations of the form $px + q = r$ and $p(x + q) = r$, where p, q, and r are rational numbers, by undoing the operations involved in producing the expression on the left, using additive and multiplicative inverses.
d. Solve simple absolute value equations of the form $|x + h| = j$ and $|x - h| = j$, where h and j are integers.
e. Read the structure in a numerical expression at a level necessary to enter it into a calculator or spreadsheet, making use of parentheses and the conventions on order of operations.

Statistics

Core Standards · Students understand that:

1. In addition to measurement variability, another source of variation in data is randomness.

Core Standards · Students can and do:

a. Collect experimental or simulation data from repeated random trials. Make a histogram showing absolute frequencies and a bar graph of relative frequencies. Discuss the patterns and make predictions for further experiments or simulations.

Probability

Core Standards - Students understand that:

1. Chance events fall along a spectrum: nearly impossible | unlikely | neither likely nor unlikely | likely | nearly certain.
2. Probability is a quantitative measure of likelihood. Probabilities are numbers lying between 0 and 1, with 0 representing impossible and 1 representing certain (in the case of a finite sample space).
3. The experimental probability of a specified outcome is the observed fraction of the outcome in a data set collected from a process involving randomness or chance.
4. In a random process, the individual outcomes are unpredictable, but patterns may emerge after repeated trials. Experimental probabilities in random experiments tend to approach stable values as more and more data is generated.
5. In a theoretical probability model, the set of distinct possible outcomes for a random experiment is called the sample space. An event is a set of sample points; a sample point may belong to several events. A specified event occurs in some fraction of the sample space. This fraction is called the theoretical probability of the event.
6. When computing theoretical probabilities, all members of the sample space are assumed equally probable. Theoretical probabilities will not match long-run experimental probabilities if this assumption is inappropriate (e.g., as in the case of a loaded die).

Core Standards - Students can and do:

a. Compute experimental probabilities from data sets, including data sets generated by simulations or sampling experiments.
b. Compute experimental probabilities to estimate theoretical probabilities when no theoretical probability model is apparent.
c. Represent sample spaces for one-stage random experiments; identify members of the sample space in which specified events occur.
d. Use a theoretical probability model to compute theoretical probabilities for one-stage random experiments, expressing theoretical probabilities as fractions, decimals and percents.
e. Compare experimental probabilities to theoretical probabilities for one-stage random experiments, examining and if feasible revising the assumptions of the theoretical model when the two conflict.

Geometry

Core Standards - Students understand that:

1. Two polygons are congruent[59] if and only if there is a correspondence between vertices so that the corresponding sides are equal and the corresponding angles are equal.
2. A plane or solid figure is similar to another if the second can be obtained from the first by a similarity transformation.[60] All ratios of lengths in the second figure to corresponding lengths in the first figure are equal to the scale factor of the dilation.

[59] Glossary: 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).
[60] Glossary: Similarity transformation. A rigid motion followed by a dilation. Glossary: 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.

3. Congruent figures have the same area or volume. 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.
4. Given a line in the coordinate plane not parallel to either axis, any two right triangles with legs parallel to the axes and hypotenuse on the given line are similar, and so the slope of the line (rise over run) is the same regardless of which two distinct points are used to compute it.

Core Standards- Students can & do:

a. Solve problems involving similar triangles and scale drawings (including computing actual lengths, areas and volumes from a scale drawing and reproducing a scale drawing at a different scale).
b. Explore using hands-on activities the area of non-rectangular figures and the perimeter of curvilinear figures, and the fact that a dilation of the plane changes areas by the square of the scale factor.[61]
c. Use scale factors to find lengths and areas of similar figures, including an informal derivation of the formulas relating the area, radius and circumference of a circle.
d. Give an explanation of why the volume of a cylinder is the area of the base times the height, using informal arguments involving slices.
e. Use coordinate grids to transform figures and to predict the effect of dilations, translations, rotations and reflections.
f. Use two-dimensional representations of three-dimensional objects (schematics, assembly instructions, perspective drawings and multiple views) to solve problems.
g. Explore three-dimensional figures formed by translations and rotations of plane figures through space.
h. Sketch and describe cross-sections of cones, cylinders, pyramids and prisms.

[61] Include using grids of squares with fractional side lengths to estimate area, and measuring the length of strings wrapped around the perimter.

Mathematics: Eighth Grade

Developing Coherent Understanding

[Temporarily removed for editing.]

Functions and the Situations They Model

Core Standards · Students understand that:

1. A function is a rule, often defined by an expression, that states a relationship between the values of two variable quantities.
2. A linear function models a situation where the change in one quantity is proportional to the corresponding change in the other quantity. The constant of proportionality, m, is the rate of change of the function. If x is the input and y is the output then the function is defined by $y = mx + b$ for some constant b, which is called the initial value of the function (the value of the function when x is 0).
3. The graph of a linear function $y = mx + b$ is a straight line, and the slope of the line is the function's rate of change.
4. The problem of finding where two linear functions have the same output value for a common input value leads to an equation in one variable; the solution or solutions (if any) can be visualized as the input value(s) where the graphs of the functions intersect.
5. A linear equation in one variable can be solved by successively transforming it into simpler equations with the same solutions using the Properties of Arithmetic and the Properties of Equality, until an equation of the form $x = a$, $a = a$, or $a = b$ results (where a and b are different numbers).

Core Standards · Students can and do:

a. Compare features of two or more functions that may be presented in different representations (as formulas, graphs, tables of values, or verbally).
b. 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.
c. 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.
d. Solve linear equations with rational number coefficients, including equations that require expanding expressions using the distributive law and collecting like terms.

The Number System

Core Standards · Students understand that:

1. The number line has numbers that are not rational, such as 2π or $2 + \sqrt{3}$, called irrational numbers.
2. An irrational number can be approximated to arbitrary precision by rational numbers.
3. If $n > 0$ is an integer and $\sqrt{n}$ is not an integer, then $\sqrt{n}$ is irrational. If q is rational and r is irrational, then $q + r$ is irrational, and so is qr provided $q \neq 0$.

Core Standards · Students can and do:

a. Use rational approximations to compare the size of irrational numbers, locate them approximately on a number line and estimate the value of expressions (e.g. π^2).

Geometry

Core Standards · Students understand that:

1. Angle measures formed by a configuration of lines in a plane can often be deduced from other angle measures (e.g., vertically opposite angles, angles produced when a transversal line cuts two parallel lines).
2. The side lengths of a right triangle are related by the Pythagorean theorem.

Core Standards · Students can and do:

a. Explore and explain by hands-on activities facts about the angle sum of triangles, exterior angles, and alternate interior angles of parallel lines. Use these facts to determine the angle sum of interior angles of convex polygons, and the angle sum of exterior angles of convex polygons.[62]
b. Explore and explain using hands-on activities: parallel lines in space, line perpendicular to a line through a given point, lines perpendicular to a plane, lines parallel to a plane, the plane passing through three given points, and the plane perpendicular to a given line at a given point.
c. Use facts about angles to write and solve simple equations for an unknown angle in a figure.
d. Explain a proof of the Pythagorean theorem.[63]
e. Use the Pythagorean theorem to determine missing side lengths in right triangles and to solve problems in two and three dimensions.
f. Use the Pythagorean theorem to find the distance between two points in a coordinate system.
g. 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, ambiguous, or impossible.)
h. 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.
i. Construct an equilateral triangle, a square, and a regular hexagon inscribed in a circle.

Statistics

Core Standards · Students understand that:

1. Scatterplots for bivariate continuous data may reveal patterns of association between two quantities. This kind of relationship between quantities is not a functional relationship—and yet, a function might be a valuable way to describe a statistical relationship.

Core Standards · Students can and do:

a. Construct and interpret scatterplots for bivariate measurement data.
b. Describe patterns that appear in scatterplots, such as clustering, outliers, positive/negative association, linear association, nonlinear association.
c. For scatterplots that suggest a linear association, model the relationship with a linear function using an informal fitting procedure. Use the model function to solve problems in the context of the data.

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[62] Use 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 form a line, and give an argument in terms of transversals why this is so.
[63] For example, by the method of right triangles in a square.

interpreting the slope/rate of change and intercept/initial value. Informally assess the goodness of the model by judging the closeness of the data points to the graph of the function.

Probability

Core Standards · Students understand that:

1. The framework for theoretical probability models is the same for compound events as for simple events: the theoretical probability is the fraction of the sample space in which the compound event occurs.

Core Standards · Students can and do:

a. Compute experimental probabilities from data sets, including data sets generated by simulations or repeated sampling experiments.
b. Compute experimental probabilities to estimate theoretical probabilities of compound events when no theoretical probability model is apparent.
c. Represent sample spaces for compound events using methods such as organized lists, tables and tree diagrams; identify members of the sample space in which specified events occur.
d. Compute theoretical probabilities for compound events by counting members of the sample space.
e. Compare experimental probabilities to theoretical probabilities for multi-stage random experiments, examining the assumptions of the theoretical model when the two conflict.

Mathematics: High School—Expressions

A Coherent Understanding of Expressions

[Final draft of CCR narrative goes here.]

Seeing structure in expressions

Core Standards · Students understand that:

1. Different forms of expression for functions reveal different properties of the function; a purpose in transforming expressions is to find those properties.

   For example, factoring a quadratic expression reveals the zeros of the function it defines, and putting the expression in vertex form reveals the maximum or minimum of the function; the expression 1.15^t can be rewritten in the form $(1.15^{1/12})^{12t} \approx 1.012^{12t}$ to reveal the approximate monthly interest rate if the annual rate is 15%.

2. The laws of exponents for whole number exponents follow from an understanding of exponents as indicating repeated multiplication, and from the associative property of multiplication.

3. The interpretation of zero, fractional and negative exponents follows from extending the laws of exponents to those values.

   For example, since $(x^{1/3})^3 = x^{1/3+3} = x^1 = x$, $x^{1/3}$ is the cube root of x.

4. Complex expressions can be interpreted by "chunking"; temporarily viewing a part of the expression as a single entity.

Core Standards · Students can and do:

a. Factor, expand, and complete the square in quadratic expressions.
b. Use chunking to see expressions in different ways that suggest ways of rewriting 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 $(x^2 - y^2)(x^2 + y^2)$.

c. Rewrite expressions using the laws of exponents.

   For example $(x^{1/2})^3 = x^{3/2}$ and $1/x = x^{-1}$.

d. Use the laws of exponents to interpret expressions for exponential functions, recognizing fractional exponents as indicating roots of the base and negative exponents as indicating the reciprocal of a power.

   For example, identify the relative rate of change in functions such as $y = (1.02)^t$, $y = (0.97)^t$, $y = (1.2)^{10t}$, $y = (1.01)^{12t}$, and recognize that any non-zero number raised to the 0 power is 1 (for example, $12(1.05)^0 = 12$). Avoid common errors such as confusing as $6(1.05)^t$ with $(6\cdot1.05)^t$ and $5(0.04)^t$ with $5(1.04)^t$.

e. Given an expression for an exponential function, identify whether it represents exponential growth or decay.
f. Using a method such as the factorization $(x^n-1) = (x-1)(x^{n-1} + \ldots + 1)$ where n is a whole number, prove the formula for the sum of a geometric series, and use the formula to solve problems.

   Include problems involving compound interest and mortgage payments.

The arithmetic of polynomials and rational functions

Core Standards · Students understand that:

1. Polynomials form a system analogous to the integers, closed under the operations of addition, subtraction, and multiplication.

2. A polynomial of degree n has n complex roots, where roots are counted according to multiplicity.
3. For a polynomial $p(x)$, $p(a) = 0$ if and only if $(x - a)$ is a factor of $p(x)$.
4. The Binomial Theorem gives the expansion of $(x + a)^n$ in powers of x for a whole number n and a real number a, with coefficients determined for example by Pascal's triangle. The Binomial Theorem can be proved by mathematical induction.
5. Rational functions are fractions whose numerator and denominator are polynomials, and the rational functions are closed under the operation of division by a nonzero rational function.

Core Standards · Students can and do:

a. Add, subtract and multiply polynomials.
b. Identify zeros of polynomials when suitable factorizations are available, and graph polynomials.
c. Transform simple rational functions using the Properties of Arithmetic and the rules for operations on fractions.
d. Identify zeros and asymptotes of rational functions, when suitable factorizations are available, and graph rational functions.
e. Divide polynomials by monomials

Mathematics: High School—Equations

A Coherent Understanding of Equations

[Final draft of CCR narrative goes here.]

Building equations to model relations between quantities

Core Standards · Students understand that:

1. Choosing a unit for a general quantity (e.g. length) establishes a correspondence between specific instances of the quantity (e.g. lengths of specific objects) and numbers called coordinates.
2. A relation between two quantities can be represented by an equation in variables representing coordinates for the quantities; by a graph on a pair of axes marked with units for the quantities; and by a table of coordinate pairs from the relation. The graph and the table show pairs that are solutions to the equation.

Core Standards · Students can and do:

a. Build equations to express relations between quantities and solve problems.

   Include equations arising from situations involving linear, quadratic, simple rational, and exponential functions.

b. Rearrange formulas to isolate a quantity of interest.
c. Build systems of equations and solve problems involving systems of equations.

Reasoning with equations and inequalities

Core Standards · Students understand that:

1. To solve an equation algebraically, one assumes it is true and deduces the solutions, often in steps that replace it with a simpler equation whose solutions include the solutions of the original one.
2. Adding a number to both sides of an equation, or multiplying both sides by a nonzero number, leads to an equation that has exactly the same solutions as the original.
3. If the product of two numbers is zero, then at least one equals zero, and conversely. This principle is the basis for solving equations by factoring.
4. Multiplying both sides of an equation by an expression that can be zero for certain values of the variables in it, or squaring both sides of an equation, can lead to an equation that has more solutions than the original. Evaluating these in the original equation eliminates extraneous solutions.
5. 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.
6. Equations not solvable in one number system may have solutions in a larger number system.
7. Equations of the form $f(x) = g(x)$ can be solved graphically by finding the intersections (if any) of the graphs of $f(x)$ and $g(x)$.
8. The relationship between a function f and its inverse (if it has one) can be used to solve equations of the form $f(x) = c$. For example, a logarithmic function can help solve exponential equations, and an inverse trigonometric function can help solve trigonometric equations.
9. Given a system of linear equations, 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.

10. The solutions to an equation in two variables form a graph—a set of points, often a curve or a line, in the coordinate plane.
11. The solutions to two equations in two variables (if any) can be visualized as the points of intersection of their graphs, because those points satisfy both equations simultaneously.
12. The solution to a system of inequalities in two variables can be visualized as the intersection of the regions in the plane defined by the inequalities.

Core Standards · Students can and do:

a. Solve simple rational and radical equations, noting and explaining extraneous solutions.
b. Solve quadratic equations over the real numbers by completing the square, using the quadratic formula and factoring.
c. Solve linear inequalities in one variable and graph the solution set on a number line.

   Emphasize solving the associated equality and determining on which side of the solution of the associated equation the solutions to the inequality lie.

d. Solve linear systems of equations algebraically, focusing on pairs of linear equations in two variables.
e. Graph a system of two linear or quadratic equations in two unknowns and estimate the solution from a graph.
f. Graph the solution set of a linear inequality in two variables.
g. Use the properties of logarithms to solve equations involving exponential functions.
h. Use inverse trigonometric functions to solve equations of the form $A\sin(Bx + C) = D$.
i. Find complex roots of quadratic equations.
j. Solve a system of two quadratic equations in two unknowns.

Mathematics: High School—Functions

A Coherent Understanding of Functions

[Final draft of CCR narrative goes here.]

Interpreting functions

Core Standards · Students understand that:

1. The domain of a function is the set of its inputs, and the range is the set of its outputs.
2. Function notation uses a letter to stand for a function. If f is a function and x is a number in its domain, then $f(x)$ indicates the output of f corresponding to the input x.
3. Functions can be described by key characteristics, including: zeros; vertical intercept; extreme points; average rates of change (over intervals); intervals of increasing, decreasing and/or constant behavior; and end behavior.
4. Linear, quadratic and exponential functions are defined by expressions that have forms specific to each type, in which the parameters can often be interpreted in terms of characteristics of the graph.
5. An equation in two variables implicitly expresses one variable as a function of the other if there are no points on the graph having the same value of the first variable but different values of the second.
6. When x is a power of ten, the common logarithm $\log(x)$ tells the exponent. When x lies between 10^n and 10^{n+1}, $\log(x)$ lies between n and $n+1$.

Core Standards · Students can and do:

a. 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.
b. Sketch a graph that exhibits the qualitative features of a function that has been described verbally.
c. Compare values and properties of two functions represented in different ways (algebraically, graphically, numerically in tables, or by verbal descriptions).
d. Relate the domain and range of a function to its graph and, where applicable, to the quantitative relationship it describes.
e. Describe the qualitative behavior of common types of functions using graphs and tables.

   Identify: intercepts; intervals where the function is increasing, decreasing, positive or negative; relative maximums and minimums; symmetries; end behavior; and periodicity. Use technology to explore the effects of parameter changes on the graphs of linear, power, quadratic, square root and cube root, polynomial, simple rational, exponential, logarithmic, sine and cosine, absolute value and step functions.

f. Interpret the parameters in the general expressions for linear, quadratic, and exponential functions, and draw conclusions about the parameters by inspection of the graph.
g. Given a function f, and given a constant c, evaluate $f(c)$ if possible and find solutions to $f(x) = c$ (if they exist). Where appropriate, relate the possibility of evaluation to the domain and the existence or nonexistence of solutions to the range.

Building functions

Core Standards · Students understand that:

1. Varying a parameter in the general expression for a linear, quadratic or exponential function can (often) be interpreted as performing a geometric transformation on the graph. This can be used to adjust a function to model a particular situation.

2. 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 $f(g(x))$.
3. The inverse of a function "undoes" what the function does; that is, composing the function with its inverse in either order returns the original input.
4. Sequences are functions whose domain is the whole numbers, and they can be defined recursively as well as explicitly. Arithmetic sequences are linear functions and geometric sequences are exponential functions.

Core Standards · Students can and do:

a. Make graphs of linear, quadratic, cubic, absolute value and exponential functions, and, given the graph of one of these types, identify the type.
b. Sketch graphs of quadratic functions presented in the form $y = ax^2+bx+c$, $y = a(x-h)^2+k$ and $y = a(x-p)(x-q)$ (without plotting points).
c. Solve problems involving quadratic functions, such as analyzing projectile motion and maximizing profit.
d. Identify the effect on the graph of replacing $f(x)$ by $f(x) + k$, $kf(x)$, $f(kx)$, and $f(x + k)$. Include both positive and negative k; find the value of k given the graphs.
e. Write an expression of the form $a(1+r)^t$ or ab^t for an exponential function to express a constant percent growth rate or a constant growth factor.
f. Evaluate composite functions and compose functions symbolically in simple cases (e.g. one or both functions linear).
g. Read values of an inverse function from a graph or a table, given that the function has an inverse.
h. For linear or simple exponential functions, find a formula for an inverse function by solving an equation.
i. For linear functions or simple exponential functions, verify symbolically by composition that one function is the inverse of another.
j. Write arithmetic and geometric sequences both recursively and in closed form, and translate between the two forms.

Linear vs. exponential behavior

Core Standards · Students understand that:

1. Linear functions grow by equal differences in equal time periods; exponential functions grow by equal factors in equal time periods.
2. The rate of change of a linear function is constant; the rate of change of an exponential function is proportional to the value of the function.
3. Exponential growth eventually outstrips polynomial growth (including, in particular, linear growth).

Students can and do:

a. 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.
b. Interpret absolute and relative rates of change and use them to make predictions.
c. Identify the initial value and growth or decay rate from a table or graph of an exponential function.
d. Calculate and interpret the growth factor for an exponential function (presented symbolically or as a table) given a fixed time interval. Estimate the growth factor from a graph.
e. Recognize a quantitative relationship as linear or exponential from description of a situation.

Trigonometric functions

Core Standards · Students understand that:

1. The unit circle in the coordinate plane enables one to extend the domains of the sine, cosine and tangent functions of right-triangle trigonometry to the real numbers.
2. Trigonometric functions are periodic by definition, and sums and products of these functions are periodic.
3. Restricting trigonometric functions to a domain on which they are always increasing or always decreasing allows for the construction of an inverse function.

Core Standards · Students can and do:

a. Use radian measure and revisit graphs of trigonometric functions in terms of radians.
b. Use the unit circle to determine geometrically the values of sine, cosine, tangent for multiples of $\pi/4$ and $\pi/3$; commit sines and cosines of principal angles to memory.
c. Use the unit circle to explain symmetry (odd and even) and periodicity of trigonometric functions.
d. Solve simple trigonometric equations formally using inverse trigonometric functions;[64] evaluate solutions using technology.
e. Explain relationships between the identity $\sin^2 x + \cos^2 x = 1$, the equation of a circle, and the Pythagorean theorem.
f. Explain proofs of the sine and cosine addition and subtraction formulas.
g. Use trigonometric identities to simplify expressions.
h. Use trigonometric functions to solve problems in science, economics or other fields where periodic phenomena occur.

[64] Solving trigonometric equations by means of the quadratic formula is optional.

Mathematics: High School—Coordinates

A Coherent Understanding of Coordinates.

[Final draft of CCR narrative goes here.]

Expressing geometric properties with equations

Core Standards · Students understand that:

1. The graph of a linear equation is the straight line through any two of its solutions. Conversely, any line is the set of solutions to some linear equation.
2. Two lines with well-defined slopes are parallel if their slopes are equal and perpendicular if their slopes multiply to −1.
3. The equation of a circle can be found using its definition and the Pythagorean theorem.
4. Transforming the graph of an equation by reflecting in the axes, translating parallel to the axes, or applying a dilation to one of the axes correspond to substitutions in the equation.

   For example, reflection in the x axis corresponds to $(x,y) \to (-x,y)$, translation vertically down by three units corresponds to $(x,y) \to (x,y+3)$, and dilating by a factor of 2 parallel to the x-axis corresponds to $(x, y) \to (x/2, y)$.
5. An ellipse is obtained by stretching a circle, leading to an equation of the form $x^2/a^2 + y^2/b^2 = 1$.
6. The formula $A = \pi ab$ for the area of an ellipse can be derived from the formula for the area of a circle.

Core Standards · Students can and do:

a. Write the equation of a line in point-slope form, slope-intercept form, or standard form.
b. Identify parallel and perpendicular lines in a coordinate plane, and use the relationship between slopes of parallel and perpendicular lines to solve problems. Know the equations of vertical and horizontal lines.
c. Find the point on the segment between two given points that divides the segment in a given ratio.
d. Complete the square to find the center and radius of a circle given by an equation.
e. Find an equation for an ellipse given the lengths of its major and minor axes; calculate the area of an ellipse.
f. Use coordinates to solve geometric problems.

   Include proving simple geometric theorems algebraically, using coordinates to compute perimeters and areas for triangles and rectangles, finding midpoints of line segments, finding distances between pairs of points and determining when two lines are parallel or perpendicular.

Vectors and matrices[65]

Core Standards · Students understand that:

1. Vectors are quantities having both magnitude and direction. They are typically represented by directed line segments.
2. On a coordinate plane, vectors are determined by the coordinates of their initial and terminal points or by their x- and y-components.

[65] Limit to vectors in the plane and 2x2 matrices.

3. Vectors can be added end-to-end, component-wise, or by the parallelogram rule. The length of the sum of two vectors is typically not the sum of the lengths.
4. Translations of the plane can be represented by vectors.
5. Vectors are often used to describe "directed quantities" in physics, such as position, velocity, acceleration and force. Vector addition is used to find resultant forces or compute displacements.
6. Multiplying a 2x2 matrix into a vector produces another vector. This can be viewed as a transformation of the plane.
7. A system of two linear equations in two variables can be represented as a single matrix equation in a vector variable.
8. Matrices can be added, subtracted and multiplied.
9. The zero and identify 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 2x2 matrix determines whether it has a multiplicative inverse.

Core Standards · Students can and do:

a. Represent vectors graphically.
b. Perform basic vector operations (addition, subtraction, scalar multiplication) both graphically and algebraically.
c. Use vectors to model and solve problems.
d. Use trigonometry to decompose a vector into perpendicular components.
e. Add, subtract and multiply matrices.
f. Represent systems of equations as matrix equations.
g. Find the inverse of a matrix if it exists and use it to solve equations.

Complex Numbers

Core Standards · Students understand that:

1. To solve quadratic equations that have no solutions in the real numbers, the number system can be extended to include the square roots of −1, creating a closed number system called the complex numbers.
2. The Properties of Arithmetic and the relation $i^2 = -1$ can be used to perform operations on complex numbers.
3. All polynomials can be factored over the complex numbers, e.g. as in $x^2 + 4 = (x + 2i)(x - 2i)$.
4. Complex numbers can be visualized on the complex plane. Real numbers fall on the horizontal (real) axis, and imaginary numbers fall on the vertical axis.
5. 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.
6. The absolute value (or modulus) of a complex number is defined as its distance from the origin in the complex plane. 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.
7. Euler's formula $e^{i\theta} = \cos\theta + i\sin\theta$ links complex numbers to trigonometry.

Core Standards · Students can and do:

a. Add, subtract and multiply complex numbers.
b. Find the conjugate of complex a number and use it to find absolute values and divide complex numbers.
c. Graph complex numbers in both rectangular and polar form and interpret arithmetic of complex numbers geometrically.

d. Solve quadratic equations over the complex numbers.
e. Convert complex numbers between rectangular and polar form.
f. Re-derive trigonometric identities using complex methods.

Mathematics: High School—Modeling

A Coherent Understanding of Modeling.

Modeling uses mathematics to help us make sense of the real world—to understand quantitative relationships, make predictions, and propose solutions.

A model can be very simple, such as a geometric shape to describe a physical object like a coin. Even so simple a model involves making choices. It is up to us whether to model the solid nature of the coin with a three-dimensional cylinder, or whether a two-dimensional disk works well enough for our purposes. For some purposes, we might even choose to adjust the right circular cylinder to model more closely the way the coin deviates from the cylinder.

In any given situation, the model we devise depends 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 we can create and analyze is constrained as well by the limitations of our mathematical and technical skills. For example, modeling a physical object, a delivery route, a production schedule, or a comparison of loan amortizations each requires different sets of tools. Networks, spreadsheets 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 structure might model seemingly different situations.

The basic modeling cycle is one of (1) identifying the key features of a situation, (2) creating geometric, algebraic or statistical objects that describe key features of the situation, (3) analyzing and performing operations on these objects to draw conclusions and (4) interpreting the results of the mathematics in terms of the original situation. Choices and assumptions are present throughout this cycle.

The modeling cycle and general tools

Core Standards · Students understand that:

1. The behavior of quantities in physical, economic, public policy, social and everyday situations can be modeled using mathematics. Mathematics is used to model relationships among quantities, constraints and objectives.
2. Models are formulated to answer questions about the world based on an analysis of the situation and a conceptual model that involves assumptions and choices.
3. Quantities in the situation are represented by variables in the model, usually through measurement. Modeling includes decisions about what to measure and how, and how well the measurements work for the purpose.
4. Mathematical knowledge and skill are required in order to get results from a mathematical model—even to devise a model in the first place. Areas of mathematics commonly used in modeling include linear, quadratic, exponential or other functions; probability and statistics; and geometry (solid, plane and coordinate). In active modeling, fluency with math content is required in order to focus on the larger problem.
5. Technology is often required in order to obtain results from a model.
6. The results of a mathematical model must be evaluated against evidence and the phenomena at hand. If the mathematics is correct, then unreasonable results point to unreasonable assumptions and the need to revise the model.
7. Real-world problems do not announce that they are amenable to mathematical analysis and solution; bringing mathematics to bear on such a problem is a highly creative act.

Core Standards · Students can and do:

a. Creatively apply the mathematics they know to situations in which it only imperfectly applies—and achieve useful results by doing so.

For example, independently choose to describe HIV transmission as a random event with a fixed probability per sexual encounter.

b. Decide what measures are relevant to a problem.

For example, given the purpose at hand, is traffic safety best measured in terms of fatalities per year or fatalities per vehicle-mile? (or fatalities per 100 million vehicle-miles?)

c. Use network diagrams or other techniques to visualize complex situations with many factors, causes or agents.

For example, what agents and factors are responsible for setting the price of gasoline? How do they interact?

d. In situations with many factors, causes or agents, organize the factors/causes/agents into a hierarchy of importance.

For example, what are the primary, secondary, and relatively rare causes of lung cancer?

e. Use order of magnitude estimates, unprompted, to identify important effects, disregard unimportant effects and predict results of a more detailed model.

f. Use 2-by-2 tables, flowcharts, and other strategies to organize information and manage scenarios.

Modeling with geometry, equations, functions, probability, and statistics

Core Standards · Students can and do:

a. Model physical objects with geometric shapes.

Include common objects that can reasonably be idealized as two- and three-dimensional geometric shapes. Identify the ways in which the actual shape varies from the idealized geometric model.

b. Model situations with equations and inequalities.

Include situations well described by a linear inequality in two variables or a system of linear inequalities defining a region in the plane.

c. Model situations with common functions.

Include situations well described by linear, quadratic or exponential functions; and situations that can be well described by inverse variation ($f(x) = k/x$). Include identifying a family of functions that models features of a problem, and identifying a particular function of that family and adjusting it to fit by changing parameters. Understand the recursive nature of situations modeled by linear and exponential functions.

d. Model situations using probability and statistics.

Include using simulations to model probabilistic situations; describing the shape of a distribution of values and summarizing a distribution with measures of center and variability; modeling a bivariate relationship using a trend line or a regression line.

Mathematics: High School—Statistics

A Coherent Understanding of Statistics.

[Final draft of CCR narrative goes here.]

Summarizing and interpreting categorical, count and measurement data

Core Standards · Students understand that:

1. Statistical methods take variability into account to support making informed decisions based on quantitative studies designed to answer specific questions.
2. Visual displays and summary statistics condense the information in data sets into usable knowledge.

Core Standards · Students can and do:

a. Summarize comparative or bivariate categorical data in two-way frequency tables; interpret joint, marginal and conditional relative frequencies in the context of the data.
b. 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 appropriate statistics 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.
c. Summarize bivariate quantitative data by giving a regression line and a measure of goodness of fit.

Making inferences and justifying conclusions drawn from data

Core Standards · Students understand that:

1. 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. The design of an experiment or sample survey is of critical importance to analyzing the data and drawing conclusions.

Core Standards · Students can and do:

a. Use probabilistic reasoning to decide if a specified model is consistent with a given data-generating process.
b. Recognize the purposes of and differences among sample surveys, experiments and observational studies; explain how randomization relates to each.
c. Use data from a sample survey to estimate a population parameter.
d. Use data from a randomized experiment to compare two treatments.
e. Evaluate reports based on data.

Mathematics: High School—Probability

A Coherent Understanding of Probability.

[Final draft of CCR narrative goes here.]

Modeling random events with finite sample spaces

Core Standards · Students understand that:

1. Random phenomena can be modeled mathematically using a sample space in which sample points represent distinct outcomes, and in which each sample point is assumed to have the same probability.
2. Events are subsets of a sample space that can be defined using characteristics (or categories) of the sample points, as well as unions, intersections, or complements thereof ('and', 'or', 'not'). A sample point may belong to several events (categories).
3. If A and B are two events (categories), then the conditional probability of A given B, denoted by $p(A \mid B)$, is the fraction of sample points in B that also lie in A.
4. The laws of probability can be used to generate new probabilities from known probabilities.

Core Standards · Students can and do:

a. Compute theoretical probabilities of compound events by constructing and analyzing representations, including tree diagrams, systematic lists, and Venn diagrams
b. Use the addition and multiplication laws of probability to compute probabilities of complementary, disjunctive, and compound events.
c. Apply concepts such as intersections, unions and complements of events, and conditional probability and independence, to define or analyze compound events; calculate probabilities, and solve problems.
d. 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.
e. Recognize and explain the concepts of conditional probability and independence in everyday language and everyday situations.
f. Use permutations and combinations to compute probabilities of compound events and solve problems.

Experimenting and simulating to model probabilities

Core Standards · Students understand that:

1. 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. The probability of an event within the data set is its relative frequency.
2. The law of large numbers provides the basis for estimating certain probabilities by use of empirical relative frequencies.
3. The probability of an outcome can be interpreted as an assertion about the long-run proportion of the time the outcome will occur if the random experiment is repeated a large number of times. The observed proportion of occurrence for the outcome of interest can be used as an estimate of the relevant probability.

Core Standards · Students can and do:

a. Calculate experimental probabilities by performing simulations or experiments involving a probability model and using relative frequencies of outcomes.

b. Compare the results of simulations (e.g., random number tables, random functions, and area models) with predicted probabilities. When there are substantial discrepancies between predicted and observed probabilities, explain them in terms of the assumptions of the probability model.
c. Use the relationship between conditional probabilities and relative frequencies in contingency tables to analyze decision problems.
d. Use the mean and standard deviation of a data set to fit it to a normal distribution (bell-shaped curve) 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.
e. Apply the binomial theorem to solve probability problems.

Using probability to make decisions

Core Standards · Students understand that:

1. A probability distribution is a collection of probabilities $\{p_1, \ldots, p_n\}$ for a set of mutually exclusive and jointly exhaustive events $\{E_1, \ldots, E_n\}$. The probabilities in a probability distribution sum to unity.
2. A random variable attaches a value to each event in a probability distribution. The expected value of the random variable is the weighted average of its possible values, with weights given by their respective probabilities.
3. 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 a wager. If possible, this is the first thing to compute in a decision context.

Core Standards · Students can and do:

a. Calculate expected value to analyze mathematical fairness, payoff.
b. Evaluate and compare options in situations where all of the available options share the same expected value but carry different levels of risk.
c. Analyze each of two options and make a quantitatively informed decision in situations where one option has both a higher expected return and a higher level of risk. Include both low-stakes and high-stakes decisions.
d. Analyze decision problems using probability concepts.

Mathematics: High School—Geometry

A Coherent Understanding of Geometry.

[Final draft of CCR narrative goes here.]

Triangle Congruence

Core Standards · Students understand that:

1. Rigid motions move lines to lines and segments to segments; preserve the distance between points; and preserve measures of angles.
2. Two geometric figures are congruent if there is a sequence of rigid motions that carries one onto the other. This is the principle of superposition.
3. Criteria for triangle congruence can be thought of as answers to the following question: What information about the measures in a triangle ensures that all triangles drawn with those measures are congruent?
4. Criteria for triangle congruence can be established using rigid motions.

Core Standards · Students can and do:

a. Use (in reasoning and problem solving) precise definitions of angles, polygons, parallel and perpendicular lines, rigid motions (rotations, reflections, translations), parallelograms and rectangles; commit these definitions to memory.

b. Prove theorems about lines and angles; test conjectures and identify logical errors in fallacious proofs.

Theorems include: vertical angles are congruent; when a transversal crosses parallel lines, alternate interior angles are congruent and corresponding angles are congruent; measures of supplementary angles sum to 180°; 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

c. Prove theorems about triangles; test conjectures and identify logical errors in fallacious proofs.

Theorems include: measures of interior angles of a triangle sum to 180°; base angles of isosceles triangles are equal; the triangle inequality; the longest side of a triangle faces the largest side 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.

d. Use and prove properties of and relationships among special quadrilaterals: parallelogram, rectangle, rhombus, square, trapezoid and kite.

e. 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.

Similarity, Right Triangles and Trigonometry

Core Standards · Students understand that:

1. The dilation of a given line is parallel to the given line. (In particular, lines passing through the center remain unchanged.)
2. 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.
3. The assumed properties of dilations can be used to establish the AA, SAS and SSS criteria for similarity of triangles.
4. Similarity allows one to view side ratios in right triangles as properties of the angles themselves, leading to elementary definitions of sine, cosine and tangent.

Core Standards · Students can and do:

a. Use triangle similarity criteria to solve problems and to prove relationships in geometric figures.
b. Prove that two lines with well-defined slopes are parallel if and only if they have the same slope, and perpendicular if and only if the product of their slopes is equal to −1.
c. 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.
d. Use and explain the relationship between the trigonometric ratios of complementary angles.
e. Use trigonometric ratios and the Pythagorean theorem to solve right triangles[66] in applied problems.

Circles

Core Standards · Students understand that:

1. All circles are similar.
2. There is a unique circle through three non-collinear points, or tangent to three non-concurrent lines.

Core Standards · Students can and do:

a. 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.

b. Identify and define radius, diameter, chord, tangent, secant and circumference.
c. Determine the arc lengths and the areas of sectors of circles, using proportions.
d. Construct a tangent line from a point outside a given circle to the circle.
e. Prove and use basic theorems about circles, and use these theorems to solve problems. Include:

- Symmetries of a circle
- Similarity of a circle to any other
- Tangent line, perpendicularity to a radius
- Inscribed angles in a circle, relationship to central angles, and equality of inscribed angles
- Properties of chords, tangents and secants as an application of triangle similarity.

Axiomatic Systems

Core Standards · Students understand that:

1. Mathematical statements are proven or disproven by deductive reasoning. Conjectures can arise from inductive reasoning, but they cannot be proven that way.
2. Precise definitions make possible rigorous logical reasoning, and definitions shared in common make possible the objective evaluation of one's own reasoning by others.
3. Logical reasoning requires avoiding common fallacies, such as using an example to prove the rule or confusing a statement with its converse.
4. Axiomatic systems require precise definitions, but some terms must be left "undefined." The axioms specify how the undefined terms behave.
5. The first three postulates of the *Elements* are models of straightedge and compass construction.
6. Hilbert and other mathematicians improved on the *Elements* by identifying its hidden assumptions and making them explicit with additional axioms.

[66] 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. (It is worth reflecting on why this problem is well-posed.)

7. Three classical construction problems (trisecting an angle, duplicating a cube and squaring a circle) inspired the development of much important mathematics.

8. The Parallel Postulate (axiom) distinguishes Euclidean geometry from other geometries. Other geometries, such as spherical and hyperbolic geometry, use alternatives to the Parallel Postulate. Many theorems of Euclidean geometry are not theorems in other geometries.

Core Standards · Students can and do:

a. Use the terms point, line and plane to define other geometric terms as line segments, angles and rays.
b. With ruler and compass:
   - Divide a segment into any number of equal parts.
   - Given two segments of lengths r and s, construct a segment of length rs and one of length r/s.
   - Given a segment of length r, construct a segment of length $\sqrt{r}$.

Trigonometry of General Triangles

Core Standards · Students understand that:

1. The Law of Sines generalizes the side-angle inequality.

2. The Law of Cosines generalizes the Pythagorean theorem.

3. 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.

Core Standards · Students can and do:

a. Explain proofs of the Law of Sines and the Law of Cosines.
b. 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

Core Standards · Students understand that:

1. Congruence plays a fundamental role defining the concepts of length, area and volume.

2. Areas of polygons can be computed by dissecting them into triangles and using the fundamental property of area, that the area of a dissected figure is the sum of the areas of its components.

3. Lengths of curves and areas of curved regions can be defined informally using the concept of "limit."

4. Cavalieri's principle allows one to understand volume formulas informally by visualizing volumes as stacks of thin slices.

Core Standards · Students can and do:

a. Give definitions of rectangular prism, (right) pyramid, (right circular) cone, (right circular) cylinder and sphere.

b. For a pyramid or a cone, give an heuristic argument to show why its volume is (1/3) its height times the area of its base.

c. Use the behavior of length and area under dilations to prove the formulas for the circumference and area of a circle.

d. Apply formulas and solve problems involving volume and surface area of right prisms, right circular cylinders and right pyramids, cones, spheres and composite figures.

e. Identify and apply the 3:2:1 relationship among volumes of circular cylinders, hemispheres and cones with same height and circular base and 3:1 relationship between volume of a prism and pyramid with same base area and height.

f. Identify cross-sectional shapes of slices of three-dimensional objects, and identify three-dimensional objects traced out by rotations of two-dimensional objects.

Mathematics: High School—Calculus

Calculus is an important part of the high school curriculum for a large and growing number of students. To see well-established standards for this course, please see course descriptions such as those of the College Board, International Baccalaureate Organization, or any of the following states: California, Florida, Hawaii, Indiana, Mississippi, Pennsylvania, South Carolina, Tennessee, Utah, and Virginia. We invite feedback from states as to whether they would like to see Calculus in future drafts of the Common Core Standards.

Progressions in Grades K–8

Note, a progression may appear in more than one band.

Grades K-5

Number

- Counting and Cardinality
- Base Ten Computation
- Early Relations and Operations
- Quantity and Measurement
- Operations and the Problems They Solve
- Fractions

Geometry

- Shapes
- Coordinates
- Geometry

Data

- Statistics

Grades 6-8

Number

- The Number System

Algebra

- Ratios and Proportional Relationships
- Expressions and Equations
- Functions and the Situations They Model

Geometry

- Geometry

Data

- Statistics
- Probability

List of Progressions and Grade Ranges

Strand	Progression	Start	End
Number	Counting and Cardinality	K	K
	Early Relations and Operations	K	1
	Base Ten Computation	K	5
	Quantity and Measurement	K	5
	Operations and the Problems They Solve	2	4
	Fractions	3	5
	Ratios and Proportional Relationships	6	7
	The Number System	6	8
Geometry	Shapes	K	4
	Coordinate Geometry	5	5
	Geometry	6	8
Algebra*	Expressions and Equations	6	7
	Functions & The Situations They Model	8	8
Data*	Statistics	5	8
	Probability	7	8

* The Algebra and Data strands have concepts and skills in earlier grades that progressions in the Number strand.

GLOSSARY

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

Algorithm. A step by step routine that always gives some answer, rather than ever giving no answer; that always gives the right answer, and never gives a wrong answer; that can always be completed in a finite number of steps, rather than in an infinite number of steps; and that applies to all problems of a given type (e.g., adding any two multidigit whole numbers, or bisecting any angle). Cf. Wikipedia's "effective procedure," from which this definition is adapted.

Common logarithm. The common logarithm of x is the power to which you raise 10 in order to get x.

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).

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.

Integer. A positive whole number, a negative whole number, or 0.

Mean. The sum of the values in a list divided by the number of values in the list. (To be more precise, this defines the *arithmetic mean*.)

Median. In a list of values, 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.

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

Range. The difference between the greatest and smallest values in a list of numbers.

Rational number. A number expressible in the form a/b for integers a and $b \neq 0$. The rational numbers include positive and negative integers, positive and negative fractions, and 0.

Related fractions. Two fractions are *related* if one denominator is a factor of the other. (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.)

Similarity transformation. A rigid motion followed by a dilation.

Single-place number. The numbers that result when a whole number between 1 and 9 (inclusive) is multiplied by the numbers 10, 100, 1000, etc.

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

Transitive property of measurement order. If one object is bigger than a second, and the second object is bigger than a third object, then the first object is bigger than the third object.

English Language Arts

K–12

Introduction

The *Standards for English Language Arts K–12* are the culmination of an extended, broad-based effort to fulfill the charge issued by the states to create the next generation of English language arts (ELA) standards. Its companion document, *Standards for Literacy in History and Science 6–12*, extends the same principle to communication skills in other content areas. 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. The *Standards* also draw upon 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 to be 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, and speaking and listening as well as in mathematics. The CCR Reading, Writing, and Speaking and Listening Standards, released in draft form in September 2009, served as a touchstone for the present work. While the format, structure, content, and purpose of that earlier document differ in some ways from this document, the basic aims and concepts are clearly connected. The main difference is that while the earlier CCR document defined a goal toward which education efforts should aim—college and career readiness for all students—the current document describes the progressive development of skills and understandings across the grades necessary for all students to reach that goal. Just as feedback on the September 2009 CCR draft has greatly influenced the design and development of the K–12 standards, so too will the response to the K–12 standards help guide subsequent revisions to the CCR standards. In their final forms, both documents—CCR and K–12—will be tightly aligned and mutually supporting.

While the *Standards* treat college and career readiness for all students as the end point—an ambitious goal in its own right—many students will reach this point before the end of high school. For them, advanced work in literature, composition, language, history, science, and so on should be available. It is beyond the scope of the *Standards* to describe what such advanced work should consist of, but it needs to 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 must demonstrate have broad applicability outside of the classroom or workplace. The *Standards* insist upon the sort of close, attentive reading that is at the heart of understanding and appreciating the aesthetics of literature. They require the sort of critical reading that is necessary to sift carefully through the staggering amount of information available today in print and online. They demand the sort of wide, deep, and thoughtful engagement with high-quality literary and informational text that builds knowledge, enlarges experience, and broadens world views. They mandate the sort of cogent reasoning and use of evidence that is essential to both private deliberation and responsible citizenship in a democratic republic. In short, they promote the development of skills in reading, writing, speaking, and listening that are the foundation for any creative and purposeful expression in language.

Key design considerations

A blend of cross-cutting and specific standards

The Reading, Writing, and Speaking and Listening strands include two levels of standards. The cross-cutting Core Standards are the same across the two *Standards* documents, their commonality emphasizing the broad responsibility within the school for meeting the standards and also facilitating schoolwide professional development. Then there are specific Standards that are unique to a given content area, which respects the particular demands of reading, writing, speaking, and listening in ELA and in other disciplines.

A focus on results rather than means

The *Standards* define what all students must learn, not everything that teachers are allowed to teach. 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. The *Standards* require, for example, that all students be able to produce writing in a variety of situations, including those that allow time for revision. The *Standards* do not, however, specify a particular writing process that students must use (although certain elements common to process-writing approaches, particularly revision, are embedded in the requirements). Teachers are thus freed—and obligated—to provide students with whatever tools and knowledge their professional judgment and experience identify as most helpful for those assignments that allow for multiple drafts. Similarly, the *Standards*, with their emphasis on observable outcomes, do not enumerate various metacognitive strategies that students may need to use to monitor and direct their thinking and learning.

Shared responsibility for literacy

The *Standards for English Language Arts K–12* and the *Standards for Literacy in History and Science 6–12* together establish the requirement that instruction in reading, writing, speaking, listening, and language use be a shared responsibility. The *Standards* present reading instruction in K–5 as fully integrative, including a rich blend of narratives, drama, poetry, and informational text. ELA-specific instruction in grades 6 and above includes fiction, poetry, and drama but also a particular form of informational text: literary exposition and argument (e.g., speeches, essays, and historical documents with significant cultural importance and literary merit). Teachers in other content areas must use their unique disciplinary expertise to help students meet the particular challenges of reading, writing, speaking, listening, and language use in their respective field. Progress toward college and career readiness and building a rich knowledge base require that at least half of the reading students do must focus on history, science and related disciplines. This distributed approach honors the unique place of English language arts instruction in literacy development while ensuring that students have communication skills tailored to the demands of other disciplines. It also reflects the reality that students must communicate effectively in a wide range of disciplines, not just ELA.

Grade bands to describe growth, grades to focus instruction

Evidence consulted in creating the *Standards* suggests that beyond the earliest grades, major developments in students' literacy skills typically occur across spans of grades rather than within individual grades. This document stays true to that evidence by organizing standards after grade 3 into multiyear bands (grades 4–5, 6–8, 9–10, and 11–CCR). At the same time, the work of educating students does proceed on a day-to-day, year-to-year basis. Any standards document must therefore provide guidance to educators on what each year's instruction and assessment should look like. To make the grade specific focuses for instruction clear, after the descriptions of the standards in each area of ELA, we provide a one page summary of the grade specific focuses for each grade from fourth grade onwards, including how the grade specific focus in each area relates to the grade band requirements. The Standards offer that focus through several grade-specific elements:

- Single-grade standards in many areas of kindergarten and grades 1, 2, and 3
- Text complexity expectations in Reading, beginning at grade 2
- Areas of focus in Writing, beginning at grade 4

- Areas of focus in the Conventions section of Language Development, beginning at grade 4

Research and media skills integrated into the standards as a whole

To be ready to meet the challenges of the twenty-first century, students need a mix of the communication skills that have served literate people for millennia and new competencies necessary in an information- and media-saturated world. 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. Just as the need to research and to consume and produce media are embedded into every element of today's curriculum, so too are the associated skills and understandings embedded throughout the *Standards* rather than treated separately. Web links to sample media texts are included selectively among the reading text exemplars in Appendix B to reinforce the point that print and online materials can be used together instructionally to enhance students' understanding.

An integrated model of English language arts

Although the *Standards* divide the English language arts into Reading, Writing, Speaking and Listening, and Language Development strands for conceptual purposes, the processes of communication are in theory and practice an undivided whole. As illustrated in the graphic that introduces each grade or grade band and as embodied in the content of the standards themselves, reading, writing, speaking, listening, and language development are tightly interrelated and often reciprocal.

Central features of the document

Reading and Literature: Text complexity and the growth of comprehension

As students advance through the grades, they must be able to handle independently texts of steadily increasing complexity and be able to gain more from what they read. Beginning formally at grade 2, the *Standards* specify what proportion of texts students read should be within grade band and, at some grades, above grade band. (Additional material in Appendix A of the *Standards* defines and explains text complexity in more detail.) Whatever texts they are reading, students must also show a steadily increasing ability to discern more from and make fuller use of text. This means, for example, finding and 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. The *Standards* place growing demands on students' comprehension at each higher grade or grade band to ensure that all students are college- and career-ready readers no later than the end of high school.

Writing and Research: Text types, grade-level focuses, and research

While some writing skills, such as the ability to reflect audience, purpose, and task in what one writes, are important for many types of writing, others are more properly part of writing in specific text types: narrative, informative and explanatory text, and argument. Beginning at grade 4, the *Standards* specify the sorts of writing over extended and shorter timeframes that students in each grade must be able to produce in response to sources. Although conducting research calls upon reading, speaking, listening, and language skills, writing is typically central to analyzing information and presenting findings. The *Standards* pair writing and research to signal that close connection.

Speaking and Listening: Flexible communication

Including but not limited to skills necessary for formal presentations, the Speaking and Listening strand requires students to develop a range of broadly useful oral communication and interpersonal skills: listening attentively, participating productively, exchanging information, and speaking effectively. 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 Development: Conventions and vocabulary

The Conventions standards in the Language Development 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. Thus, standards pertaining to grammar and usage, mechanics, and the fundamentals of language and writing are accompanied by standards on word choice and style. The Vocabulary standards focus both on understanding words and their nuances and on acquiring new words through conversation and reading and by being taught them directly. Rather than require that students use one particular skill or another to determine a word's meaning, the Vocabulary standards insist only that students get the proper meaning, with the means (context, word analysis, and so on) to be chosen flexibly based on the situation.

Appendices

The *Standards* include a range of supporting materials that help explain and enrich the main document:

- Appendix A contains a model of text complexity, including both qualitative and quantitative measures of how easy or hard a text is to read, as well as supplementary statements about instruction in writing, language conventions, and vocabulary
- Appendix B consists of text exemplars at all grades/bands to illustrate appropriate complexity and quality in the text types required by the Reading standards
- Appendix C consists of annotated writing samples to show how grade- or grade-band-appropriate writing embodies the relevant Writing standards

January 2010

Student Practices In Reading, Writing, Speaking, Listening, and Language Use

The following Student Practices in reading, writing, speaking, listening, and language use undergird and help unify the rest of the *Standards*. The Student Practices are not themselves standards: every idea introduced here is subsequently represented in one or more places within the larger document. They are, rather, the "premises"—broad statements about the nature of college and career readiness in reading, writing, speaking, listening, and language use—that underlie the individual standards and cut across the various sections of the document.

* * *

As students progress toward being college and career ready, they exhibit with increasing fullness and regularity the following capacities in their reading, writing, speaking, listening, and language use:

1. They demonstrate independence as readers, writers, speakers, listeners, and language users.

Students can, without significant scaffolding or support, comprehend and evaluate complex text 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 as well as ask questions, build on others' ideas, and articulate their own ideas. They apply language conventions without prompting. On their own, they determine the meaning of words in context and acquire and use new words.

2. They build strong content knowledge.

Students build a base of knowledge across a wide range of subject matter by engaging with works of quality and substance. They demonstrate their ability to become proficient in new areas through research and study. They read purposefully and listen attentively to gain both general knowledge and the discipline-specific expertise needed to comprehend subject matter and solve problems in different fields. They refine their knowledge and share it through substantive writing and speaking.

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

Students consider their reading, writing, speaking, listening, and language use in relation to the contextual factors of audience, task, purpose, and discipline. They appreciate nuances, such as how the composition and familiarity of the audience should affect tone 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).

4. They comprehend as well as critique.

Students are engaged and open-minded—but skeptical—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.

5. They privilege 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.

6. They care about precision.

Students are mindful of the impact of specific words and details, and they consider what would be achieved by different choices. Students pay especially close attention when precision matters most, such as in the case of reviewing significant data, making important distinctions, or analyzing a key moment in the action of a play or novel.

7. They craft and look for structure.

Students attend to structure when organizing their own writing and speaking as well as when seeking to understand the work of others. They understand and make use of the ways of presenting information typical of different disciplines. They observe, for example, how authors of literary works craft the structure to unfold events and depict the setting.

8. They use technology 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.

9. They come to understand other perspectives and cultures.

Students appreciate that the twenty-first-century classroom and workplace are diverse settings in which people from often widely divergent backgrounds must learn and work together. They actively seek to understand other perspectives and cultures through reading and listening. They do not simply adopt other points of view as their own but rather evaluate them critically and constructively. Literature can play a special role in expanding students' horizons in this way: through reading great classic and contemporary works, students can vicariously inhabit worlds and experiences much different than their own.

English Language Learners

The *Standards* articulate rigorous grade-level expectations in the areas of speaking, listening, reading and writing to prepare students to be college and career ready. English language learners (ELLs) must be held to the same high standards expected of students who are already proficient in English. However, because these students are acquiring English language proficiency and content area knowledge concurrently, 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, socio-economic status, quality of prior schooling, and levels of English language proficiency. Effectively educating these students requires adjusting instruction and assessment in ways that consider these factors. 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. On the other hand, ELLs with limited or interrupted schooling will need to acquire background knowledge prerequisite to educational tasks at hand. As they become acculturated to US schools, ELLs who are newcomers will need sufficiently scaffolded instruction and assessments to make sense of content delivered in a second language and display this content knowledge.

While some ELLs are economically and educationally advantaged, this is not the case for many of these students. Moreover, once in the U.S., the majority of ELLs attend high poverty schools with high percentages of other ELLs. These schools often lack the resources and capacity needed to help ELLs reach high academic standards. However, schools and districts can be assisted in providing a positive learning environment that capitalizes on the linguistic and cultural diversity of the student body.

To help ELLs meet high academic standards in reading, writing, speaking, listening and language use it is essential that ELLs have access to:

- The requisite coursework to prepare them for post-secondary education or the workplace;
- Coursework that is made comprehensible for students learning content in a second language, through specific pedagogical techniques and additional resources;
- Teachers, as well as school-level and district personnel, who are well prepared and qualified to support English-language learners;
- Well designed opportunities for classroom discourse and interaction to enable ELLs to develop communicative strengths in language arts
- Speakers of English who know the language well enough to provide the ELLs with models and support; and
- Ongoing assessment and feedback to guide learning.

It is also worth noting that instruction for these students is additionally guided by language proficiency standards that language arts teachers can use in conjunction with the English language arts standards to help ELLs become fully proficient and literate in English.

Access for Students with Disabilities

The *Standards* articulate rigorous expectations in the areas of reading, writing, speaking, listening, and language use in order to prepare students to be college and career ready. These standards identify the knowledge and skills students must acquire in order to be successful. Research shows that students with disabilities are capable of high levels of learning and should not be limited by low expectations and watered down curriculum. The vast majority of this population of students, including students with intellectual impairments,[1] *can* achieve proficiency when they receive high-level instruction and accommodations. It is imperative that these highly capable students—regardless of their disability—are held to the same expectations articulated in the Core Standards as other students.

However, *how* these high standards are taught is of the utmost importance in reaching students with special needs. When acquiring the knowledge and skills represented in the Core Standards, students with disabilities may need accommodations[2] or—in exceptional cases—modified goals, incorporated in an individualized education program (IEP),[3] to help them access information or demonstrate their knowledge. In instances when a standard asks students to perform actions they are physically incapable of, students will need to be presented with alternative options to demonstrate similar knowledge and skills within the range of their abilities. Accommodations based on individual needs allow students of all disability levels to learn within the framework of the *Standards*.

Meeting English Language Arts (ELA) Standards

Reading, writing, speaking, listening, and language use standards—given the nature of the standards themselves—often require accommodations for students with disabilities. For example, a standard that calls for "listening" should be interpreted to include reading sign language. "Speaking" should be read broadly to include "communication" or "self-expression." "Reading" should allow for students' use of Braille, screen reader technology, or other assistive devices to demonstrate comprehension skills. In a similar vein, "writing" should not preclude the use of a scribe, computer, or speech-to-text technology. With appropriate accommodations and support, students with all levels of disabilities can participate in the general education curriculum and achieve grade-level proficiency with regard to the ELA content and skills articulated in the *Standards*.

In short, while the *Standards* set and retain high expectations for all students, they may need to be translated and occasionally modified to apply appropriately to students with disabilities, including all levels of intellectual impairment. Promoting a culture of high expectations for all students is a fundamental goal of the *Standards*. Achieving this goal requires the inclusion of students with disabilities.

[1] Less than two percent of the population of all students and less than 20% of the population of students with disabilities.

[2] See the Council of Chief State School Officers, (2005). *Training District and State Personnel on Accommodations: A Study of State Practices, Challenges, and Resources* at http://www.ccsso.org/publications/details.cfm?PublicationID=221 for further explanation and evidence around accommodations.

[3] According to the Individuals with Disabilities Act (IDEA), an IEP includes appropriate accommodations that are necessary to measure the individual achievement and functional performance of a child.

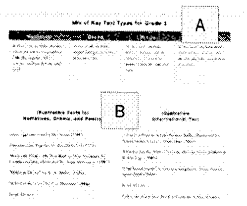
How to Read This Document

The *Standards* are divided into an ELA-specific document (*Standards for English Language Arts K–12*) and a literacy document for history and science (*Standards for Literacy in History and Science 6–12*). The ELA document includes standards for and examples of history and science reading in K–5.

The ELA-specific document is organized by grade (kindergarten and grades 1, 2, and 3) and grade band (grades 4–5, 6–8, 9–10, and 11–CCR). The *Standards for Literacy in History and Science* are organized by grade band (grades 4–5, 6–8, 9–10, and 11–CCR). Each grade/band is divided into strands—Reading, Writing, Speaking and Listening, and Language Development.

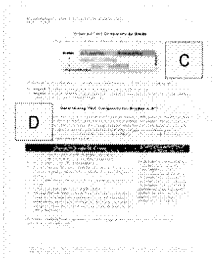
While all strands contain standards statements, each strand also has its own specific features.

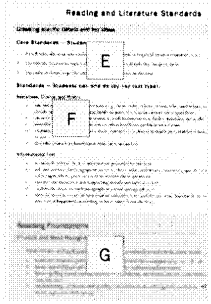
Reading and Literature (ELA) / Reading (History / Science)



Kindergarten and grade 1 begin with the **mix of key text types (A)**, which identifies the genres and subgenres of reading material appropriate for each grade. This is followed by a list of **illustrative texts (B)** in the key text types. This list is suggestive of the sorts of texts appropriate for the grade in terms of complexity and quality; excerpts appear in Appendix B.

Grades 2, 3, 4–5, 6–8, 9–10, and 11–CCR include this information immediately after a graphic specifying **required text complexity by grade (C)**—in brief, the proportion of texts within and above grade band that students must read each year. (For example, 70% of the texts that grade 3 students read should come from the grades 2–3 text complexity band, while the other 30% should come from the grades 4–5 band.) An overview of the method for **determining text complexity (D)** in the particular grade band follows. (A fuller treatment is provided in Appendix A.)

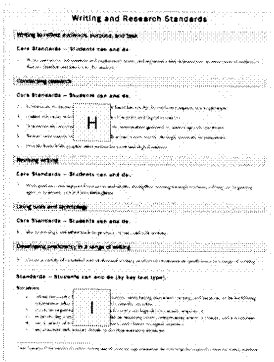




All grades/bands organize standards under a number of boxed subheadings (e.g., "Grasping specific details and key ideas"). The standards at all grade levels are divided into cross-cutting **Core Standards (E)**, which are numbered and applicable to many types of reading, and more specific **Standards (F)**, which are lettered and organized by text type (e.g., "Narratives, Drama, and Poetry"). Kindergarten and grades 1, 2, and 3 also include boxed sections of **reading foundations (G)**, which enumerate basic concepts of print and other foundational skills in reading that very young students must acquire.

Writing and Research

Cross-cutting **Core Standards (H)**, which are numbered and apply to many types of writing, are organized under a number of boxed subheadings (e.g., "Writing to reflect audience, purpose, and task"). **Standards (I)** specific to writing in particular text types—narrative, informative and explanatory text, and argument—are lettered and follow in a separate section. In kindergarten through grade 5, writing arguments takes the form of opinion writing, hence the parenthetical notation next to "Arguments" in those grades/bands.

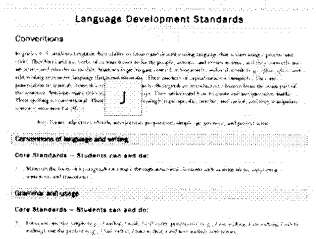


Speaking and Listening

Cross-cutting **Core Standards**, which are numbered and apply to speaking and listening in many situations, are grouped with lettered **Standards**, which set requirements for speaking and listening in key communication (e.g., "Presentation of Ideas and Information").

Language Development

This strand is organized differently in the ELA and history/science documents. The ELA strand comprises two full sections: Conventions and Vocabulary. Each section includes numbered **Core Standards** organized under a number of boxed subheadings (e.g., "Mechanics") and introduced by a brief summative paragraph and list of **key terms (J)** intended to be taught explicitly in grade-appropriate ways. ELA Vocabulary consists of three subsections—determining the meaning of words, understanding the nuances of words, and acquiring vocabulary—under each of which numbered Core Standards appear. Language Development in the history/science document consists of the summative paragraphs for Conventions and all of the Vocabulary section found in ELA except for nuances in word meaning.

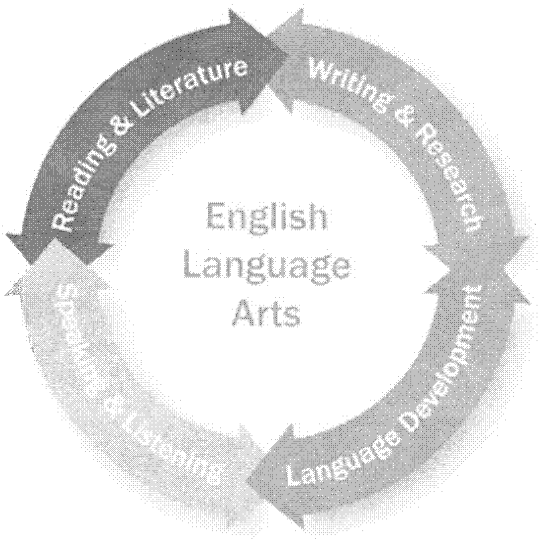


Focus for Instruction

Beginning with grade 4, a page summarizing grade-level responsibility, including grade-specific areas of focus, is provided to help distinguish responsibilities within multiyear bands.

English Language Arts

Kindergarten



Mix of Key Text Types for Kindergarten

Narratives	Drama	Poetry	Informational Text
At this level, includes children's adventure stories, biographies, folktales, legends, fables, fantasy, realistic fiction, and myth.	*At this level, includes staged dialogue and brief familiar scenes.*	*At this level, includes nursery rhymes and the subgenres of narrative poems, limericks, and free verse.*	*At this level, includes books about science, history, and the arts and other nonfiction materials.*

Illustrative Texts for Narratives, Drama, and Poetry[4]

Are You My Mother? by P.D. Eastman (1960)

Put Me in the Zoo by Robert Lopshire (1960)

"Mix a Pancake" by Christina Rosetti (1986)

Wouldn't You?" by John Ciardi (1986)

Illustrative Informational Texts

My Five Senses by Aliki (1962)

Read Alouds:

Amazing Whales! by Sarah L. Thomson (2005)

The Year at Maple Hill Farm by Alice and Martin Provensen (1978)

[4] See Appendix B for other texts illustrative of Kindergarten Grade 1 text complexity. This list includes read-alouds.

Reading and LIterature Standards[5]

Grasping specific details and key ideas

Core Standards — Students can and do:

1. Retell key details and information drawn from the text.
2. Explain the subject of the text or the problem the characters face.
3. Answer questions about characters and events that take place in the text.

Standards — Students can and do (by key text type):

Narratives, Drama, and Poetry

a. retell the beginnings, middles, and endings of stories
b. ask and answer questions about details of a text
c. identify the problems that characters face in a story and the lessons learned
d. identify the feelings of characters and the reasons for their actions
e. differentiate between realistic and fantastical elements within a story

Informational Text

a. restate key information (e.g., events, subject, ideas) from a text
b. ask and answer questions about details of a text

Reading Foundations

Print Concepts

1. Students demonstrate understanding of the organization and basic features of print.
   a. identify basic features and conventions of books and other written texts (e.g., front cover, back cover, title, author)
   b. understand that print is 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

Linguistic Awareness

2. Students gain awareness of spoken words, syllables, and phonemes.
   a. recognize, recite, and produce rhyming words
   b. count, pronounce, blend, and segment syllables in spoken words
   c. recognize, blend, and segment onset and rimes of spoken words [*/g/ - /at/; /bl/ - /ack/*)
   d. count or place tokens for individual words in spoken phrases or simple sentences
   e. orally blend and segment individual phonemes in simple, one-syllable words
   f. demonstrate phonemic awareness by isolating and pronouncing the initial and final phonemes (sounds) in three-phoneme /CVC/ words without consonant blends (e.g., */rod/*, */sun/*, */ham/*)
   g. add or substitute individual phonemes in simple, one-syllable words to make new words (e.g., */at/* → */sat/* → */mat/* → */map/*)

[5] The expectation is that students can fulfill these standards with texts they read independently as well as texts that are read aloud to them.

Observing craft and structure

Core Standards — Students can and do:

4. Identify the meanings of words and phrases as they are used in the text.
5. Identify important parts or sections of texts.
6. Compare and contrast characters or events from different stories.

Standards — Students can and do (by key text type):

Narratives, Drama, and Poetry

a. identify words and phrases that suggest feelings or appeal to the senses
b. identify similarities in beginning and ending sounds of words in children's poems and songs
c. identify parts of a story and parts of a poem as well as sections of informational picture books and tell how they are different
d. identify common characteristics of folktales and fairy tales, including their use of rhyme, rhythm, and repetition
e. participate (e.g., react, speculate, read along, act out) when familiar texts are read aloud
f. compare and contrast characters or events from different stories written by the same author or written about similar subjects

Informational Text

a. identify basic text features and what they mean, including titles and subtitles, table of contents, and chapters

Reading Foundations, continued

Phonics and Word Recognition

3. Students 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. identify which letters represent the five major vowels and know the long and short sound of each
   c. blend letter-sounds to decode short-vowel CVC words (e.g., *cat*, *map*, *ran*)
   d. read at least 25 very high frequency words by sight (e.g., *of*, *to*, *he*, *the*, *is*, *do*, *does*)

Developing Fluency

4. Students read with sufficient accuracy and fluency to support comprehension.
   a. read roblus and preprimer texts with purpose and understanding
   b. demonstrate increased accuracy and fluency on successive readings of a text

Integrating information and evaluating evidence

Core Standards — Students can and do:

7. Use text illustrations to predict or confirm what the text is about.
8. Identify words in a text that link ideas and events together.
9. Identify who is telling a story or providing information in the text.

Standards — Students can and do (by key text type):

Narratives, Drama, and Poetry

a. use pictures, illustrations, and context to make predictions about and confirm story content
b. identify words in a story that link events together (e.g., *first/second*, *then*, *next*, *before/after*, *later*, *finally*)
c. identify who is the speaker in a story or poem

Informational Text

a. identify words that link ideas together (e.g., *also*, *in addition*, *for example*, *but*)
b. identify the author and sources of information when provided by the text

Developing habits for reading text

Core Standards — Students can and do:

10. Begin to read independently and/or with a partner, sustaining effort necessary to build understanding.

Writing and Research Standards

Writing to reflect audience, purpose, and task

Core Standards — Students can and do:

1. Write narratives, informative and explanatory texts, and opinions that communicate to a familiar, known audience.

Conducting research

Core Standards — Students can and do:

2. Gather information from experiences or provided text sources.

Revising writing

Core Standards — Students can and do:

3. With specific guidance, add details to strengthen writing through revision.

Using tools and technology

Core Standards — Students can and do:

4. Gain familiarity with technology and other tools to produce, revise, and edit writing.

Standards — Students can and do (by key text type):[6]

Narratives

a. establish a situation in time and/or place
b. recount several loosely linked actions in a short, familiar event, controlling for chronological order
c. provide a reaction to what happened

Informative and Explanatory Texts

a. establish the topic in a title or first sentence
b. supply facts and information relevant to the topic

Arguments (opinions)

a. introduce the topic directly, or use the title of a book when writing about a text
b. express preferences or opinions (e.g., *My favorite book is . . .*) relevant to the topic
c. provide a reason for preference or opinion (e.g., *It reminded me of when I met my friend Carlos*)
d. use linking words that express causality (e.g., *I like . . . because . . .*)

Speaking and Listening Standards

Listening closely and participating productively

Core Standards — Students can and do:

1. Participate productively in group activities requiring speaking and listening.
2. Listen closely to and sustain attention on texts read aloud as well as other sources of information presented orally, visually, or multi-modally and confirm understanding by restating the information and answering pertinent questions.

Standards — Students can and do (by key communication type):

Classroom discussions and participating productively

a. initiate and participate in conversations with peers and adults through multiple exchanges, attending to the comments of others
b. confirm understanding by restating information or answering questions about what has been discussed
c. ask questions to get information, ask for help, or clarify something that is not understood
d. follow norms for conversation, such as listening to others and taking turns to speak

Exchanging information and speaking effectively

Core Standards — Students can and do:

[6] See Appendix D for samples of student writing that illustrate through annotations the level of quality required to meet the writing standards.

3. Share experiences and ideas that demonstrate an awareness of their listeners.
4. Speak audibly and clearly.

Standards — Students can and do (by key communication type):

Presentation of ideas and information

a. describe people, places, things, and events with relevant facts and examples
b. recite or read aloud poems, rhymes, songs, and stories, speaking clearly at an understandable pace

Language Development Standards

Conventions

In kindergarten, students learn to form letters and words in print and to relate sounds (phonemes) to one or more letters. They understand the notion of a sentence, that a sentence performs one of a few basic functions (make a statement, ask a question, or issue a command), and that end punctuation can signal the sentence's function or intensity. With prompting and assistance, they form and expand basic sentences in order to express thoughts, beginning the sentence with a capital letter. Students have a sense of what a noun is, of what singular and plural nouns are, and of how plural nouns are often formed. They also know how to use the most frequently occurring prepositions.

Key Terms: exclamation point, capital/uppercase and lowercase letter, singular and plural noun, period, punctuation, question mark, sentence

Conventions of language and writing

Core Standards — Students can and do:

1. Print all upper- and lowercase letters.
2. Write a letter or letters for each consonant and short-vowel sound (phoneme).

Grammar and usage

Core Standards — Students can and do:

3. Produce and expand complete sentences in shared writing and language activities.
4. Use and understand question words (e.g., *what, where, when, who, which, how*).
5. Form regular plural nouns by adding /s/ or /es/ (e.g., *dog, dogs; wish, wishes; baby, babies*).
6. Demonstrate understanding of the most frequently occurring prepositions (e.g., *to/from, in/out, on/off, for, of, by, with*).

Mechanics

Core Standards — Students can and do:

7. Capitalize the first word in a sentence and the pronoun *I*.
8. Identify end punctuation, including periods, question marks, and exclamation points.

9. Spell simple words phonetically using knowledge of sound-letter relationships.

Vocabulary

Key to students' vocabulary development is building rich and flexible word knowledge marked by multiple connections that link a word to similar words and to contexts and experiences that are related to that word—as compared to simply a definition. In kindergarten, students learn about words in terms of like versus unlike and "similar but not quite the same," using objects and movements as aids. They learn to use descriptive language to distinguish one object from another and order and position words to describe sequences and spatial relationships. They acquire new words through interactive language use, including informal talk, discussion, listening to and responding to texts read aloud as well as by being taught the words directly.

Determining the meaning of words

Core Standards — Students can and do:

1. Sort common objects into categories (e.g., shapes, foods).

Understanding the nuances of words (denotations and connotations)

Core Standards — Students can and do:

2. Act out the meaning of verbs describing the same general action (e.g., *walk, march, strut, prance*) to gain a sense of their different meanings.
3. Demonstrate understanding of common adjectives by relating them to their opposites (antonyms).
4. Use common adjectives to distinguish objects (e.g., the *small blue* square, the *shy white* rabbit).

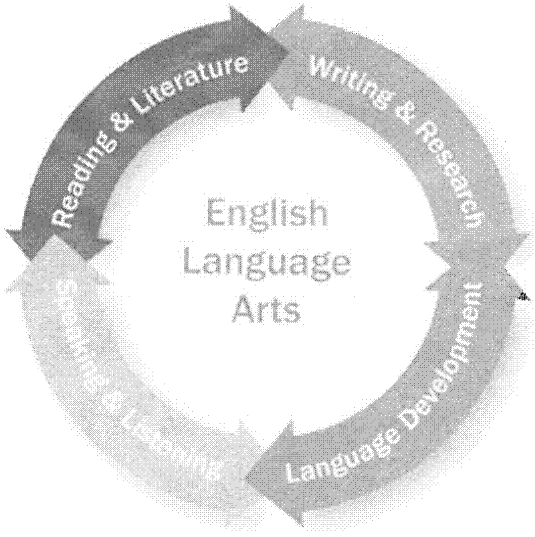
Acquiring vocabulary

Core Standards — Students can and do:

5. Demonstrate meaning of new vocabulary taught directly and gained through conversations and hearing texts read aloud.
6. Demonstrate understanding of words that express order and position (e.g., *first, middle, last; before, after; under, over*).

English Language Arts

Grade 1



Mix of Key Text Types for Grade 1

Narratives	Drama	Poetry	Informational Text
At this level, includes children's adventure stories, biographies, folktales, legends, fables, fantasy, realistic fiction, and myth.	*At this level, includes staged dialogue and brief, familiar scenes.*	*At this level, includes nursery rhymes and the subgenres of narrative poems, limericks, and free verse.*	*At this level, includes books about science, history, and the arts and other nonfiction materials.*

Illustrative Texts for Narratives, Drama, and Poetry[7]

Green Eggs and Ham by Dr. Seuss (1960)

Frog and Toad Together by Arnold Lobel (1971)

Henry and Mudge: The First Book of Their Adventures by Cynthia Rylant, illustrated by Sucie Stevenson (1987)

"Halfway Down" by A. A. Milne (1924)

"It Fell in the City" by Eve Merriam (1986)

Read alouds:

Little House in the Big Woods by Laura Ingalls Wilder, illustrated by Garth Williams (1932)

Zin! Zin! Zin! a Violin by Lloyd Moss, illustrated by Marjorie Priceman (1995)

Illustrative Informational Texts

A Tree Is a Plant by Clyde Robert Bulla, illustrated by Stacey Schuett (text: 1960/illus: 2001)

What Do You Do With a Tail Like This? by Steve Jenkins & Robin Page (2003)

"Our Good Earth" in *National Geographic Young Explorer*, April (2009)

Read alouds:

Follow the Water from Brook to Ocean by Arthur Dorros (1991)

Living Sunlight: How Plants Bring the Earth to Life by Molly Bang & Penny Chisholm, illustrated by Molly Bang (2009)

[7] See Appendix C for other texts illustrative of Kindergarten-Grade 1 text complexity. This list includes read-alouds.

Reading and Literature Standards[8]

Grasping specific details and key ideas

Core Standards — Students can and do:

1. Retell key details and information drawn from the text.
2. Explain the subject of the text or the problem the characters face.
3. Answer questions about characters and events that take place in the text.

Standards — Students can and do (by key text type):

Narratives, Drama, and Poetry

a. retell the beginnings, middles, and endings of stories
b. ask and answer questions about details of a text
c. identify the problems that characters face in a story and the lessons learned
d. identify the feelings of characters and the reasons for their actions
e. differentiate between realistic and fantastical elements within a story

Informational Text

a. restate key information (e.g., events, subject, ideas) from a text
b. ask and answer questions about details of a text

Reading Foundations

Linguistic Awareness

1. Students gain awareness of spoken words, syllables, and phonemes.
   a. aurally distinguish long from short vowel sounds in spoken single-syllable words (e.g., /*tap*/ vs. /*tape*/; /*sick*/ vs. /*soak*/; /*at*/ vs. /*ight*/)
   b. produce single-syllable words by orally blending phonemes, including consonant blends (e.g., /*cats*/, /*black*/, /*blast*/)
   c. isolate and pronounce initial, medial vowel, and final phonemes (sounds) in single-syllable words (e.g., *fast, fast, fast*)
   d. orally segment single-syllable words into their complete sequence of individual phonemes

[8] The expectation is that students can fulfill these standards with texts they read independently as well as texts that are read aloud to them.

Observing craft and structure

Core Standards — Students can and do:

4. Identify the meanings of words and phrases as they are used in the text.
5. Identify important parts or sections of texts.
6. Compare and contrast characters or events from different stories.

Standards — Students can and do (by key text type):

Narratives, Drama, and Poetry

a. identify words and phrases that suggest feelings or appeal to the senses
b. identify similarities in beginning and ending sounds of words in children's poems and songs
c. identify parts of a story and parts of a poem as well as sections of informational picture books and tell how they are different
d. identify common characteristics of folktales and fairy tales, including their use of rhyme, rhythm, and repetition
e. participate (e.g., react, speculate, read along, act out) when familiar texts are read aloud
f. compare and contrast characters or events from different stories written by the same author or written about similar subjects

Informational Text

a. identify basic text features and what they mean, including titles and subtitles, table of contents, and chapters

Reading Foundations, continued

Phonics and Word Recognition

2. Students know and apply grade-level phonics and word analysis skills in decoding words.
   a. know the common spelling-sound correspondences for consonants (e.g., *sw-, sh, -ck, -ll*)
   b. know vowel digraph and final *e* conventions for representing long vowels
   c. know spelling-sound correspondences for diphthongs and other common vowel teams (e.g., *head, cow, look, boy, her, bird*)
   d. use knowledge of phonics and spelling conventions to decode regularly spelled one-syllable words (e.g., *sick, search, sight, slice, bake, spring*)
   e. understand that every syllable must have a vowel sound and use that knowledge to determine the number of syllables in a word
   f. decode two-syllable words following basic patterns (e.g., *rabbit, magnet, napkin, pickle, batter*)
   g. read words with inflectional endings (e.g., *-s, -es, -ed, -ed, -ing, -er, -est*)
   h. use phonics to decode visually new words when reading
   i. recognize grade-appropriate, irregularly spelled words by sight

Integrating information and evaluating evidence

Core Standards — Students can and do:

7. Use text illustrations to predict or confirm what the text is about.
8. Identify words in a text that link ideas and events together.
9. Identify who is telling a story or providing information in the text.

Standards — Students can and do (by key text type):

Narratives, Drama, and Poetry

a. use pictures, illustrations, and context to make predictions about and confirm story content
b. identify words in a story that link events together (e.g., *first/second, then, next, before/after, later, finally*)
c. identify who is the speaker in a story or poem

Informational Text

a. identify words that link ideas together (e.g., *also, in addition, for example, but*)
b. identify the author and sources of information when provided by the text

Developing habits for reading text

Core Standards — Students can and do:

10. Begin to read independently and/or with a partner, sustaining effort necessary to build understanding.

Reading Foundations, continued

Developing Fluency

3. Students read with sufficient accuracy and fluency to support comprehension.
   a. demonstrate increased accuracy, fluency, and expression on successive readings of a text
   b. use context to confirm or self-correct word recognition and understanding, rereading as necessary
   c. read aloud, alone, or with a partner at least 15 minutes each day, in school or out

Writing and Research Standards

Writing to reflect audience, purpose, and task

Core Standards — Students can and do:

1. Write narratives, informative and explanatory texts, and opinions that communicate to a familiar, known audience.

Conducting research

Core Standards — Students can and do:

2. Gather information from experiences or provided text sources.

Revising writing

Core Standards — Students can and do:

3. With specific guidance, add details to strengthen writing through revision.

Using tools and technology

Core Standards — Students can and do:

4. Gain familiarity with technology and other tools to produce, revise, and edit writing.

Standards — Students can and do (by key text type):[9]

Narratives

a. establish a situation in time and/or place that is appropriate for the sequence of events to follow
b. develop appropriately sequenced actions within one or more events using linking words, phrases, or clauses to signal chronological ordering
c. provide a reaction to what happened
d. include dialogue if appropriate, and some details
e. provide a sense of closure and/or a reflective statement

Informative and Explanatory Texts

a. include some sort of beginning to establish the topic (beyond using the title of the piece)
b. supply facts and information relevant to the topic
c. use simple additive linking words (e.g., *and, first, second*) to create connections between the facts
d. provide examples relevant to the topic
e. provide a sense of closure

Arguments (opinions)

a. introduce the topic or book directly, or use the title of the book as an introduction
b. state opinions (e.g., *My best friend is . . .*) relevant to the topic
c. provide reasons for opinions and details to support them

[9] See Appendix C for samples of student writing that illustrate through annotations the level of quality required to meet the writing standards.

d. use linking words that express causality (e.g., *I like . . . because . . .*)
e. refer to the content of the text when writing about literature

Speaking and Listening Standards

Listening closely and participating productively

Core Standards — Students can and do:

1. Participate productively in group activities requiring speaking and listening.
2. Listen closely to and sustain attention on texts read aloud as well as other sources of information presented orally, visually, or multi-modally and confirm understanding by restating the information and answering pertinent questions.

Standards — Students can and do (by key communication type):

Classroom discussions and participating productively

a. initiate and participate in conversations with peers and adults through multiple exchanges, attending to the comments of others
b. confirm understanding by restating information or answering questions about what has been discussed
c. ask questions to get information, ask for help, or clarify something that is not understood
d. follow norms for conversation, such as listening to others and taking turns to speak

Exchanging information and speaking effectively

Core Standards — Students can and do:

3. Share experiences and ideas that demonstrate an awareness of their listeners.
4. Speak audibly and clearly.

Standards — Students can and do (by key communication type):

Presentation of ideas and information

a. describe people, places, things, and events with relevant facts and examples
b. recite or read aloud poems, rhymes, songs, and stories, speaking clearly at an understandable pace

Language Development Standards

Conventions

In grade 1, students gain increasing skill and independence in sentence formation and development. They have a sense of what a verb is and that its form changes to signal different time periods (past, present, and future). Their repertoire of prepositions continues to expand, and they use pronouns with regularity. Students capitalize names, places, and dates. They use end punctuation as well as commas in dates and in simple series of words. Their range of word-formation and spelling strategies grows.

Key Terms: comma, pronoun, verb

Grammar and usage

Core Standards — Students can and do:

1. Produce and expand complete sentences in response to questions and prompts.
2. Use subject, object, and possessive pronouns (e.g., *I, me, my; they, them, their*).
3. Use verbs to convey a sense of past, present, and future in writing and speaking (e.g., *Today I walk home; Yesterday I walked home; Tomorrow I will walk home*).
4. Demonstrate understanding of frequently occurring prepositions (e.g., *during, beyond, toward*).

Mechanics

Core Standards — Students can and do:

5. Capitalize names, places, and dates.
6. Use end punctuation for sentences, including periods, question marks, and exclamation points.
7. Use commas in dates and to separate single words in a series.
8. Form new words through addition, deletion, and substitution of sound and letters (e.g., *an* → *man* → *mat* → *mast* → *must* → *rust* → *crust*).
9. Use conventional spelling for words with common spelling patterns and common irregular words.
10. Use phonetic spellings for untaught words, drawing on phonemic awareness and spelling conventions.

Vocabulary

Key to students' vocabulary development is building rich and flexible word knowledge marked by multiple connections that link a word to similar words and to contexts and experiences that are related to that word—as compared to simply a definition. In grade 1, students begin to sort words themselves into categories rather than the objects that they name. They are able to define familiar words (e.g., *duck*) in a two-step process of identifying a category (bird) to which it belongs and naming one or more attributes that distinguish this category member from others (able to swim). Students grasp that many words they know can mean different things depending on how the word is used, and they make distinctions between and among closely related verbs and adjectives in terms of manner and intensity. They acquire new words through interactive language use, including informal talk, discussion, listening to and responding to texts read aloud as well as by being taught the words direct.

Determining the meaning of words

Core Standards — Students can and do:

1. Sort words into categories (e.g., colors, clothing).
2. 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).
3. Demonstrate understanding of the concept of multiple-meaning words (e.g., *match, kind, play*) by identifying various meanings of some grade-appropriate examples of such words.

Understanding the nuances of words (denotations and connotations)

Core Standards — Students can and do:

4. Define, choose, or act out the meaning of closely related verbs that differ in manner (e.g., *look, peek, glance, stare, glare, scowl; speak, shout, mumble, whine, whimper, murmur*).
5. Distinguish among closely related adjectives that differ in intensity (e.g., *large, gigantic; hot, scalding; tasty, delicious; quiet, silent*).

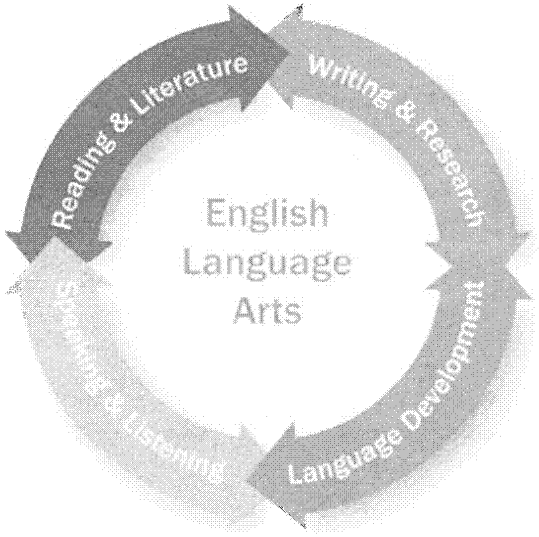
Acquiring vocabulary

Core Standards — Students can and do:

6. Acquire and use new vocabulary taught directly and gained through conversations and hearing texts read aloud.

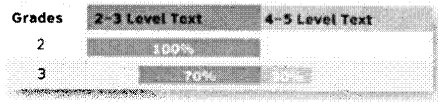
English Language Arts

Grade 2



Required Text Complexity by Grade

Proportion of Texts Within and Above Grade Band to be Read in Each Grade



While advancing through the grades, students must engage with texts of steadily increasing complexity.

- **In grade 2**, students focus on reading texts in the 2–3 grade band level with scaffolding likely required for texts at the high end of the range.

Determining Text Complexity for Grades 2–3

Text complexity is determined by a mix of qualitative and quantitative measures of the text itself refined by teachers professional judgment about the match of particular texts to particular students. The qualitative dimensions of text complexity are best understood as continua of increasing complexity rather than as representing discrete and easily defined stages. Most authentic texts will exhibit some but not all of the traits linked to a particular grade band; qualitatively assigning a text to a grade band is therefore a matter of "best fit," or determining which grade band's set of descriptors most accurately describes the text.

Qualitative Measures of Texts[10]	Quantitative Measures of Texts
• *Structure:* Explicit, simple, conventional; simple graphic representations are supplementary to meaning; texts are relatively short • *Purpose:* Single; explicitly stated • *Style and Language:* Familiar, accessible, plain; few literary devices; mostly clear, everyday language; limited use of Tier 2 and 3 words and figurative language • *Richness:* A few ideas/concepts; concrete; low information density • *Relationships:* A few connections; explicit • *Knowledge Demands:* Ability to handle simple themes and fantastical elements as well as draw upon common, everyday experiences; general background knowledge and familiarity with genre conventions required; some everyday and general content knowledge	A study is underway with Coh-Metrix, a nonprofit research organization, to identify roughly five to seven computer-measurable dimensions of text cohesion. These dimensions, paired with a Lexile score, will yield a robust quantitative assessment of text complexity that, along with both the qualitative dimensions and professional judgment, will round out the Core Standards model of complexity.
Professional Judgment that weighs students' prior knowledge and life experiences as well as their interests, motivations, and maturity level.	

[10] Adapted from ACT, Inc., (2005); Carnegie Council on Advancing Adolescent Literacy (2010); Chall, Bissex, Conrad, & Harris-Sharples (1996); and Hess and Biggam (2004)

Mix of Key Text Types for Grade 2

Narratives	Drama	Poetry	Informational Text
At this level, includes children's adventure stories, biographies, folktales, legends, fables, fantasy, realistic fiction, and myth.	*At this level, includes staged dialogue, scenes, and brief, familiar scenes.*	*At this level, includes nursery rhymes and the subgenres of narrative poems, limericks, and free verse.*	*At this level, includes books about science, history, and the arts and other nonfiction materials.*

Illustrative Texts for Narratives, Drama, and Poetry[11]

Crow Boy by Taro Yashima (1955)

The Stories Julian Tells by Ann Cameron (1981)

Tops and Bottoms by Janet Stevens (1995)

"Grandpa's Stories" by Langston Hughes (1958)

"Weather" by Eve Merriam (1969)

Read alouds:

The Cricket in Times Square by George Selden, illustrated by Garth Williams (1960)

"Fireflies" by Paul Fleischman, illustrated by Eric Beddows (1988)

Illustrative Informational Texts

Maps & Globes by Jack Knowlton, pictures by Harriet Barton (1985)

Sunshine Makes the Seasons by Franklyn M. Branley (1985)

From Seed to Plant by Gail Gibbons (1991)

Boy, Were We Wrong About Dinosaurs by Kathleen V. Kudlinski, illustrated by S.D. Schindler (2005)

[11] See Appendix B for other texts illustrative of Grades 2-3 text complexity.

Reading and Literature Standards

Grasping specific details and key ideas

Core Standards -- Students can and do:

1. Retell what the text says explicitly and make inferences required to understand the text.
2. Identify the lessons or topics of the text and the key details that support them.
3. Describe in detail a specific character, event, or topic in the text.

Standards -- Students can and do (by key text type):

Narratives, Drama, and Poetry

a. ask and answer clarifying questions (e.g., how, why, where, when, who, and what) concerning specific details in the text and refer explicitly to parts of a text to answer these questions
b. identify or infer the moral or lesson in well-known stories, fables, folktales, or myths
c. describe how major events in a story often lead from problem to solution
d. examine a specific incident in a story, narrative, or drama in depth and establish when, where, and why it occurs
e. describe characters based upon what they say and do

Informational Text

a. accurately restate the key information provided by the text
b. ask and answer clarifying questions (e.g., how, why, and what) concerning specific details in the text and refer explicitly to parts of a text to answer these questions
c. identify the main idea and supporting details and facts in a text
d. explain the topic of each paragraph in a multi-paragraph text
e. identify specific events in historical or scientific texts and discuss what happened, as well as where, when, and why it happened, according to facts taken from the text

Reading Foundations

Phonics and Word Recognition

1. Students know and apply grade-level phonics and word analysis skills in decoding words.
   a. know the common spelling-sound correspondences for consonants (e.g., *sc-*, *sh*, *-ck*, *-ll*)
   b. know vowel digraph and final-e conventions for representing long vowels
   c. know spelling-sound correspondences for diphthongs and other common vowel teams (e.g., *loud*, *cow*, *look*, *loop*, *low*, *boil*)
   d. use knowledge of phonics and spelling conventions to decode regularly spelled one-syllable words (e.g., *sick*, *match*, *sight*, *slice*, *bake*, *spring*)

Observing craft and structure

Core Standards -- Students can and do:

4. Explain the meanings of words and phrases as they are used in the text.
5. Gain familiarity with different ways of presenting stories and information in text.
6. Compare and contrast different versions of the same story or informational texts on the same subject.

Standards -- Students can and do (by key text type):

Narratives, Drama, and Poetry

a. recognize sensory details and how they are used to describe events, feelings, and objects
b. describe the different ways poets use rhyme, rhythm, and sensory images to convey a topic or message
c. identify repetitions in phrases, refrains, or sounds in poems and songs
d. describe story elements, including characters, setting, the problem, and how it is resolved
e. discuss stories written by the same author about similar characters or compare different versions of similar well-known tales and myths from various cultures

Informational Text

a. locate key words, facts, or other details using features of texts (e.g., captions, headings, glossaries, indexes, electronic menus, and icons)
b. distinguish between writing that is based on real events and writing that is based on fantasy or fictional events
c. combine information from two different parts of a text and identify how they are related (e.g., chronology, causation)
d. after reading two passages on the same subject, combine the information to more fully describe a topic

Reading Foundations, continued

Developing Fluency

2. Students read with sufficient accuracy and fluency to support comprehension.
   a. demonstrate increased accuracy, fluency, and expression on successive readings of a text
   b. use context to confirm or self-correct word recognition and understanding, rereading as necessary
   c. read alone or with a partner at least 20 minutes each day, in school or out

Integrating information and evaluating evidence

Core Standards -- Students can and do:

7. Locate and use information from graphs, illustrations, and electronic sources.
8. Identify and understand words and phrases that indicate logical relationships.
9. Identify who is telling the story or providing information at any given point in the text.

Standards — Students can and do (by key text type):

Narratives, Drama, and Poetry

a. efficiently navigate stories in print and electronic text and explain how images and illustrations connect to and clarify the content
b. identify who is telling the story or who is speaking in a drama

Informational Text

a. use information from visual elements of print and electronic texts (e.g., graphs, maps, charts, illustrations, photographs, diagrams) and explain how they help a reader understand the text
b. identify words (e.g., *such as, because, therefore, in order to, since*) that logically connect ideas in sentences and paragraphs

Developing habits for reading complex text

Core Standards -- Students can and do:

10. Develop the habit of reading independently and productively, sustaining concentration and stamina to read increasingly demanding text.

Writing and Research Standards

Writing to reflect audience, purpose, and task

Core Standards -- Students can and do:

1. Write narratives, informative and explanatory texts, and opinions that communicate to a familiar, known audience.

Conducting research

Core Standards -- Students can and do:

2. Gather information from experiences or provided text sources.

Revising writing

Core Standards — Students can and do:

3. With specific guidance, strengthen writing through revision.

Using tools and technology

Core Standards — Students can and do:

4. Gain familiarity with technology and other tools to produce, revise, and edit writing.

Standards — Students can and do (by key text type):[12]

Narratives

a. establish a situation in time and/or place that is appropriate for the sequence of events to follow
b. recount a single well-elaborated event or sequence of events, managing chronological sequence with temporal words, phrases, and clauses
c. tell what the narrator thought or felt
d. include dialogue if appropriate and specific details
e. provide closure through reaction, commentary, or summation

Informative and Explanatory Texts

a. produce a brief introduction
b. create an organizational structure that presents similar information together, frequently patterned after chapter book headings or picture books
c. use adequate and specific facts and definitions to develop points
d. use linking words, such as *also, another, and,* and *more,* to connect ideas within categories of information, and headers to signal groupings
e. include a concluding sentence or section

Arguments (opinions)

a. introduce the topic or book(s) directly
b. state opinion(s) relative to the topic
c. provide reasons for opinions and details to support them
d. create a list-like structure for organization
e. use words to link and organize opinions and reason(s) (e.g., *because, another, and, also*)
f. refer to the text(s) when writing about literature
g. close with a concluding statement or recommendation

Speaking and Listening Standards

Listening closely and participating productively

Core Standards -- Students can and do:

1. Participate productively in small groups and as a class, engaging in a series of oral exchanges about texts and topics.

[12] See Appendix C for samples of student writing that illustrate through annotations the level of quality required to meet the writing standards.

2. Sustain concentration on information presented orally, visually, or multi-modally and confirm understanding by paraphrasing the information.

Standards — Students can and do (by key communication type):

Classroom discussions and participating productively

a. engage in conversations on familiar topics
b. paraphrase the key information or ideas of others presented orally or through other media
c. inquire about oral or visual presentations to deepen understanding or clarify comprehension
d. link additions to conversation to the previous remarks of others
e. participate productively by listening politely to the ideas of others, taking turns speaking, and extending their ideas in light of discussions

Exchanging information and speaking effectively

Core Standards — Students can and do:

3. Share experiences and ideas, thinking about the needs of their listeners.
4. Speak audibly and clearly at an understandable pace.

Standards — Students can and do (by key communication type):

Presentation of ideas and information

a. recount stories or experiences with descriptive details by answering who, what, where, when, how, and why questions about them
b. report on a topic, including appropriate facts and details
c. use appropriate tone to express ideas, feelings, and needs clearly
d. recite or read aloud poems, rhymes, songs, and stories, speaking clearly at an understandable pace

Language Development Standards

Conventions

In grade 2, students create sentences of expanding length and complexity, though their control over these sentences is likely to be imperfect. Their command of noun and verb formation extends to common irregular forms. Students capitalize correctly in most situations. Their use of punctuation has grown to include commas in greetings and closings of letters as well as apostrophes to form contractions and to signal possession. Their spelling is increasingly conventional, and they now consult references, such as beginning dictionaries, to aid them when needed.

Key Terms: apostrophe, contraction, regular and irregular nouns and verb, possessive

Grammar and usage

Core Standards — Students can and do:

1. Generate and expand sentences with embedded, dependent, or conjoined clauses (e.g., *After we came home from school, I fed the gerbil and my sister cleaned the cage*).
2. Form common irregular plural nouns (e.g., *feet, children, teeth, mice, fish, women*).

3. Form the past tense of common irregular verbs (e.g., *sat, hid, told*).

Mechanics

Core Standards — Students can and do:

4. Capitalize holidays, product names, geographic names, and important words in titles.
5. Use commas in greetings and closings of letters.
6. Use apostrophes to punctuate contractions and to form common possessives.
7. Use conventional spelling for high-frequency and other studied words.
8. Generalize learned spelling patterns when writing words (e.g., *cage → badge; boy → boil; paper → copper*).
9. Use spelling rules for adding suffixes to base words (e.g., *sitting, smiled, cries, happiness*).
10. Consult reference materials, including beginning dictionaries, to check and correct spellings.

Vocabulary

In grade 2, students use a repertoire of strategies for dealing with unknown words. They can analyze the word itself, consider how it is used, consult reference materials, use the components of a compound word as clues to the word's meaning, or employ some combination of these strategies to determine or clarify word meanings. They figure out which meaning of a multiple-meaning word is most likely intended in a particular circumstance, and they differentiate among the connotations of related verbs and adjectives. They acquire new words through interactive language use, including informal talk, discussion, reading and responding to text as well as by being taught the words directly.

Determining the meaning of words

Core Standards — Students can and do:

1. Determine or clarify the meaning of an unknown word by using one or more of the following strategies:
   - identifying its base word when it has affixes (e.g., *happiness, finally, grimy, hostile*)
   - determining how it is used in a sentence when reading, including whether it names or describes a thing or an action
   - consulting reference materials, including glossaries and beginning dictionaries, both print and digital
2. Determine the relevant meaning of multiple-meaning words by using context.
3. Explain the meaning of grade-appropriate compound words (e.g., *birdhouse, lighthouse, housefly; bookshelf, notebook, bookmark*).

Understanding the nuances of words (denotations and connotations)

Core Standards — Students can and do:

4. Distinguish among related verbs (e.g., *toss, throw, hurl*) to gain a sense of their shadings of meaning.
5. Distinguish among related adjectives (e.g., *thin, slender, skinny, scrawny; irritated, mad, angry, furious*) to gain a sense of their shadings of meaning.

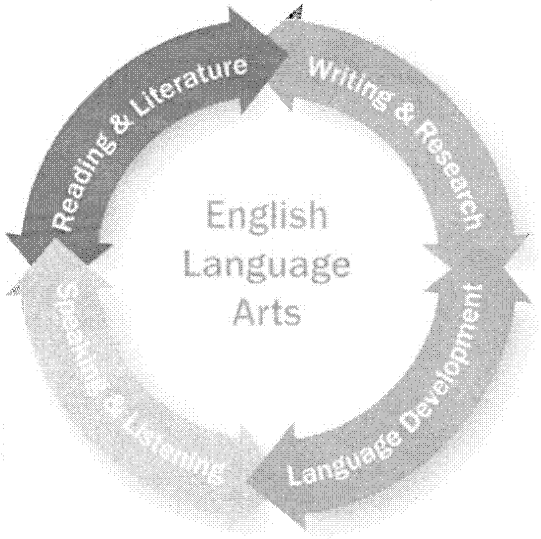
Acquiring vocabulary

Core Standards — Students can and do:

6. Acquire and use new vocabulary taught directly and gained through reading and conversations.

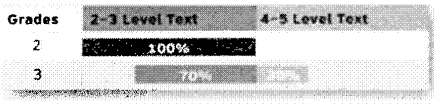
English Language Arts

Grade 3



Required Text Complexity by Grade

Proportion of Texts Within and Above Grade Band to be Read in Each Grade



While advancing through the grades, students must engage with texts of steadily increasing complexity.

- **In grade 3**, students focus on reading texts in the 2–3 grade band level text (70 percent) independently and are introduced to texts in the 4–5 grade band level as "stretch" texts (30 percent), which will likely require scaffolding.

Determining Text Complexity for Grades 2–3

Text complexity is determined by a mix of qualitative and quantitative measures of the text itself refined by teachers' professional judgment about the match of particular texts to particular students. The qualitative dimensions of text complexity are best understood as continua of increasing complexity rather than as representing discrete and easily defined stages. Most authentic texts will exhibit some but not all of the traits linked to a particular grade band; qualitatively assigning a text to a grade band is therefore a matter of "best fit," or determining which grade band's set of descriptors most accurately describes the text.

Qualitative Measures of Texts[13]	Quantitative Measures of Texts
• *Structure:* Explicit, simple, conventional; simple graphic representations are supplementary to meaning; texts are relatively short • *Purpose:* Single; explicitly stated • *Style and Language:* Familiar, accessible, plain; few literary devices; mostly clear, everyday language; limited use of Tier 2 and 3 words and figurative language • *Richness:* A few ideas/concepts; concrete; low information density • *Relationships:* A few connections; explicit • *Knowledge Demands:* Ability to handle simple themes and fantastical elements as well as draw upon common, everyday experiences; general background knowledge and familiarity with genre conventions required; some everyday and general content knowledge	A study is underway with Coh-Metrix, a nonprofit research organization, to identify roughly five to seven computer-measurable dimensions of text cohesion. These dimensions, paired with a Lexile score, will yield a robust quantitative assessment of text complexity that, along with both the qualitative dimensions and professional judgment, will round out the Core Standards model of complexity.
Professional Judgment that weighs students' prior knowledge and life experiences as well as their interests, motivations, and maturity level.	

[13] Adapted from ACT, Inc., (2005); Carnegie Council on Advancing Adolescent Literacy (2010); Chall, Bissex, Conrad, & Harris-Sharples (1996); and Hess and Biggam (2004)

Mix of Key Text Types for Grade 3

Narratives	Drama	Poetry	Informational Text
At this level, includes children's adventure stories, biographies, folktales, legends, fables, fantasy, realistic fiction, and myth.	*At this level, includes staged dialogue, scenes, and brief familiar scenes.*	*At this level, includes nursery rhymes, and the subgenres of narrative poems, limericks, and free verse.*	*At this level, includes books about science, history, and the arts and other nonfiction materials.*

Illustrative Texts for Narratives, Drama, and Poetry[14]

Mr. Father's Dragon by Ruth Stiles Gannett, illustrated by Ruth Chrisman Gannett (1948)

Sarah, Plain and Tall by Patricia MacLachlan (1985)

The One-Eyed Giant (Book One of Tales from the Odyssey) by Mary Pope Osborne (2002)

"Knoxville, Tennessee" by Nikki Giovanni (1968)

"Eating While Reading" by Gary Soto (1995)

Read Alouds:

"How the Camel Got His Hump" in *Just So Stories* by Rudyard Kipling (1902)

Illustrative Informational Text

A Medieval Feast by Aliki (1983)

So You Want to Be President? by Judith St.George, illustrated by David Small (2000)

But Leves the Night by Nicola Davies, illustrated by Sarah Fox-Davies (2008)

Moonshot: The Flight of Apollo 11 by Brian Floca (2009)

[14] See Appendix B for other texts illustrative of Grades 2–3 text complexity.

Reading and Literature Standards

Grasping specific details and key ideas

Core Standards — Students can and do:

1. Retell what the text says explicitly and make inferences required to understand the text.
2. Identify lessons or topics of the text and the key details that support them.
3. Describe in detail a specific character, event, or topic in the text.

Standards — Students can and do (by key text type):

Narratives, Drama, and Poetry

a. ask and answer clarifying questions (e.g., how, why, where, when, who, and what) concerning specific details in the text and refer explicitly to parts of a text to answer these questions
b. identify or infer the moral or lesson in well-known stories, fables, folktales, or myths
c. describe how major events in a story often lead from problem to solution
d. examine a specific incident in a story, narrative, or drama in depth, and establish when, where, and why it occurs
e. describe characters based upon what they say and do

Informational Text

a. accurately restate key information provided by the text
b. ask and answer clarifying questions (e.g., how, why, and what) concerning specific details in the text and refer explicitly to parts of a text to answer these questions
c. identify the main idea and supporting details and facts in a text
d. explain the topic of each paragraph in a multi-paragraph text
e. identify specific events in historical or scientific texts and discuss what happened, as well as where, when, and why it happened, according to facts taken from the text

Reading Foundations

Phonics and Word Recognition

1. Students 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 regularly spelled single-syllable and multi-syllable words (e.g., *vocabulary, refrigerator, terrible, frightening*)
   c. read grade-appropriate irregularly spelled words by sight
   d. use phonics and word analysis to identify visually new words when reading

Observing craft and structure

Core Standards — Students can and do:

4. Explain the meanings of words and phrases as they are used in the text.
5. Gain familiarity with different ways of presenting stories and information in text.
6. Compare and contrast different versions of the same story or informational texts on the same subject.

Standards — Students can and do (by key text type):

Narratives, Drama, and Poetry

a. recognize sensory details and how they are used to describe events, feelings, and objects
b. describe the different ways poets use rhyme, rhythm, and sensory images to convey a topic or message
c. identify repetitions in phrases, refrains, or sounds in poems and songs
d. describe story elements, including characters, setting, the problem, and how it is resolved
e. discuss stories written by the same author about similar characters or compare different versions of similar well-known tales and myths from various cultures

Informational Text

a. locate key words, facts, or other details using features of texts (e.g., captions, headings, glossaries, indexes, electronic menus, and icons)
b. distinguish between writing that is based on real events and writing that is based on fantasy or fictional events
c. combine information from two different parts of a text and identify how they are related (e.g., chronology, causation)
d. after reading two passages on the same subject, combine the information to more fully describe a topic

Integrating information and evaluating evidence

Core Standards — Students can and do:

7. Locate and use information from graphs, illustrations, and electronic sources.
8. Identify and understand words and phrases that indicate logical relationships.
9. Identify who is telling the story or providing information at any given point in the text.

Reading Foundations, continued

Developing Fluency

2. Students read with sufficient accuracy and fluency to support comprehension.
   a. demonstrate increased accuracy, fluency, and expression on successive readings of a text
   b. use context to confirm or self-correct word recognition and understanding, rereading as necessary
   c. read at least 20 minutes each day, in school or out

Standards — Students can and do (by key text type):

Narratives, Drama, and Poetry

a. efficiently navigate stories in print and electronic text and explain how images and illustrations connect to and clarify the content
b. identify who is telling the story or who is speaking in a drama

Informational Text

a. use information from visual elements of print and electronic texts (e.g., graphs, maps, charts, illustrations, photographs, diagrams) and explain how they help a reader understand the text
b. identify words (e.g., *such as, because, therefore, in order to, since*) that logically connect ideas in sentences and paragraphs

Developing habits for reading complex text

Core Standards — Students can and do:

10. Develop the habit of reading independently and productively, sustaining concentration and stamina to read increasingly demanding text.

Writing and Research Standards

Writing to reflect audience, purpose, and task

Core Standards — Students can and do:

1. Write narratives, informative and explanatory texts, and opinions that communicate to a familiar, known audience.

Conducting research

Core Standards — Students can and do:

2. Gather information from experiences or provided text sources.

Revising writing

Core Standards — Students can and do:

3. With specific guidance, strengthen writing through revision.

Using tools and technology

Core Standards — Students can and do:

4. Gain familiarity with technology and other tools to produce, revise, and edit writing.

Standards — Students can and do (by key text type):[15]

Narratives

a. set the time, indicate a location, introduce characters, or enter immediately into the story line to engage the reader
b. recount a single, well-elaborated event or a sequence of events that unfold naturally using temporal words, phrases, and clauses
c. tell what the narrator thought or felt
d. develop a focus, provide pacing, and include only relevant information
e. develop a character through the description of external behavior
f. provide descriptive details
g. employ dialogue and other narrative strategies
h. provide a satisfying conclusion that is reflective and/or that effectively ties up loose ends

Informative and Explanatory Texts

a. produce an introduction that names the topic and provides at least one general detail about it
b. create an organizational structure that presents similar information together, frequently patterned after chapter book headings or picture books
c. use adequate, relevant, and specific facts and definitions to develop points
d. logically categorize details and facts drawn from personal experience and other sources
e. use linking words, such as *also, another, and,* and *more,* to connect ideas within categories of information, and use headers to signal groupings
f. include only appropriate information
g. include a concluding sentence or section

Arguments (opinions)

a. introduce the topic or book(s) directly, and attempt to capture the reader's interest
b. state an opinion relative to the topic (e.g., *This is a good book* or *John is a good friend*)
c. provide facts and details to support the opinion
d. create a list-like organizing structure that provides reasons for the opinion
e. use appropriate words to link and organize opinions and reason(s) (e.g., *because, another, and, also*)
f. refer to the text(s) when writing about literature
g. provide a concluding statement, reflection, and/or recommendation

[15] See Appendix C for samples of student writing that illustrate through annotations the level of quality required to meet the writing standards.

Speaking and Listening Standards

Listening critically and participating productively

Core Standards — Students can and do:

1. Participate productively in small groups and as a class, engaging in a series of oral exchanges about texts and topics.
2. Sustain concentration on information presented orally, visually, or multi-modally and confirm understanding by paraphrasing the information.

Standards — Students can and do (by key communication type):

Classroom discussions and participating productively

a. engage in conversations on familiar topics
b. paraphrase the key information or ideas of others presented orally or through other media
c. inquire about oral or visual presentations to deepen understanding or clarify comprehension
d. link additions to conversation to the previous remarks of others
e. participate productively by listening politely to the ideas of others, taking turns speaking, and extending their ideas in light of discussions

Exchanging information and speaking effectively

Core Standards — Students can and do:

3. Share experiences and ideas, thinking about the needs of their listeners.
4. Speak audibly and clearly at an understandable pace.

Standards — Students can and do (by key communication type):

Presentation of ideas and information

a. recount stories or experiences with descriptive details by answering who, what, where, when, how, and why questions about them
b. report on a topic, including appropriate facts and details
c. use appropriate tone to express ideas, feelings, and needs clearly
d. recite or read aloud poems, rhymes, songs, and stories, speaking clearly at an understandable pace

Language Development Standards

Conventions

By grade 3, students have learned the foundations of written and spoken language, including letter, word, and sentence formation and crucial forms of punctuation. They ensure agreement between subject and verb and between pronoun and antecedent in simple situations. Students use quotation marks to indicate dialogue. They know most of the conventions of spelling and consult references to look up words when they still have difficulty. They use precise everyday language to describe and begin to consider the effects of word choice in writing and speaking.

Key Terms: subject-verb and pronoun-antecedent agreement, comma splice, fragment, run-on, quotation mark

Conventions of language and writing

Core Standards — Students can and do:

1. Group related ideas into a paragraph.

Grammar and usage

Core Standards — Students can and do:

2. Generate complete sentences, avoiding fragments, comma splices, and run-ons.*
3. Ensure subject-verb and pronoun-antecedent agreement.*

Mechanics

Core Standards — Students can and do:

4. Use quotation marks in dialogue.
5. Use spelling patterns and generalizations (e.g., word families, position-based spellings, syllable patterns, ending rules, meaningful word parts) in writing regular words.
6. Consult reference materials, including dictionaries, to check and correct spellings.

Word choice and style

Core Standards — Students can and do:

7. Use precise everyday language.
8. Choose words for effect.*[16]

[16] Conventions standards noted with an asterisk (*) need to be revisited by students in subsequent grades. See Appendix A for a full listing.

Vocabulary

Key to students' vocabulary development is building rich and flexible word knowledge marked by multiple connections that link a word to similar words and to contexts and experiences that are related to that word—as compared to simply a definition. In grade 3, students use their repertoire of strategies to determine and clarify the meaning of unknown and multiple-meaning words. They know that words are sometimes used in nonliteral ways and can use that knowledge to help them understand common idioms. They learn and can paraphrase many common idioms and sayings. They recognize that words have nuances in meaning and rely on context and background knowledge to sort among related words that describe abstract concepts. They acquire new words through interactive language use, including informal talk, discussion, reading and responding to text as well as by being taught the words directly.

Determining the meaning of words

Core Standards — Students can and do:

1. Determine or clarify the meaning of an unknown word by using one or more of the following strategies:
   - using prefixes and suffixes when it is a multimorpheme word (e.g., *thoughtless, recycle, unforgettable*)
   - determining how it is used in a sentence when reading
   - consulting reference materials, including glossaries and dictionaries, both print and digital
2. Determine the meaning of multiple-meaning words by using context.
3. Distinguish between literal and nonliteral uses of language.
4. Paraphrase the meaning of common idioms and sayings.

Understanding the nuances of words (denotations and connotations)

Core Standards — Students can and do:

5. Distinguish among related words that describe states of mind, degrees of certainty, or other abstract concepts (e.g., *know, believed, suspected, heard, wondered*).

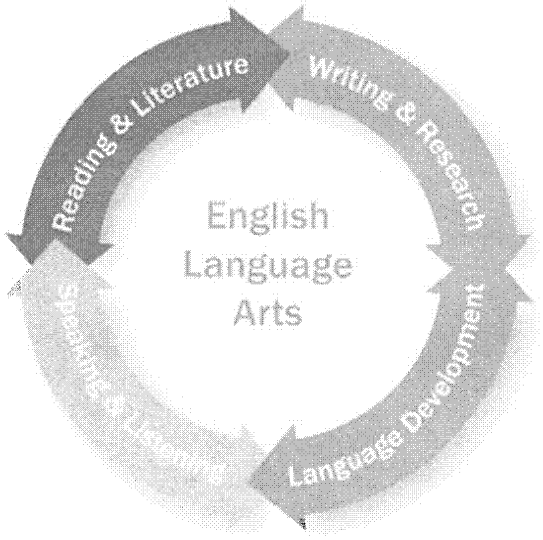
Acquiring vocabulary

Core Standards — Students can and do:

6. Acquire and use new vocabulary taught directly and gained through reading and conversations.

English Language Arts

Grades 4–5



Required Text Complexity by Grade

Proportion of Texts Within and Above Grade Band to be Read in Each Grade

While advancing through grades 4–5, students must engage with texts of steadily increasing complexity.

- **In grade 4**, students focus on reading texts in the 4–5 grade band level with scaffolding likely required for texts at the high end of the range.
- **In grade 5**, students focus on reading in the 4–5 grade band level (70 percent) independently and are introduced to texts in the 6–8 grade band level as "stretch" texts (30 percent), which will likely require scaffolding.

Determining Text Complexity for Grades 4–5[17]

Text complexity is determined by a mix of qualitative and quantitative measures of the text itself refined by teachers' professional judgment about the match of particular texts to particular students. The qualitative dimensions of text complexity are best understood as continua of increasing complexity rather than as representing discrete and easily defined stages. Most authentic texts will exhibit some but not all of the traits linked to a particular grade band; qualitatively assigning a text to a grade band is therefore a matter of "best fit," or determining which grade band's set of descriptors most accurately describes the text.

Qualitative Measures of Texts	Quantitative Measures of Texts
• *Structure:* Largely explicit and direct; graphic representations are supplementary to meaning; texts are of increasing length • *Purpose:* Single or twofold; clearly indicated • *Style and Language:* Moderately accessible; some literary devices; some everyday language; some use of Tier 2 and Tier 3 words and figurative language • *Richness:* Some ideas/concepts; mostly concrete; moderate information density • *Relationships:* Some connections; largely explicit • *Knowledge Demands:* Ability to handle fairly simple themes, consider a perspective somewhat different from one's own, and understand unfamiliar experiences; general background knowledge and familiarity with genre conventions required; some general and discipline-specific content knowledge	A study is underway with Coh-Metrix, a nonprofit research organization, to identify roughly five to seven computer-measurable dimensions of text cohesion. These dimensions, paired with a Lexile score, will yield a robust quantitative assessment of text complexity that, along with both the qualitative dimensions and professional judgment, will round out the Core Standards model of complexity.

Professional Judgment that weighs students' prior knowledge and life experiences as well as their interests, motivations, and maturity level.

[17] Adapted from ACT, Inc., (2005); Carnegie Council on Advancing Adolescent Literacy (2010); Chall, Bissex, Conrad, & Harris-Sharples (1996); and Hess and Biggam (2004)

Mix of Key Text Types for Grades 4–5

Narratives	Drama	Poetry	Informational Text
At this level, includes children's adventure stories, biographies, folktales, legends, fables, fantasy, realistic fiction, and myth.	*At this level, includes staged dialogue and brief familiar scenes.*	*At this level, includes nursery rhymes, and the subgenres of narrative poems, limericks, and free verse.*	*At this level, includes books about science, history, and the arts and other nonfiction materials and digital media sources on a range of topics.*

Illustrative Texts for Narratives, Drama, and Poetry[18]	Illustrative Informational Texts
Alice in Wonderland by Lewis Carroll (1865)	*Discovering Mars* by Melvin Berger (1992)
The Little Prince by Antoine de Saint-Exupery (1943)	*Hurricanes: Earth's Mightiest Storms* by Patricia Lauber (1996)
Bud, Not Buddy by Christopher Paul Curtis (1999)	"Ancient Mound Builders" by E. Barrie Kavash from *Cobblestone* (2003)
"The Echoing Green" from *Songs of Innocence* by William Blake (1789)	*Volcanoes* by Seymour Simon (2006)
"Casey at the Bat" by Ernest Lawrence Thayer (1888)	"Kenya's Long Dry Season" by Nellie Gonzalez Cutler from *Time for Kids* (2009)
"Words Free As Confetti" by Pat Mora (1996)	"Seeing Eye to Eye" by Leslie Hall from *National Geographic Explorer* (2009)
Where the Mountain Meets the Moon by Grace Lin (2009)	

[18] See Appendix B for other texts illustrative of Grades 4–5 text complexity.

Reading and Literature Standards

Grasping specific details and key ideas

Core Standards — Students can and do:

1. Determine what the text says explicitly and make inferences required for understanding; explain how those inferences stem from the text.
2. Articulate the main ideas and themes of the text and provide a summary that captures the key supporting details.
3. Describe in detail two or more characters, events, or topics in the text and explain how they are related to one another.

Standards — Students can and do (by key text type):

Narratives, Drama, and Poetry

a. determine the theme of a story or drama, basing the understanding of theme on how characters adapt or change in response to the challenges posed in the plot
b. summarize accurately the significant events of a play or narrative in chronological order, describing where, when, why, and how specific actions take place
c. describe characters based on evidence from their thoughts, words, deeds, and interactions with others
d. describe the setting in detail, drawing on evidence of the time, place, and other cues
e. determine the theme of a poem, basing the understanding of theme on the key observations, images, or statements in a poem

Informational Text

a. outline the main and supporting ideas in the text and provide an accurate summary
b. identify the topic sentence and gist of each paragraph in a multi-paragraph text
c. describe related events in a history text or related topics in a science text and explain the relationships between the events or topics

Observing craft and structure

Core Standards — Students can and do:

4. Explain the meanings of words and phrases in the text, distinguishing literal and figurative uses.
5. Comprehend literature and information presented in a range of structures.
6. Compare and contrast texts written on the same topic or theme and explain how they are different and similar.

Standards — Students can and do (by key text type):

Narratives, Drama, and Poetry

a. describe the sensory details in texts and distinguish the use of literal versus figurative language
b. observe and explain how words with similar meanings can have different connotations
c. identify the meaning of figurative phrases and culturally significant characters found in mythology that are integral to understanding other works of literature and texts (e.g., *Herculean, Pandora's box*)
d. identify how narratives and plays are structured to describe the progress of characters through a series of events and challenges

e. identify rhymes and other repetitions of sounds that supply rhythm and pattern in poems and narrative prose
f. compare a narrative or a play with a presentation in another format, such as film, stage, or interactive text, and note what is surprising or different about the alternative version
g. compare works of literature on the same topic or with a similar theme

Informational Text

a. explain the meaning of key words and terms as they are used in the text
b. understand information drawn from a variety of texts with different structures, such as chronological, compare-and-contrast, or as a chain of causes and effects
c. identify and use text features (e.g., bold print, key words, topic sentences, hyperlinks, electronic menus, and icons) to locate information quickly and aid in comprehension
d. compare and contrast related accounts on the same or similar topics by different authors, by analyzing their content and perspectives

Integrating information and evaluating evidence

Core Standards — Students can and do:

7. Explain and use information presented graphically or visually in print, videos, or electronic texts.
8. Outline the information or evidence used to support an explanation or argument, determining which points support which key statements.
9. Determine the point of view or purpose that guides how events or ideas are described.

Standards — Students can and do (by key text type):

Narratives, Drama, and Poetry

a. identify the narrator of a story and explain how different stories are narrated from different perspectives
b. compare accounts of historical events and figures or natural phenomena with their depiction in a fictional work

Informational Text

a. explain how factual information presented graphically or visually (e.g., maps, charts, diagrams, timelines, animations, and other interactive visual elements) aids in the comprehension of print and electronic texts
b. explain how authors support their specific claims with evidence, including which evidence supports which claims
c. determine the author's purpose and how that is reflected in the description of the events and ideas

Developing habits for reading complex text

Core Standards — Students can and do:

10. Develop the habit of reading independently and productively, sustaining concentration and stamina to read increasingly demanding texts.

Writing and Research Standards

Writing to reflect audience, purpose, and task

Core Standards — Students can and do:

1. Write narratives, informative and explanatory texts, and arguments that demonstrate an awareness of audiences that are familiar and known to the student.

Conducting research

Core Standards — Students can and do:

2. Perform short, focused research tasks that build knowledge by exploring aspects of a single topic.
3. Gather information from experience, as well as print and digital resources.
4. Determine the accuracy and relevance of the information gathered to answer specific questions.
5. Restate information from source materials in one's own words, through summary or paraphrase.
6. Provide basic bibliographic information for print and digital sources.

Revising writing

Core Standards — Students can and do:

7. With guidance and support from peers and adults, strengthen writing through revision, editing, or beginning again to maintain a clear focus throughout.

Using tools and technology

Core Standards — Students can and do:

8. Use technology and other tools to produce, revise, and edit writing.

Developing proficiency in a range of writing

9. Create writing over extended timeframes (time for reflection and revision) and shorter timeframes (a single sitting or a day or two), responding to specific sources.

   Focus by grade level:

   Grade 4: Describing the content of literary or informational sources at the 4–5 grade band level of text complexity and content
   Grade 5: Comparing the contents of literary or informational sources at the 4–5 grade band level of complexity and content

Standards — Students can and do (by key text type):[19]

Narratives

a. orient the reader by establishing a situation, introducing characters, setting, and location, or by backfilling information after entering immediately into the storyline
b. create an organizing structure in which events are logically or causally sequenced
c. in producing a story, create a plot with an initiating event, complicating action, a climax, and a resolution
d. use a variety of temporal words, phrases, and clauses to signal sequence
e. use concrete and sensory details to develop narrative elements
f. develop the narrative using techniques such as dialogue, pacing, and reporting the narrator's thoughts
g. show both external behaviors and the internal responses of characters to events
h. provide closure and a realistic outcome of the narrative's events

Informative and Explanatory Texts

a. state the topic clearly and provide a general observation and focus
b. develop the subject using relevant facts, concrete details, quotations, or other information and examples
c. group related information logically in basic structures (paragraphs, sections) and provide headings or illustrations when useful
d. employ specialized vocabulary and a formal, objective style when appropriate
e. use appropriate links to join ideas
f. include only relevant appropriate information to demonstrate focus
g. provide a conclusion related to the information or explanation offered

Arguments (opinions)

a. introduce an opinion about a concrete issue or topic
b. support opinions with relevant reasons
c. support reasons with specific details
d. link the reasons together using words, phrases, and clauses (e.g., *because, since*)
e. adopt a relatively formal style for sharing and defending an opinion when appropriate to the discipline or context
f. provide a concluding statement or section that offers reflections, restatement, or recommendations consistent with the opinion presented

Speaking and Listening Standards

Listening closely and participating productively

Core Standards — Students can and do:

1. Participate productively one on one, in small groups, and as a whole class, joining in discussions and making relevant points about what they have read, heard, or written.
2. Sustain concentration on information presented orally, visually, or multi-modally and confirm understanding by summarizing the main ideas and supporting details.

Standards — Students can and do (by key communication type):

[19] See Appendix C for samples of student writing that illustrate through annotations the level of quality required to meet the writing standards.

Classroom discussions and collaboration

a. come to discussions having read required material and, in conversation, build upon background knowledge from that material and other information known about the topic
b. demonstrate understanding of the content and ideas presented or discussed by distilling them into an accurate summary
c. ask questions to clarify or follow up on ideas or information presented orally or through other media
d. respond to questions and make comments that contribute to the topic and ideas of previous speakers
e. explain information presented graphically or visually in conjunction with other information presented orally
f. engage productively and respectfully with others during discussions, including listening actively, gaining the floor respectfully, and qualifying or justifying what they think after listening to others' questions or accounts

Exchanging information and speaking effectively

Core Standards — Students can and do:

3. Share experiences, opinions or other information, choosing material that is relevant to the topic and to the listeners.
4. Speak audibly and clearly at an appropriate and understandable pace, using formal English when indicated or appropriate (e.g., presenting ideas versus class discussion).

Standards — Students can and do (by key communication type):

Presentation of ideas and information

a. speak coherently about events, topics, or texts that focus and organize ideas in a logical sequence and include facts, details, or other information that support the main ideas
b. use appropriate volume, phrasing, and pace for clarity
c. read aloud prose and poetry, with appropriate emotion and fidelity to the text

Language Development Standards

Conventions

In grades 4–5, students heighten their ability to situate and describe using language that is increasingly precise and vivid. They form and use verbs of various tenses to locate people, actions, and events in time, and they correctly use adjectives and adverbs to modify. Students begin to gain control of frequently confused words (e.g., *effect, affect*) and edit writing to remove language that is not idiomatic. Their mastery of capitalization is complete. They use punctuation to separate items in a series and a comma to distinguish an introductory element from the main part of the sentence. Students mark titles in conventional ways. They understand how to quote and use quotation marks. Their spelling is conventional. Their language is increasingly topic specific, precise, and varied, and they manipulate sentence structure for effect.

Key Terms: adjective; adverb; interjection; preposition; simple, progressive, and perfect tense

Conventions of language and writing

Core Standards — Students can and do:

1. Maintain the focus of a paragraph on a topic through structural elements such as main ideas, supporting sentences, and transitions.

Grammar and usage

Core Standards — Students can and do:

2. Form and use the simple (e.g., *I walked, I walk, I will walk*), progressive (e.g., *I was walking, I am walking, I will be walking*) and the perfect (e.g., *I had walked, I have walked, I will have walked*) verb tenses.
3. Recognize and correct inappropriate shifts in verb tense.*
4. Form and choose between adjectives and adverbs (including comparative and superlative forms), placing them appropriately within the sentence.*
5. Correctly use frequently confused words.*
6. Use idiomatic language.*

Mechanics

Core Standards — Students can and do:

7. Capitalize the first word in quotations as appropriate and other important words, such as section headers.
8. Use punctuation to separate items in a series.*
9. Use a comma to separate an introductory element from the rest of the sentence.
10. Use underlining, quotation marks, or italics to indicate titles of works.
11. Use quotation marks to mark direct speech and quotations from a text.
12. Spell grade-appropriate words correctly, consulting references as needed.*

Word choice and style

Core Standards — Students can and do:

13. Use specialized, topic-specific language to convey ideas precisely.*
14. Use figurative language to create images or make comparisons and connections between people, objects, or ideas.*
15. Use punctuation for effect.*
16. Expand, combine, and reduce sentences for meaning, reader/listener interest, and style.*[20]

Focus by Grade-Level
Grade 4: Distinguish one idea or thing from another (Conventions Standards #'s1-3, #8, #9, #11)
Grade 5: Word choice (Conventions Standards #'s 4-6, #13, #14)

[20] Conventions standards noted with an asterisk (*) need to be revisited by students in subsequent grades. See Appendix A for a complete listing.

Vocabulary

Key to students' vocabulary development is building rich and flexible word knowledge marked by multiple connections that link a word to similar words and to contexts and experiences that are related to that word—as compared to simply a definition. In grades 4–5, students are capable of selecting among a wide range of strategies—analyzing the word itself, using localized context clues (particularly at the sentence level), and consulting reference materials—to determine and clarify the meaning of unknown and multiple-meaning words. They develop the habit of verifying their inferences of word meanings. They are able to interpret simple figurative language found in what they read. They learn and can paraphrase many common idioms, proverbs, and adages. They make distinctions among words based on connotation. They acquire new words through interactive language use, including informal talk, discussion, reading and responding to text as well as by being taught the words directly. This includes a focus on "Tier 2" words and phrases (those that commonly appear in writing but not in spoken language), "Tier 3" words and phrases (those that are specific and important to particular disciplines).[21]

Determining the meaning of words

Core Standards — Students can and do:

1. Determine or clarify the meaning of an unknown word by using one or more of the following strategies:
   - analyzing the word's sounds, spelling, and meaningful word parts
   - using semantic clues in sentences, such as definitions, examples, or restatements included within the text
   - using syntactic clues, such as using its position within the sentence as a guide to whether it represents a thing or an action
   - consulting reference materials, including glossaries, dictionaries, and thesauruses, both print and digital
2. Determine the relevant meaning of multiple-meaning words by using context.
3. Verify the preliminary determination of a word's meaning (e.g., by checking the inferred meaning in context or by looking up the word in a dictionary).
4. Interpret figurative language, including simple similes and metaphors.
5. Paraphrase the meaning of common idioms, adages, and proverbs.

Understanding the nuances of words (denotations and connotations)

Core Standards — Students can and do:

6. Distinguish a word from other words with similar but not identical meanings (synonyms).

Acquiring vocabulary

Core Standards — Students can and do:

7. Acquire and use a grade-appropriate vocabulary of Tier 2[22] words taught directly and gained through reading.
8. Acquire and use a grade-appropriate vocabulary of Tier 3 words taught directly and gained through reading.
9. Know and use words and phrases that signal contrast, addition, or other logical relationships (e.g., *however, although, nevertheless, similarly, moreover, in addition*).

[21] Beck I. L., McKeown, M. G. & Kucan, L. (2002). *Bringing Words to Life: Robust Vocabulary Instruction*, New York: Guilford Press

Grade 4 English Language Arts: Focus for Instruction

Reading and Literature

In grade 4, students apply the reading standards to the following types of text: narratives, drama, poetry, and informational text. Students focus on learning to read text at the 4–5 grade band level independently, with scaffolding likely required for texts at the high end of the range.

- Reading standards applied to different text types
- Mix of text types: Narratives, Drama, Poetry, Informational Text
- **Text Complexity focus:** 100% text at the 4–5 grade band level

Writing and Research

In grade 4, students apply the standards in writing to the following types of text: Narrative, Informative/Explanatory, and Argument. Students perform research, including short focused research tasks. They also write over various time frames in response to specific sources.

- Writing standards applied to different text types: Narrative, Informative/Explanatory, Argument
- Research, including short focused research tasks
- **Grade-specific focus:** Students create writing over extended and shorter timeframes, responding to specific sources by describing the contents of literary or informational sources at the 4–5 grade band level of complexity and content

Speaking and Listening

In grade 4, students apply the core speaking and listening standards in different contexts.

- Speaking and listening standards applied in different contexts: classroom discussion and collaboration as well as in presentation of ideas and information

Language Development

In grade 4, students apply the language development standards by applying the core vocabulary standards to determine word meaning, understand word nuances, and acquire vocabulary and to produce writing and speaking that observes appropriate conventions.

- Vocabulary standards applied to reading, writing, speaking and listening
- **Grade-specific conventions focus:** Distinguish one idea or thing from another:
  - Maintain the focus of a paragraph on a topic… (Conventions Standard #1)
  - Form and use the simple, progressive and perfect verb tenses … (Conventions Standard #2)
  - Recognize and correct inappropriate shifts in verb tense. (Conventions Standard #3)
  - Use punctuation to separate items in a series … (Conventions Standard #8)
  - Use a comma to separate an introductory element … (Conventions Standard #9)
  - Use quotation marks to mark direct speech and quotations … (Conventions Standard #11)

Grade 5 English Language Arts: Focus for Instruction

Reading and Literature

In grade 5, students apply the reading standards to the following types of text: narratives, drama, poetry, and informational text. Students focus on learning to read text at the 4-5 grade band level independently and are introduced to 6-8 grade band "stretch" texts, which will likely require scaffolding.

- Reading standards applied to different text types
- Mix of text types: Narratives, Drama, Poetry, Informational Text
- **Text Complexity focus:** 70% text at the 4-5 grade band level, 30% text at the 6-8 grade band level

Writing and Research

In grade 5, students apply the standards in writing to the following types of text: Narrative, Informative/Explanatory, and Argument. Students perform research, including short focused research tasks. There also write over various time frames in response to specific sources.

- Writing standards applied to different text types: Narrative, Informative/Explanatory, Argument
- Research, including short focused research tasks
- **Grade-specific focus:** Students create writing over extended and shorter timeframes, responding to specific sources by comparing the contents of literary or informational sources at the 4-5 grade band level of complexity and content.

Speaking and Listening

In grade 5, students apply the speaking and listening standards in different contexts.

- Speaking and listening Standards applied in different contexts: classroom discussion and collaboration as well as in presentation of ideas and information.

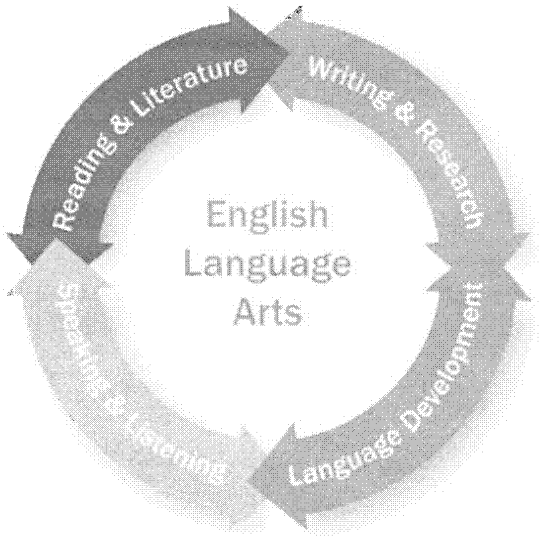
Language Development

In grade 5, students apply the language development standards by applying the core vocabulary standards to determine word meaning, understand word nuances, and acquire vocabulary and to produce writing and speaking that observes appropriate conventions.

- Vocabulary standards applied to both reading, writing, speaking and listening
- **Grade-specific conventions focus:** Word choice
  - Form and choose between adjectives and adverbs. (Conventions Standard #4)
  - Correctly use frequently confused words. (Conventions Standard #5)
  - Use idiomatic language. (Conventions Standard #6)
  - Use specialized, topic specific language to convey ideas precisely. (Conventions Standard #13)
  - Use figurative language to create images … (Conventions Standard #14)

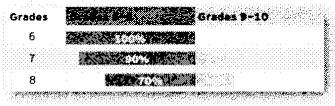
English Language Arts

Grades 6–8



Required Text Complexity by Grade

Proportion of Texts Within and Above Grade Band to be Read in Each Grade



While advancing through grades 6–8, students must engage with texts of steadily increasing complexity.

- **In grade 6**, students focus on reading texts in the 6–8 grade band level with scaffolding likely required for texts at the high end of the range.
- **In grade 7**, students focus on reading texts in the 6–8 grade band level (90 percent) independently and are introduced to texts in the 9–10 grade band level as "stretch" texts (10 percent), which will likely require scaffolding.
- **In grade 8**, students focus on reading texts in the 6–8 grade band level (70 percent) independently as well as sustained practice with texts in the 9–10 grade band level as "stretch" texts (30 percent), which will likely require scaffolding.

Determining Text Complexity for Grades 6–8[23]

Text complexity is determined by a mix of qualitative and quantitative measures of the text itself refined by teachers' professional judgment about the match of particular texts to particular students. The qualitative dimensions of text complexity are best understood as continua of increasing complexity rather than as representing discrete and easily defined stages. Most authentic texts will exhibit some but not all of the traits linked to a particular grade band; qualitatively assigning a text to a grade band is therefore a matter of "best fit," or determining which grade band's set of descriptors most accurately describes the text.

Qualitative Measures of Texts	Quantitative Measures of Texts
• *Structure:* Largely implicit and subtle; graphic representations are essential to meaning; texts are of increasing length • *Purpose:* Single or multiple; subtly stated • *Style and Language:* Moderately demanding; several literary devices; consistent use of Tier 2 and 3 words and figurative language • *Richness:* Several ideas/concepts; mostly abstract; moderate information density • *Relationships:* Several connections; largely implicit • *Knowledge Demands:* Ability to handle fairly challenging themes, consider multiple perspectives, and understand unfamiliar experiences; cultural and historical knowledge useful for understanding characters, settings, and allusions; some discipline-specific content knowledge	A study is underway with Coh-Metrix, a nonprofit research organization, to identify roughly five to seven computer-measurable dimensions of text cohesion. These dimensions, paired with a Lexile score, will yield a robust quantitative assessment of text complexity that, along with both the qualitative dimensions and professional judgment, will round out the Core Standards model of complexity.
Professional Judgment that weighs students' prior knowledge and life experiences as well as their interests, motivations, and maturity level.	

[23] Adapted from ACT, Inc., (2005); Carnegie Council on Advancing Adolescent Literacy (2010); Chall, Bissex, Conrad, & Harris-Sharples (1996); and Hess and Biggam (2004)

Mix of Key Text Types for Grades 6–8

Narratives	Drama	Poetry	Informational Text
At this level, includes the subgenres of adventure stories, biographies, memoirs, historical fiction, mysteries, folktales, legends, fables, tall tales, myths, fantasy, science fiction, realistic fiction, and graphic novels.	*At this level, includes one-act and multi-act plays both as text and film.*	*At this level, includes the subgenres of narrative poems, lyrical poems, free verse, odes, ballads, and epics.*	*At this level, includes such subgenres as exposition and argument in the form of essays, opinion pieces, speeches, opinion pieces as well as other documents and digital media sources on a range of topics.*

Illustrative Texts for Narratives, Drama, and Poetry[24]	Illustrative Informational Texts
Little Women by Louisa May Alcott (1869)	*Preamble and First Amendment to the United States Constitution* by United States (1787, 1791) **
The Adventures of Tom Sawyer by Mark Twain (1876)	*Narrative of the Life of Frederick Douglass an American Slave* by Frederick Douglass (1845)
A Wrinkle in Time by Madeline L'Engle (1962)	"Gettysburg Address"** by Abraham Lincoln (1863)
The Dark Is Rising by Susan Cooper (1973)	"Blood, Toil, Tears and Sweat" by Winston Churchill (1940)
Black Ships before Troy: The Story of the Iliad by Rosemary Sutcliff (1993)	*Travels with Charley: In Search of America* by John Steinbeck (1962)
A Midsummer Night's Dream by William Shakespeare (1596)	*I Know Why the Caged Bird Sings* by Maya Angelou (1969)
"Oh Captain, My Captain" by Walt Whitman (1865)	
"Stopping by a Wood on a Snowy Evening" by Robert Frost (1923)	
"I, Too" by Langston Hughes (1925)	

Seminal historical texts that all students are expected to read

[24] See Appendix B for other texts illustrative of Grades 6-8 text complexity.

Reading and Literature Standards

Grasping specific details and key ideas

Core Standards — Students can and do:

1. Read the text closely to determine what the text says explicitly and to make logical inferences from it; cite text evidence to support understanding in discussion and in writing.
2. Articulate the text's main ideas and themes and provide a summary that captures the key supporting details, without taking a position or expressing an opinion.
3. Explain in detail how events, ideas, and characters unfold in the text and interact with one another.

Standards — Students can and do (by key text type):

Narratives, Drama, and Poetry

a. infer themes when they are not explicitly stated and provide evidence on which those inferences are based
b. analyze the development of the narrative, describing how particular incidents advance or foreshadow the plot
c. recognize how the setting unfolds over the course of the text and describe its significance to the work
d. build on an author's explicit descriptions and other evidence to draw reasonable conclusions about characters and how they interact, change, and influence the central events
e. describe how a play unfolds and how particular lines of dialogue propel the action, reveal aspects of a character, or provoke a decision
f. analyze how patterns of imagery in a poem contribute to its overall theme or meaning

Informational Text

a. summarize a text without expressing a personal opinion by drawing on the author's specific description of events or information
b. determine how key ideas or concepts build on one another to reveal an overarching theme or idea

Observing craft and structure

Core Standards — Students can and do:

4. Interpret the meanings of words and phrases, including connotative and figurative meanings, and explain how specific word choices shape the meaning of the text.
5. Explain the text's structure, including how specific sentences, paragraphs, and larger portions build on each other and contribute to the whole of the text.
6. Compare and contrast how two or more texts written on similar topics or themes differ in their focus and key details.

Standards — Students can and do (by key text type):

Narratives, Drama, and Poetry

a. analyze how the author's choice of specific words or details contributes to the understanding of events and characters or to the tone of a narrative
b. trace the specific comparisons made by similes, metaphors, and analogies and explain how they contribute to the meaning of the text
c. compare similar ideas and themes as well as character types in myths, folktales, and legends from different cultures
d. analyze the impact of line breaks and stanzas on the meaning of a poem and acts, scenes, and stage directions on the meaning of a drama
e. compare the events, characters, ideas, and themes in texts written by the same author or on similar topics or themes

Informational Text

a. interpret the connotative meaning of closely related words and phrases as they are used in the text (e.g., *anger* versus *irate*)
b. describe how an author organizes the explanation or argument, as well as the ways in which the text's structure, language, and examples support its purpose
c. examine the structure of a Web site or other electronic text and describe how it organizes information and links to additional sources

Integrating information and evaluating evidence

Core Standards — Students can and do:

7. Interpret information presented graphically or visually in print, videos, or electronic texts and explain how this information clarifies and contributes to the text.
8. Analyze the structure and content of an argument, including its main claims or conclusions, supporting premises, and evidence.
9. Determine the point of view or purpose represented in the text, assessing how it shapes the content.

Standards — Students can and do (by key text type):

Narratives, Drama, and Poetry

a. compare the points of view from which different novels and poems are told, as well as the viewpoints of different characters in a drama
b. compare the fictional portrayal of a time, place, or character to historical sources from the period to determine which historical details have been emphasized, deleted, or changed in the fictional portrayal

Informational Text

a. interpret factual and quantitative data presented in diverse formats (including maps, charts, and diagrams as well as electronic media) and explain how this information clarifies or contributes to the text
b. distinguish between fact, opinion, and reasoned judgment presented in essays, speeches, and critiques
c. evaluate the strength of an argument's premises and specific claims as well as the degree to which each is supported by evidence
d. compare and contrast the viewpoints and use of evidence of two different authors writing about the same topic

Developing habits for reading complex text

Core Standards — Students can and do:

10. Develop the habit of reading independently and productively, sustaining concentration and stamina to read increasingly demanding texts.

Writing and Research Standards

Writing to reflect audience, purpose, and task

Core Standards — Students can and do:

1. Write narratives, informative and explanatory texts, and arguments that match purpose to task and address familiar as well as somewhat distant audiences (e.g., mayor, readers of school or neighborhood newspaper).

Conducting research

Core Standards — Students can and do:

2. Perform short, focused research projects that demonstrate understanding of the material under investigation and generate additional related questions for research.
3. Gather information independently using a variety of relevant print and digital resources.
4. Assess the credibility, reliability, consistency, and accuracy of the information and sources gathered.
5. Represent and cite accurately the data, conclusions, and opinions of others, quoting and paraphrasing them into one's own work while avoiding plagiarism.
6. Provide full bibliographic information for print and digital sources in a standard format and document quotations, paraphrases, and other information.

Revising writing

Core Standards — Students can and do:

7. With some guidance and support from peers and adults, strengthen writing through revising, editing, or beginning again to ensure logical organization, precision of word choice, and coherence.

Using tools and technology

Core Standards — Students can and do:

8. Use technology and other tools to produce, revise, and distribute writing, as well as interact online with others about writing, including responding to and providing feedback

Developing proficiency in a range of writing

9. Create writing over extended timeframes (time for reflection and revision) and shorter timeframes (a single sitting or a day or two), responding to specific sources.

   Focus by grade level:

   Grade 6: Conveying the main ideas and key details of literary or informational sources at the 6-8 grade band level of text complexity and content
   Grade 7: Analyzing the contents of literary or informational sources at the 6-8 grade band level of complexity and content
   Grade 8: Comparing or evaluating the contents of literary or informational sources at the 6-8 grade band level of complexity and content

Standards — Students can and do (by key text type):[25]

Narratives

a. orient the reader by establishing a situation, introducing characters, setting, and location, or by backfilling information after entering immediately into the storyline
b. create an organizing structure in which events are logically or causally sequenced
c. in producing a story, create a plot with well-structured episodes (e.g., initiating event, complicating action, resolution)
d. use a variety of temporal words, phrases, and clauses to convey sequence, to shift from one time frame to another, and to show the relationships among events
e. use relevant, specific details and literary devices, such as imagery and metaphor, purposefully to develop setting, plot, and character
f. use techniques such as pacing, dialogue, or foreshadowing to highlight the significance of events or create particular effects (e.g., tension or suspense)
g. show internal mental processes to develop complex characters and convey their needs, motives, and emotional responses
h. provide an engaging conclusion, such as a surprise ending, a reflection, or a conclusion that returns to the beginning

Informative and Explanatory Texts

a. establish the topic in an introduction that provides a sense of what's to follow
b. develop the subject through relevant and specific facts, concrete details, quotations, or other information and examples
c. organize specific information under broader concepts or categories and provide headings, figures, tables, or diagrams when useful
d. use factual, precise language and maintain a formal, objective style when appropriate
e. use strategies appropriate to informational and explanatory texts such as defining, classifying, comparing/contrasting, and cause/effect
f. use appropriate links to join ideas and create cohesion
g. provide only accurate and relevant information
h. provide a conclusion that follows logically from the information or explanation presented

Arguments

a. introduce a claim about a topic or concept
b. support claims with logical reasons
c. support reasons with detailed and relevant evidence

[25] See Appendix C for samples of student writing that illustrate through annotations the level of quality required to meet the writing standards.

d. signal the relationship between reasons, or between reasons and evidence, using words, phrases, and clauses (e.g., *another reason, such as, therefore, in addition*)
e. sustain an objective style and tone appropriate for making a case when appropriate to the discipline or context
f. include only relevant information and evidence in support of claims
g. provide a concluding statement or section that offers reflections, a restatement, or recommendations that follow from the argument

Speaking and Listening Standards

Listening closely and participating productively

Core Standards — Students can and do:

1. Participate productively one on one, in small groups, and as a whole class, joining in discussions and remaining flexible and adaptable as participants.
2. Sustain concentration on information presented orally, visually, or multi-modally and confirm understanding by drawing well-supported inferences about the purpose and meaning of the information.

Standards — Students can and do (by key communication type):

Classroom discussions and collaboration

a. come to discussions having completed reading or other preparation in advance and draw on that material explicitly in discussions
b. determine a speaker's attitude or point of view toward a topic presented orally or through other media
c. ask questions to check understanding to clarify the main ideas and the supporting evidence of material presented orally or through other media
d. advance a discussion by answering questions precisely and sharing specific factual knowledge and observations supported by credible evidence
e. interpret information presented in visual and digital formats and explain how this data clarifies and contributes to a discussion or information presented orally
f. support productive teamwork by setting clear goals and deadlines, monitoring progress and participation of each team member, and taking different views into account and modifying own views when indicated in light of what others say

Exchanging information and speaking effectively

Core Standards — Students can and do:

3. Share experiences, opinions, and other information, gaining and maintaining the interest and response of listeners.
4. Use appropriate tone and phrasing for emphasis, demonstrating a growing command of formal English when indicated or appropriate (e.g., presenting ideas versus class discussion).

Standards — Students can and do (by key communication type):

Presentation of ideas and information

a. organize and present information about situations, topics, or texts that emphasize salient points and clarify and support claims and findings with pertinent and specific descriptions, facts, and examples in ways that are accessible and verifiable to listeners
b. use gesture, tone, phrasing, and pace for emphasis
c. incorporate visual displays and electronic media when helpful and in a manner that strengthens the presentation
d. perform dramatic readings of various prose and poetry speaking with clarity, fidelity, and responsiveness to the text, noting changes in the situation, mood, or tone of text

Language Development Standards

Conventions

In grades 6–8, students develop a firm command of sentence structure. They are able to form sentences of varying structures, place phrases and clauses properly within a sentence, and use a variety of coordinating and subordinating conjunctions to express relationships between sentence parts. Students have also mastered pronoun use, ensuring proper case, number, and person and avoiding vagueness. They understand and use verb voice and mood, and identify and correct inappropriate shifts in pronouns and verbs. Students set off nonrestrictive or parenthetical elements from the rest of the sentence with proper punctuation and use a comma before a coordinating conjunction in a compound sentence. They vary sentence patterns for effect and edit writing for redundancy and wordiness.

> Key Terms: conjunction; dash; nonrestrictive/parenthetical element; indicative, imperative, interrogative, conditional, and subjunctive mood; parentheses; phrase and clause; pronoun case, number, and person; simple, compound, complex, and compound-complex sentence; active and passive voice

Grammar and usage

Core Standards — Students can and do:

1. Form compound, complex, and compound-complex sentences.
2. Place phrases and clauses within a sentence, avoiding misplaced and dangling modifiers.*
3. Ensure that pronouns are in the proper case (subjective, objective, possessive).
4. Recognize and correct inappropriate shifts in pronoun number and person.*
5. Recognize and correct vague pronouns with unclear or ambiguous antecedents.*
6. Form and use verbs in the active and passive voice.
7. Form and use verbs in the indicative, imperative, interrogative, conditional, and subjunctive mood.
8. Avoid inappropriate shifts in verb voice and mood.*

Mechanics

Core Standards — Students can and do:

9. Use punctuation to set off nonrestrictive/parenthetical elements with commas, parentheses, or dashes.*
10. Use a comma before a coordinating conjunction in a compound sentence.

Word choice and style

Core Standards — Students can and do:

11. 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).
12. Vary sentence patterns for meaning, reader/listener interest, and style.*
13. Choose words and phrases to express ideas precisely and concisely, avoiding wordiness and redundancy.*[26]

Grade-Level Focus
Focus by Grade-Level
Grade 6: Pronouns (Conventions Standards #s 3-5)
Grade 7: Sentence structure (Conventions Standards #1, #2, #12)
Grade 8: Verb voice and mood (Conventions Standards #s 6-8, #11)

Vocabulary

Key to students' vocabulary development is building rich and flexible word knowledge marked by multiple connections that link a word to similar words and to contexts and experiences that are related to that word—as compared to simply a definition. In grades 6–8, students continue to make use of a range of strategies to determine and clarify the meaning of unknown and multiple-meaning words. This repertoire now includes considering the word's use in a broader context that includes the content of the paragraph in which the word appears and the overarching structure of the text. They habitually verify their inferences of word meanings. They interpret a variety of figurative language found in what they read. They make distinctions among words based on connotation. They acquire new words through interactive language use, including informal talk, discussion, reading and responding to text as well as by being taught the words directly. This includes a continuing focus on "Tier 2" words and phrases (those that commonly appear in writing but not in spoken language), "Tier 3" words and phrases (those that are specific and important to particular disciplines).

Determining the meaning of words

Core Standards — Students can and do:

1. Determine or clarify the meaning of an unknown word by using one or more of the following strategies:
   - using knowledge of roots, prefixes, and suffixes
   - using semantic clues, such as sentence and paragraph context as well as the organizational structure of the text (e.g., cause and effect, comparison and contrast)
   - using syntactic clues, such as using its position within the sentence as a guide to whether it is a subject, verb, or object
   - consulting reference materials, including glossaries, dictionaries, and thesauruses, both print and digital
2. Determine the relevant meaning of multiple-meaning words by using context.
3. Verify the preliminary determination of a word's meaning (e.g., by checking the inferred meaning in context or by looking up the word in a dictionary).
4. Interpret figurative language, including metaphors, similes, and idioms.

[26] Conventions standards noted with an asterisk (*) need to be revisited by students in subsequent grades. See Appendix A for a complete listing.

Understanding the nuances of words (denotations and connotations)

Core Standards — Students can and do:

5. Distinguish a word from other words with similar but not identical meanings (synonyms).

Acquiring vocabulary

Core Standards — Students can and do:

6. Acquire and use a grade-appropriate vocabulary of Tier 2 words taught directly and gained through reading.
7. Acquire and use a grade-appropriate vocabulary of Tier 3 words taught directly and gained through reading.

Grade 6 English Language Arts: Focus for Instruction

Reading and Literature

In grade 6, students apply the reading standards to the following types of text: narratives, drama, poetry, and informational text. Students focus on learning to read text at the 6-8 grade band level independently, with scaffolding likely required for texts at the high end of the range.

- Reading standards applied to different text types
- Mix of text types: Narratives, Drama, Poetry, Informational Text
- **Text Complexity focus:** 100% text at the 6-8 grade band level

Writing and Research

In grade 6, students apply the writing standards to the following types of text: Narrative, Informative/Explanatory, and Argument. Students perform research, including short focused research tasks. They also write over various time frames in response to specific sources.

- Writing standards applied to different text types: Narrative, Informative/Explanatory, Argument
- Research, including short focused research tasks
- **Grade-specific focus:** Students create writing over extended and shorter time frames, responding to specific sources by conveying the main ideas and key details of literary or informational sources at the 6-8 grade band level of complexity and content.

Speaking and Listening

In grade 6, students apply the core speaking and listening standards in different contexts.

- Speaking and listening Standards applied in different contexts: classroom discussion and collaboration as well as in presentations of ideas and information.

Language Development

In grade 6, students apply the language development standards by applying the core vocabulary standards to determine word meaning, understand word nuances, and acquire vocabulary and to produce writing and speaking that observes appropriate conventions

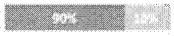
- Vocabulary standards applied to both reading, writing, speaking and listening
- **Grade-specific conventions focus:** Pronouns
  - Ensure that pronouns are in the proper case… (Conventions Standard #1)
  - Recognize and correct inappropriate shifts… (Conventions Standard #4)
  - Recognize and correct vague pronouns… (Conventions Standard #5)

Grade 7 English Language Arts: Focus for Instruction

Reading and Literature

In grade 7, students apply the reading standards to the following types of text: narratives, drama, poetry, and informational text. Students focus on learning to read text at the 6-8 grade band level independently and are introduced to 9-10 grade band level "stretch" texts, which will likely require scaffolding.

- Reading Standards applied to different text types
- Mix of text types: Narratives, Drama, Poetry, Informational Text
- **Text Complexity focus:** 90% at the 6-8 grade band level, 10% at the 9-10 grade band level



Writing and Research

In grade 7, students apply the standards in writing to the following types of text: Narrative, Informative/Explanatory, and Argument. Students perform research, including short focused research tasks. They also write over various time frames in response to specific sources.

- Writing standards applied to different text types: Narrative, Informative/Explanatory, Argument
- Research, including short focused research tasks
- **Grade-specific focus:** Students create writing over extended and shorter timeframes, responding to specific sources by analyzing the contents of literary or informational sources at the 6-8th grade band level of complexity and content.

Speaking and Listening

In grade 7, students apply the core speaking and listening standards in different contexts.

- Speaking and listening standards applied in different contexts: classroom discussion and collaboration as well as in presentations of ideas and information.

Language Development

In grade 7, students apply the language development standards by applying the core vocabulary standards to determine word meaning, understand word nuances, and acquire vocabulary and to produce writing and speaking that observes appropriate conventions.

- Vocabulary standards applied to reading, writing, speaking and listening
- **Grade-specific conventions focus:** Sentence structure
  - Form compound, complex… (Conventions Standard #1)
  - Place phrases and clauses… (Conventions Standard #2)
  - Vary sentence patterns… (Conventions Standard #12)

Grade 8 English Language Arts: Focus for Instruction

Reading and Literature

In grade 8, students apply the reading standards to the following types of text: narratives, drama, poetry, and informational text. Students focus on reading text at the 6-8 grade band level independently as well as on sustained practice with 9-10 grade band level "stretch" texts, which may require scaffolding.

- Reading standards applied to different text types
- Mix of text types: Narratives, Drama, Poetry, Informational Text
- **Text Complexity focus:** 70% at the 6-8 grade band level, 30% at the 9-10 grade band level

Writing and Research

In grade 8, students apply the standards in writing to the following types of text: Narrative, Informative/Explanatory, and Argument. Students perform research, including short focused research tasks. They also write over various time frames in response to specific sources.

- Writing standards applied to different text types: Narrative, Informative/Explanatory, Argument
- Research, including short focused research tasks
- **Grade-specific focus:** Students create writing over extended and shorter timeframes, responding to specific sources by analyzing the contents of literary or informational sources at the 6-8th grade band level of complexity and content.

Speaking and Listening

In grade 8, students apply the core speaking and listening standards in different contexts.

- Speaking and listening standards applied in different contexts: classroom discussion and collaboration as well as in presentations of ideas and information.

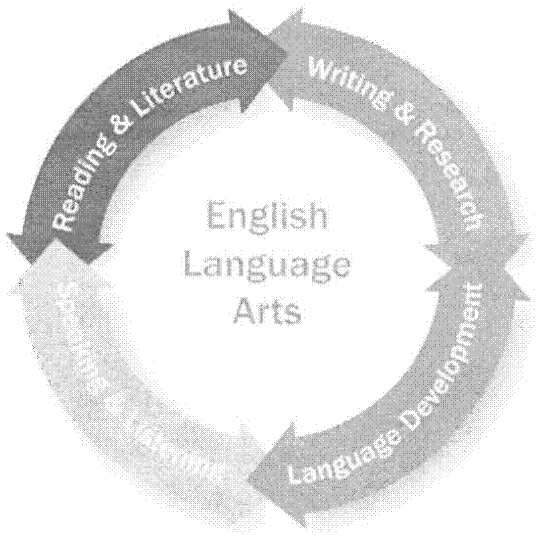
Language Development

In grade 8, students apply the language development standards by applying the core vocabulary standards to determine word meaning, understand word nuances, and acquire vocabulary and to produce writing and speaking that observes appropriate conventions.

- Vocabulary standards applied to reading, writing, speaking and listening
- **Grade-specific conventions focus:** Verb voice and mood
  - Form and use verbs in the active and passive voice (Conventions Standard #6)
  - Form and use verbs in the indicative… (Conventions Standard #7)
  - Avoid inappropriate shifts… (Conventions Standard #8)
  - Use verbs in the …voice …mood… (Conventions standard #11)

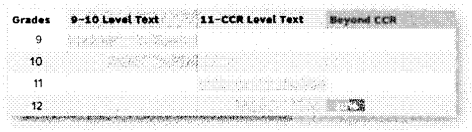
English Language Arts

Grades 9–10



Required Text Complexity by Grade

Proportion of Texts Within and Above Grade Band to be Read in Each Grade



Grades	9–10 Level Text	11–CCR Level Text	Beyond CCR
9			
10			
11			
12			

While advancing through grades 9–10, students must engage with texts of steadily increasing complexity.

- **In grade 9**, students focus on reading texts in the 9–10 grade band level with scaffolding likely required for texts at the high end of the range.
- **In grade 10**, students focus on reading texts in the 9–10 grade band level (70 percent) independently and are introduced to texts in the 11–CCR grade band level as "stretch" texts (30 percent), which will likely require scaffolding.

Determining Text Complexity for Grades 9–10[27]

Text complexity is determined by a mix of qualitative and quantitative measures of the text itself refined by teachers' professional judgment about the match of particular texts to particular students. The qualitative dimensions of text complexity are best understood as continua of increasing complexity rather than as representing discrete and easily defined stages. Most authentic texts will exhibit some but not all of the traits linked to a particular grade band; qualitatively assigning a text to a grade band is therefore a matter of "best fit," or determining which grade band's set of descriptors most accurately describes the text.

Qualitative Measures of Texts	Quantitative Measures of Texts
• *Structure:* Implicit, subtle; graphic representations are essential to meaning; texts of increasing length • *Purpose:* Multiple; often implicit • *Style and Language:* Demanding; many literary devices; extensive use of Tier 2 and 3 words and figurative language • *Richness:* Several ideas/concepts; abstract • *Relationships:* Several connections; implicit • *Knowledge Demands:* Ability to handle challenging themes, consider multiple perspectives, and understand experiences distinctly different from one's own; cultural and historical knowledge useful for understanding characters, settings, and allusions; extensive discipline-specific content knowledge	A study is underway with Coh-Metrix, a nonprofit research organization, to identify roughly five to seven computer-measurable dimensions of text cohesion. These dimensions, paired with a Lexile score, will yield a robust quantitative assessment of text complexity that, along with both the qualitative dimensions and professional judgment, will round out the Core Standards model of complexity.
Professional Judgment that weighs students' prior knowledge and life experiences as well as their interests, motivations, and maturity level.	

[27] Adapted from ACT, Inc., (2005), Carnegie Council on Advancing Adolescent Literacy (2010); Chall, Bissex, Conrad, & Harris-Sharples (1996); and Hess and Biggam (2004)

Mix of Key Text Types for 9–10

Narratives	Drama	Poetry	Informational Text
At this level, includes the subgenres of adventure stories, biographies, memoirs, historical fiction, mysteries, science fiction, mysteries, myths, science fiction, realistic fiction, allegories, parodies, satire, and graphic novels.	*At this level, includes one-act and multi-act plays both in written form and on film.*	*At this level, includes the subgenres of narrative poems, lyrical poems, free verse, odes, ballads, and epics.*	*At this level, Includes such subgenres as exposition and argument in the form of essays, speeches, opinion pieces as well as other documents and digital media sources on a range of topics.*

Illustrative Texts for Narratives, Drama, and Poetry[28]

The Odyssey by Homer (8th century B.C.E.) translated by Robert Fagles

The Grapes of Wrath by John Steinbeck (1939)

The Killer Angels by Michael Shaara (1975)

In the Time of the Butterflies by Julia Alvarez (1994)

The Glass Menagerie by Tennessee Williams (1944)

"Song" by John Donne (1633)

"The Raven" by Edgar Allen Poe (1845)

"Loveliest of Trees" by A.E. Houseman (1896)

"I Am Offering This Poem to You" by Jimmy Santiago Baca (1977)

Illustrative Informational Texts

"Second Inaugural Address" by Abraham Lincoln (1865)**

"State of the Union Address" by Franklin Delano Roosevelt (1941)

"Remarks to the Senate in Support of a Declaration of Conscience" by Margaret Chase Smith (1950)

"Address at the March on Washington" by Martin Luther King, Jr. (1963)**

"A Quilt of a Country" by Anna Quindlen (2001)

***Seminal historical texts that all students are expected to read**

[28] See Appendix B for other texts illustrative of Grades 9–10 text complexity.

Reading and Literature Standards

Grasping specific details and key ideas

Core Standards — Students can and do:

1. Read the text closely to determine what the text says explicitly and to make logical inferences from it; cite text evidence to support analyses in discussion and in writing.
2. Articulate the theses and themes and summarize how they develop over the course of the text and how they are expressed by the key details.
3. Analyze in detail how complex and multifaceted events, ideas, and characters unfold and interact over the course of the text.

Standards — Students can and do (by key text type):

Narratives, Drama, and Poetry

a. draw on specific details to describe how the events, characters, or setting develops over the course of the drama, narrative poem, or story
b. summarize the development of a theme and describe how that theme resonates throughout the text
c. weave together the details of texts to form a comprehensive understanding of its characters, including their overlapping or competing motivations
d. describe how the accumulation of specific phrases and images within poems contributes to a theme as a whole

Informational Text

a. demonstrate a command of the precise details of the exposition or argument, drawing on specific points to support an understanding of a part or the text as a whole
b. analyze the development of theses or explanations in texts and summarize succinctly the key relationships among ideas and supporting details

Observing craft and structure

Core Standards — Students can and do:

4. Interpret the meanings of words and phrases, including connotative and figurative meanings, and explain how specific word choices shape the meaning and tone of the text.
5. Analyze the structure of complex text and its parts, including how specific sentences, paragraphs, and larger portions build on each other and contribute to the whole of the text.
6. Compare and contrast the content and style of two or more texts written on similar topics or themes.

Standards — Students can and do (by key text type):

Narratives, Drama, and Poetry

a. analyze how the precise choice of words and phrases creates vivid images and sets the tone, mood, and theme of the text; compare the impact of words selected by the author to similar words with different connotations

b. explain how authors manipulate time (e.g., flashbacks, foreshadowing, pacing) to create suspense, mystery, or humor
c. evaluate how playwrights use soliloquies to portray the internal thinking and feeling of characters
d. compare and contrast similarities and differences in styles and forms of poems on a similar theme or topic

Informational Text

a. analyze how the author uses specific words and metaphors to establish tone or to make illuminating comparisons in an argument, explanation, or description
b. explain how the author structures information or an argument to emphasize key points and advance a point of view
c. analyze how different authors organize and categorize similar information and describe the impact of those different approaches

Integrating information and evaluating evidence

Core Standards — Students can and do:

7. Synthesize information presented graphically or visually in print, videos, or electronic texts with the information provided by the text.
8. Follow and evaluate the logic and reasoning of the text, including assessing whether the evidence provided is sufficient to support the claims.
9. Analyze the point of view or purpose represented in the text, assessing how it shapes the content, style, and tone.

Standards — Students can and do (by key text type):

Narratives, Drama, and Poetry

a. explain how a story unfolds when it is told by alternating or multiple narrators with different points of view
b. analyze literature in terms of its connection to related historical and cultural events and contexts

Informational Text

a. interpret complex, multifaceted, quantitative, or technical information presented in maps, charts, illustrations, graphs, and time lines
b. provide an account of an author's precise claims, including how specific assertions are defined and distinguished from opposing statements
c. analyze the explicit and implicit premises of an argument and determine if the conclusions reached are logically justified by the evidence presented in the text
d. compare how different authors construct and develop different points of views or perspectives on similar events or issues by assessing their assumptions, evidence, and reasoning

Developing habits for reading complex text

Core Standards — Students can and do:

10. Develop the habit of reading independently and productively, sustaining concentration and stamina to read increasingly demanding texts.

Writing and Research Standards

Writing to reflect audience, purpose, and task

Core Standards — Students can and do:

1. Write informative and explanatory texts and arguments that match purpose to task and address familiar as well as more distant, unknown and general audiences (e.g., peers, elected officials and policy makers, community members).

Conducting research

Core Standards — Students can and do:

2. Demonstrate proficiency at performing short, focused research projects as well as more sustained inquiries that demonstrate an increasing command of the subject under investigation.
3. Assemble evidence independently from authoritative and credible print and digital sources.
4. Assess the credibility, reliability, consistency, and accuracy of the information and sources gathered and determine the strengths and limitations of each source and avoiding over-reliance on any one source.
5. Represent and cite accurately the data, conclusions, and opinions of others, effectively incorporating them into one's own work while avoiding plagiarism.
6. Cite print or electronic sources correctly and document quotations, paraphrases, graphics, and other information using a standard format.

Revising writing

Core Standards — Students can and do:

7. Strengthen writing through revision, editing, or beginning again to ensure to ensure logical organization, precision of word choice, and coherence.

Using tools and technology

Core Standards — Students can and do:

8. Use technology and other tools to produce, revise, and distribute writing, as well as to interact online with others about writing, including responding to and providing feedback.

Developing proficiency in a range of writing

9. Create writing over extended timeframes (time for reflection and revision) and shorter timeframes (a single sitting or a day or two), responding to specific sources.

   Focus by grade level:

   Grade 9: Analyzing the content of literary or informational sources at the 9-10 grade band level of text complexity and content
   Grade 10: Comparing or evaluating the contents of literary or informational sources at the 9-10 grade band level of complexity and content

Standards — Students can and do (by key text type):[29]

Narratives

By high school, students are most often using narrative writing as a technique embedded within other genres. They use narrative writing to inform and persuade. They may, for example, provide a brief anecdote to support a point made in an argument or a scenario to illustrate an explanation. In such cases, narrative writing is a technique rather than a form in itself.

Informative and Explanatory Texts

a. provide a clear and coherent introduction that establishes the subject and conveys a knowledgeable stance
b. develop a complex subject through relevant and specific facts, concrete details, quotations, or other information and examples
c. organize complex information into categories that make clear distinctions and provide headings, figures, tables, and diagrams when useful
d. employ discipline-specific and technical vocabulary and maintain a formal, objective style
e. adapt strategies to present information and explanations (e.g., if/then, extended definitions, classification, comparison/contrast, and cause/effect) and employ them to manage the complexity of a topic
f. link ideas with transitions and by varying sentence structures to express relationships between ideas and create cohesion
g. emphasize the most significant information and confirm the accuracy of key points
h. provide a conclusion that articulates the implications and significance of the information or explanation

Arguments

a. establish a substantive claim and distinguish it from alternate or opposing claims
b. support claims with logical reasons
c. provide relevant and sufficient evidence from credible sources in support of the reasons
d. explain how the evidence links to the claim
e. develop the argument in part based on knowledge of the audience (e.g., building bridges by opening with areas of agreement)
f. convey relationships between reasons, as well as between reasons and evidence, and signal alternative claims using words, phrases, and clauses (e.g., *on the other hand, however, but, nevertheless, because, therefore, in addition*).
g. maintain a formal style when appropriate to the discipline or context
h. enhance the reliability of the argument by employing strategies such as paraphrasing or quoting explicitly from a credible, authoritative source
i. provide a concluding statement or section that enhances the argument, using strategies such as articulating the implications, summing up the key factors, or weighing the evidence to support the claim

Speaking and Listening Standards

Listening closely and participating productively

Core Standards — Students can and do:

1. Participate productively in a range of structured interactions—both interpersonally and in groups—exchanging information constructively and with confidence.

[29] See Appendix C for samples of student writing that illustrate through annotations the level of quality required to meet the writing standards.

2. Sustain concentration on complex information presented orally, visually, or multi-modally and confirm understanding by summarizing, analyzing, and elaborating on key ideas.

Standards — Students can and do (by key communication type):

Classroom discussions and collaboration

a. come to discussions having researched, studied, and taken notes on topics or issues under study and draw upon that preparation in discussions
b. determine the key ideas as well as the tone and mood of communications presented orally or through other media
c. ask questions to test the evidence that supports a speaker's claims and conclusions presented orally or through other media
d. build on essential information from others' input and respond constructively by making cogent and verifiable comments that aid in the furthering and deepening of discussions
e. integrate multiple streams of data presented through a variety of multi-modal media into a cohesive, meaningful understanding of the information
f. support productive teamwork by identifying the comments and claims made on all sides of an issue; evaluating the degree to which each claim is supported by evidence; sifting, summarizing, and putting to use the most important ideas developed by the group; and determining what additional information, research, and tasks are required in order to move the group towards its goals

Exchanging information and speaking effectively

Core Standards — Students can and do:

3. Present information and points of view, structuring and organizing comments to support their purposes and guide the listener.
4. Vary intonation and phrasing for emphasis and effect, demonstrating command of formal English when indicated or appropriate (e.g., presenting ideas versus class discussion).

Standards — Students can and do (by key communication type):

Presentation of ideas and information

a. organize and present complex information about situations, topics, or texts so that listeners can follow the line of thought by grouping related ideas, using transitional markers, and clarifying one's claims with evidence that is verifiable and accessible
b. align verbal (tone, phrasing, pacing) and nonverbal strategies (gestures and facial expressions) for emphasis and effect
c. make strategic use of multimedia elements and visual displays of data to enhance understanding
d. perform dramatic readings of various prose and poetry, speaking with clarity, fidelity, and responsiveness to the text, reflecting on syntax and diction for cues regarding emphasis and rhythm

Language Development Standards

Conventions

In high school, students gain a broad range of sophisticated language skills to enhance meaning, achieve stylistic effect, and create subtle links between and among ideas. They maintain parallel structure. They acquire a more conceptual understanding of usage and the limits of "rules." They use a full range of punctuation, including ellipses, semicolons,

colons, and hyphens, and have a fuller understanding of how to employ commas and dashes. They make use of a wide range of phrases and clauses for effect. They maintain a consistent style and tone, using a style manual appropriate to the discipline in which they are working to help conventionalize their writing.

Key Terms: colon, ellipses, hyphen, semicolon, parallel structure, verbal

Grammar and usage

Core Standards — Students can and do:

1. Use parallel structure in writing.
2. Consult references (e.g., *Merriam-Webster's Dictionary of English Usage*) as needed to resolve particular usage issues, particularly when the usage is contested.

Mechanics

Core Standards — Students can and do:

3. Use a comma to separate coordinate adjectives (e.g., *It was a fascinating, enjoyable movie* but not *He wore a light*[,] *blue suit*).
4. Use a comma, ellipses, or dash to indicate a pause or break.
5. Use a semicolon (and perhaps a conjunctive adverb) to link two or more closely related independent clauses.
6. Use a colon to introduce a list or a quotation.
7. Observe the conventions concerning using hyphens to join words.

Word choice and style

Core Standards — Students can and do:

8. 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.
9. Maintain consistency in style and tone.
10. Write and edit work so that it conforms to the guidelines in a style manual.

Focus by Grade-Level
Grade 9: Style (Conventions Standards #9, #10)
Grade 10: Advanced punctuation use (Conventions Standards #s 3-7)

Vocabulary

Key to students' vocabulary development is building rich and flexible word knowledge marked by multiple connections that link a word to similar words and to contexts and experiences that are related to that word—as compared to simply a definition. In high school, students continue to make use of a range of strategies to determine and clarify the meaning of unknown and multiple-meaning words. This repertoire now includes considering multiple levels of context (sentence, paragraph, and text levels) and the word's history. They habitually verify their inferences of word meanings. They interpret a wide range of figurative language found in what they read and consider its contribution to the text. Possessing a highly developed sense of the shadings among words with similar denotations,

they evaluate an author's or speaker's choice of words as well as alternatives to the words chosen. They acquire new words through interactive language use, including informal talk, discussion, reading and responding to text as well as by being taught the words directly. This includes a continuing focus on "Tier 2" words and phrases (those that commonly appear in writing but not in spoken language), "Tier 3" words and phrases (those that are specific and important to particular disciplines).

Determining the meaning of words

Core Standards — Students can and do:

1. Determine or clarify the meaning of an unknown word by using one or more of the following strategies:
   - using knowledge of roots, prefixes, and suffixes
   - using context, including syntactic and semantic clues, at the sentence, paragraph, and text levels
   - consulting reference materials, including general and specialized dictionaries and thesauruses, both print and digital
2. Determine the relevant meaning of multiple-meaning words by using context.
3. Verify the preliminary determination of a word's meaning (e.g., by checking the inferred meaning in context or by looking up the word in a dictionary).
4. Interpret figurative language and analyze its role within the text.

Understanding the nuances of words (denotations and connotations)

Core Standards — Students can and do:

5. Assess and explain the merits of the choice of one word over another in reading, writing, speaking, and listening.
6. Gain a clearer sense of a word's meaning and use by comparing it to other words with similar but not identical meanings (synonyms).

Acquiring vocabulary

Core Standards — Students can and do:

7. Acquire and use a grade-appropriate vocabulary of Tier 2 words taught directly and gained through reading.
8. Acquire and use a grade-appropriate vocabulary of Tier 3 words taught directly and gained through reading.

Grade 9 English Language Arts: Focus for Instruction

Reading and Literature

In grade 9, students apply the core reading standards to the following types of text: narratives, drama, poetry, and informational text. Students focus on learning to read 9-10 grade band text independently, with scaffolding likely required for texts at the high end of the range.

- Reading standards applied to different text types
- Mix of text types: Narratives, Drama, Poetry, Informational Text
- **Text Complexity focus:** 100% 9-10 Band Text

Writing and Research

In grade 9, students apply the standards in writing to the following types of text: Narrative, Informative/Explanatory, and Argument. Students perform research, including short focused research tasks. They also write over various time frames in response to specific sources.

- Writing standards applied to different text types: Narrative, Informative/Explanatory, Argument
- Research, including short focused research tasks
- **Grade-specific focus: Grade-specific focus:** Students create writing over extended and shorter timeframes, responding to specific sources by analyzing the contents of literary or informational sources at the 9-10* grade band level of complexity and content.

Speaking and Listening

In grade 9, students apply the core speaking and listening standards in different contexts.

- Speaking and listening standards applied in different contexts: classroom discussion and collaboration as well as in presentations of ideas and information.

Language Development

In grade 9, students apply the language development standards by applying the core vocabulary standards to determine word meaning, understand word nuances, and acquire vocabulary and to produce writing and speaking that observes appropriate conventions.

- Vocabulary standards applied to reading, writing, speaking and listening
- **Grade-specific conventions focus:** Style
  - Maintain consistency … (Conventions Standard #9)
  - (Style manual)… (Conventions Standard #10)

Grade 10 English Language Arts: Focus for Instruction

Reading and Literature

In grade 10, students apply the core reading standards to the following types of text: narratives, drama, poetry, and informational text. Students focus on learning to read 9-10 grade band text independently as well as on sustained practice with 11-CCR band "stretch" texts, which will likely require scaffolding.

- Reading standards applied to different text types
- Mix of text types: Narratives, Drama, Poetry, Informational Text
- **Text Complexity focus:** 70% 9-10 Band Text; 30% 11-CCR text

Writing and Research

In grade 10, students apply the standards in writing to the following types of text: Narrative, Informative/Explanatory, and Argument. Students perform research, including short focused research tasks. They also write over various time frames in response to specific sources.

- Writing standards applied to different text types: Narrative, Informative/Explanatory, Argument
- Research, including short focused research tasks
- **Grade-specific focus:** Students create writing over extended and shorter timeframes, responding to specific sources by analyzing the contents of literary or informational sources at the 9-10th grade band level of complexity and content.

Speaking and Listening

In grade 10, students apply the core speaking and listening standards in different contexts.

- Speaking and listening standards applied in different contexts: classroom discussion and collaboration as well as in presentations of ideas and information.

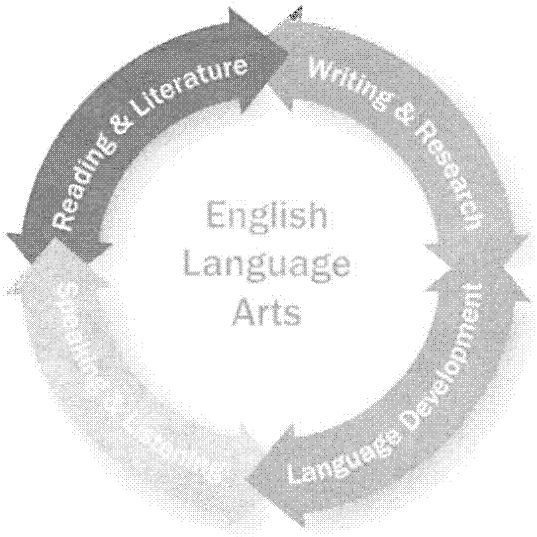
Language Development

In grade 10, students apply the language development standards by applying the core vocabulary standards to determine word meaning, understand word nuances, and acquire vocabulary and to produce writing and speaking that observes appropriate conventions.

- Vocabulary standards applied to reading, writing, speaking and listening
- **Grade-specific conventions focus:** Advanced Punctuation Use
  - Coordinate adjectives … (Conventions Standard #3)
  - Comma/dash/ellipsis… (Conventions Standard #4)
  - Semicolon … (Conventions Standard #5)
  - Colon … (Conventions Standard #6)
  - Hyphen … (Conventions Standard #7)

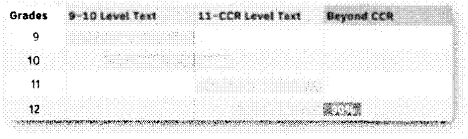
English Language Arts

Grades 11–CCR



Required Text Complexity by Grade

Proportion of Texts Within and Above Grade Band to be Read in Each Grad



While advancing through grades 11-12, students must engage with texts of steadily increasing complexity.

- **In grade 11**, students focus on reading texts in the 11-CCR grade band level with scaffolding likely required for texts at the high end of the range.
- **In grade 12**, students focus on reading texts in the 11-CCR grade band level (70 percent) independently and are introduced to texts in the "Beyond CCR" grade band level as "stretch" texts (30 percent), which will likely require scaffolding.

Determining Text Complexity for Grades 11–CCR[30]

Text complexity is determined by a mix of qualitative and quantitative measures of the text itself refined by teachers' professional judgment about the match of particular texts to particular students. The qualitative dimensions of text complexity are best understood as continua of increasing complexity rather than as representing discrete and easily defined stages. Most authentic texts will exhibit some but not all of the traits linked to a particular grade band; qualitatively assigning a text to a grade band is therefore a matter of "best fit," or determining which grade band's set of descriptors most accurately describes the text.

Qualitative Measures of Texts	Quantitative Measures of Texts
• *Structure:* Implicit, complex, unconventional; sophisticated graphic representations are essential to meaning; texts are sufficiently long to address complex subjects • *Purpose:* Multiple; often implicit and may be hidden or obscure • *Style and Language:* Unfamiliar, demanding, complex; many literary devices; extensive use of Tier 2 and 3 words and figurative language; language may be intentionally or unintentionally ambiguous • *Richness:* Many ideas/concepts; highly abstract; high information density • *Relationships:* Many implicit, complex, interwoven connections • *Knowledge Demands:* Ability to handle one or more complex themes, consider multiple and unusual perspectives, and understand experiences distinctly different from one's own; cultural and historical knowledge useful for understanding characters, settings, and allusions; extensive, perhaps specialized discipline-specific content knowledge	A study is underway with Coh-Metrix, a nonprofit research organization, to identify roughly five to seven computer-measurable dimensions of text cohesion. These dimensions, paired with a Lexile score, will yield a robust quantitative assessment of text complexity that, along with both the qualitative dimensions and professional judgment, will round out the Core Standards model of complexity.
Professional Judgment that weighs students' prior knowledge and life experiences, students' interests, motivations, and maturity level.	

[30] Adapted from ACT, Inc., (2005); Carnegie Council on Advancing Adolescent Literacy (2010); Chall, Bissex, Conrad, & Harris-Sharples (1996); and Hess and Biggam (2004)

Mix of Key Text Types for 11–CCR

Narratives	Drama	Poetry	Informational Text
At this level, includes the subgenres of adventure stories, biographies, memoirs, historical fiction, mysteries, science fiction, mysteries, myths, science fiction, realistic fiction, allegories, parodies, satire, and graphic novels.	*At this level, includes one-act and multi-act plays both in written form and on film.*	*At this level, includes the subgenres of narrative poems, lyrical poems, free verse, odes, ballads, and epics.*	*At this level, Includes such subgenres as exposition and argument in the form of essays, speeches, opinion pieces as well as other documents and digital media sources on a range of topics.*

Illustrative Texts for Narratives, Drama, and Poetry[31]

Pride and Prejudice by Jane Austen (1813)

Black Boy by Richard Wright (1945)

Their Eyes Were Watching God by Zora Neale Hurston (1937)

The Bluest Eye by Toni Morrison (1970)

The Namesake by Jhumpa Lahiri (2003)

The Importance of Being Earnest by Oscar Wilde (1895)

Death of a Salesman by Arthur Miller (1949)

"Ode on a Grecian Urn" by John Keats (1820)

"Because I Could Not Stop for Death" by Emily Dickinson (1890)

Illustrative Informational Texts

The Declaration of Independence by Thomas Jefferson (1776)**

The Crisis by Thomas Paine (1776)

Walden by Henry David Thoreau (1854)

"Politics and the English Language" by George Orwell (1946)

"Letter from a Birmingham Jail" by Martin Luther King (1963)**

"Mother Tongue" by Amy Tan (1990)

***Seminal historical texts that all students are expected to read**

[31] See Appendix B for other texts illustrative of Grades 11–CCR text complexity.

Reading and Literature Standards

Grasping specific details and key ideas

Core Standards — Students can and do:

1. Read the text closely to determine what the text says explicitly and to make logical inferences from it; cite text evidence to defend and challenge analyses in discussion and in writing.
2. Articulate the text's theses and themes and provide a summary that clarifies the relationships among ideas and the connections between key details.
3. Analyze in detail how complex and multifaceted events, ideas, and characters unfold and influence one another over the course of the text.

Standards — Students can and do (by key text type):

Narratives, Drama, and Poetry

a. analyze where the author chooses to focus and which details the author chooses to emphasize
b. analyze how multiple themes and ideas in the text interact and build on one another
c. evaluate the extent to which setting shapes the course of events and sets the mood
d. trace the origins and evolution of the traits, motivations, and relationships among characters and how they interact to influence the plot and its resolution
e. describe how the poet develops a central image, preoccupation, or idea through the accumulation of specific phrases and images

Informational Text

a. demonstrate an understanding of the precise elements of an author's explanation or argument, including the distinctions the author makes between different ideas or information
b. scrutinize the details within specific portions of texts and connect the insights gained to develop an understanding of the text as a whole
c. analyze how the text captures the interaction between complex ideas or multifaceted events

Observing craft and structure

Core Standards — Students can and do:

4. Interpret the meanings of words and phrases, including connotative and figurative meanings, and analyze how word choices have a significant effect on the meaning and tone of the text.
5. Analyze the ways the author chooses to structure the text, including how to present complex ideas and events and where to begin and end.
6. Compare and contrast the choices different authors make in treating similar topics or themes, including content, style, and tone.

Standards — Students can and do (by key text type):

Narratives, Drama, and Poetry

a. analyze how the author's use of language impacts the text, including the degree of formality of the diction and how it is evocative of a particular setting (e.g., a courtroom, a rural town)
b. evaluate how authors create meaningful ambiguity and multiple layers of meaning in poetry, drama, and other narratives
c. analyze how an author choice of where to begin a story, poem, or drama impacts the overall plot structure
d. contrast alternative treatments of the same dramatic work in different stage productions and evaluate how the directors' different interpretations relate to evidence within the script
e. analyze how the author draws upon and transforms fictional or historical source material (e.g., how Shakespeare draws on Plutarch or a story in Ovid)

Informational Text

a. describe how the choice of a particular word, phrase, or series of words can impact significantly the meaning of a document (e.g., contract, court opinion, essay)
b. evaluate how the author's choice of structure contributes to the effectiveness of the exposition or argument
c. compare and contrast presentations of the same topic in different media and describe the differences in focus, organization, and links to other sources

Integrating information and evaluating evidence

Core Standards — Students can and do:

7. Synthesize information presented graphically or visually in print, videos, or electronic texts and, when appropriate, note discrepancies of fact or interpretation (e.g., data in a table inconsistent with the author's analysis).
8. Rigorously evaluate the logic and reasoning of the text, including assessing whether the evidence provided is relevant and sufficient.
9. Analyze how the point of view or purpose develops in the text and explain how it is revealed in the key details.

Standards — Students can and do (by key text type):

Narratives, Drama, and Poetry

a. compare points of view from which different stories are told and trace how they shift within a story and influence characterization and plot
b. explain how dramatic irony created by the differences between what the audience or reader knows and what the characters know in a drama or narrative fiction creates suspense, anxiety, or humor

Informational Text

a. synthesize ideas and data presented graphically and determine their purpose and relationship to the rest of the text (print or digital), noting any inconsistencies or discrepancies between the two
b. evaluate the reasoning and rhetoric that support an argument or explanation, including assessing the sufficiency and relevance of the evidence as well as identifying any unsubstantiated statements or fallacious reasoning
c. analyze documents of historical and literary significance for their premises, perspectives, and logical structure

Developing habits for reading complex text

Core Standards — Students can and do:

10. Develop the habit of reading independently and productively, sustaining concentration and stamina to read increasingly demanding texts.

Writing and Research Standards

Writing to reflect audience, purpose, and task

Core Standards — Students can and do:

1. Write informative and explanatory texts and arguments that match purpose to task and are tailored to audiences with specific requirements (e.g., admissions officer, human resources officer, skeptical audience).

Conducting research

Core Standards — Students can and do:

2. Demonstrate proficiency at performing short, focused research projects as well as more sustained inquiries that synthesize multiple authoritative sources on a subject.
3. Analyze evidence independently gathered from multiple authoritative and credible print and digital sources.
4. Assess the credibility, reliability, consistency, and accuracy of the information and sources gathered and determine their usefulness and relevance for the specific audience, purpose, and task.
5. Represent and cite accurately the data, conclusions, and opinions of others, effectively incorporating them into one's own work while avoiding plagiarism.
6. Cite print or electronic sources correctly and document quotations, paraphrases, graphics, and other information using a standard format.

Revising writing

Core Standards — Students can and do:

7. Strengthen writing through revision, editing, or beginning again to ensure to ensure logical organization, precision of word choice, and coherence.

Using tools and technology

Core Standards — Students can and do:

8. Demonstrate command of technology and other tools to produce, revise, and distribute writing, as well as to interact online with others about writing, including responding to and providing feedback.

Developing proficiency in a range of writing

9. Create writing over extended timeframes (time for reflection and revision) and shorter timeframes (a single sitting or a day or two), responding to specific sources.

   Focus by grade level:

   Grade 11: Analyzing the content of literary or informational sources at the 11-CCR grade band level of text complexity and content
   Grade 12: Synthesizing or evaluating the contents of literary or informational sources at the 11-CCR grade band level of complexity and content

Standards — Students can and do (by key text type):[32]

Narratives

By high school, students are most often using narrative writing as a technique embedded within other genres. They use narrative writing to inform and persuade. They may, for example, provide a brief anecdote to support a point made in an argument or a scenario to illustrate an explanation. In such cases, narrative writing is a technique rather than a form in itself.

Informative and Explanatory Texts

a. provide a clear and coherent introduction that establishes the subject and conveys a knowledgeable stance
b. develop complex subjects through judicious use of relevant and specific facts, details, quotations, examples, or other information
c. organize and present information so that each new piece of information builds upon what precedes it to create a unified whole
d. demonstrate command of discipline-specific and technical vocabulary when appropriate and adjust style as appropriate to the situation
e. demonstrate control of a range of strategies to present complex information or explanations and employ them effectively to manage the complexity of the topic and accomplish the writer's purpose
f. link ideas with transitions and by varying sentence structures to express the precise relationships among ideas and create cohesion
g. provide a conclusion that articulates the implications and significance of the information or explanation

Arguments

a. establish the importance of the issue, make a substantive claim, and distinguish it from alternate or opposing claims
b. support claims with logical reasons
c. provide relevant, sufficient, and convincing evidence from credible sources in support of the reasons
d. make logical connections between the evidence and the claim
e. develop the argument in part based on an awareness of the audience's values, knowledge of the issue, and possible biases
f. convey relationships between reasons, as well as between reasons and evidence, and signal alternative claims using words, phrases and clauses (e.g., *on the other hand, however, but, nevertheless, because, therefore, in addition*)
g. maintain a formal style when appropriate to the discipline or context
h. enhance the credibility of the argument by demonstrating control of strategies, including paraphrasing or quoting from authoritative sources and citing logical consequences
i. provide a concluding statement or section that enhances the argument, using strategies such as articulating the implications, summing up the key factors, or weighing the evidence to support the claim

[32] See Appendix C for samples of student writing that illustrate through annotations the level of quality required to meet the writing standards.

Speaking and Listening Standards

Listening closely and participating productively

Core Standards — Students can and do:

1. Participate productively in a range of structured interactions—both interpersonally and in groups—exchanging information constructively and with confidence, adapting to different levels of formality.
2. Sustain concentration on complex information presented orally, visually, or multi-modally and confirm understanding by challenging or defending key ideas and supporting evidence.

Standards — Students can and do (by key communication type):

Classroom discussions and collaboration

a. come to discussions having formulated considered judgments on the topics or issues under study and draw upon that preparation in discussions
b. evaluate the content and rhetoric of a speaker, noting when evidence is exaggerated or distorted
c. ask questions that probe the reasoning and evidence that support the claims and conclusions made orally or through other media, including offering counter examples or other points of view
d. propel conversations forward by providing essential information and sharing findings that clarify, accommodate, or challenge ideas
e. synthesize information presented visually or digitally with other information presented orally, noting the effect on meaning of any discrepancies between the two presentations
f. assist in the formulation and productive functioning of both formal and informal self-directed work groups by identifying and assigning tasks and maintaining conversational norms as well as evaluating the progress of the team towards its goals

Exchanging information and speaking effectively

Core Standards — Students can and do:

3. Present information clearly and persuasively to others, selecting the most appropriate way to structure comments for clarity and effect.
4. Adapt delivery, tone, and mood for emphasis and effect, demonstrating command of formal English when indicated or appropriate (e.g., presenting ideas versus class discussion).

Standards — Students can and do (by key communication type):

Presentation of ideas and information

a. organize and present complex information about topics, situations, or texts, providing reliable and credible evidence from authoritative sources in support of findings and claims such that the line of reasoning is clear and alternative perspectives are addressed
b. shape delivery and message to the occasion and the audience's values, knowledge of the issue, and possible biases
c. engage an audience and improve comprehension through visual aids in presentations, including multimedia platforms
d. portray and explain various ways to perform dramatic readings of various prose and poetry, citing text evidence for the alternative readings

Language Development Standards

Conventions

In high school, students gain a broad range of sophisticated language skills to enhance meaning, achieve stylistic effect, and create subtle links between and among ideas. They maintain parallel structure. They acquire a more conceptual understanding of usage and the limits of "rules." They use a full range of punctuation, including ellipses, semicolons, colons, and hyphens, and have a fuller understanding of how to employ commas and dashes. They make use of a wide range of phrases and clauses for effect. They maintain a consistent style and tone, using a style manual appropriate to the discipline in which they are working to help conventionalize their writing.

Key Terms: colon, ellipses, hyphen, semicolon, parallel structure, verbal

Grammar and usage

Core Standards — Students can and do:

11. Use parallel structure in writing.
12. Consult references (e.g., *Merriam-Webster's Dictionary of English Usage*) as needed to resolve particular usage issues, particularly when the usage is contested.

Mechanics

Core Standards — Students can and do:

13. Use a comma to separate coordinate adjectives (e.g., *It was a fascinating, enjoyable movie* but not *He wore a light*[,] *blue suit*).
14. Use a comma, ellipses, or dash to indicate a pause or break.
15. Use a semicolon (and perhaps a conjunctive adverb) to link two or more closely related independent clauses.
16. Use a colon to introduce a list or a quotation.
17. Observe the conventions concerning using hyphens to join words.

Word choice and style

Core Standards — Students can and do:

18. 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.
19. Maintain consistency in style and tone.
20. Write and edit work so that it conforms to the guidelines in a style manual.

Focus by Grade-Level
Grade 11: Parallel structure and phrasing (Conventions Standards #1, #8)
Grade 12: Usage (Conventions Standard #2)

Vocabulary

Key to students' vocabulary development is building rich and flexible word knowledge marked by multiple connections that link a word to similar words and to contexts and experiences that are related to that word—as compared to simply a definition. In high school, students continue to make use of a range of strategies to determine and clarify the meaning of unknown and multiple-meaning words. This repertoire now includes considering multiple levels of context (sentence, paragraph, and text levels) and the word's history. They habitually verify their inferences of word meanings. They interpret a wide range of figurative language found in what they read and consider its contribution to the text. Possessing a highly developed sense of the shadings among words with similar denotations, they evaluate an author's or speaker's choice of words as well as alternatives to the words chosen. They acquire new words through interactive language use, including informal talk, discussion, reading and responding to text as well as by being taught the words directly. This includes a continuing focus on "Tier 2" words and phrases (those that commonly appear in writing but not in spoken language), "Tier 3" words and phrases (those that are specific and important to particular disciplines).

Determining the meaning of words

Core Standards — Students can and do:

1. Determine or clarify the meaning of an unknown word by using one or more of the following strategies:
   - using knowledge of roots, prefixes, and suffixes
   - using context, including syntactic and semantic clues, at the sentence, paragraph, and text levels
   - consulting reference materials, including general and specialized dictionaries and thesauruses, both print and digital
   - using the word's history (etymology)
2. Determine the relevant meaning of multiple-meaning words by using context.
3. Verify the preliminary determination of a word's meaning (e.g., by checking the inferred meaning in context or by looking up the word in a dictionary).
4. Interpret figurative language and analyze its role within the text.

Understanding the nuances of words (denotations and connotations)

Core Standards — Students can and do:

7. Assess and explain the merits of the choice of one word over another in reading, writing, speaking, and listening.
8. Gain a clearer sense of a word's meaning and use by comparing it to other words with similar but not identical meanings (synonyms).

Acquiring vocabulary

Core Standards — Students can and do:

7. Acquire and use an extensive vocabulary of Tier 2 words taught directly and gained through reading.
8. Acquire and use a grade-appropriate vocabulary of Tier 3 words taught directly and gained through reading.

Grade 11 English Language Arts: Focus for Instruction

Reading and Literature

In grade 11, students apply the core reading standards to the following types of text: narratives, drama, poetry, and informational text. Students focus on learning to read 11-CCR grade band text independently, with scaffolding likely required for texts at the high end of the range.

- Reading standards applied to different text types
- Mix of text types: Narratives, Drama, Poetry, Informational Text
- **Text Complexity focus:** 100% 11-CCR Band Text

Writing and Research

In grade 11, students apply the standards in writing to the following types of text: Narrative, Informative/Explanatory, and Argument. Students perform research, including short focused research tasks. They also write over various time frames in response to specific sources.

- Writing standards applied to different text types: Narrative, Informative/Explanatory, Argument
- Research, including short focused research tasks
- **Grade-specific focus:** Students create writing over extended and shorter timeframes, responding to specific sources by analyzing the contents of literary or informational sources at the 11-CCR grade band level of complexity and content.

Speaking and Listening

In grade 11, students apply the core speaking and listening standards in different contexts.

- Speaking and listening standards applied in different contexts: classroom discussion and collaboration as well as in presentations of ideas and information.

Language Development

In grade 11, students apply the language development standards by applying the core vocabulary standards to determine word meaning, understand word nuances, and acquire vocabulary and to produce writing and speaking that observes appropriate conventions.

- Vocabulary standards applied to reading, writing, speaking and listening
- **Grade-specific conventions focus:** Parallel Structure and Phrasing
  - Use parallel structure in writing … (Conventions Standard #1)
  - Use various types of phrases… (Conventions Standard #8)

Grade 12 English Language Arts: Focus for Instruction

Reading and Literature

In grade 12, students apply the core reading standards to the following types of text: narratives, drama, poetry, and informational text. Students focus on learning to read 11-CCR grade band text independently as well as on sustained practice with Beyond CCR band "stretch" texts, which will likely require scaffolding.

- Reading standards applied to different text types
- Mix of text types: Narratives, Drama, Poetry, Informational Text
- **Text Complexity focus:** 70% 11-CCR Band Text; 30% Beyond CCR text

Writing and Research

In grade 12, students apply the standards in writing to the following types of text: Narrative, Informative/Explanatory, and Argument. Students perform research, including short focused research tasks. They also write over various time frames in response to specific sources.

- Writing standards applied to different text types: Narrative, Informative/Explanatory, Argument
- Research, including short focused research tasks
- **Grade-specific focus:** Students create writing over extended and shorter time frames, responding to specific sources by synthesizing or evaluating the contents of literary of informational sources of 11-CCR grade band level complexity and content.

Speaking and Listening

In grade 12, students apply the core speaking and listening standards in different contexts.

- Speaking and listening standards applied in different contexts: classroom discussion and collaboration as well as in presentations of ideas and information.

Language Development

In grade 12, students apply the language development standards by applying the core vocabulary standards to determine word meaning, understand word nuances, and acquire vocabulary and to produce writing and speaking that observes appropriate conventions.

- Vocabulary standards applied to reading, writing, speaking and listening
- **Grade-specific conventions focus:** Usage
  - Consult references … (Conventions Standard #2)

APPENDIX A

Text Complexity Next Steps

A key requirement of the Core Standards in Reading is that all students engage with texts of steadily increasing complexity as they advance through school. The Core Standards' model of *text complexity*—in the simplest terms, how easy or difficult a text is to read—blends qualitative and quantitative measures of inherent text difficulty with educators' knowledge of their students. All three elements should be considered together when evaluating a text's appropriateness for particular students.

Qualitative dimensions are aspects of text best measured by readers applying trained judgment to the evaluation task. These dimensions include the text's structure, format, and length; its purpose; its style and language; the quality, nature, and density of its ideas, concepts, and information; relationships among ideas, information, and characters in it; and the knowledge and experience demands it places upon readers.

Quantitative dimensions include not only those aspects of text traditionally measured by readability formulas—word length and sentence length—but also computer-assessable aspects of text cohesion. These include referential cohesion (the degree to which a text refers back to previous points) and word frequency.

The qualitative and quantitative measures of a text are balanced in the model by educators' *professional judgment* of the appropriateness of the text for particular students given their background knowledge, interests, and motivation. Harder texts may be appropriate for highly knowledgeable or motivated students, and easier texts may be suitable as a means for building struggling readers' skills up to required levels.

While the tools included in this draft and the forthcoming ones described below represent an important advance over those previously available, no measure or set of measures is perfectly accurate. The mandate is that the body of works that students study in a given year represent an appropriate level of complexity as defined by these standards.

Current and next steps

A qualitative rubric, derived from prior studies and refined through feedback from trained teacher-raters, is included in this draft to define some ways in which text complexity should increase as students move through the grades. The rubric can be used (in conjunction with forthcoming quantitative measures) to place individual texts into grade bands by complexity. The qualitative dimensions are best understood, however, as continua of increasing complexity rather than as representing discrete and easily defined stages. Most authentic texts will exhibit some but not all of the traits linked to a particular grade band; assigning a text to a grade band is therefore a matter of "best fit," or determining which grade band's set of descriptors most accurately describes the text.

The Core Standards work team is presently conducting a study with Coh-Metrix, a nonprofit research organization, to identify roughly five to seven computer-measurable dimensions of text cohesion. These dimensions, paired with a Lexile score, will yield a robust quantitative assessment of text complexity that, along with both the qualitative dimensions and professional judgment, will round out the Core Standards model of complexity. Graphically, these three elements will appear together in a "label" defining complexity for a given text.

Following the completion of that study in early 2010, the work team will oversee the development of a Web site designed to make the text complexity tools more user-friendly and broadly available. The site will contain a database of complexity information for a range of widely used texts, including links to texts and test passages of similar complexity. Educators will be able to input additional texts for evaluation and comment on the suitability of particular texts for particular groups of students. The overarching goal is to make text complexity a vital and easy-to-incorporate element of reading instruction.

Text Complexity Qualitative Scheme

Dimension of Text	Grade Span				
	2–3	4–5	6–8	9–10	11–12
Structure	Explicit, simple, conventional; simple graphic representations are supplementary to meaning; texts are relatively short	Largely explicit and direct; graphic representations are supplementary to meaning; texts are of increasing length	Largely implicit and subtle; graphic representations are essential to meaning; texts are of increasing length	Implicit, subtle; graphic representations are essential to meaning; texts are of increasing length	Implicit, complex, unconventional; sophisticated graphic representations are essential to meaning; texts are sufficiently long to address complex subjects
Purpose	Single, explicitly stated	Single or twofold; clearly indicated	Single or multiple; subtly stated	Multiple; often implicit	Multiple; often implicit and may be hidden or obscure
Style	Familiar, accessible, plain; few literary devices	Moderately accessible; some literary devices	Moderately demanding; several literary devices	Demanding; many literary devices	Unfamiliar, demanding, complex; many literary devices
Language	Mostly clear, everyday language; limited use of Tier 2 and 3 words and figurative language	Some everyday language; some use of Tier 2 and 3 words and figurative language	Consistent use of Tier 2 and 3 words and figurative language	Extensive use of Tier 2 and 3 words and figurative language	Extensive use of Tier 2 and 3 words and figurative language; language may be intentionally or unintentionally ambiguous
Ideas	A few ideas/concepts; concrete; low information density	Some ideas/concepts; mostly concrete; moderate information density	Several ideas/concepts; mostly abstract; moderate information density	Several ideas/concepts; abstract; high information density	Many ideas/concepts; highly abstract; high information density
Organization	A few connections; explicit; simple	Some connections; largely explicit	Several connections; largely implicit	Several connections; implicit	Many connections; implicit; complex and interwoven
Life experience (literary texts)	Ability to handle simple themes and fantastical elements as well as draw upon common, everyday experiences	Ability to handle fairly simple themes, consider a perspective somewhat different from one's own, and understand unfamiliar experiences	Ability to handle fairly challenging themes, consider multiple perspectives, and understand unfamiliar experiences	Ability to handle challenging themes, consider multiple perspectives, and understand experiences distinctly different from one's own	Ability to handle one or more complex themes, consider multiple and unusual perspectives, and understand experiences distinctly different from one's own
Cultural/literary knowledge (chiefly literary texts)	General background knowledge and familiarity with genre conventions required		Cultural and historical knowledge useful for understanding characters, settings, and allusions		
Content/discipline knowledge (chiefly informational texts)	Some everyday and general content knowledge	Some general and discipline-specific content knowledge	Some discipline-specific content knowledge	Extensive discipline-specific content knowledge	Extensive, perhaps specialized discipline-specific content knowledge

Adapted from ACT, Inc., (2006); Carnegie Council on Advancing Adolescent Literacy (2010); Chall, Bissex, Conrad, & Harris-Sharples (1996); and Hess and Biggam (2004).

The qualitative dimensions of text complexity are best understood as continua of increasing complexity rather than as representing discrete and easily defined stages. Most authentic texts will exhibit some but not all of the traits linked to a particular grade band; qualitatively assigning a text to a grade band is therefore a matter of "best fit," or determining which grade band's set of descriptors most accurately describes the text.

Structure

- Explicit, simple, conventional → Implicit, complex, unconventional
- Simple graphic representations → Sophisticated graphic representations
- Graphic representations supplementary to meaning → Graphic representations essential to meaning
- Relatively short texts → Texts sufficiently long to address complex subjects

Purpose

- Single purpose → Multiple purposes
- Explicitly stated → Often implicit and may be hidden or obscure

Style

- Familiar, accessible, plain → Unfamiliar, demanding, complex
- Few literary devices → Many literary devices

Language

- Mostly everyday language → Extensive use of Tier 2 and 3 words
- Limited use of figurative language → Extensive use of figurative language
- Clear language → Potentially ambiguous language

Richness

- A few ideas/concepts → Many ideas/concepts
- Concrete ideas/concepts → Abstract ideas/concepts
- Low information density → High information density

Relationships

- A few connections → Many connections
- Explicit connections → Implicit connections
- Simple connections → Complex, interwoven connections

Knowledge Demands: Life Experiences

- Simple themes → Complex themes
- Single theme → Multiple themes
- Common, everyday experiences and fantastical elements → Experiences distinctly different from one's own
- Single perspective like one's own → Multiple and unusual perspectives

Knowledge Demands: Cultural Knowledge

- General background knowledge and familiarity with genre conventions required → Cultural and historical knowledge useful

Knowledge Demands: Content/Discipline Knowledge

- Some everyday and general content knowledge → Extensive, perhaps specialized discipline-specific content knowledge

Definitions of Key Writing Types

Narrative

Narrative writing is organized by time. Time is central because narrative writing depicts events, whether real or imagined. Narrative writing is fundamental to novels, short stories, biographies, autobiographies, historical accounts, and plays. With practice, students' repertoire of narrative strategies expands and their control of them increases. Students learn to provide visual details of scenes, objects, or people; to depict specific actions (movements, gestures, postures, and expressions); to use dialogue and interior monologue in order to provide insight into the narrator's and characters' personalities and motives; and to manipulate pace in order to highlight the significance of certain events and create tension and suspense. Narrative writing serves a variety of purposes; frequently it is embedded in other kinds of writing, such as writing intended to inform, instruct, or persuade.

Informative/Explanatory Text

Informative/explanatory writing conveys information accurately. This kind of writing can serve one or more of several closely related purposes: to increase readers' knowledge of a subject, to help readers better understand a procedure or process, or to enhance readers' comprehension of a concept. Informative/explanatory writing addresses questions, such as questions about types (What are the different types of whales?), about components (What are the parts of a motor?), about aspects of a subject such as its size, function, or behavior (How big is the United States? What is an x-ray used for? How do penguins find food?), about how things work (How does a camera work?), and about why things happen (Why is Earth warming?). To produce this kind of writing, students draw on what they already know and on primary and secondary sources. With practice, students become better able to develop a controlling idea that supports coherence and focus, and they can select examples, facts, and details that are relevant. They are also able to employ a variety of techniques that writers use to convey information, such as naming, describing, or differentiating different types or parts; comparing or contrasting one subject with another; and relating an anecdote or scenario to illustrate a point.

Argument

The purpose of argument is to persuade in order to change the reader's point of view or to bring about some action on the reader's part. There are many techniques employed by writers to persuade readers—for example, appeals to emotions, appeals to common beliefs, and the creation of a believable authorial voice. However, the core of argument is logic and evidence. A logical argument convinces its audience of the merit and reasonableness of the claims and the proof offered in support of the claims. Writers of logical arguments provide credible evidence (facts and details) to support their assertions. Although young children are not able to produce fully developed logical arguments, they are developing a variety of ways to extend and elaborate their work around opinions or judgments. They provide examples, they offer reasons for their assertions, and they explain cause and effect. These kinds of expository structures are steps on the road to argument.

Conventions

Three goals undergird the Conventions standards:

(1) Students should have a carefully specified range of broadly useful terms in order to be precise in their discussions about language. Such key terms (noted below) should be defined in grade-appropriate ways for younger students and fleshed out more fully in later grades. (For guidance on this matter, see, for example, Brock Haussamen with Amy Benjamin, Martha Kolln, and Rebecca S. Wheeler, *Grammar Alive!: A Guide for Teachers* [Urbana, IL: NCTE, 2003] and Amy Benjamin with Tom Oliva, *Engaging Grammar: Practical Advice for Real Classrooms* [Urbana, IL: NCTE, 2007].) Additional terminology may be helpful in particular instructional situations; avoiding terminology altogether may be appropriate in others.

(2) Students must be able to observe the conventions of standard English in their formal writing and speaking for the sake of having their efforts widely understood and taken seriously.

(3) Students need to understand that effective language use is more than simply observing a series of rules but also about making careful choices among alternatives, considering those choices in relation to task, purpose, audience, occasion, and discipline.

Many conventions-related issues are likely to arise in students' writing and speaking prior to their formal appearance in the sequence below. For example, students in kindergarten are expected to know what a complete sentence is even though the concept of a fragment is not mentioned specifically in the standards until grade 3.

Conversely, many skills and understandings introduced at lower grades will require continued attention as students advance in the grades. Students in grade 3, for instance, can ensure subject-verb agreement in simple situations, such as when the subject and verb appear next to each other in a sentence. As students' writing and speaking become more complex, however, new agreement challenges arise, such as intervening phrases suggesting a different number for the verb than the subject calls for. "Errors" with applying previously mastered skills and understandings are thus often a sign of progress in that students are stretching their ability to communicate. "Relearning" is then a matter of students becoming able to apply old skills and understandings in new, more sophisticated ways.

While all the Conventions standards should be considered cumulative, certain ones, noted with an asterisk (*), are particularly likely to need to be revisited by older students as they convey ever more elaborate ideas in writing and speech.

ELA Conventions Progressive Skills: By Standard

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

Grade 3	Grades 4–5	Grades 6–8	(Grade/band in which the standard is introduced)
L.1			Generate complete sentences, avoiding sentence fragments, comma splices, and run-ons
L.2			Ensure subject-verb and pronoun-antecedent agreement.
L.3			Choose words for effect.
	L.4.2		Recognize and correct inappropriate shifts in verb tense.
	L.4.3		Form and choose between adjectives and adverbs (including comparative and superlative forms), placing them appropriately within the sentence.
	L.4.4		Correctly use frequently confused words.
	L.4.5		Use idiomatic language.
	L.4.7		Use punctuation to separate items in a series.
	L.4.11		Spell grade-appropriate words correctly, consulting references as needed.
	L.4.12		Use specialized, topic-specific language to convey ideas precisely.
	L.4.13		Use figurative language to create images or make comparisons and connections between people, objects, or ideas.
	L.4.14		Use punctuation for effect.
	L.4.15		Expand, combine, and reduce sentences for meaning, reader/listener interest, and style.
		L.6.2	Place phrases and clauses within a sentence, avoiding misplaced and dangling modifiers.
		L.6.4	Recognize and correct inappropriate shifts in pronoun number and person.
		L.6.5	Recognize and correct vague pronouns with unclear or ambiguous antecedents.
		L.6.8	Recognize and correct inappropriate shifts in verb voice and mood.
		L.6.9	Set off nonrestrictive/parenthetical elements with commas, parentheses, or dashes.
		L.6.12	Vary sentence patterns for meaning, reader/listener interest, and style.
		L.6.13	Choose words and phrases to express ideas precisely and concisely, avoiding redundancy and wordiness.

Vocabulary Instruction

> Words are not just words. They are the nexus — the interface — between communication and thought. When we read, it is through words that we build, refine, and modify our knowledge. What makes vocabulary valuable and important is not the words themselves so much as the understandings they afford.
>
> Marilyn Adams[11]

The importance of students acquiring a rich and varied vocabulary cannot be overstated. Research suggests that if students are going to grasp and retain words and comprehend text, they need incremental, repeated exposure to words they are trying to learn in a variety of contexts. When students make multiple connections between new words and their own experiences they develop a nuanced and flexible understanding of the word. In this way, students learn not only what a word means, but how to use that word in a variety of contexts and apply appropriate senses of the word's meaning in order to understand different contexts.[12]

Initially children readily learn words from oral conversation because oral conversations are context rich in ways that aid in vocabulary acquisition: in discussion a small set of words (accompanied by gesture and intonation) is used with great frequency to talk about a narrow range of situations children are exposed to on a day to day basis. Yet as children reach school age, new words are less frequently introduced in conversation, and consequently vocabulary acquisition eventually stagnates by fourth or fifth grade unless students acquire additional words from written context.[13]

Written language, by contrast, contains hundreds of times as many different words as are typically used in conversational language. Yet writing lacks the interactive opportunities and nonverbal context provided by oral conversation so it presents a special challenge towards successful vocabulary acquisition without purposeful and ongoing concentration on vocabulary.[16] In fact, at most, between five and fifteen percent of new words encountered when reading are retained.[17] The weaker a student's vocabulary is, the slighter the gain.[18] Yet research shows that if students are going to understand what they read, they must understand upward of 95 percent of the words. [19]

As this "tipping point" for lexical dexterity is quite challenging for students to reach, every classroom needs to focus on providing students with high quality contextual encounters with vocabulary words that epitomize what they encounter in written texts. The aim should be to expose students to words that have the widest application—concepts that students are likely to meet again and again not just in classroom settings but outside the school walls as well. Some of these highly transferable academic words, often referred to as Tier 2 words, such as qualifying adjectives and adverbs (e.g., important, typically) are used broadly across domains and indeed in contexts that transcend the classroom.[40] However, the meanings of most words are specific to their domains—often referred to as Tier 3 words—including those that arise in multiple domains (e.g., chemical constituents, constituent voting patterns). To learn words, students have to read multiple selections from multiple authors within key domains of learning.

The problem is that, in any given instance, it is not the entire spectrum of a word's history, meanings, usages, and features that matters, but only those aspects that are relevant to the surrounding context. That means, first, that the reader's internal representation of the word must be sufficiently complete and well-articulated so that the intended meaning is available and, second, that the reader must understand the context well enough to select the intended meaning – which, in turn, depends on good understanding of the surrounding words of the passage.

Key to students' vocabulary development is building rich and flexible word knowledge. Students need plentiful opportunities to use and respond to the words they learn, through playful informal talk, discussion, and reading or being read to and responding to what is read. Along with attention to academic (Tier 2 words) and content-specific words (Tier 3 words), students benefit from instruction about the connections and patterns in language. Developing in students an analytical attitude toward the logic and sentence structure of their texts alongside an awareness of word parts, word origins, and word relationships provides students with a sense of how language works so that syntax, morphology and etymology can become useful cues to word in building meaning as students encounter new words and concepts in their reading.[41] As students are exposed to and interact with language throughout their school careers, they are able to acquire understandings of word meanings, build awareness of the workings of language, and apply word meanings to comprehend and produce language.

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[11] Adams, M. (2009). "The Challenge of Advanced Texts: The Interdependence of Reading and Learning," in Hiebert (Ed.), Reading more, reading better: Are American students reading enough of the right stuff?. New York: Guilford Publications.

[12] Landauer, TK, McNamara, DS, Dennis, S and Kintsch, W (2007). Handbook of Latent Semantic Analysis. Landauer, T. K., & Dumais, S. T. (1997). A solution to Plato's problem: The latent semantic analysis theory of acquisition, induction, and representation of knowledge. *Psychological Review, 104(2)*, 211-240; Nagy, W. E., Herman, P., & Anderson, R. C. (1985). Learning words from context. *Reading* Research Quarterly, 20, 233-253

[13] Hayes, D and Ahrens, M: "Vocabulary simplification for children: A special case of "motherese?" Journal of Child Language. Vol 15(2). Jun 1988. 395-410

[16] Ibid.

[17] Ibid

[18] Daneman & Green, 1986; Herman, Anderson, Person &Nagy, 1987; Sternberg & Powell

[19] Betts, E. A. (1946). *Foundations of reading instruction.* New York, NY: American Book Company; Carver, R. P. (1994). Percentage of unknown vocabulary words in text as a function of the relative difficulty of the text: Implications for instruction. *Journal of Reading Behavior, 26*, 413-437; Hu, M., & Nation, P. (2000). Unknown vocabulary density and reading comprehension. *Reading in a Foreign Language, 13(1)*, 403-430; Laufer, B. (1988). What percentage of text-lexis is essential for comprehension. In C. Lauren & M. Nordmann (Eds.), *Special language: From humans to thinking machines*. pp. 316-323. Clevedon, UK: Multilingual Matters.

[40] Indeed, the fact that these words transcend specific disciplines argues for them being taught and used across the curriculum by all teachers.

[41] Beck, I. L., McKeown, M. & Kucan, L. (2008). *Creating robust vocabulary: Frequently asked questions and extended examples.*

APPENDIX B

Exemplars of Reading Text Complexity and Quality, ELA K–12

Selecting Text Samples

The following text samples primarily serve to exemplify the level of complexity and quality that the *Standards* require all students in a given grade band to engage with while additionally suggesting the breadth of text types that students should encounter. The choices should serve as useful guideposts in helping educators select texts of similar **complexity**, **quality**, and **breadth** for their own classrooms. The process of text selection was guided by these criteria in the following fashion:

- *Complexity.* Appendix A describes in detail a three-part model of measuring text complexity based on qualitative and quantitative indices of inherent text difficulty balanced with educators' professional judgment. In selecting texts to serve as exemplars, the work group began by soliciting contributions from teachers, educational leaders, and researchers who have experience working with students in the grades for which the texts have been selected. These contributors were asked to propose texts that they or their colleagues have used successfully with students in a given grade band. The work group made final selections based in part on whether qualitative and quantitative measures identified by the *Standards* indicated that the proposed texts were of sufficient complexity for the grade band. For those types of texts—particularly poetry and multimedia sources—for which these measures are not as well suited, professional judgment necessarily played a greater role in selection.

- *Quality.* While it is possible to have high-complexity texts of low inherent quality, the work group solicited only texts of recognized value. From the pool of submissions gathered from outside contributors, the work group selected classic or historically significant texts as well as contemporary works of comparable literary merit, cultural significance, and/or content richness.

- *Breadth.* After identifying texts of appropriate complexity and quality, the work group applied a range of secondary criteria to ensure that the samples presented in each band represented as broad a range of sufficiently complex, high-quality texts as possible. Among the factors considered were initial publication date, authorship, and subject matter.

Copyright and Permissions

For those exemplar texts not in the public domain, the work group is seeking permission from the rights holders for limited use by the Common Core State Standards Initiative of the National Governors Association.

While we await permissions grants from the rights holders, we will make use of texts under a conservative interpretation of Fair Use, which allows limited, partial use of copyrighted text for a nonprofit, educational purpose as long as that purpose does not impair the rights holder's ability to seek a fair return for his or her work.

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Organization and Excerpting

Texts are organized first by category, with narrative texts followed by drama and poetry and then the informational texts. Within each category, the texts are organized by date, usually of first publication, beginning with the oldest and ending with the most recent. In some cases, the date of any given work may be open to debate.

The excerpts given here are meant to stand in for the full work in most instances. Works that are not in the public domain may be represented by short excerpts or snippets while the work group awaits permission from the rights holders for full use.

Media Texts

Selected excerpts are accompanied by annotated links to related media texts available online at the time of the publication of this document.

Kindergarten to Grade 1 Exemplar Texts

Narratives

Little Bear by Else Holmelund Minarik, illustrated by Maurice Sendak (1957)

Are You My Mother? by P. D. Eastman (1960)

The Fire Cat by Esther Averill (1960)

Green Eggs and Ham by Dr. Seuss (1960)

Put Me in the Zoo by Robert Lopshire (1960)

Frog and Toad Together by Arnold Lobel (1971)

Owl at Home by Arnold Lobel (1975)

Henry and Mudge: The First Book of Their Adventures by Cynthia Rylant, illustrated by Suçie Stevenson (1987)

Poppleton in Winter by Cynthia Rylant, illustrated by Mark Teague (2001)

Cowgirl Kate and Cocoa by Erica Silverman, illustrated by Betsy Lewin (2005)

Poetry

"Mix a Pancake" by Christina G. Rossetti (1893)

"Singing-Time" by Rose Fyleman (1919)

"Halfway Down" by A. A. Milne (1924)

"As I Was Going to St. Ives" by Unknown, collected by Peter and Iona Opie (1951)

"Drinking Fountain" by Marchette Chute (1957)

"Poem" by Langston Hughes (1958)

"Wouldn't You?" by John Ciardi (1961)

"In the Falling Snow" by Richard Wright (1973)

"Covers" by Nikki Giovanni (1980)

"It Fell in the City" by Eve Merriam (1985)

"Celebration" by Alonzo Lopez (1993)

"Two Tree Toads" by Jon Agee (2009)

Informational Texts

A Tree Is a Plant by Clyde Robert Bulla, illustrated by Stacey Schuett (1960)

My Five Senses by Aliki (1962)

Starfish by Edith Thacher Hurd, illustrated by Robin Brickman (1962)

What Do You Do With a Tail Like This? by Steve Jenkins & Robin Page (2003)

From Seed to Pumpkin by Wendy Pfeffer, illustrated by James Graham Hale (2004)

Mouse in a Meadow by John Himmelman (2005)

Petting Zoo by Dorling Kindersley (2005)

Meet the Meerkat by Darrin Lunde, illustrated by Patricia J. Wynne (2007)

"The Forest in Spring" in National Geographic Young Explorer! April 2009 (2009)

"Our Good Earth" in National Geographic Young Explorer, April 2009 (2009)

Read-Aloud Narratives

The Wonderful Wizard of Oz by L. Frank Baum (1900)

Little House in the Big Woods by Laura Ingalls Wilder, illustrated by Garth Williams (1932)

Mr. Popper's Penguins by Richard Atwater (1938)

Finn Family Moomintroll by Tove Jansson, translated by Elizabeth Portch (1948)

A Story A Story by Gail E. Haley (1970)

The Paper Crane by Molly Bang (1985)

Read-Aloud Poetry

"The Owl and the Pussycat" by Edward Lear (1871)

"April Rain Song" by Langston Hughes (1932)

"The Fox's Foray" – Traditional rhyme in Opie / *The Oxford Nursery Rhyme Book* (1955)

Over in the Meadow by John Langstaff, illustrated by Feodor Rojankovsky (1957)

Zin! Zin! Zin! a Violin by Lloyd Moss, illustrated by Marjorie Priceman (1995)

Read-Aloud Informational Texts

The Year at Maple Hill Farm by Alice and Martin Provensen (1978)

Fire! Fire! by Gail Gibbons (1984)

Follow the Water from Brook to Ocean by Arthur Dorros (1991)

Amazing Whales! by Sarah L. Thomson (2005)

Living Sunlight: How Plants Bring the Earth to Life by Molly Bang & Penny Chisholm, illustrated by Molly Bang (2009)

Grades 2–3 Exemplar Texts

Narratives

My Father's Dragon by Ruth Stiles Gannett, illustrated by Ruth Chrisman Gannett (1948)

Crow Boy by Taro Yashima (1955)

Amos & Boris by William Steig (1971)

The Treasure by Uri Shulevitz (1978)

The Stories Julian Tells by Ann Cameron (1981)

Sarah, Plain and Tall by Patricia MacLachlan (1985)

Tops and Bottoms by Janet Stevens (1995)

The Raft by Jim LaMarche (2000)

The Lighthouse Family: The Storm by Cynthia Rylant, illustrated by Preston McDaniels (2002)

The One-Eyed Giant (Book One of Tales from the Odyssey) by Mary Pope Osborne (2002)

Poetry

"Autumn" by Emily Dickinson (1893)

"Who Has Seen the Wind" by Christina G. Rossetti (1893)

"Afternoon on a Hill" by Edna St. Vincent Millay (1917)

"Stopping by Woods on a Snowy Evening" by Robert Frost (1923)

"Something Told the Wild Geese" by Rachel Field (1934)

"Grandpa's Stories" by Langston Hughes (1958)

"A Bat Is Born" by Randall Jarrell (1964)

"Knoxville, Tennessee" by Nikki Giovanni (1968)

"Weather" by Eve Merriam (1969)

"Eating While Reading" by Gary Soto (1995)

Informational Texts

A Medieval Feast by Aliki (1983)

Maps & Globes by Jack Knowlton, pictures by Harriet Barton (1985)

Sunshine Makes the Seasons by Franklyn M. Branley (1985)

From Seed to Plant by Gail Gibbons (1991)

Throw Your Teeth on the Roof: Tooth Traditions Around the World by Selby B. Beeler, illustrated by G. Brian Karas (1998)

So You Want to Be President? By Judith St.George, illustrated by David Small (2000)

Boy, Were We Wrong About Dinosaurs by Kathleen V. Kudlinski, illustrated by S.D. Schindler (2005)

Bat Loves the Night by Nicola Davies, illustrated by Sarah Fox-Davies (2008)

Moonshot: The Flight of Apollo 11 by Brian Floca (2009)

Where Do Polar Bears Live? by Sarah L. Thomson, illustrated by Jason Chin (2010)

Read-Aloud Narratives

"How the Camel Got His Hump" in *Just So Stories* by Rudyard Kipling (1902)

The Thirteen Clocks by James Thurber (1950)

The Cricket in Times Square by George Selden, illustrated by Garth Williams (1960)

The Search for Delicious by Natalie Babbitt (1969)

Bud, Not Buddy by Christopher Paul Curtis (1999)

Read-Aloud Poetry

"The Jumblies" by Edward Lear (1871)

"The Pied Piper of Hamelin" by Robert Browning (1888)

"Your World" by Georgia Douglas Johnson (1918)

"The Song of the Jellicles" by T.S. Eliot (1939)

"Fireflies" by Paul Fleischman, illustrated by Eric Beddows (1988)

Read-Aloud Informational Texts

Lincoln: A Photobiography by Russell Freedman (1987)

A Drop of Water: A Book of Science and Wonder by Walter Wick (1997)

The Museum Book: A Guide to Strange and Wonderful Collections by Jan Mark, illustrated by Richard Holland (2007)

What the World Eats by Faith D'Aluisio, photographed by Peter Menzel (2008)

Wild Tracks! A Guide to Nature's Footprints by Jim Arnosky (2008)

Grades 4–5 Exemplar Texts

Narratives

Alice in Wonderland by Lewis Carroll (1865)

The Secret Garden by Frances Hodgson Burnett (1911)

The Black Stallion by Walter Farley (1941)

The Little Prince by Antoine de Saint-Exupery (1943)

Tuck Everlasting by Natalie Babbitt (1975)

"Zlateh the Goat" by Isaac Bashevis Singer (1984)

M. C. Higgins, the Great by Virginia Hamilton (1993)

The Birchbark House by Louise Erdrich (1999)

Bud, Not Buddy by Christopher Paul Curtis (1999)

[Also a read-aloud narrative at Grades 2–3]

Where the Mountain Meets the Moon by Grace Lin (2009)

Poetry

"The Echoing Green" from *Songs of Innocence* by William Blake (1789)

"The New Colossus" by Emma Lazarus (1883)

"Casey at the Bat" by Ernest Lawrence Thayer (1888)

"A Bird Came Down the Walk" by Emily Dickinson (1893)

"Fog" by Carl Sandburg (1916)

"Dust of Snow" by Robert Frost (1923)

"Little Red Riding Hood and the Wolf" by Roald Dahl (1982)

"They Were My People" by Grace Nichols (1988)

"Words Free As Confetti" by Pat Mora (1996)

Informational Texts

Discovering Mars by Melvin Berger (1992)

Let's Investigate Marvelously Meaningful Maps by Madelyn Wood Carlisle (1992)

Hurricanes: Earth's Mightiest Storms by Patricia Lauber (1996)

The Kid's Guide to Money by Steve Otfinoski (1996)

Toys: Amazing Stories behind Some Great Inventions by Don Wulffson (2000)

"Good Pet, Bad Pet" by Elizabeth Schleichert from *Ranger Rick* (2002)

"Ancient Mound Builders" by E. Barrie Kavash from *Cobblestone* (2003)

About Time: A First Look at Time and Clocks by Bruce Koscielniak (2004)

England the Land by Erinn Banting (2004)

A History of US by Joy Hakim (2005)

My Librarian Is a Camel by Margriet Ruurs (2005)

Horses by Seymour Simon (2006)

Quest for the Tree Kangaroo by Sy Montgomery (2006)

Volcanoes by Seymour Simon (2006)

We Are the Ship: The Story of Negro League Baseball by Kadir Nelson (2008)

"Kenya's Long Dry Season" by Nellie Gonzalez Cutler from *Time for Kids* (2009)

"Seeing Eye to Eye" by Leslie Hall from *National Geographic Explorer* (2009)

"Computer" from *Britannica Junior Encyclopedia* (2010)

"Telescopes" by Ronan, Colin A. from *The New Book of Knowledge* (2010)

"Underground Railroad" by Henrietta Buckmaster from *The New Book of Knowledge* (2010)

Grades 6–8 Exemplar Texts

Narratives

Little Women by Louisa May Alcott (1869)

The Adventures of Tom Sawyer by Mark Twain (1876)

A Wrinkle in Time by Madeline L'Engle (1962)

The Dark is Rising by Susan Cooper (1973)

Dragonwings by Laurence Yep (1975)

Roll of Thunder, Hear My Cry by Mildred Taylor (1976)

"The People Could Fly" from *The People Could Fly: American Black Folktales* by Virginia Hamilton (1985)

The Tale of the Mandarin Ducks by Katherine Paterson (1990)

"Eleven" from *Woman Hollering Creek: And Other Stories* by Sandra Cisneros (1992)

Black Ships Before Troy: The Story of the Iliad by Rosemary Sutcliff (1993)

Drama

A Midsummer Night's Dream by William Shakespeare (1596)

The Diary of Anne Frank by Frances Goodrich and Albert Hackett (1958)

Poetry

"Paul Revere's Ride" by Henry Wadsworth Longfellow (1861)

"O Captain, My Captain" by Walt Whitman (1865)

"Jabberwocky" by Lewis Carroll (1872)

"Twelfth Song of Thunder" from *The Mountain Chant: A Navajo Ceremony* Navajo tradition (1887)

"The Railway Train" by Emily Dickinson (1893)

"The Song of Wandering Aengus" by W. B. Yeats (1899)

"Chicago" from *Chicago Poems* (1914) by Carl Sandburg

"Stopping by a Wood on a Snowy Evening" by Robert Frost (1923)

"I, Too" by Langston Hughes (1925)

"The Book of Questions" by Pablo Neruda (1973) translated by William O'Daly

"Oranges" from *Black Hair* (1985) by Gary Soto

"A Poem for My Librarian, Mrs. Long" from *Acolytes* (2007) by Nikki Giovanni

Informational Texts (English Language Arts)

"Allegory of the Cave" from *The Republic* by Plato (380 BCE) translated by G.M.A. Grube

"Letter on Thomas Jefferson" by John Adams (1822)

Narrative of the Life of Frederick Douglass an American Slave by Frederick Douglass (1845)

"Gettysburg Address" by Abraham Lincoln (1863)

"Lee Surrenders to Grant" by Horace Porter (1865)

"Blood, Toil, Tears and Sweat" by Winston Churchill (1940)

Travels with Charley: In Search of America by John Steinbeck (1962)

"Address to the Nation on Civil Rights" by John F. Kennedy (1963)

I Know Why the Caged Bird Sings by Maya Angelou (1969)

"Address to Students at Moscow State University" by Ronald Reagan (1988)

Grades 9-10 Exemplar Texts

Narratives

The Odyssey by Homer (8th century B.C.E.) translated by Robert Fagles

"The Nose" by Nikolai Gogol (1836) translated by Ronald Wilks

"The Gift of the Magi" by O. Henry (1906)

The Grapes of Wrath by John Steinbeck (1939)

Fahrenheit 451 by Ray Bradbury (1953)

"I Stand Here Ironing" by Tillie Olsen (1956)

The Killer Angels by Michael Shaara (1975)

The Joy Luck Club by Amy Tan (1989)

In the Time of the Butterflies by Julia Alvarez (1994)

The Book Thief by Marcus Zusak (2005)

Drama

The Tragedy of Romeo and Juliet by William Shakespeare (1592)

The Glass Menagerie by Tennessee Williams (1944)

Rhinoceros by Eugene Ionesco (1959) translated by Derek Prouse

Master Harold...and the Boys by Athol Fugard (1982)

Poetry

"Song" by John Donne (1635)

"Ozymandias" by Percy Bysshe Shelley (1810)

"The Raven" by Edgar Allen Poe (1845)

"We Grow Accustomed to the Dark" by Emily Dickinson (1893)

"Loveliest of Trees" by A. E. Houseman (1896)

"Lift Ev'ry Voice and Sing" by James Weldon Johnson (1900)

"Domination of Black" by Wallace Stevens (1916)

"Yet Do I Marvel" by Countee Cullen (1925)

"Women" by Alice Walker (1970)

"I Am Offering This Poem to You" by Jimmy Santiago Baca (1977)

Informational Texts (English Language Arts)

"Preface to Lyrical Ballads" by William Wordsworth (1800)

"Speech to the Second Virginia Convention" by Patrick Henry (1775)

"Second Inaugural Address" by Abraham Lincoln (1865)

"State of the Union Address" by Franklin Delano Roosevelt (1941)

"I Am an American Day Address" by Learned Hand (1944)

"Remarks to the Senate in Support of a Declaration of Conscience" by Margaret Chase Smith (1950)

"Address at the March on Washington" by Martin Luther King, Jr. (1963)

"Nobel Prize Acceptance Speech" by Elie Wiesel (1986)

"A Quilt of a Country" by Anna Quindlen (2001)

Grades 11-12 Exemplar Texts

Narratives

Pride and Prejudice by Jane Austen (1813)

Jane Eyre by Charlotte Brontë (1848)

"At Home" by Anton Chekov (1887) translated by Constance Garnett

The Great Gatsby by F. Scott Fitzgerald (1925)

As I Lay Dying by William Faulkner (1930)

Their Eyes Were Watching God by Zora Neale Hurston (1937)

Black Boy by Richard Wright (1945)

The Adventures of Augie March by Saul Bellow (1949)

The Bluest Eye by Toni Morrison (1970)

Dreaming in Cuban by Cristina Garcia (1992)

The Namesake by Jhumpa Lahiri (2003)

Drama

Macbeth by William Shakespeare (c1611)

The Importance of Being Earnest by Oscar Wilde (1895)

Death of a Salesman by Arthur Miller (1949)

A Raisin in the Sun by Lorraine Hansberry (1959)

Poetry

"A Valediction Forbidding Mourning" by John Donne (1633)

"Ode on a Grecian Urn" by John Keats (1820)

"Song of Myself" from *Leaves of Grass* by Walt Whitman (c1860)

"Because I Could Not Stop for Death" by Emily Dickinson (1890)

"Mending Wall" by Robert Frost (1914)

"Ode to My Suit" by Pablo Neruda (1954) translated by Margaret Sayers Peden

"Sestina" by Elizabeth Bishop (1983)

"The Latin Deli: An Ars Poetica" by Judith Ortiz Cofer (1988)

"Demeter's Prayer to Hades" by Rita Dove (1995)

"Man Listening to Disc" by Billy Collins (2001)

Informational Texts (English Language Arts)

The Declaration of Independence by Thomas Jefferson (1776)

The Crisis by Thomas Paine (1776)

Walden by Henry David Thoreau (1854)

"Society and Solitude" by Ralph Waldo Emerson (1857)

"The Fallacy of Success" by G.K. Chesterton (1909)

The American Language by H.L. Mencken (1938)

"Politics and the English Language" by George Orwell (1946)

"Abraham Lincoln and the Self-Made Myth" by Richard Hofstadter (1948)

"Letter from Birmingham City Jail" by Martin Luther King, Jr. (1963)

"Mother Tongue" by Amy Tan (1990)

"Take the Tortillas Out of Your Poetry" by Rudolfo Anaya (1995)

Appendix G

MOSAIC Memorandum of Agreement and Balanced Assessment Memorandum of Agreement

MOSAIC

Multiple Options for Student Assessment and Instruction Consortium

Memorandum of Understanding

This Non-Binding Memorandum of Understanding ("MOU") is entered into by and between the lead state(s): Wisconsin, Nebraska, and Missouri, and _____("Your State"). The purpose of this agreement is to establish a framework of collaboration, as well as articulate tasks in support of a Multi-State Consortium in its implementation of an approved Standards and Assessment Section of a Race to the Top grant. States might choose to participate in this Consortium even if their Race to the Top grant application is not funded.

I. PROJECT PROPOSAL

A. PARTICIPATING SEA RESPONSIBILITIES

A Consortium of states proposes to build a balanced assessment system of formative and benchmark assessment in a Race to the Top grant application. A state might choose to participate in this agreement through funding of its own choosing. The name of the system to be built is Multiple Options (for) Student Assessment (and) Instruction Consortium (MOSAIC). The MOSAIC system will be designed to complement a summative assessment system aligned to the Common Core such as the one being proposed under the SMARTER Consortium or any other Consortia that may develop a summative assessment aligned to the Common Core.

The proposed Consortium tasks and activities described in the Race to the Top application include the tasks that follow below. States participating in the Consortium will need to determine which of the tasks they wish to undertake with this Consortium. This decision may be made after the submission of the MOU.

Task 1.1.1 COMMON CORE: **The consortium states will adopt the Common Core Standards.** Within one year of state adoption, all districts within the consortium states will have adopted the Common Core Standards, will have integrated the standards to their local curriculum, and will have aligned professional development to familiarize staff with the college and career-ready expectations.

Task 1.1.2 PROFESSIONAL DEVELOPMENT—CURRICULAR INTEGRATION: **The consortium states will develop and build professional development materials around the instructional integration of Common Core standards.** This will include curricular frameworks aligned to the Common Core, defining of learning progressions within content areas, materials on instructional strategies, and suggested interventions. All materials will be disseminated across the states within the consortium and made available in a web-banked system.

Task 1.1.3 INSTRUCTIONAL SUPPORT SYSTEM: **The consortium states will have access to a computerized system that will provide opportunities for districts to** load the system with formative/local assessment tasks, items, and instructional materials including performance assessments. These can be shared across states, and customized for local use. All will be aligned with the Common Core and will be available electronically to students and teachers with timely data turn-around.

Task 1.1.4 STATE FLEXIBILITY: **Each state will define the level at which districts/schools in their state participate in the formative/benchmark assessment system. This may vary from state to state, depending on how each state defines voluntary versus optional participation.** (One level of required participation within a state might be to require the state's persistently low performing schools and districts to participate in this comprehensive assessment system, and to require that student performance data be tracked over time for growth and improvement.)

Task 1.1.5 REPORT DEVELOPMENT: **Each state will contribute to the development of district, school, and student-level performance reports on the Common Core.** Reports will be generated in parent-friendly and teacher-friendly formats to track progress on the Common Core standards. Emphasis will be placed upon growth and improvement over time, with customized feedback about suggested next-steps based on the student's performance.

Task 1.1.6 BENCHMARK ASSESSMENT SYSTEM: **Each state will contribute to the development of a benchmark assessment item bank with the capabilities for adaptive testing.** From this item bank, common diagnostic/benchmark tests will be developed across the "total package" consortia states through a consortia bid process to a single vendor. Each state will contribute field-tested items to the bank. This bank will be used to diagnose student strengths and deficiencies and serve as an "early warning" system. Common performance standards and cut scores for these diagnostic/benchmark tests will be set across the consortium of states. The common tests will be loaded into the computerized system for immediate data turn around. The common tests will be available to districts/schools within each state as defined by that state – varying levels of participation will require different cost to each state to implement, most likely on a per-pupil basis. (States participating at the Partner or Associate level may access items in the bank, but may not utilize the consortia-developed common assessments).

Task 1.1.7 PROFESSIONAL DEVELOPMENT—USING DATA TO IMPROVE INSTRUCTION: **Each state will contribute to the development of hands-on training and workshop modules for educators that focus on user-friendly strategies to make data-informed instructional decisions based upon formative, benchmark, and summative assessment results.** All materials will be disseminated across the collaborating states.

The selection of tasks by each SEA participating in the Consortium will determine the level of participation of each respective state. There are three levels of participation that may be selected by each SEA in the Consortium. While the level of participation does not need to be selected at the time of signing the MOU, by its signature the state is indicating its interest in participating at a minimum of Level Three.

- **Level One: "Total Package"** – The state participates in **all seven tasks** with a common vendor, and shares in all resources available through the project, including all formative/benchmark assessments developed under the project. The state has an active role in developing, disseminating and sharing professional development tasks and materials.

- **Level Two: "Partner"** – The state contributes to the item bank (**Tasks 1.1.1, 1.1.2, and 1.1.6**) and professional development materials, and may use components in their state for state-specific work. (ex: state does not use common assessments developed from the bank; instead, uses the bank to create their own assessment tools with a separate vendor)

- **Level Three: "Associate"** – The state contributes to the item bank, (**Task 1.1.6 only**) and may use components in their state for state-specific work. The state does not contribute to or have access to professional development components developed through the project.

B. RESPONSIBILITIES OF ALL SEA PARTICIPATING IN THE CONSORTIUM

1) Each participating SEA in the Consortium will appoint a key contact person for the Race to the Top grant.

2) These key contacts from each State and the lead state(s) will maintain frequent communication to facilitate cooperation under this MOU.

3) Participating SEA grant personnel will work together to determine appropriate timelines for project updates and status reports throughout the whole grant period.

This Non-binding Memorandum of Understanding shall be effective beginning with the date of the last signature hereon:

SEA Superintendent/- Participating State
Chief/Commissioner (or equivalent authorized signatory)

Roger D. Breed
Signature

Jan. 6, 2010
Date

ROGER D. BREED
Print Name

COMISSIONER
Title

Authorized Lead SEA Official - Lead State
By its signature below, the lead state(s) hereby accepts the SEA as a Participating SEA in the Consortium

Official State Designee

Date

Print Name

Title

Please email this signed page by January 5, 2010 to

lynette.russell@dpi.wi.gov **and** **pat.roschewski@nebraska.gov**
or fax to
(Fax) 608.266.8770 **and** **(Fax) 402.471.4311**

****PLEASE email this signed page only by January 5, 2010****

MOU for a State Consortium Developing Balanced Assessments of the Common Core Standards

This Non-Binding Memorandum of Understanding ("MOU") is entered into by and between the Balanced Assessment Consortium and Nebraska ("Your State"). The purpose of this agreement is to establish a framework of collaboration for states in supporting assessment of the common core standards. The agreement also articulates tasks in support of a Multi-State Consortium in its implementation of an approved Standards and Assessment Section of a Race to the Top grant. The MOU outlines a set of working principles, the roles of states and local districts within the consortium, and a set of tasks that the Consortium would undertake.

Working Principles

A consortium of states developing a balanced assessment system for evaluating the common core standards would start with working principles derived from an examination of successful state systems in the U.S. and high-achieving systems internationally. For example:

1) **Assessments are grounded in a thoughtful, standards-based curriculum and are managed as part of a tightly integrated system of standards, curriculum, assessment, instruction, and teacher development.**

- Curriculum guidance is lean, clear, and focused on what students should know and be able to *do* as a result of their learning experiences. Assessment expectations are described in the curriculum frameworks or course syllabi and are exemplified by samples of student work.
- Curriculum and assessments are organized around a well-defined set of learning progressions within subject areas. These guide teaching decisions, classroom-based assessment, and external assessment.
- Teachers and other curriculum experts are involved in developing curriculum and assessments which guide professional learning and teaching. Thus, everything that comes to schools is well-aligned and pulling in the same direction.

2) **Assessments elicit evidence of actual student performance on challenging tasks that prepare students for the demands of college and career in the 21st century.** Curriculum and assessments seek to teach and evaluate a broad array of skills and competencies that generalize to higher education and work settings. They emphasize deep knowledge of core concepts within and across the disciplines, including problem solving, analysis, synthesis, and critical thinking, and include essays and open-ended tasks and problems, as well as selected response items.

3) **Teachers are involved in the development of curriculum and the development and scoring of assessments.** Scoring processes are moderated to ensure consistency and to enable teachers to deeply understand the standards and to develop stronger curriculum and instruction leading to greater student proficiency. The moderated scoring process is a strong professional learning experience that helps drive the instructional improvements that enable student learning, as teachers become more skilled at their own assessment practices and their development of curriculum to teach the standards. The assessment systems are designed to increase the capacity of teachers to prepare students for the contemporary demands of college and career.

4) **Assessments are structured to continuously improve teaching and learning**. Assessment *as*, *of*, and *for* learning is enabled by several features of assessment systems:

- 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 of both school-based components and externally developed open-ended examinations are sources of ongoing professional development that improve teaching.

- Developing both school-based and external assessments around learning progressions allows teachers to see where students are on multiple dimensions of learning and to strategically support their progress.

5) Assessment and accountability systems are designed to improve the quality of learning and schooling. Assessments aim to encourage and support the learning of ambitious intellectual skills in the way they are designed and used for informing teaching, learning, and schooling. Accountability systems publicly report outcomes and take these into account, along with other indicators of school performance, in a well-designed system focused on continual improvement for schools.

6) Assessment and accountability systems use multiple measures to evaluate students and schools.

Multiple measures of learning and performance are used to evaluate skills and knowledge. Students engage in a variety of tasks and tests that are both curriculum-embedded and on-demand, providing many ways to demonstrate and evaluate their learning. These are combined in reporting systems at the school and beyond the school level. School reporting and accountability are also based on multiple measures. Assessment data are combined with other information about schools' resources, capacities, practices, and outcomes to design intensive professional development supports and interventions that improve school performance.

7) New technologies enable greater assessment quality and information systems that support accountability.

New technologies enhance and transform the way the assessment process is developed, delivered, and used, providing adaptive tools and access to information resources for students to demonstrate their learning, and providing appropriate feedback by supporting both teacher scoring and computer-based scoring (now possible for both selected response and some forms of constructed-response items). By using technology to reduce costs for delivery of more open-ended assessment formats, scoring, and reporting, resources can be redirected to improvements in assessment quality.

Technology also organizes data about student learning, enhancing system accountability for instruction and reporting by providing more efficient, accurate, and timely information to teachers, parents, administrators, and policymakers. Technology helps to integrate information at as part of longitudinal data systems, contributing to a rich profile of accomplishment for every student.

State and Local Roles within a Consortium

States working within the Consortium would:

- Adopt and augment the Common Core standards as appropriate to their context.

- Create and deploy curriculum frameworks that address the standards—drawing on exemplars and tested curriculum models.
- Build and manage an assessment system that includes both on-demand and curriculum-embedded assessments that evaluate the full range of standards and allow evaluation of student progress. The Consortium may develop both joint assessments (commonly implemented by states) as well as other assessment tasks and items linked to the standards (and grounded in curriculum units) that can be incorporated into states' individual assessment plans for formative or summative purposes.
- Develop rubrics that embody the standards, and clear examples of good work, benchmarked to performance standards.
- Create oversight / moderation / audit systems for ensuring the comparability of locally managed and scored assessment components.
- Ensure that teacher and leader education and development infuse knowledge of learning, curriculum, and assessment.
- Implement high-quality professional learning focused on examination of student work, curriculum and assessment development, and moderated scoring.

Districts and schools would:

- Examine the standards and evaluate current curriculum, assessment, and instructional practice in light of the standards.
- Evaluate state curriculum guidance, and further develop and adapt curriculum to support local student learning, select and augment curriculum materials, and continually evaluate and revise curriculum in light of student learning outcomes.
- Incorporate formative assessments into the curriculum, organized around the standards, curriculum, and learning sequences to inform teaching and student learning.
- Participate in administering and scoring relevant portions of the on-demand and curriculum-embedded components of the assessment system, and examining student work and outcomes.
- Help design and engage in professional development around learning, teaching, curriculum, & assessment.
- Engage in review and moderation processes to examine assessments and student work, within and beyond the school.

Tasks the Consortium Would Undertake

The consortium of states would build on successful efforts already launched in a number of states, seeking to integrate the best knowledge and exemplars from existing efforts, so as to use resources efficiently, take advantage of well-tested approaches, and avoid reinventing the wheel. It would bring together leading curriculum and assessment experts to advise and support efforts to create a system for evaluating the Common Core, building on the most credible and well-vetted knowledge available in the field. With these supports, the Consortium could:

1. Support the Development of Curriculum Frameworks: When the Common Core standards have been released, vetted, and adopted, consortia of states would work with curriculum and assessment experts to develop (or adapt from previously successful work) curriculum frameworks, syllabi, and other materials mapped to the standards. There has been enormous investment in the United States in high-quality curriculum, for example through NSF and other

organizations at the national level, and in many states and districts. Other English-speaking nations have also developed high quality curriculum materials linked to standards and learning progressions that could be evaluated in this process. This effort would inventory and cull from efforts with a strong evidence base of success to support states in building out curriculum frameworks around which they can organize deeper curriculum development at the local level, state and local assessment development, instructional supports, and professional development.

2. Create a Digital Curriculum and Assessment Library: The results of this effort should ultimately be made available on-line in a digital platform that offers materials for curriculum building and, eventually, model syllabi for specific courses linked to the standards, formative and summative assessment tasks and instruments linked to the curriculum materials, and materials for training teachers and school leaders in both strategies for teaching specific curriculum concepts / units and assessment development and scoring. In addition, as described below, an electronic scoring platform supporting training, calibrating, benchmarking, and reporting would be developed and made available across the states.

3. Develop State and Local Assessments: The state consortium would work to create a **common reference examination, which includes selected-response, constructed response and performance components** aimed at higher-order skills, linked to the Common Core standards for grades 3-8, like the NECAP assessment recently developed by a set of New England states. This assessment would be designed to incorporate more rigorous and analytic multiple-choice and open-ended items than many tests currently include and would include strategically selected curriculum-embedded performance assessments at the classroom level that can be part of the summative evaluation, while also providing formative information.

These curriculum-embedded components would be developed around core concepts or major skills that are particularly salient in evaluating students' progress in English language arts and mathematics. (Eventually, work on science could be included.) Exemplars to evaluate and build upon are already available in many states and in nations like England that have developed a set of "tests and tasks" for use in classrooms that help teachers evaluate students' learning in relation to well-described learning progressions in reading, writing, mathematics, and other subjects.

Curriculum-embedded components would link to the skills evaluated in the "on-demand" test, allowing for more ambitious tasks that take more time and require more student effort than can be allocated in a 2 or 3-hour test on a single day; these components would evaluate skills in ways that expect more student-initiated planning, management of information and ideas, interaction with other materials and people, and production of more extended responses that reveal additional abilities of students (oral presentations, exhibitions, and product development, as well as written responses) that are associated with college and career success.

In the context of summative assessments, curriculum-embedded tasks would be standardized, scored in moderated fashion, and scores would be aggregated up to count as part of the external assessment. Curriculum-embedded assessments would also include marker tasks that are designed to be used formatively to check for essential understandings and to give teachers useful information and feedback as part of ongoing instruction. Thoughtful curriculum guidance would outline the scaffolding and formative assessment needed to prepare students to succeed on the summative assessments.

All components of the system would incorporate **principles of universal design** that seek to remove construct-irrelevant aspects of tasks that could increase barriers for non-native English speakers and students with other specific learning needs. In addition, designers who are skilled at developing linguistically supportive assessments and tests for students with learning disabilities would be engaged from the beginning in considering how to develop the assessments for maximum access, as well as how to design appropriate accommodations and modifications to enable as many students as possible to be validly assessed within the system.

The emphasis on evaluating **student growth over time** and on tying standards to a conception of learning progressions should encourage a growth oriented frame for both the "on-demand" examination and the more extended classroom assessments. The Consortium may consider the viability of incorporating computer-based adaptive testing that creates vertically scaled assessments based on the full range of learning progressions in ELA and math. This would allow students to be evaluated in ways that give greater information about their abilities and their growth over time. This approach would not preclude the evaluation of grade-level standards, which could be part of any students' assessment, nor would it preclude a significant number of constructed response, open-ended items, as the technology for machine-scoring structured open-ended items is now fairly well-developed. Strategic use of partial teacher scoring for these items would also be a desirable element of the system to support teachers' understanding of the standards and assessments, and their planning for instruction.

The emphasis on evaluating student growth should also inform the development of the curriculum-embedded elements of the system, which should be selected or developed to strategically evaluate students' progress along the learning continuum. Centrally developed tasks administered and scored by teachers with moderation (see below), using common rubrics, would be part of the set of reported scores. In states with experience and capacity, it may be possible to begin to incorporate information about student learning that teachers develop from their own classroom evidence, linked to the standards and learning progressions and guided by the curriculum frameworks. This could be an optional aspect of the Consortium's work for states and communities with interest and capacity.

At the **high school level**, the Consortium might explore one or both of two options for assessment:

- **Course- or syllabus-based systems** like those in England, Australia, Singapore, Hong Kong, Alberta (Canada), as well as the International Baccalaureate. Generally conceptualized as end-of-course-exams in this country, this approach should become a more comprehensive course assessment approach like that pursued in these other countries. Such an approach would include within-course performance assessments that count toward the examination score, as well as high-quality assessment end-of-course components that feature constructed response as well as selected response items. Within-course performance assessments would tap central modes of inquiry in the disciplines, ensuring that students have the opportunity to engage in scientific investigations, literary analyses and other genres of writing, speaking and listening; mathematical modeling and applications; social scientific research. Such an approach might require an ELA and math assessment at a key juncture that evaluates an appropriate benchmark level for high school standards, and then, as in high-achieving nations, allow for pursuit of other courses/ assessments that are selected by students

according to their interests and expertise. These could serve as additional information on the diploma for colleges and employers.

- **Standards-driven systems** that might include a more comprehensive benchmark assessment in ELA and mathematics complemented by collections of evidence that demonstrate students' abilities to meet certain standards within and across the disciplines. This set of assessments would allow more curriculum flexibility in how to meet the standards. Systems like these are used in some provinces in Canada and Australia, in states like Rhode Island, Wyoming, Nebraska, and New Hampshire, and in systems of schools like the New York Performance Standards Consortium, the Asia Society, and Envision Schools. Sometimes these sets of evidence are organized into structured portfolios, such as the Technology portfolio in New Hampshire and the broader Graduation portfolios in these sets of schools that require specific tasks in each content area, scored with common rubrics and moderation.

- **A mixed model** could combine elements of both course- and standards-driven models, allowing some demonstrations of proficiency to occur in any one of a range of courses (rather than a single, predetermined course) or even outside the bounds of a course, like the efforts by some states to allow students to pass courses via demonstrations of competence rather than seat time (e.g. NH, OH). Such a system could also include specific components intended to develop and display research and inquiry skills that might also be interdisciplinary, such as the Project Work requirements in England, Singapore, and the International Baccalaurate, and the Senior Project requirements in Pennsylvania and Ohio.

4. Develop Moderation and Auditing Systems for Teacher-Scored Work: The consortium would develop protocols for managing moderation and auditing systems and training scorers so as to enable comparable, consistent scoring of performance assessments. In other nations' and states' systems that include these features routinely, procedures have been developed to ensure both widespread teacher involvement – often as part of professional development time – and to create common standards and high levels of reliability in evaluating student work. A range of models are possible, and the consortium would serve as a resource to individual states in developing and implementing strong, efficient approaches.

5. Develop Technology to Support the Assessment System: Technology should be used to enhance these assessments in a number of ways: by delivering the assessments; in on-line tasks of higher-order abilities, allowing students to search for information or manipulate variables and tracking information about the students' problem-solving processes; in some cases, scoring the results or delivering the responses to trained scorers / teachers to assess from an electronic platform. Such a platform may also support training and calibration of scorers and moderation of scores, as well as efficient aggregation of results in ways that support reporting and research about the responses. This use of technology is already being used in the International Baccalaureate assessment system, which includes both on-demand and classroom-based components.

In order to gain the efficiency and cost benefits of machine scoring and the teaching and learning benefits of teachers' moderated scoring, a mixed system could be developed where computer-based scoring is incorporated on constructed response tasks where useful – though teachers would score some of these tasks for anchoring and learning purposes – while other tasks that require human scoring engage most teachers in scoring to support improvements in instruction.

RESPONSIBILITIES OF ALL SEAs PARTICIPATING IN THE CONSORTIUM

1) Each participating SEA in the Consortium will appoint a key contact person.

2) These key contacts from each State will maintain frequent communication with the parties administering the Balanced Assessment Consortium to facilitate cooperation under this MOU.

3) Participating SEA grant personnel will work together to determine appropriate timelines for project updates and status reports throughout the whole grant period.

This Non-binding Memorandum of Understanding shall be effective beginning with the date of the last signature hereon:

SEA Superintendent/- Participating State Chief/Commissioner (or equivalent authorized signatory)

Roger D. Breed
Signature

1/14/10
Date

Roger Breed
Print Name

Commissioner of Education
Nebraska
Title

Please email this signed page to

Tammy Morrill
Tammy.Morrill@maine.gov

****PLEASE email this signed page only by January 7, 2010****

Appendix H

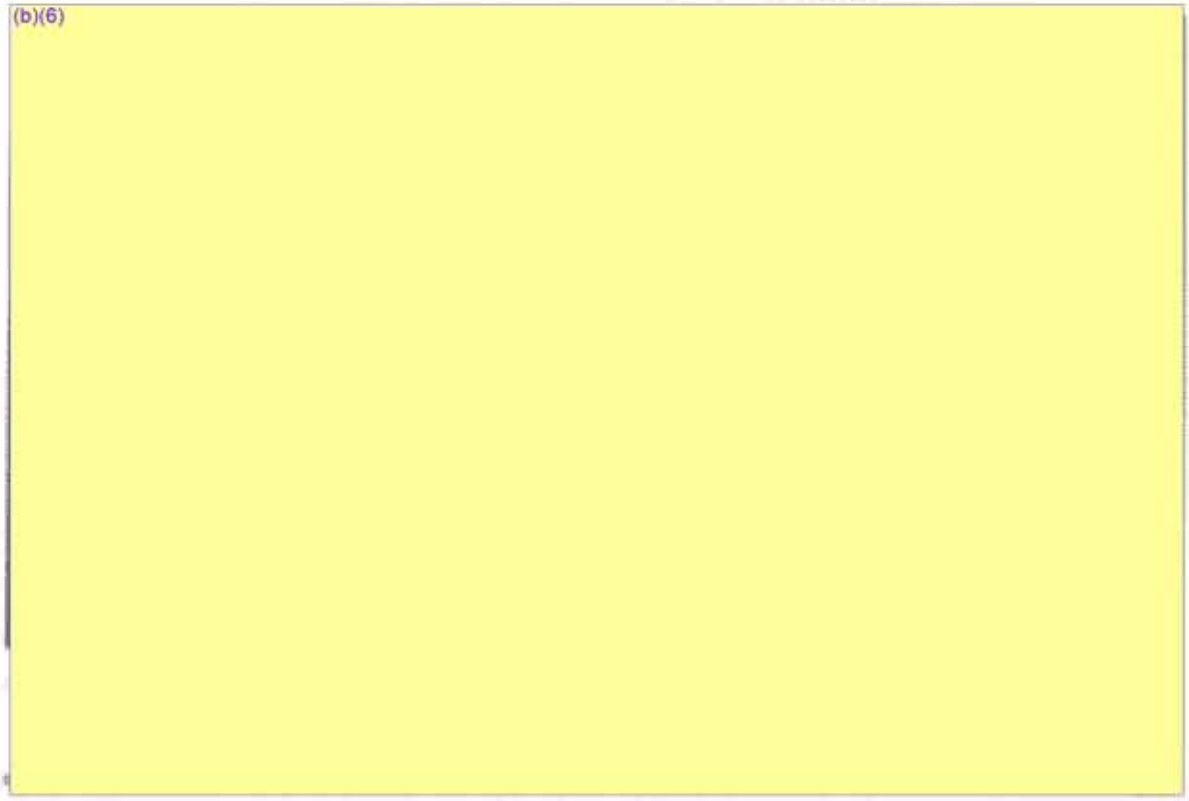
Teacher Preparation a White Paper, Greater Nebraska Superintendents

Teacher Preparation

A White Paper

3/1/2009

Greater Nebraska Superintendents



A Discussion on Teacher Preparation

Table of Contents

Introduction 3

Knowledge of Subject Matter and Curriculum (State Standards) 4

Knowledge of Teaching 6

Assessment Tools 8

Classroom Management 9

Technology Literacy 12

Life-long Learning 13

Developing Teachers for High Poverty and Culturally Diverse Students 15

Conclusion 17

References 19

A Discussion on Teacher Preparation

Introduction

Nearly everyone will agree that teaching is an important profession. In fact, most of us can probably name at least one or two teachers that have profoundly affected us in either a positive or negative manner.

Current research supports these statements, indicating that teachers are, at the very least, an important part of the educational process. Furthermore, the results of recent studies have found that a student's assigned teacher has a much stronger influence on how much he or she learns than other factors, including things such as class size and composition. In fact, results of several studies have established that students who are assigned to very effective teachers over consecutive years have significantly greater gains in achievement than students assigned to less or ineffective teachers and the impact carries over into the ensuing school years.

Many in education have assumed that factors in a student's background, such as income, parents' level of education and other family issues, are the primary forces that impact student achievement. However, a number of studies indicate that the expertise of a classroom teacher has as much, if not more, of an impact than individual student demographics. As a result of this research, it is imperative that educators improve the quality of teachers in the classroom to help students educationally at risk or prone to fail.

Nationally, beginning teachers will enter a classroom where at least 25% of the students live in poverty, from 12% to 20% have identified learning differences, 15% primarily speak a language other than English, and about 40% are members of racial/ethnic minority groups, many of them recent immigrants from countries with different educational systems and cultural trends. Nebraska's statistics place 36.42% of students in low income, 6.49% with limited English proficiency and students identified with disabilities at 14.95%. The Nebraska mobility rate is 6.42%, meaning that 18,442 students move two or more times. Changing schools impedes the academic and social growth of students and it is estimated that it takes four to six months to recover academically after changing schools. Additionally, No Child Left Behind has increased

accountability through Adequate Yearly Progress (AYP) requirements and Nebraska has moved to a statewide test, Nebraska State Accountability (NeSA), in the areas of writing, reading, mathematics and science.

The Greater Nebraska Superintendents (GNS) organization is submitting this White Paper to the university and college systems as a way to start a dialogue about teacher preparation in Nebraska. The reasons presented to this point are the rationale behind the proposed discussion items listed below. It is our belief that schools of education must prepare teachers to meet the myriad of needs for diverse learners in today's classrooms by increasing the number of education-based classes required in the colleges and universities by one semester. To balance this necessary increase, the general classes required of students would be reduced by one semester. This White Paper addresses the following areas in teacher preparation:

1. Knowledge of Subject Matter and Curriculum (State Standards)
2. Knowledge of Teaching
3. Classroom Management
4. Technology Literacy
5. Life-Long Learning
6. Knowledge of Assessment Tools
7. Developing Teachers for High Poverty and Culturally Diverse Students

Knowledge of Subject Matter and Curriculum (State Standards)

Effective teaching means that instructors build lessons based upon state standards, possible national standards and the needs of their students. Effective teachers convey content at the appropriate level that is both educational and engaging to students. A first year teacher must be able to take in large amounts of content information and shape it into meaningful instruction.

- Every first year teacher, regardless of grade or content area, needs to know what the state standards are in the curricular area in which they are teaching, along with their local district's curriculum, and shape their lesson plans and instructional strategies accordingly.
- First year teachers should be familiar with creating individual curriculum maps that identify by calendar months the topics, skills and assessment they are addressing.

- Teaching and learning in a core subject requires specific mental activities including extending and applying knowledge; reflecting about experiences; articulating what the teacher knows; making knowledge one's own; and scaffolding.
- Effective subject matter teachers need to know how to solve problems they pose to students and to know that there are multiple approaches to solving many problems.

As related to subject matter, it is the belief of the GNS that all K-12 teachers must be able to teach reading and writing. Results of research demonstrate that regardless of curriculum or grade level, the biggest obstacle to learning is a lack of reading skills. One current model for teaching reading in grades 3-12 is called the Sheltered Instruction Observation Protocol (SIOP) model, which makes content comprehensible while at the same time developing English language skills. Another model is Rewards Training, again, a model that can be implemented in middle and secondary schools. Prospective teachers should have opportunities to explore the various types of assessment instruments that are used to assess students' reading and writing.

With the current mobility rate of students, it is essential that new teachers have the skills to provide support to students with demonstrated reading and writing problems at all levels and curricular areas. One of the best ways to improve students' reading and writing competency is to give them ample time to use these competencies across the curriculum. Therefore GNS would like to see content area teachers trained in how to help students read and write in their focus areas. For example, it is essential that social studies and science teachers know how to help their students develop strategies for comprehending their textbooks and other content-related information sources. Likewise it is critical that teachers understand how to utilize writing in all subject areas as an efficacious method for reviewing learning and deepening understanding.

In the area of writing, two instructional models in use by most districts are the Six Trait Writing and Step Up to Writing models. As school superintendents, we believe that every first year teacher should have both a reading and writing model to use in their classroom appropriate for the grade levels at which they teach. This model should be consistent throughout the college/university system and every professor teaching education courses should have an understanding of and be able to demonstrate this model to their students.

Knowledge of Teaching

Teacher education programs must train candidates to be effective instructors and this includes clear strategies that result in active learner engagement. Currently the school districts that make up the GNS provide new teachers an average of 5-12 days of additional training in their first year. First year teachers need practical knowledge and skills in research-based effective instructional strategies, and these should be consistent throughout the college or university educational program:

1. Beginning of Class
    - Setting the Stage
    - Lesson Agenda
    - Lesson (Instructional) Objectives
    - Reviewing Homework
2. Middle of Class
    - Anticipatory Set
    - Active Participation
    - Wait Time
    - Interaction Sequence
    - Checking for Understanding
    - Clear Directions and Information
    - Managing Time
    - Knowledge of Results
    - Modeling
3. End of Class
    - Closure
    - Practice
    - Homework

One way to measure the consistency of these skills would be to observe first year teachers across grade levels and various curricular areas to determine if they are consistent in demonstrating these skills.

In the discussion regarding the importance of first year teachers having standards-based teaching practices, these skills would include knowing:

1. How to organize instruction around the goals of a lesson.
2. How to plan instruction based on differences in students' prior knowledge.
3. How to use various strategies to reach diverse students and to create environments that support differentiated teaching and learning
4. How to plan instruction based on students' individual differences in learning (e.g., due to culture, ability, learning styles, etc). How to identify students' particular learning styles, intelligences, strengths and weaknesses.
5. How to assess a student's level of progress for a lesson using a variety of methods.
6. How to adapt instruction during the lesson based on a student's level of progress toward the goals of the lesson.
7. How to identify what a student must know and be able to do in order to meet a standard.
8. How to assess students for proficiency on standards.
9. How to organize grading around standards.

First year teachers need to know how to organize a lesson or instructional unit that drives purposeful instruction and impacts learning. Teachers should be knowledgeable about direct instruction and project-oriented teaching methods. They need to be familiar with differentiation of instruction, such as flexible grouping, tiered assignments, curriculum compacting, learning station centers and project-based learning.

Having a basic understanding of grading and the understanding of a true grading philosophy is essential for new teachers. Grades have three important audiences: parents, the student and outside users, such as college admissions staff. First, it is important for new teachers to understand that the grades are only as good as the assessments used to gather the information. Another important consideration is what factors determine the final grade. It is our belief that new teachers should have a grading philosophy that measures academic achievement with nothing else factored in to interfere with the message. "Soft skills" as identified by the Partnership for 21st Century Skills, which include effort, attitude, compliance, behavior, etc, should be provided to the student and their parents as separate information. One final note: at

times teachers give a zero to students who miss a test or report. As part of the grading process, teachers need to recognize the difference between learning the material and grading for not completing an activity.

While the Greater Nebraska Superintendents see tremendous value in developing a strong basic skills foundation in youth, they see this as only part of a school's learning mission. Equally important is helping students learn to the highest levels of Bloom's taxonomy. This also is stressed in the **Breaking Ranks** research that challenges high schools to provide a rigorous educational experience for all learners.

To do this, teachers must first of all expect all students to develop high level thinking abilities. This can be done through skillful questioning, project-based learning, and the infusion of technology within the learning process. It can also be accomplished by embedding what the International Center for Leadership in Education calls high rigor and high relevance into the learning process.

Too often students are spectators in the teaching and learning process. In an information-driven and technology-rich global society, schools cannot afford to turn off students through excessive dependence on lecture and a teacher-controlled learning environment. One way to increase relevance and active participation in the instruction process is to build real-life applications into lessons. This tie-in with practical experiences gives students a reason to learn and helps them see the importance of classroom learning to later life success.

All of this is only possible when students have trusting positive relationships with their teachers. Having relationship-building skills is an essential basic competency for all effective teachers.

Assessment Tools

Today's teachers need access to data on a real-time basis, including attendance, discipline, formative and summative assessments. New teachers need to experience practical techniques to organize data in a manner that will provide information on student performance. When assessment informs instruction, students' academic growth progresses along a natural continuum

of learning. It is extremely important that teachers using classroom assessments recognize that the results should include the analysis of a student's strengths as well as weaknesses.

First year teachers need to have a balanced knowledge base of assessment that includes summative and formative assessments. When making decisions about the standards, curriculum, selection of materials and effectiveness of instructional programs, teachers and district administrators typically use summative assessments. Formative assessments are the most critical to first year teachers, since they demonstrate a child's current knowledge and skills and gauge how well a student is progressing toward specific outcomes.

Teacher preparation programs need to train their students how to incorporate formative assessments into classroom discussions and rubrics of student work, whether in writing or projects and other related classroom activities. These assessment skills are critical because they have an immediate impact on daily instruction and learning. Effective teaching requires monitoring student progress through frequent assessment, recognizing student problem areas and learning needs for the targeted curriculum, and then differentiating the instructional approach and methods to meet the specific child's learning needs. First year teachers need to have the knowledge and skills to select and develop appropriate assessment methods and procedures for individuals as well as their classroom, subject content, or tasks and instructional situations.

Classroom Management

When it comes to managing a classroom, a first year teacher needs to have the same expertise and knowledge as a veteran teacher. The GNS have observed that the majority of teachers who fail in the profession lack student management skills as their primary teaching deficit. Two major factors in student achievement are *time on task* and *the classroom environment*. Thirty years of research on effective teachers established that one of the major factors contributing to good classroom management occurred during the first two weeks as master teachers taught the students their behavioral expectations. A study found that only 18% of teachers claimed they learned management skills during initial training, whereas 82% learned them on the job.

The GNS propose that upon graduation, all prospective teachers should have a minimum of one full semester class on classroom management. At a minimum, the initial management plan might include the following steps:

1. The teacher should develop a set of specific expectations or behaviors that are important in the successful management of their classroom. Examples might include things such as: how to enter the room; pass papers forward; participate in class; follow cafeteria procedures; come prepared for class; etc.
2. The teacher should specify information that the students should know for each identified behavior, as well as the outcomes resulting from the correct use of the behavior.
3. The behavior should then be taught to the students. This should include the reasoning behind the importance of the behavior, as well as the steps necessary for the students to successfully complete the behavior. The teacher should then check for the understanding of the students.
4. In order for the students to understand what the appropriate behavior looks like, the teacher should model the identified behavior.
5. To allow the opportunity for the students to learn and exhibit the behavior on a consistent basis, they should be given the opportunity to practice it. The teacher should provide specific and immediate feedback to the students and reinforcement, either verbally or non-verbally, should be offered upon acceptable completion of the behavior.
6. If a student should fail to perform the behavior acceptably, they should be re-taught the desired behavior. The re-teaching should occur on the student's own time and should only take as long as necessary to demonstrate the correct behavior. The goal should be for the child to learn the behavior and should not be viewed as a punishment.

For students with more severe behavior problems, first year teachers should be able to conduct a functional behavior assessment (FBA) in their classroom. A basic FBA should include an Antecedent, Behavior and Consequence (ABC) analysis. An ABC analysis enables the teacher to analyze clues about why the student keeps having the same problem behavior. The purpose is to identify patterns in order to hypothesize about the function the problem behavior is serving.

- **Antecedent** is what occurs prior to the problem behavior and should include specific people, events and/or things identified in the situation leading up to the behavior.

- **Behavior** is the specific action exhibited by the student that has been identified as a problem behavior and should be described in observable terms.
- **Consequence** is what occurs after the student exhibits the problem behavior.
- **Hypothesis:** A hypothesis should be formulated based on the examination of several ABC analyses and identifying similar patterns in behavior. For example, a hypothesis might state that the behavior is occurring because the student wants to get out of reading class.
- **Sample Plan:** Based on the ABC analysis and the hypothesis developed, a plan should be created to address the reason the student is engaging in the problem behavior. For example, if a student wants to get out of reading class, ease the difficulty of the reading class by partnering the student with a peer and together have them read an assigned passage aloud prior to the lesson. Then, during the lesson, have the student read through the passage that was rehearsed with their partner. If the data indicates that there is a decrease in the inappropriate behavior, gradually adjust the assignment until the student is reading unrehearsed passages.

As previously mentioned, the GNS recommend that a semester class be taught on classroom management. In addition to teaching general classroom rules and developing functional behavioral assessments for at-risk behaviors, the class might also address the following skills:

1. Communicating effectively and working with parents.
2. Building and maintaining rapport with all students.
3. Developing positive teaching/preventative approaches with students.
    - ☐ Putting students on the clock
    - ☐ The "Pass" option
    - ☐ Keeping everyone involved: "Interaction sequence"
    - ☐ Bell Ringers
    - ☐ Putting up an agenda for the class
4. Providing a classroom management toolbox.
5. Training students how to work with children of poverty.

Moreover, to effectively managing a classroom, it is also important is that first year teachers are familiar with the Rule 27 Professional Practices Criteria so that on a personal behavioral level, they have an understanding what is expected of professional teachers. The GNS propose that it would be educationally sound if all instructors would have the knowledge and practical skills to integrate some of the positive teaching approaches outlined in this paper. We believe that it would create exceptional teachers if the student saw these strategies modeled in their classes.

Technology Literacy

We live in a technology and media-driven environment, marked by access to a wealth of information, speedy changes in hardware and software and the ability to communicate on an unprecedented scale. New teachers must be able to integrate 21st century skills, tools and teaching strategies into their classroom practice. They will need to enable their students to learn in relevant, real world 21st century contexts (via project-based or other applied work). To be effective workers in the 21st Century, our students must be able to demonstrate a wide range of functional and critical thinking skills, such as:

- Information Literacy
- Media Literacy
- ICT (Information, Communications and Technology) Literacy

The Framework for 21st Century Learning (*Partnership for 21st Century Skills)* advocate that schools move beyond the basic competencies in core subjects to promoting understanding of academic content at much higher levels, including weaving 21st Century interdisciplinary themes into core subjects:

- Global Awareness
- Financial, Economic, Business and Entrepreneurial Literacy
- Civic Literacy
- Health Literacy

In order to teach in a 21st Century classroom, first year teachers must have the technology skills to develop and teach in a synchronous and asynchronous environment while using learning

management software. This is especially true given the changing student demographics in our state. In addition, in order to provide more educational opportunities, school districts are investing more time, money and work into developing different delivery models for classes. Network Nebraska currently provides opportunities for most school districts in our state to connect to another district via polycom or distance learning. Furthermore, the National Repository of Online Classes (NROC) offers asynchronous classes at no charge to any district in Nebraska. Finally, most classrooms have up-to-date hardware and software tools available for students and staff.

If first year teachers are to incorporate 21st Century teaching into their classrooms, they will need to integrate the opportunities of the latest technological tools into their teaching tool kit. First year teachers should be expected to be accomplished in instructional techniques using technology, and also in the integration of technology into the curriculum. Specialty staff (industrial technology, band, business, etc) teachers should have knowledge of the readily available technologies currently in use in their field of expertise. As a consequence, students should become fluent in the use of the technology tools that will be part of their knowledge base for ongoing work and learning.

Life-long Learning

Most high-skill jobs today are not accessible without an education that prepares students to work and live in technology and media-driven environments in a globally competitive information age. Employers report that new entrants to the workforce need not only the basic skills – reading, writing and math – but in the 21st Century business world, possessing a range of applied skills directly related to the workplace is also critical to success. Employers put professionalism, teamwork and oral communications at the top of the list in terms of importance to the 21st Century work environment. Given this information, one of the most important challenges facing schools of education is to create and orchestrate learning experiences that motivate new teachers to become life-long learners.

A key to being a master teacher is to constantly get better at one's craft. A mindset of continuous improvement is critical to teacher effectiveness. Finding ever-better ways to increase learning for all students should be the ongoing goal of every teacher. One way to do this is through action research. It is important that teachers are constantly reflecting on student success in their classrooms, forming and testing hypotheses to improve learning, measuring the effects of changes, and creating responses based on results.

Currently many school districts in Nebraska have implemented professional learning communities (PLC) as way of improving student achievement. Many in the education profession believe that implementing PLCs in a school district is the most effective model of examining organizational development, change processes, leadership and successful educational practices. In order to use researched based instructional strategies, teachers need to experience them in their own learning and then practice them with peers. Professional discussions in response to a book, critical discussions on curriculum, assessment and instructional ideas will support first year teachers in developing an appreciation for ways to prepare students for life beyond the classroom.

It is critical that schools of education develop in their students a passion for learning that goes beyond their school work. In 2003, the Business-Higher Education Forum released *Building a Nation of Learners*, which defined what many have believed. The report states, "Even if employees are equipped for today's jobs, they need to be ready to learn, relearn, and in some cases, unlearn to respond to corporate downsizing, workplace modifications and other realities." First year teachers must have a personal love of learning and a strong desire for acquiring knowledge to meet an ever-changing society. Education provides teachers and students with a foundation and skills that help them integrate new information, new skills and new instructional approaches into the classroom. The most effective teachers in the 21st Century will be those who stay current on new information, new skills and new approaches and have the ability to think critically and creatively in making decisions about their learners and teaching.

Developing Teachers for High Poverty and Culturally Diverse Students

Across the state of Nebraska, in both urban and rural settings, schools are seeing a higher occurrence of students from diverse backgrounds and living in poverty. This complicates both the teaching and learning processes and presents added challenges for beginning teachers. English Language Learners (ELLs) are the fastest-growing student population in U.S. public schools. According to the Educational Research Service, the enrollment of ELL students has increased by 57% since the 1995-1996 school year, while the total enrollment has increased by less than 4% during the same time frame.

A number of studies indicate that teachers negatively evaluate the intelligence, social characteristics and academic potential of diverse and high poverty students. These studies have further determined that students living in poverty and/or from a culturally diverse background underperform on cognitive assessments and scores below their peers in the core subject areas of reading and mathematics. Additionally, these students face other barriers to school success including things such as poor nutrition, broken families, child abuse and neglect, drug abuse, and underemployed and undereducated parents. Further, a child in Nebraska who drops out of high school is typically from a low income, minority or single parent family. Research has also shown that students from diverse backgrounds are more likely to be punished at school, labeled and categorized for special education services, and experience academic failure.

Studies have shown that there are benefits of English language instruction for ELL students, especially preschoolers, and that educators should encourage development and use of both English and the student's home language. However, research has found that teachers are often under-prepared to educate these students. According to the Educational Research Service, 90% of teachers participating in ELL education were frustrated by their ability to teach English-as-a-Second-Language effectively, and all teachers surveyed felt that their greatest area of need for professional development was in helping students transition from Spanish to English.

Ruby Payne describes the need for a specific profile of knowledge and skills required in teachers who work with children in poverty. Beginning teachers should be trained in differentiated instruction and content area classes on teaching students with varying learning styles. They must

have the skills to generate and maintain student engagement and to organize learning environments to ensure that learning occurs. The new teachers must be able to find ways to capitalize on opportunities for learning by going beyond the traditional textbook to connect the curriculum with their children's daily lives. To be effective in these settings, the first year teacher must learn about each student and establish relationships with the students to create connections in their classroom. They must also have the skills to oversee numerous learning activities and projects.

The GNS believe that first year teachers need to have the skills to work in the most challenging learning situations. They should have the opportunity to cultivate certain characteristics, in addition to other skills outlined throughout this paper that would better equip them to teach students with additional needs due to diversity or poverty. These characteristics should include the ability to:

a. Build trusting relationships with both students and families;
b. Communicate frequently with families;
c. Demonstrate high expectations;
d. Integrate students' cultural knowledge throughout the curriculum;
e. Develop a temperament to focus on the entire child (intellectual, social and emotional); and
f. Connect classroom content with the life experiences of students.

Additionally, teacher preparation programs need to provide specific skills and strategies to enhance the quality of educators, but also reduce the number of teachers leaving the profession. Research shows that diverse and poverty-stricken students are taught more often by new and less experienced teachers. Teacher preparation programs should provide all student teachers with opportunities to gain first-hand experience working with culturally diverse, high poverty students. Quality opportunities should also be provided for every graduate to participate in internships in public schools with high rates of poverty or diversity. Colleges of education should also offer a class that addresses the behaviors and practices found in effective teachers of diverse children and youth in poverty, which should include classroom and community practice.

Finally, a model needs to be discussed that improves teacher education through interaction between the colleges of education and public school administration. Such a partnership would allow college instructors who teach methods classes to observe firsthand the effectiveness of instructional practices. They would also be able to interact with the school's teachers to receive feedback about effective and ineffective instruction with students from diverse and high poverty backgrounds. It is also extremely important for student teachers to receive more feedback and have more experience teaching in diverse classrooms.

One component of this model could be strategic teaching partnerships between the GNS districts and colleges of education. Currently, there are pilot programs in Nebraska that center on an entire year of student teaching in a district. Key elements would include imbedded staff development designed to provide training in key instructional strategies, the assignment of a mentor teacher and appropriate coursework taught by both district and post-secondary institution staff. The opportunity for students to receive this level of training and be given preferential employment opportunities will undoubtedly strengthen a district's recruiting and retention of quality staff. It is hoped that consideration can be given to programs similar to this. It is evident that the GNS request that colleges of education to take unprecedented steps to redesign teacher education programs to include specific frameworks for the development of teachers in public schools facing high poverty and diversity issues. We truly believe that these changes are the key ingredients for improving the teaching and learning process for these students.

Conclusion

Teacher training programs will be a crucial component in educational improvement and the incorporation of 21st Century skills into classrooms. However, schools of education will only have an impact if focused on specific changes in teachers' classroom behaviors. New technologies and a changing global environment require new teacher roles, new pedagogies and new approaches to teacher training. The Greater Nebraska Superintendents would like to start a dialogue with leaders in higher education about what we see as the changing face of education in Nebraska.

We have suggested increasing the number of core education classes and reducing by one semester the number of general education classes taken by students majoring in education. Some suggestions for possibilities of new classes might include:

- Classroom Management (full semester class)
- Researched Based Instructional Strategies (full semester class) **Note:** This would include training all teachers on how to teach reading and writing skills in addition to generic instructional strategies that enhance the art of teaching.
- Teaching Students of Poverty and Diversity (full semester class)
- 21st Century Student Outcomes (full semester class) **Note:** Visit the Partnership For 21st Century Skills website for more information: http://www.21stcenturyskills.org/

In general, we see a need for new teachers to have consistent educational guiding principles and practices for teaching reading and writing, classroom management, teaching varied populations, technology literacy, assessment tools, 21st century skills and teaching in a standards-based environment. Historically, school district administrators see first year teachers from the same college or university system using dissimilar educational strategies. We are now at a place and time where it is imperative that beginning teachers have the knowledge and skills to use consistent educational strategies when working with students across our state. If teaching is truly a profession based on research about instructional strategies and teaching methods that lead to achievement for all students, then educators should exhibit consistent practices in the classroom. When observing a teacher at any grade level, a principal should have some idea of the teacher's methods based on classroom practices at the college or university from which the teacher graduated. This can be achieved through collaboration within higher education departments and by continued dialogue with the Greater Nebraska Superintendents.

It has been documented that teacher quality is the single most important factor in a student's academic success. If public schools are to prepare our future citizens with the most competent, creative and innovative skills, it will require collaboration and alignment among all agencies, including education reform in both public and higher education. This White Paper is meant as a way to begin discussions on how our school districts can have ongoing dialogue with educational leaders about how to best prepare teachers to serve in our school districts.

References

"21st Century Skills Standards." Partnership for 21st Century Skills ePaper, 2007. www.21stcenturyskills.org.

"21st Century Skills Professional Development." Partnership for 21st Century Skills ePaper, 2007. www.21stcenturyskills.org.

"21st Century Skills, Education & Competitiveness: A Resources and Policy Guide." Partnership for 21st Century Skills, 2008. www.21stcenturyskills.org.

"Are They Really Ready to Work: Employers' Perspectives on the Basic Knowledge and Applied Skills of New Entrants to the 21st Century U.S. Workforce." Key Findings: The Partnership for 21st Century Skills. www.21stcenturyskills.org.

Darling-Hammond, Linda, and John Bransford, eds. "Preparing Teachers for a Changing World: What Teachers Should Learn and Be Able to Do." 1st ed. San Francisco, CA: Jossey-Bass, 2005.

Darling-Hammond, Linda. "Constructing 21st-Century Teacher Education." Journal of Teacher Education, Vol.57, No. 3, 2006: 300-314.

Dillon, Naomi. "Skills for a New Century." American School Board Journal Mar. 2006: 22-26.

"Framework for 21st Century Learning." The Partnership for 21st Century Skills, July 2007. www.21stcenturyskills.org.

Gomez, Louis M., Miriam Gamoran Sherin, Jacqueline Griesdorn, and Finn, Lou-Ellen. "Creating Social Relationships: The Role of Technology in Preservice Teacher Preparation." Journal of Teacher Education, Vol. 59 No. 2, 2008: 117-131.

Hassel, Bryan C., Katie Walter, and Erin Hayden. "Levers For Change: Transforming Teacher Preparation." Prepared Under Contract with McREL and for the Office of Educational Research and Improvement, US Dept. of Education, 2002.

"High School Teaching for the Twenty-First Century: Preparing Students for College." Alliance for Excellent Education Issue Brief, Sept. 2007. www.all4ed.org.

Holm, Lisa, and Carol Horn. "Bridging the Gap Between Schools of Education and the Needs of 21st-Century Teachers." Phi Delta Kappan Vol. 84 Iss. 5, 2003: 376.

"ICT Competency Standards for Teachers: Policy Framework." Unirws Nations Educational, Scientific, and Cultural Organization, 2008. www.unesco.org/en/competency-standards-teachers.

Lauer, Patricia A., Dean, Ceri B., Martin-Glenn, Mya L., and Asensio, Margaret L. "Teacher Quality

Toolkit: 2nd Edition." McREL, 2005.

Marzano, Robert J., Debra J. Pickering, and Jane E. Pollock. "Classroom Instruction That Works: Research-Based Strategies for Increasing Student Achievement." Alexandria, VA: McREL, 2001.

McKinney, Sueanne E., Martin Haberman, Delia Stafford-Johnson, and Jack Robinson. "Developing Teachers for High-Poverty Schools: The Role of the Internship Experience." Urban Education, Vol. 43, No. 1, Corwin Press, 2008: 68-82.

Miller, Samuel, Gerald G. Duffy, Jean Rohr, Robert Gasparello, and Sue Mercier. "Preparing Teachers for High-Poverty Schools." Educational Leadership, May 2005: 62-65.

"Most English Language Learners Born in the U.S." Educational Research Service, Vol. 36, Issue 9, 2008. www.ers.org.

Rasmus, Daniel. "The New World of Work: A Dialogue About Education in the Global Knowledge Economy." The People-Ready Business Whitepaper Microsoft Corp, 2006.

Rochkind, Jonathan, Amber Ott, John Immerwahr, John Doble, and Jean Johnson. "Lessons Learned: New Teachers Talk About Their Jobs, Challenges and Long-Range Plans." Report from the National Comprehensive Center for Teaching Quality and Public Agenda Issue No. 3: Teaching in Changing Times, 2008. www.publicagenda.org.

Sharer, Timothy J., Jean T. Anastasio, and David J. Perry. "Teaching: The Book: Instructional Skills and Strategies for the Experienced and the Novice Teacher." 1st ed. Version 2. Camillus, NY: APL Associates, 2007.

Slavin, Robert and Lake, Cynthia. "Effective Programs in Elementary Mathematics: A Best-Evidence Synthesis." Published in Educational Research Newsletter (ERN), February 2009, Vol. 22, No 2.

Silva, Elena. "Measuring Skills for the 21st Century." Education Sector Reports, 2008. www.educationsector.org.

"Teacher Leaders: The Backbone of Sustained Improvement." The Center for Comprehensive School Reform and Improvement Newsletter, Dec. 2005. www.centerforcsri.org.

"Teaching and Learning for the 21st Century." Report and Recommendations of the Arizona Summit on 21st Century Skills, 2007.

Trent, Stanley C., Cathy D. Kea, and Kevin Oh. "Preparing Preservice Educators for Cultural Diversity: How Far Have We Come?" Exceptional Children Vol. 74 No. 3, ProQuest Education Journals, Spring 2008: 328-350.

U.S. Department of Education, Office of Postsecondary Education. "The Secretary's Fourth Annual Report on Teacher Quality: A Highly Qualified Teacher in Every Classroom." Washington, D.C., 2005.

Walsh, Kate. "Teacher Education: Coming Up Empty." Fwd: Arresting Insights in Education Vol. 3 No. 1, 2006.

"What Makes a Teacher Effective: A Summary of Key Research Findings on Teacher Preparation." National Council for Accreditation of Teacher Education.

Appendix I

Growth in Education's Share of State Appropriations from 2008-2009

Race to the Top General Criterion F.1(i): Making Education Funding a Priority
(Growth in Education's share of State Appropriations from 2008 to 2009)

K-12 EDUCATION APPROPRIATIONS

CATEGORIES OF EDUCATION SUPPORT	FY07-08	FY08-09
GENERAL FUNDS		
State Aid to Schools (TEEOSA)	753,555,548.00	825,056,857.00
Dept of Education Administration	13,746,512.00	14,278,757.00
Special Education AID	179,508,584.00	184,893,842.00
School Lunch AID	421,087.00	421,087.00
School Breakfast Reimbursement AID	379,071.00	410,809.00
Early Childhood Programs AID	3,626,267.00	3,615,426.00
Textbook Loan AID	435,000.00	450,000.00
Vocational & Adult Education AID	230,574.00	230,574.00
Career Education Partnership Act AID	450,000.00	450,000.00
Learning Community Transition AID	0.00	500,000.00
ESU Core Services/Technology AID	11,362,638.00	16,089,570.00
Gifted Education AID	2,336,921.00	2,336,921.00
Wards of the Court	21,241,057.00	17,194,761.00
Teachers Retirement	17,934,485.00	18,716,151.00
CASH FUNDS		
Dept of Education Administration	1,097,283.00	1,117,236.00
Non-Earmarked AID	0.00	0.00
Early Childhood Programs AID	2,242,000.00	2,242,000.00
Vocational & Adult Education AID	40,938.00	40,938.00
Education Innovation	4,351,429.00	4,603,196.00
Professional Practices	158,951.00	149,720.00
CONSTRUCTION FUNDS		
NA	0.00	0.00
DISTRIBUTIVE FUNDS		
Insurance Premium Tax Distribution	15,058,425.15	14,333,724.10
SUBTOTAL GENERAL FUNDS	1,005,227,744.00	1,084,644,755.00
SUBTOTAL CASH FUNDS	7,890,601.00	8,153,090.00
SUBTOTAL CONSTRUCTION FUNDS	0.00	0.00
SUBTOTAL DISTRIBUTIVE FUNDS	15,058,425.15	14,333,724.10
TOTAL K-12 EDUCATION APPROPRIATIONS	**1,028,176,770.15**	**1,107,131,569.10**
Percent of Total State Appropriations (General, Cash, Construction, Distributive)	*20.64%*	*21.98%*

HIGHER EDUCATION APPROPRIATIONS

CATEGORIES OF EDUCATION SUPPORT	FY07-08	FY08-09
GENERAL FUNDS		
Community College Aid	84,066,476.00	87,266,476.00
Nebraska State College System	48,665,898.00	45,393,201.00
University of Nebraska	487,176,341.00	492,106,037.00
Coordinating Commission for Post Secondary Education	8,029,474.00	8,136,134.00
CASH FUNDS		
Community College Aid	0.00	0.00
Nebraska State College System	21,821,486.00	21,821,486.00
University of Nebraska	8,460,000.00	10,090,000.00
Coordinating Commission for Post Secondary Education	4,775,017.00	6,010,037.00
CONSTRUCTION FUNDS		
Community College Aid	0.00	0.00
Nebraska State College System	4,534,360.00	6,034,360.00
University of Nebraska	21,456,923.00	11,146,000.00
Coordinating Commission for Post Secondary Education	0.00	0.00
DISTRIBUTIVE FUNDS		
NA	0.00	0.00
SUBTOTAL GENERAL FUNDS	627,938,189.00	632,901,848.00
SUBTOTAL CASH FUNDS	35,056,503.00	37,921,523.00
SUBTOTAL CONSTRUCTION FUNDS	25,991,283.00	17,180,360.00
SUBTOTAL DISTRIBUTIVE FUNDS	0.00	0.00
TOTAL HIGHER EDUCATION APPROPRIATIONS	**688,985,975.00**	**688,003,731.00**
Percent of Total State Appropriations (General, Cash, Construction, Distributive)	*13.83%*	*13.66%*

Race to the Top General Criterion F.1(i): Making Education Funding a Priority
(Growth in Education's share of State Appropriations from 2008 to 2009)

TOTAL EDUCATION APPROPRIATIONS	FY07-08	FY08-09
TOTAL STATE SUPPORT FOR EDUCATION	**1,717,162,745.15**	**1,795,135,300.10**
Percent of Total State Appropriations (General, Cash, Construction, Distributive)	*34.47%*	*35.63%*

TOTAL STATE APPROPRIATIONS[5]		
SUBTOTAL STATEWIDE GENERAL FUNDS[1]	3,312,133,804.82	3,342,721,969.12
SUBTOTAL STATEWIDE CASH FUNDS[2]	1,408,611,717.00	1,438,933,022.66
SUBTOTAL STATEWIDE CONSTRUCTION FUNDS[3]	47,066,809.00	43,328,090.00
SUBTOTAL STATEWIDE DISTRIBUTIVE FUNDS[4]	213,499,868.75	212,459,598.98
TOTAL STATE APPROPRIATIONS (GENERAL, CASH, CONSTRUCTION, DISTRIBUTIVE FUNDS)	**4,981,312,199.57**	**5,037,442,680.76**

Race to the Top Criterion F.1: Growth in Education Support relative to TOTAL STATE APPROPRIATIONS from 2008 to 2009.	**1.16%**

The State of Nebraska increased the percentage of total state appropriations used to support public education (elementary, secondary, and postsecondary) from 34.47% in FY 2008 to 35.63% in FY 2009, an increase of 1.16%.

For this analysis, total state appropriations represent both operations and construction, and include General Funds[1], Cash Funds[2], Construction Funds[3], and certain Distributive Funds[4]. If appropriations derived only from tax revenue are considered, the percentage increase of support for public education from FY 2008 to FY 2009 would be approximately 1.84%. If construction appropriations are not considered, the percentage increase would be approximately 2.07%.

[1]General Funds are used to account for activities funded by general tax dollars, primarily sales and income taxes, and related expenditures and transfers.

[2]Cash Funds are used to account for revenues and expenditures that are directly related to specific activities and may be derived from sources other than taxes, excluding federal sources.

[3]Construction Funds are typically transferred from General Funds, and are used to account for the financial activities related to the acquisition or construction of major capital facilities.

[4]Distributive Funds are technically appropriated but not "expended", and usually function similarly to an imprest fund. This analysis includes only Distributive Funds which directly receive a tax or fee imposed by the State and subsequently transmit to a non-State recipient. All other Distributive Funds appear as "expenditures" of other Funds and are therefore already accounted for within those Funds.

	FY2008	FY2009
Total State Support for Public Education (Elementary, Secondary, and Post-secondary)	$1,717,162,745	$1,795,135,300
Total State Appropriations	$4,981,312,200	$5,037,442,681
Percentage of total Nebraska Appropriations used to support Public Education	34.47%	35.63%
increase in the percentage of State Appropriations used to support Public Education		1.16%

Appendix J

Tax Equity and Education Opportunities Support Act Certification of 2009/10 Aid

Nebraska Department of Education
School Finance & Organization Services

Tax Equity and Educational Opportunities Support Act
Certification of 2009/10 State Aid

This Document Contains:

Part I.
Data Sources for the 2009/10 State Aid Calculations

Part II.
2009/10 Concept Summary

Part III.
Questions and Answers Related to the 2009/10 State Aid Calculation

Revised June 2009

Part I.
DATA SOURCES FOR THE 2009/10 STATE AID CALCULATIONS

SYSTEM FORMULA NEEDS

Is the sum of:

(Basic Funding + Poverty Allowance + Limited English Proficiency Allowance + Elementary Class Size Allowance + Focus School & Program Allowance + Summer School Allowance + Special Receipts Allowance +Transportation Allowance + Elementary Site Allowance + Distance Education & Telecommunications Allowance + Instructional Time Allowance + Averaging Adjustment + Teacher Education Adjustment + New School Adjustment + Student Growth Adjustment + Learning Community Transportation Adjustment) – (Limited English Proficiency Allowance Correction + Poverty Allowance Correction + Local Choice Adjustment- Negative Student Growth Adjustment Correction)

✓ Formula Needs Stabilization:

District Formula Need that is less than 100% of 2008/09 Year End Recalculated Formula Need is increased to 100% of 2008/09 Year End Recalculated Formula Need

AND

District Formula Need that is greater than 112% of 2008/09 Year End Recalculated Formula Need is decreased to 112% of 2008/09 Year End Recalculated Formula Need, except that the Formula Need for Districts receiving a student growth adjustment is not decreased.

FORMULA STUDENTS

Students educated by the district and students for which tuition is paid.

DATA SOURCES:
As defined for the June 1, 2009 Certification of 2009/10 State Aid:

√ Fall Membership in grades Kindergarten (KDG); Full-Day Kindergarten (FDK)-6; 7-8; and 9-12 from the 2008 Student Snapshot Template in the Nebraska Staff and Student Record System (NSSRS).

√ The Fall Membership is adjusted based on the historical ratio of Average Daily Membership (ADM) to Fall Membership using the ratios from 2005/06, 2006/07, 2007/08.

√ Qualified Early Childhood Fall Membership is multiplied by the ratio of the planned instructional hours of the program divided by 1032 then multiplied by .6.
√ Contracted Students in grades KDG; FDK-6; 7-8; and 9-12 are taken from the 2008 School Enrollment Template in the NSSRS.

As defined for the year-end recalculation of 2009/10 State Aid:

√ Average Daily Membership (ADM) in Qualified Early Childhood Programs and grades KDG; FDK-6; 7-8; and 9-12 from the 2008 Student Summary Attendance in the NSSRS.
√ Contracted Students from the 2008 School Enrollment Template in the NSSRS.

GENERAL FUND OPERATING EXPENDITURES

Each district's General Fund Operating Expenditures for the most recently available complete data year.
Calculated from the 2007/08 Annual Financial Report (AFR) as follows:

Total General Fund Expenditures 1-2-20400-000

Minus

Tuition Paid ..... 1-2-1160-364, 1-2-1150-364, 1-2-1100-364, 1-2-1200-360 & 370
Adult Education 1-2-7000-000
Transfers from Other Funds 1-1-5500-000
Community Services 1-2-3000-000
Redemption of General Fund Debt Service Principal ..... 1-2-5000-605 & 610
Transportation Paid to Other Districts ..... 1-2-2750-333 & 1-2-2760-333
State Categorical Programs 1-2-3500-000
Retirement Incentive Plan 1-2-2200-281
Staff Development Assistance 1-2-2200-282
Transfers to Bond Fund 1-2-8000-754
Tuition Received from Other Educational Entities (Distance Education) 1-1-1215-000
Summer School Tuition and Fees 1-1-1250-000
Preschool Tuition and Fees 1-1-1270-000
Contributions and Donations 1-1-1920-000
Textbook Loan 1-1-3155-000
Medicaid Administrative Activities (MAAPS) 1-1-4455-000
Impact Aid 1-1-4500-000
Johnson O'Malley 1-1-4600-000
Non-Categorical Federal 1-1-4690-000
Legal Services (in excess of .0015 of the 2007/08 formula need) 1-2-2310-317

ADJUSTED GENERAL FUND OPERATING EXPENDITURES

(General Fund Operating Expenditures X 1.055) – (Transportation Allowance + Special Receipts Allowance + Poverty Allowance + Limited English Proficiency Allowance + Distance Education & Telecommunications Allowance + Elementary Site Allowance + Elementary Class Size Allowance + Summer School Allowance + Instructional Time Allowance + Focus School & Program Allowance)

* Note: Instructional Time Allowance will be part of adjusted General Fund Operating Expenditures calculation beginning in 2009/10 through 2012/13. Beginning in 2013/14 Elementary Class Size Allowance will not be part of adjusted General Fund Operating Expenditures calculation.

COST GROWTH FACTOR

For school fiscal year 2009/10, the cost growth factor shall equal the sum of (1) 1 plus (2) the basic allowable growth rate for the school fiscal year in which the aid is to be distributed; plus (3) the basic allowable growth rate for the school fiscal year immediately preceding the school fiscal year in which the aid is to be distributed; plus (4) 1.5%.

COST GROUPING

The local systems are divided into three cost groupings: Standard, Sparse, and Very Sparse.

DATA SOURCES:

- √ 2007 Census Report for children 5 to 18 years of age
- √ County Square Miles from the 2008 Consolidated Data Collection
- √ System Square Miles from the 2008 Consolidated Data Collection
- √ Formula Students from the 2008 Student Snapshot Template and the Student Enrollment Template in the NSSRS
- √ High School Distance from the 2008 Consolidated Data Collection

Very Sparse:

1) Less than .5 census students per square mile in the county where the high school is located.
2) Less than 1 formula student per square mile in the local system.
3) More than 15 miles between high school attendance centers.

OR

1) More than 450 square miles in the local system.
2) Less than .5 formula students per square mile in the local system.
3) More than 15 miles between high school attendance centers.

Sparse:

1) Less than 2 census students per square mile in the county in which each high school is located.
2) Less than 1 formula student per square mile in the local system.
3) More than 10 miles between each high school attendance center.

OR

1) Less than 1.5 formula students per square mile in the local system.
2) More than 15 miles between each high school attendance center.

OR

1) Less than 1.5 formula students per square mile in the local system.
2) More than 275 square miles in the local system.

OR

1) Less than 2 formula students per square mile in the local system.
2) The local system includes an area equal to 95% or more of the square miles in the largest county in which a high school attendance center is located.

Standard: Local systems that do not qualify for the Very Sparse or Sparse Cost Grouping will be in the Standard Cost Grouping.

SPECIAL RECEIPTS ALLOWANCE

DATA SOURCES:

√ Special Receipts Allowance includes district specific special education, state ward, and accelerated or differentiated curriculum program receipts included in local system formula resources reported on the 2007/08 Annual Financial Report (1-1-1230-000, 1-1-1240-000, 1-1-1330-000, 1-1-1340-000, 1-1-3120-000, 1-1-3125-000, 1-1-3135-000, 1-1-3160-000, & 1-1-3161-000) and receipts from the Medicare Catastrophic Coverage Act of 1988 - to the extent the district would have received payment pursuant to the Special Education Act (taken from NDE records) for 2007/08.

TRANSPORTATION ALLOWANCE

The lesser of actual specific transportation costs or a calculated amount based on the miles transported (excluding activities) plus in-lieu-of transportation for the most recently available complete data year.

DATA SOURCES:

√ District specific transportation expenditures reported on the 2007/08 Annual Financial Report: Total Regular Pupil Transportation minus Transportation Paid to Another District (1-2-2750-000 minus 1-2-2750-333).

-Or- √ District specific calculated transportation expenditures based on: Route miles reported on the 2007/08 Annual Statistical Summary Report (Section C, Item 9) x .505 x 400% + In-Lieu-of Transportation (1-2-2750-332) reported on the 2007/08 Annual Financial Report.

POVERTY ALLOWANCE

Poverty Student = number of low income students or the number of students who are free lunch and free milk students whichever is greater + (poverty students – 3 year average of poverty students) if greater than 0.

Low Income Students = number of low income children within the local system X ratio of formula students/total children under 19

Low Income Child = a child under 19 living in a household having an annual adjusted gross income in 2007/08 equal to or less than the maximum household income that would allow a student from a family of four people to be a free lunch and free milk student during the 2008/09 school year.

2009/10 Statewide Average General Fund Operating Expenditures per Formula Student = 8,800.05

The lesser of:

Maximum Poverty Allowance designated by the school district

OR

Poverty Adjustment (Povadj))
Local System Formula Students = (Stu)
Poverty Students = (Poverty)
Poverty Adjustment = (Povadj)

Stu X .05 = a
Stu X .10 = b
Stu X .15 = c
Stu X .20 = d
Stu X .25 = e
Stu X .30 = f

- If (Poverty) is less than or equal to a, then (Povadj) = 0
- If (Poverty) is greater than a, and (Poverty) is less than or equal to b, then ((Poverty) – a) X (.0375 X Statewide Average GFOE per formula student)) = (Povadj)
- If (Poverty) is greater than b, and (Poverty) is less than or equal to c, then ((b-a) X (.0375 X Statewide Average GFOE per formula student)) + (((Poverty) – b) X (.075 X Statewide Average GFOE per formula student)) = (Povadj)
- If (Poverty) is greater than c, and (Poverty) is less than or equal to d, then ((b-a) X (.0375 X Statewide Average GFOE per formula student)) + ((c-b) X (.075 X Statewide Average GFOE per formula student)) + (((Poverty) –c) X (.1125 X statewide average GFOE per formula student)) = (Povadj)
- If (Poverty) is greater than d, and (Poverty) is less than or equal to e, then ((b-a) X (.0375 X Statewide Average GFOE per formula student)) + ((c-b) X (.075 X Statewide Average GFOE per formula student)) + ((d-c) X (.1125 X Statewide Average GFOE per formula student)) + (((Poverty) –d) X (.15 X Statewide Average GFOE per formula student)) = (Povadj)
- If (Poverty) is greater than e, and (Poverty) is less than or equal to f, then ((b-a) X (.0375 X Statewide Average GFOE per formula student)) + ((c-b) X (.075 X Statewide Average GFOE per formula student)) + ((d-c) X (.1125 X Statewide Average GFOE per formula student)) + ((e-d) X (.15 X Statewide Average GFOE per formula student)) + (((Poverty) – e) X (.1875 X Statewide Average GFOE per formula student)) = (Povadj)
- If (Poverty) is greater than f, then ((b-a) X (.0375 X Statewide Average GFOE per formula student)) + ((c-b) X (.075 X Statewide Average GFOE per formula student)) + ((d-c) X (.1125 X Statewide Average GFOE per formula student)) + ((e-d) X (.15 X Statewide Average GFOE per formula student)) + ((f-e) X (.1875 X Statewide Average GFOE per formula student)) + (((Poverty) – f) X (.225 X Statewide Average GFOE per formula student)) = (Povadj)

LIMITED ENGLISH PROFICIENCY (LEP) ALLOWANCE

The lesser of:

Maximum Limited English Proficiency Allowance designated by the school district
OR
25% of the statewide average general fund operating expenditures per formula student (2,200.01) multiplied by the number of limited English proficient students + (limited English proficient students – 3 year average of limited English proficient students) if greater than 0.

If the number of limited English proficient students is greater than or equal to 1 but less than 12, the number of limited English proficient students used in the calculation is 12.

DATA SOURCES:
√ 2008 School Enrollment Template in the NSSRS.

DISTANCE EDUCATION & TELECOMMUNICATIONS ALLOWANCE

Is equal to eighty-five percent of the difference of the costs for (a) telecommunications services, (b) access to data transmission networks that transmit data to and from the school district, and (c) the transmission of data on such networks paid by the school districts in the local system minus the receipts from the Federal Universal Service Fund.

DATA SOURCES:

√ District specific distance education and telecommunications expenditures on the 2007/08 Annual Financial Report (1-2-1100-382, 1-2-1150-382, 1-2-1160-382, 1-2-1190-382, 1-2-1200-382, 1-2-2100-382, 1-2-2150-382, 1-2-2200-382, 1-2-2213-382, 1-2-2214-382, 1-2-2310-382, 1-2-2320-382, 1-2-2400-382, 1-2-2510-382, 1-2-2520-382, 1-2-2600-382, 1-2-2750-382, 1-2-2760-382, 1-2-3000-382, 1-2-3500-382, 1-2-6000-382, 1-2-7000-382) minus Universal Service Fund (E-Rate) (1-1-4850-000).

ELEMENTARY SITE ALLOWANCE

For school fiscal year 2009/10 and each school fiscal year thereafter, Elementary Site Allowance is calculated for any district that has at least one qualifying elementary site, which submits an application.

A qualifying elementary attendance site:

1. Is in a District with multiple elementary attendance sites
2. Does not have another elementary attendance site within 7 miles in the same school district **OR**
3. Is the only public elementary attendance site located in an incorporated city or village
4. Each District determines which grades are elementary grades
5. Building where majority of formula students are = primary elementary site
6. The primary elementary site shall not be a qualifying elementary attendance site
7. All grades designated as elementary grades shall be offered in each elementary attendance site
8. Elementary grades shall not include, grades 9, 10, 11 or 12

The Elementary Site Allowance = Sum of Elementary Site Allowances for each qualifying elementary attendance site in the district.

(Statewide Average General Fund Operating Expenditure per Formula Student X 500% (44,000.27)) X Fall membership per building divided by 8 (result is rounded up to a whole number)

If the whole number is greater than the number of elementary grades offered in the building, the whole number is equal to the grades offered in the building.

ELEMENTARY CLASS SIZE ALLOWANCE

For school fiscal years 2009/10 – 2012/13

Is equal to 20% of the statewide average general fund operating expenditures per formula student (1,760.01) multiplied by the total number of students in grades K through 3 who spend at least 50% of the school day in one or more classrooms with a minimum of 10 students and a maximum of 20 students.

DATA SOURCES:

√ 2008 Consolidated Data Collection for Elementary Class Size based on fall membership.

SUMMER SCHOOL ALLOWANCE

(.025 X Summer School Student Units) X (.85 X Statewide Average General Fund Operating Expenditure per Formula Student (7,480.05)
Summer School Student Units = each student enrolled in summer school for at least 12 days, whether or not the student is in the membership of the school district.

The initial number of units for each student =

Sum of the ratios, each rounded down to the nearest whole number, number of days the student attended summer school for at least 3 hours and less than 6 hours per day ÷ by 12

+

2 X the number of days the student attended summer school classes for 6 or more hours per day ÷ 12

Additional Summer School Units for each summer school student attributed to a remedial math or reading programs, and for each summer school student attributed to a free lunch or free milk.

Summer school student units shall not be calculated for school districts which collect fees for summer school from students who qualify for free or reduced-price lunches.

INSTRUCTIONAL TIME ALLOWANCE

(Formula Students X Instructional Time Factor) X (.85 X Statewide Average General Fund Operating Expenditures per formula student) (7,480.05)

Instructional Time Factor =

District Average Hours of Instruction per full-time Student
Comparison Group Average Hours of Instruction per full time student – 1

Except that if the result is less than 0, the instructional time factor = 0

The comparison group average hours of instruction for each full time student shall be an average of the averages for the school districts in the comparison group.

BASIC FUNDING

A comparison group is established for each District consisting of:

(i) The 5 larger districts that are closest in size to the District, measured by formula students, and
(ii) The 5 smaller districts that are closest in size to the District, measured by formula students

- If there are not 5 Districts that are larger than the District for which basic funding is being calculated or if there are not 5 Districts that are smaller than the District, the comparison group would consist of only as many districts as fit the criteria.
- If more than 1 District has exactly the same number of formula students as the largest or smallest District in the comparison group, all of the Districts with exactly the same number of formula students as the largest or smallest Districts in the comparison group shall be included in the comparison group.
- If 1 or more Districts have exactly the same number of formula students as the District for which basic funding is being calculated, all such Districts would be included in the comparison group in addition to the 5 larger and the 5 smaller Districts.

- The comparison group remains the same for the final calculation of State Aid.
- School Districts with less than 900 formula students;
  Basic Funding = Average of Adjusted General Fund Operating Expenditures for each District in the comparison group excluding both the District with the highest Adjusted General Fund Operating Expenditures and the District with the lowest Adjusted General Fund Operating Expenditures in the comparison group.
- School Districts with 900 or more formula students;
  Basic Funding = District formula students X Average Adjusted General Fund Operating Expenditures per formula student excluding both the District with the highest Adjusted General Fund Operating Expenditures per formula student and the District with the lowest Adjusted General Fund Operating Expenditures per formula student.

TEACHER EDUCATION ADJUSTMENT

The Teacher Education Adjustment equals 10% of the District's Basic Funding X the District's Teacher Education Index – 1. If the result is less than 0, the Teacher Education Adjustment is equal to 0.

- Teacher Education Points;
  - (i) Full Time Equivalent (FTE) Teacher with Master Degree or Education Specialist's Degree = 1 point
  - (ii) Full Time Equivalent (FTE) Teacher with Doctorate Degree = 2 points
- Teacher Education Index;

$$\frac{\text{District Teacher Education Points}}{\text{District FTE Teachers}} \div \frac{\text{Statewide Teacher Education Points}}{\text{Statewide Teacher FTE}} \quad [.442076]$$

✓ The "Teacher" must have the following position codes on the 2008/09 Fall Personnel Report that equal 1 FTE in any combination:
1150 Head Teacher, 1160 Teacher, 1161 SPED Teacher Teaching Core Academic Subjects/Grading, 1162 SPED Teacher Teaching Core Academic Subjects/Alternate Standards/Assessment, 1163 SPED Teacher Collaborating/Co-teaching, 1164 SPED Teacher – Facilitator, 1170 Teacher – Facilitator, 1180 Teacher – Collaborator.

LOCAL CHOICE ADJUSTMENT

Applies to Districts whose Basic Funding per formula student is greater than the Basic Funding per formula student for the District that has the closest to 390 formula students (8,541.53) that;

- (i) Has fewer than 390 formula students
- (ii) Is not Sparse or Very Sparse
- (iii) Did not receive federal funds in excess of 25% of its general fund budget of expenditures in the most recently available complete data year or in either of the two school fiscal years preceding the most recently available complete data year

Local Choice Adjustment =

(.50 X (District Basic Funding per formula student – Basic Funding per formula student for the District that has the closest to 390 formula students (8,541.53)) X District formula students

- If more than 1 District has the closest to 390 formula students, the Basic Funding representing the District that has the closest to 390 formula students shall equal the average of the Basic Funding per formula student for each District.
- The closest to 390 formula students is measured using the absolute value of the difference of 390 formula students minus the District formula students with the difference rounded to the nearest whole number.

SYSTEM AVERAGING ADJUSTMENT

Applies to Districts whose Basic Funding per formula student is less than the averaging adjustment threshold (7,442.01) with a General Fund Levy of at least $1.00.
Averaging Adjustment = (District formula students X percentage (specified below) of the difference between the averaging adjustment threshold – District Basic Funding per formula student)

- The percentage to be used in the calculation of the Averaging Adjustment is based on the General Fund Levy for the school fiscal year immediately preceding the school fiscal year for which aid is being calculated as follows:

(i)	If the Levy was at least $1.00 but less than $1.01	50%
(ii)	If the Levy was at least $1.01 but less than $1.02	60%
(iii)	If the Levy was at least $1.02 but less than $1.03	70%
(iv)	If the Levy was at least $1.03 but less than $1.04	80%
(v)	If the Levy was at least $1.04	90%

STUDENT GROWTH ADJUSTMENT

For school fiscal year 2009/10 and each school fiscal year thereafter,

District Basic Funding per formula student X (Approved Student Growth – (greater of 25 or 1% X Fall Membership)) + .5 X (District Basic Funding per formula student X greater of 25 or 1% of the Fall Membership)

TWO-YEAR NEW SCHOOL ADJUSTMENT

Beginning in 2009/10

1st year
District Basic Funding per formula student X (.20 X Estimated Student Capacity)

2nd year
District Basic Funding per formula student X (.10 X Estimated Student Capacity)

POVERTY CORRECTION

Beginning in 2009/10 and each school fiscal year thereafter,

If poverty allowance expenditures do not equal 117.65% or more of the poverty allowance for the most recently available complete data year (2007/08), a correction will be calculated as follows:

Poverty Allowance Correction = Poverty Allowance for 2007/08 – 85% Poverty Allowance Expenditures

For fiscal year 2010/11,

If school district does not meet the required elements (as stated above) of the poverty plan for the most recently available complete data year (2008/09), the poverty allowance correction will be equal to 50% of the poverty allowance for such school fiscal year and the school district shall also be disqualified from receiving a poverty allowance for the school fiscal year for which aid is being calculated.

Any correction calculated pursuant to this requirement shall be added to any poverty correction calculated pursuant to requirements stated for 2009/10 to arrive at the total poverty correction.

NON QUALIFYING POVERTY

Beginning in 2009/10 and each school fiscal year thereafter,

If the poverty allowance expenditures do not equal 50% or more of the allowance for school fiscal year, the school district shall be disqualified from receiving a poverty allowance for the school fiscal year for which aid is being calculated.

LIMITED ENGLISH PROFICIENCY (LEP) CORRECTION

Beginning in 2009/10 and each school fiscal year thereafter,
If the LEP poverty allowance expenditures do not equal 117.65% or more of the LEP allowance for the most recently available complete data year (2007/08) a correction will be calculated as follows:

LEP Allowance Correction = LEP Allowance for 2007/08 – 85% LEP Allowance Expenditures

For fiscal year 2010/11,

If school district does not meet the required elements (as stated above) of the LEP plan for the most recently available complete data year (2008/09), the LEP allowance correction will be equal to 50% of the LEP allowance for such school fiscal year and the school district shall also be disqualified from receiving an LEP allowance for the school fiscal year for which aid is being calculated.

Any correction calculated pursuant to this requirement shall be added to any LEP correction calculated pursuant to requirements stated for 2009/10 to arrive at the total LEP correction.

NON QUALIFYING LIMITED ENGLISH PROFICIENCY (LEP)

Beginning in 2009/10 and each school fiscal year thereafter,

If the LEP allowance expenditures do not equal 50% or more of the allowance for school fiscal year, the school district shall be disqualified from receiving an LEP allowance for the school fiscal year for which aid is being calculated.

FOCUS SCHOOL ALLOWANCE

Applies to school districts in a learning community;

(Statewide Average General Fund Operating Expenditures per Formula Student X .10) X Number of Students in Focus School

NEW LEARNING COMMUNITY TRANSPORTATION ADJUSTMENT

Beginning in 2010/11

STUDENT GROWTH ADJUSTMENT CORRECTION

2011-12 and each school fiscal year thereafter,

Student Growth Adjustment Correction = (ADM – (formula students + approved student growth)) X district's basic funding per formula student

The absolute value of negative correction shall not exceed the original adjustment.

RESOURCES

The sum of the Yield from Local Effort Rate + Net Option Funding + Allocated Income Tax Funds + Minimum Levy Adjustment + Retirement Aid + Other Receipts actually received by the District.

YIELD FROM LOCAL EFFORT RATE

Adjusted Valuation divided by 100 multiplied by the Local Effort Rate of $1.00. Each district's adjusted valuation for tax year 2008 is provided by the Property Tax Administrator (certified October 2008). Real property was adjusted to 96% of actual value and agricultural land was adjusted to 72% of actual value.

LOCAL EFFORT RATE

Set at $.05 below the maximum levy per §77-3442.

NET OPTION FUNDING

Net Enrollment Option students (students opting in minus students opting out) as of the day of the fall membership count, multiplied by the statewide average Basic Funding per formula student (7,442.01).

DATA SOURCES:

√ 2008 School Enrollment Template in the NSSRS.

Net Option Funding is equal to each Local System's:

Net Enrollment Option Students X Statewide Average Basic Funding per formula student

Except that a Local System's Net Option Funding cannot be less than zero.

ALLOCATED INCOME TAX FUNDS

A percent calculated annually of the net Nebraska income tax liability of each school district's resident individuals in tax year 2008 provided by the Department of Revenue (certified November 15, 2008). The percentage is calculated annually based on the 1992-93 appropriation to the School District Income Tax Fund, the Net Option Funding, and the statewide income tax liability of resident individuals.

MINIMUM LEVY ADJUSTMENT

The minimum levy adjustment is calculated and applied to any system that has a General Fund levy that is less than $0.95. The adjustment is calculated by subtracting the system levy from $0.95, and multiplying the result by the adjusted valuation divided by 100.

The minimum levy adjustment is added to the formula resources for the determination of Equalization Aid. If the minimum levy adjustment is greater than or equal to the allocated income tax funds, the system shall not receive allocated income tax funds.

DATA SOURCES:

√ 2008 General Fund Levy 2008 Consolidated Data Collection

√ 2008 Adjusted Valuation (certified October 2008).

RETIREMENT AID

Retirement Aid is calculated based on the School District's salary percentage multiplied by $15,000,000. The School District's salary percentage is the total salary reported by the School District on the 2007/08 AFR, divided by the total salary reported by all school districts in the State on the 2007/08 AFR.

OTHER RECEIPTS ACTUALLY RECEIVED BY THE DISTRICT

Each Local System's other actual receipts for the most recently available complete data year.

Other Actual Receipts are taken from the 2007/08 Annual Financial Report as follows:

Public Power District Sales Tax	1-1-1120-000
Fines and License Fees	1-1-1610-000, 1-1-1620-000 & 1-1-2110-000
Tuition Receipts	1-1-1210-000, 1-1-1220-000, 1-1-1230-000 & 1-1-1240-000
Transportation Receipts	1-1-1310-000, 1-1-1320-000, 1-1-1330-000 & 1-1-1340-000
Interest	1-1-1410-000
Other Miscellaneous Local/County Receipts	1-1-1115-000, 1-1-1910-000, 1-1-1990-000, 1-1-2130-000 & 1-1-2210-000
Special Education School Age	1-1-3120-000 & 1-1-3125-000
Payments for Wards of the State/Wards of the Court	1-1-3160-000 & 1-1-3161-000
Receipts from the Temporary School Fund for State Apportionment and Property leased for a Public Purpose	1-1-3200-000 & 1-1-3300-000
Motor Vehicle Receipts Received on or After January 1, 1998	1-1-1125-000
Pro-Rate Motor Vehicle	1-1-3180-000
Other State Receipts	1-1-3990-000
Federal Impact Aid included to the extent allowed by Federal Law	(taken from federal source documents)
Other Non-Categorical Federal Receipts	1-1-4620-000, 1-1-4640-000 & 1-1-4690-000
Enrollment Option Transportation	1-1-3145-000
Receipts from Medicare Catastrophic Coverage Act of 1988-to the extent the district would have received payment pursuant to the Special Education Act	(taken from NDE records)
Receipts for Accelerated or Differentiated Curriculum Programs	1-1-3135-000

For the final calculation of State Aid, other actual receipts shall be as reported in the 2007/08 Annual Financial Report.

EQUALIZATION AID

Formula Needs – Formula Resources = Equalization Aid

AID STABILIZATION

A local system shall not receive State Aid which is less than an amount equal to the difference of the prior year's State Aid minus 5% of the current year's calculated Formula Needs.

Part II.
2009/10 CONCEPT SUMMARY

2009/10 Calculated State Aid to Nebraska's Public Schools:

Consists of one or a combination of the following items:

- Retirement Aid
- Net Option Funding
- Allocated Income Tax Funds
- Equalization Aid
- Aid Stabilization

Nebraska Equalization Aid Formula Concept:

Calculated Needs - Calculated Resources = State Equalization Aid

SYSTEM FORMULA NEED

Is the sum of:

(Basic Funding + Poverty Allowance + Limited English Proficiency Allowance + Elementary Class Size Allowance+ Focus School & Program Allowance + Summer School Allowance + Special Receipts Allowance +Transportation Allowance + Elementary Site Allowance + Distance Education & Telecommunications Allowance + Instructional Time Allowance + Averaging Adjustment + Teacher Education Adjustment + New School Adjustment + Student Growth Adjustment + Learning Community Transportation Adjustment) – (Limited English Proficiency Allowance Correction + Poverty Allowance Correction + Local Choice Adjustment- Negative Student Growth Adjustment Correction)

✓ Formula Needs Stabilization:

District Formula Need that is less than 100% of 2008/09 Year End Recalculated Formula Need is increased to 100% of 2008/09 Year End Recalculated Formula Need

AND

District Formula Need that is greater than 112% of 2008/09 Year End Recalculated Formula Need is decreased to 112% of 2008/09 Year End Recalculated Formula Need, except that the Formula Need for Districts receiving a student growth adjustment is not decreased.

FORMULA STUDENTS

- Students educated by the district and students for which the district pays tuition.
- The Fall Membership count adjusted by the average ratio of ADM to Fall Membership from three prior years for the certification of State Aid; and ADM for the final calculation of State Aid.
- Students in Qualified Early Childhood Programs multiplied by the ratio of planned instructional hours of the program divided by 1,032 then multiplied by .6.

GENERAL FUND OPERATING EXPENDITURES

Each district's General Fund Operating Expenditures for the most recently available complete data year.
Calculated from the 2007/08 Annual Financial Report (AFR) as follows:

Total General Fund Expenditures	1-2-20400-000
Minus	
Tuition Paid	1-2-1160-364, 1-2-1150-364, 1-2-1100-364, 1-2-1200-360 & 370
Adult Education	1-2-7000-000
Transfers from Other Funds	1-1-5500-000
Community Services	1-2-3000-000
Redemption of General Fund Debt Service Principal	1-2-5000-605 & 610
Transportation Paid to Other Districts	1-2-2750-333 & 1-2-2760-333
State Categorical Programs	1-2-3500-000
Retirement Incentive Plan	1-2-2200-281
Staff Development Assistance	1-2-2200-282
Transfers to Bond Fund	1-2-8000-754
Tuition Received from Other Educational Entities (Distance Education)	1-1-1215-000
Summer School Tuition and Fees	1-1-1250-000
Preschool Tuition and Fees	1-1-1270-000
Contributions and Donations	1-1-1920-000
Textbook Loan	1-1-3155-000
Medicaid Administrative Activities (MAAPS)	1-1-4455-000
Impact Aid	1-1-4500-000
Johnson O'Malley	1-1-4600-000
Non-Categorical Federal	1-1-4690-000
Legal Services (in excess of .0015 of the 2007/08 formula need)	1-2-2310-317

ADJUSTED GENERAL FUND OPERATING EXPENDITURES

- 1.055 multiplied by general fund operating expenditures minus (transportation allowance + special receipts allowance + poverty allowance + limited English proficiency allowance + distance education and telecommunications allowance + elementary site allowance + elementary class size allowance + summer school allowance + focus school and program allowance + instructional time allowance).

SPECIAL RECEIPTS ALLOWANCE

- District specific special education receipts reported on the Annual Financial Report, and receipts from the Medicare Catastrophic Coverage Act of 1988, to the extent the district would have received payment pursuant to the Special Education Act (taken from NDE records).

- Each district's special education receipts for the most recently available complete data year.

TRANSPORTATION ALLOWANCE

The lesser of:

- Actual specific transportation costs or a calculated amount based on the miles transported (excluding activities) plus in lieu of transportation for the most recently available complete data year.

POVERTY ALLOWANCE

- The lesser of:
  District designated poverty expenditures for the 2009/10 school year or the sum of the statewide average general fund operating expenditures per student multiplied by graduated percentages and then multiplied by student weightings based on free lunch/milk students or students under 19 residing in homes with adjusted gross income in 2007/08 equal to or less than the maximum household income that would allow a student from a family of four people to be a free lunch or free milk student during the 2008/09 school year.

LIMITED ENGLISH PROFICIENCY (LEP) ALLOWANCE

- The lesser of:
  District designated limited English proficiency expenditures for 2009/10 or 25% of the statewide average general fund operating expenditures per student (2,200.01) multiplied by the number of limited English proficiency students.

DISTANCE EDUCATION AND TELECOMMUNICATIONS ALLOWANCE

- Eighty-five percent of district specific distance education and telecommunication costs reported on the Annual Financial Report minus receipts from Federal Universal Service Fee Fund (E-Rate).

ELEMENTARY SITE ALLOWANCE

- Five hundred percent of the statewide average general fund operating expenditures per formula student (44,000.27) multiplied by the number of students per qualified building divided by eight (rounded up to a whole number). If the whole number is greater than the elementary grades offered in the building, the whole number is equal to the grades offered in the building.

ELEMENTARY CLASS SIZE ALLOWANCE

- Twenty percent of the statewide average general fund operating expenditures per formula student (1,760.01) multiplied by the number students in grades K-3 who spend at least 50% of the school day in one or more classrooms with a minimum of 10 students and a maximum of 20 students (taken from NDE records).

SUMMER SCHOOL ALLOWANCE

- Eighty five percent of the statewide average general fund operating expenditures per formula student (7,480.05) multiplied by two and half percent of the summer school student units.

INSTRUCTIONAL TIME ALLOWANCE

- The product of formula students multiplied by the instructional time factor multiplied by eighty five percent of the statewide average general fund operating expenditures per formula student (7,480.05).

BASIC FUNDING

- School Districts with less than 900 formula students:

  Basic Funding = Average of adjusted general fund operating expenditures for each District in the comparison group excluding both the District with the highest adjusted general fund operating expenditures and the District with the lowest adjusted general fund operating expenditures in the comparison group.

- School Districts with 900 or more formula students:

  Basic Funding = District formula students multiplied by average of adjusted general fund operating expenditures per formula student excluding both the District with the highest adjusted general fund operating expenditures per formula student and the District with the lowest adjusted general fund operating expenditures per formula student in the comparison group.

TEACHER EDUCATION ADJUSTMENT

- Ten percent of the District's Basic Funding multiplied by the District's Teacher Education Index minus one. The Adjustment applies to full time equivalent teachers with a master's degree or above. To qualify, Districts must have more full time equivalent teachers with a master's degree or above than the statewide average number of full time equivalent teachers with a master's degree or above.

LOCAL CHOICE ADJUSTMENT

- Fifty percent of District Basic Funding per formula student minus the basic funding per formula student of the District with the closest to 390 formula students multiplied by District formula students. The Adjustment applies to Districts with less than 390 formula students that are not classified as sparse or very sparse, whose Basic Funding per formula student is greater than the basic funding per formula student of the District with the closest to 390 formula students.

SYSTEM AVERAGING ADJUSTMENT

- District formula students multiplied by the difference between averaging adjustment threshold (7,442.01) and the District Basic Funding per formula student, multiplied by graduated percentages based on General Fund Levies. Applies to Districts that have a General Fund Levy of $1.00 or above, whose Basic Funding per formula student is less than the averaging adjustment threshold.

STUDENT GROWTH ADJUSTMENT

- ☐ For each approved district is equal to the sum of the product of the district's basic funding per formula student multiplied by the difference of the approved student growth minus the greater of twenty five students or one percent of fall membership, plus the product of fifty percent of the district's basic funding per formula student multiplied by the greater of twenty five students or one percent of fall membership.

TWO-YEAR NEW SCHOOL ADJUSTMENT

- ☐ The first year new school adjustment for each approved district is equal to the district's basic funding per formula student multiplied by twenty percent of the approved estimated additional student capacity. The second year new school year adjustment for each approved district is equal to the school district's basic funding per formula student multiplied by ten percent of the approved estimated additional student capacity.

POVERTY CORRECTION

- ☐ Correction is equal to the poverty allowance minus eighty-five percent of the poverty allowance expenditures if expenditures do not equal at least 117.65% of the Poverty allowance for the most recently available complete data year.
  Also, if district did not meet requirements of the plan an amount equal to 50% of the poverty allowance for such school fiscal year will be added to the above correction. Any correction calculated pursuant to this requirement shall be added to any poverty correction calculated pursuant to requirements above to arrive at the total poverty correction.

NON QUALIFYING POVERTY

- ☐ If the poverty allowance expenditures do not equal 50% or more of the allowance for school fiscal year, the school district shall be disqualified from receiving a poverty allowance for the school fiscal year for which aid is being calculated.

LIMITED ENGLISH PROFICIENCY (LEP) CORRECTION

- ☐ Correction is equal to the LEP allowance minus eighty-five percent of the LEP allowance expenditures if expenditures do not equal at least 117.65% of the LEP allowance for the most recently available complete data year.
  Also, if district did not meet requirements of the plan an amount equal to 50% of the LEP allowance for such school fiscal year will be added to the above correction.
  Any correction calculated pursuant to this requirement shall be added to any LEP correction calculated pursuant to requirements above to arrive at the total LEP correction.

NON QUALIFYING LIMITED ENGLISH PROFICIENCY (LEP)

- ☐ If the LEP allowance expenditures do not equal 50% or more of the allowance for school fiscal year, the school district shall be disqualified from receiving an LEP allowance for the school fiscal year for which aid is being calculated.

FOCUS SCHOOL & PROGRAM ALLOWANCE

- ☐ Ten percent of the statewide average general fund operating expenditures per formula student (880) multiplied by the number of students participating in a focus school or program. Applies only to school districts in a learning community.

NEW LEARNING COMMUNITY TRANSPORTATION ADJUSTMENT

- □ The new learning community transportation adjustment is equal to the approved estimate of increased transportation costs.

STUDENT GROWTH ADJUSTMENT CORRECTION

- □ Student Growth Adjustment Correction = (ADM – (formula students + approved student growth)) X district's basic funding per formula student
  The absolute value of negative correction shall not exceed the original adjustment.

CALCULATED RESOURCES

THE SUM OF:

- □ Yield from Local Effort Rate (a calculated measure of Local Property Resources)
- □ Net Option Funding
- □ Allocated Income Tax Funds
- □ Minimum Levy Adjustment
- □ Retirement Aid
- □ Other Receipts Actually Received by the District

YIELD FROM LOCAL EFFORT RATE (LOCAL PROPERTY RESOURCES)

- □ Adjusted Property Valuation divided by 100 X Local Effort Rate
  - √ Local Effort Rate (LER) is $1.00.

NET OPTION FUNDING

- □ The positive net number of Enrollment Option students (students opting in minus students opting out), as of the day of the Fall Membership count, is multiplied by the statewide average Basic Funding per formula student (7,442.01).

- □ Net Option Funding cannot be less than zero.

ALLOCATED INCOME TAX FUNDS (MEASURE OF LOCAL INCOME)

- □ A percentage determined annually, based on the 1992-93 appropriation to the School District Income Tax Fund, net option funding, and the statewide income tax liability of resident individuals.

MINIMUM LEVY ADJUSTMENT

- □ The minimum levy adjustment is calculated and applied to any system that has a General Fund Common Levy that is less than $0.95. The adjustment is calculated by subtracting the system levy from $0.95, and multiplying the result by the adjusted valuation divided by 100.

RETIREMENT AID

- Retirement Aid is based on the School District's salary percentage multiplied by $15,000,000. The School District's salary percentage is the total salary reported by the School District on the 2007/08 AFR, divided by the total salary reported by all school districts in the State on the 2007/08 AFR.

OTHER RECEIPTS ACTUALLY RECEIVED BY THE DISTRICT

(As Reported on the Annual Financial Report; see page 10 of this document for a complete listing):

- Examples:
  - √ Fines and License Fees
  - √ Interest
  - √ Special Education School Age
  - √ Pro-Rate Motor Vehicle

EQUALIZATION AID

- Needs - Resources = Equalization Aid

ADDITIONAL COMPONENTS OF STATE AID

AID STABILIZATION

- A Local System cannot receive less than an amount equal to the prior year's State Aid less 5% of 2008/09 formula needs.

2009/10 STATE AID FUNDING

- On or before June 1, 2009 the Department must determine the amounts to be distributed to each Local System pursuant to the Tax Equity and Educational Opportunities Support Act based on $1.00 Local Effort Rate.

Part III.
QUESTIONS AND ANSWERS RELATED TO THE STATE AID CONCEPT AND THE 2009/10 STATE AID CALCULATION

NEEDS

How are Needs determined?

► The Needs of a Local System are determined based on:

The sum of the District's Basic Funding + Poverty Allowance + Limited English Proficiency Allowance + Elementary Class Size Allowance + Focus School & Program Allowance + Summer School Allowance + Transportation Allowance + Special Receipts Allowance + Elementary Site Allowance + Distance Education & Telecommunications Allowance + Instructional Time Allowance + Averaging Adjustment + Teacher Education Adjustment + New School Adjustment + Student Growth Adjustment + Learning Community Transportation Adjustment – (Local Choice Adjustment + Limited English Proficiency Allowance Correction + Poverty Allowance Correction).

✓ Formula Needs Stabilization:

District Formula Need that is less than 100% of 2008/09 Year End Recalculated Formula Need is increased to 100% of 2008/09 Year End Recalculated Formula Need

AND

District Formula Need that is greater than 112% of 2008/09 Year End Recalculated Formula Need is decreased to 112% of 2008/09 Year End Recalculated Formula Need, except that the Formula Need for Districts receiving a student growth adjustment is not decreased.

What are Formula Students?

► Formula Students include students educated by the district and those for which the district is paying tuition.

► Formula Students are grouped in the following manner: Qualified Early Childhood programs, Kindergarten (KDG = programs under 1,032 instructional hours), Full-Day Kindergarten (FDK = programs of 1,032 or more instructional hours) through Grade 6, Grades 7-8, and 9-12.

What source data was used to determine the Formula Students for the 2009/10 State Aid calculation?

► K-12 Fall Membership from the 2008 Student Snapshot Template in the NSSRS adjusted by an ADM to Fall Membership ratio using the average of the ratios from 2005/06, 2006/07and 2007/08.

+

4 year-olds in Qualified Early Childhood Education Fall Membership multiplied by the ratio of planned instructional hours of the program divided by 1,032 then multiplied by .6.

+

K-12 Contracted Out Students from the 2008 School Enrollment Template in the NSSRS.

-

Kindergarten students in programs under 1,032 instructional hours multiplied by .5.

How is the Transportation Allowance determined?

► The transportation allowance is the lesser of:

- The actual transportation expenditures from the most recently available complete data year.
- Regular route miles traveled multiplied by 400% of the mileage rate established by the Department of Administrative Services (DAS) as of January 1 of the most recently available complete data year (.505) plus in lieu of transportation.

How is the Special Receipts Allowance determined?

► Special Receipts are from the most recently available complete data year.

Special Receipts Include:

√ State Receipts for School-Age Special Education
√ State Receipts for School-Age Special Education Transportation
√ Payments for Wards of the State/Wards of the Court
√ Receipts for Accelerated or Differentiated Curriculum Programs
√ Special Education Tuition Received from other Districts
√ Special Education Tuition Received from Individuals
√ Special Education Transportation Receipts from other Districts
√ Special Education Transportation Receipts from Individuals
√ Receipts from Medicare Catastrophic Coverage Act of 1988 to the extent the district would have received payment pursuant to the Special Education Act.

How is the Distance Education and Telecommunications Allowance determined?

► Distance Education and Telecommunications is equal to 85% the difference of:

- Actual expenditures for distance education and telecommunications from the most recently available complete data year minus receipts from the Universal Service Fee Fund (E-Rate) from the most recently available complete data year.

How is the Poverty Allowance determined?

► The Poverty Allowance is the lesser of:

- The amount the District designates they will spend on poverty for the 2009/10 school year.
- The sum of the statewide average general fund operating expenditures per student multiplied by graduated percentages then multiplied by student weightings based on free lunch/milk students or students under 19 residing in homes with adjusted gross income in 2007/08 equal to or less than the maximum household income that would allow a student from a family of four people to be a free lunch or free milk student during the 2008/09 school year.

How is the Limited English Proficiency Allowance determined?

► The Limited English Proficiency Allowance is the lesser of:

- The amount the District designates they will spend on students with limited English proficiency for the 2009/10 school year.
- 25% of the statewide average general fund operating expenditures per student multiplied by the number of limited English proficiency students.

How is the Elementary Class Size Allowance determined?

► The statewide average general fund operating expenditures per formula student multiplied by 20% is then multiplied by the number of free and reduced price lunch students in grades kindergarten through eight who spend 50% of the school day in one or more classrooms with a minimum of 10 students and a maximum of 20 students.

How is the Elementary Site Allowance determined?

► The statewide average general fund operating expenditures per formula student multiplied by 500% is then multiplied by the number formula students in buildings that qualify for the Allowance divided by 8. An Elementary Site Allowance is provided if a District:

- Is in a District with multiple elementary attendance sites
- Does not have another elementary attendance site within 7 miles in the same school district **OR**
- Is the only public elementary attendance site located in a incorporated city or village
- Each District determines which grades are elementary grades
- Building where majority of formula students are = primary elementary site
- The primary elementary site shall not be a qualifying elementary attendance site
- All grades designated as elementary grades shall be offered in each elementary attendance site
- Elementary grades shall not include, grades 9, 10, 11 or 12

How is the Summer School Allowance determined?

► 85% of the statewide average general fund operating expenditures per formula student is multiplied by 2.5% of summer school student units. Summer school student units equal to the sum of the ratios of:

1) Number of days the student attended summer school for at least 3 hours and less than 6 hours per day divided by 12
2) Two times the number of days the student attended summer school for 6 or more hours per day divided by 12

How Adjusted General Fund Operating Expenditures determined?

► General Fund Operating Expenditures multiplied by the cost growth factor (1.06) minus Allowances (Transportation Allowance + Special Receipts Allowance + Poverty Allowance + Limited English Proficiency Allowance + Distance Education & Telecommunications Allowance + Elementary Site Allowance + Elementary Class Size Allowance + Summer School Allowance + Instructional Time Allowance + Focus School & Program Allowance)

How is Basic Funding determined?

► A comparison group is established for each District consisting of the 5 larger districts that are closest in size to the District, measured by formula students and the 5 smaller districts that are closest in size to the District, measured by formula students.

- For School Districts with less than 900 formula students, Basic Funding is the average of adjusted general fund operating expenditures for each District in the comparison group, excluding both the District with the highest adjusted general fund operating expenditures and the District with the lowest adjusted general fund operating expenditures in the comparison group.
- For School Districts with 900 or more formula students, Basic Funding is the average of adjusted general fund operating expenditures per formula student for each District in the comparison group, excluding both the District with the highest adjusted general fund operating expenditures per formula student and the District with the lowest adjusted general fund operating expenditures per formula student in the comparison group, multiplied by the District's formula students.

How is the Local Choice Adjustment determined?

► The Adjustment applies to Districts whose Basic Funding per formula student is greater than the Basic Funding per formula student for the District with the closest to 390 formula students that;

- Has fewer than 390 formula students
- Is not sparse or very sparse
- Did not receive federal funds in excess of 25% of its general fund budget of expenditures

How is the Averaging Adjustment determined?

► The Adjustment applies to Districts whose Basic Funding per formula student is less than the averaging adjustment threshold with a General Fund Levy of at least $1.00. The Adjustment is District formula students multiplied by the difference between the statewide average Basic Funding per formula student and the District Basic Funding per formula student, multiplied by graduated percentages based on the General Fund Levy.

How is the Teacher Education Adjustment determined?

► The Adjustment applies to Districts who have more full-time equivalent teachers with a master's degree or above than the statewide average number of full-time equivalent teachers with a master's degree or above. The "Teacher" must have the following position codes on the 2008/09 Fall Personnel Report; 1150 Head Teacher, 1160 Teacher, 1161 SPED Teacher Teaching Core Academic Subjects/Grading, 1162 SPED Teacher Teaching Core Academic Subjects/Alternate Standards/Assessment, 1163 SPED Teacher Collaborating/Co-Teaching, 1164 SPED Teacher – Facilitator, 1170 Teacher – Facilitator, 1180 Teacher – Collaborator.

RESOURCES

How are Resources determined?

- Resources = Yield from Local Effort Rate + Net Option Funding + Allocated Income Tax Funds + Other Actual Receipts + Minimum Levy Adjustment + Retirement Aid.

How is the Yield from Local Effort Rate determined?

- Yield from Local Effort Rate = Adjusted Valuation divided by 100 X Local Effort Rate of $1.00.

- The Local Effort Rate is determined by statute as part of the State Aid calculation process.

- The statewide Needs for all Local Systems as determined above can be funded from six sources:
  1) Net Option Funding
  2) Allocated Income Tax Funds
  3) Other Actual Receipts
  4) Yield from Local Effort Rate
  5) Equalization Aid (provided through the calculation process)
  6) Retirement Aid

What source data was used to determine the Adjusted Valuation for the 2009/10 State Aid Calculation?

- For 2009/10 State Aid, the adjusted valuation reflects 2008 levels. The Property Tax Administrator adjusts the values to assure that for State Aid purposes:
  - real property other than agricultural land is at 96% of market value;
  - agricultural land is at 72% of market value as provided by statute; and
  - personal property other than motor vehicles is at net book value as defined by statute.

- The State Aid appropriation is the "balancing factor" in funding the statewide Needs. All of the Needs that are not funded by items 1 through 4 must be funded by the State Aid appropriation.

- As statewide Needs increase, unless the amount provided from items 1 through 4 increase, the State Aid appropriation must increase. Once the Adjusted Valuation is provided by the Property Tax Administrator, the Yield from Local Effort Rate is a known amount. The Local Effort Rate applied against the Adjusted Valuation is the component which cannot vary to produce a Yield from Local Effort Rate amount.

How is the Net Option Funding determined?

- ► For each district, the students opting out are subtracted from the students opting in at each grade level (KDG, FDK-6, 7-8, and 9-12). The positive net number of students are then multiplied by the statewide average Basic Funding per formula student.
  - It is possible for the result at a given grade range to be negative since there may be more students opting out than opting in. However, the total for the district cannot be less than zero.

- ► Since option students are included in the ADM counts of students used to determine a Local System's Needs, the inclusion of the amount as a Resource prevents a Local System which generates Equalization Aid from receiving both Equalization Aid and Net Option Funding based on the impact the students have on Needs.

- ► The funding for Net Option reduces the total amount available for distribution as Allocated Income Tax Funds (discussed below).

What source data was used to determine Net Option Funding?

- ► The 2008/09 net enrollment option students, as reported to the Department of Education on the 2008 School Enrollment Template in the NSSRS, was used to determine the net number of students.

How are the Allocated Income Tax Funds determined?

- ► The Allocated Income Tax Funds provide a mechanism through which the income tax base of the local system is included in the Resources of the Local System. Therefore, the distribution of Equalization Aid responds to the income tax base as well as the potential property tax base of the Local System.

- ► A varying percentage of the Nebraska income tax liability of residents of the Local System is provided to the Local System as Allocated Income Tax Funds. The income tax liability information is provided by the Department of Revenue based on data submitted on Nebraska income tax forms. (The Nebraska Income Tax Form requests each filer to indicate the high school district in which they reside.) The percentage is based on the 1992-93 appropriation to the School District Income Tax Fund, net option funding, and the statewide income tax liability of resident individuals.

- ► The 2009/10 State Aid calculation incorporates Allocated Income Tax Funds based on the 2008 Income Tax year.

What are Other Actual Receipts?

- ► Other Actual Receipts are calculated using information reported on the Annual Financial Report for the most recently available complete data year.

How are Other Actual Receipts determined?

- ► Other Actual Receipts are taken primarily from the Annual Financial Report submitted by the each district. Receipt information related to the Medicare Catastrophic Coverage Act of 1988 and Impact Aid, if applicable, are taken from other source documents on file with the Department of Education. Other Actual Receipts include various local, state, and noncategorical federal receipts.

What is the Minimum Levy Adjustment?

- ► Any Local System that has a general fund common levy that is less than 10 cents below the maximum levy:
  - The adjustment is calculated by subtracting the system levy from $0.95, and multiplying the result by the adjusted valuation divided by 100.
  - The Minimum Levy Adjustment is added to the formula resources for the determination of equalization aid. For non-equalized Local Systems, if the Minimum Levy Adjustment is greater than or equal to the allocated income tax funds, the System does not receive allocated income tax funds.

What is Retirement Aid?

- ► Retirement Aid for school fiscal years 2009/10 through 2013/14 is the result of multiplying the School District's salary percentage by $15,000,000.
  - Retirement Aid is added to the formula resources for the determination of equalization aid.

What is Equalization Aid?

- ► The amount that the total formula needs exceed total formula resources:
  - A Local System will not receive State Aid that is less than the amount of Aid certified in the preceding school fiscal year, less 5% of the current year formula need.

CORRECTIONS FOR THE PRIOR YEAR'S STATE AID CALCULATION

In addition to the items that make up a Local System's calculated State Aid for a given year, each year's actual State Aid payments may include adjustments to the prior year's State Aid calculations in accordance with statutory provisions. The corrections to the 2009/10 payments primarily reflect the recalculation of 2008/09 State Aid based on the incorporation of 2007/08 ADM data in place of 2007/08 Fall Membership and allowing the local effort rate to "float" during the recalculation process.

NDE:SFOS:mi:June 16, 2009

Appendix K

Nebraska Virtual School and STEM Academy Proposal

Nebraska Virtual School

Science, Technology, Engineering, and Mathematics (STEM) Academy

Imagine a system of 21st century education that fuses the expertise of college and secondary educators and pushes the boundaries of P-16 opportunities—a system that supports students through high school and beyond, tapping into the rich human capital of the state and helping Nebraska become more competitive on a national and global scale. All students and school districts experience parity in curricular offerings, quality, and rigor. Master teachers focus on mastery of core concepts, guiding student learning, providing feedback and student engagement. Students reach their full potential with self-directed learning.

This is the vision of the Nebraska Virtual School.

Building on the solid curricular foundation of Nebraska's only state-accredited distance high school, the Nebraska Virtual School (NVS) exploits the full potential of online education. Employing a multitude of technologies to teach, assess, and interact with students, it allows for a personalized learning program and high level of engagement.

The Nebraska Virtual School helps transition students beyond high school with opportunities for more autonomous learning. NVS supports students through synchronous and asynchronous interactions with their teachers and other students, access to tutoring services, and connections to local mentors/learning coaches.

NVS STEM Academy

The Nebraska Virtual School partners with local school districts to provide the most effective learning environment for their students by strengthening the depth and breadth of the schools' science, technology, engineering, and mathematics curriculum offerings at the 7th through 12th grade level, thereby providing Nebraska schools with a means of meeting the state's increased science and mathematics graduation requirements. NVS helps schools become learning communities by placing master teachers, rigorous STEM curriculum, standard-based digital

resources, a support structure of tutors and learning coaches, connections to a global student body, and a world of knowledge just a mouse click away.

The Nebraska Virtual School (NVS) STEM Academy addresses challenges faced by Nebraska's schools with the highest needs and lowest performance by offering otherwise unavailable highly effective college preparatory STEM tracks including core, advanced placement, and college credit courses. NVS also provides a new STEM-focused tool for closing the achievement gap among all groups within urban and suburban schools. Open to ALL 7th through 12th grade Nebraska students, the Nebraska Virtual School is focused particularly on addressing the unique needs of low achieving students, historically underperforming subgroups, and those underrepresented in the STEM areas.

Through the NVS STEM Academy, Nebraska students have access to a rigorous science, technology, engineering, and mathematics curriculum that is aligned with national and Nebraska content standards and focused on the development of 21st Century knowledge and skills. Students have the opportunity to work with highly effective teachers and tutors, utilize an extensive library of online resources, participate in supplemental enrichment activities involving research and exploration, and engage in opportunities for information exchange with a national and international student body.

The increased curricular opportunities of the NVS result in students who are more fully prepared for college admission, advanced post-secondary study, and careers. By ensuring student access to a college-preparatory sequence and advanced placement courses in the STEM areas, students meet standard college admissions requirements in mathematics and science. In addition, NVS students benefit from opportunities to earn college credit while in high school, allowing them to begin college with a number of credits already completed. This opportunity enables students not only to accelerate their college degree plan, but also to enter college as a full-time student with the benefit of early experience and pre-adjustment to college-level work.

The NVS allows for a level of STEM industry and research connections not currently available to many students in Nebraska. Through University and industry partnerships, mentors, and the

infusion of career connections into the curriculum, students have the opportunity to experience and consider possible career paths in STEM areas, as well as the educational foundation it takes to achieve such goals.

Goals

The two major goals of the Nebraska Virtual School: STEM Academy are to:

- Improve achievement in science, technology, engineering, and mathematics by 7th to 12th grade students from Nebraska's lowest performing and highest need schools.
- Close the gap in access to high-quality, rigorous STEM education among Nebraska schools and among subgroups within a school.

Objectives

1. Increase access to high-quality, rigorous STEM education for all Nebraska 7th through 12th grade students by
    - ✓ Offering a complete high-quality, online college preparatory STEM track including core and foundation STEM courses; advanced placement courses in mathematics, science, and technology; and engineering focused courses and learning modules.
    - ✓ Providing access to online STEM-related college credit courses for which credit is accepted by all Nebraska community colleges, state colleges, and universities.
    - ✓ Insuring that all NVS teachers are highly qualified and effective master teachers—experts in their content areas, skilled at distance teaching, excellent at online classroom teaching, outstanding at engaging and motivating students in STEM course work, highly capable of designing instruction that meets the specific demands of high need students, and effective at using data to inform their teaching.
    - ✓ Establishing a fully categorized STEM digital resource library, accessible to students and tutors as well as all NVS and state school teachers.

2. Provide access to a caring and supportive learning community through
    - ✓ Identifying local learning coaches/mentors for schools that have students involved in the NVS STEM Academy.
    - ✓ Providing a tutoring center for all students enrolled in the NVS STEM Academy.

- ✓ Facilitating access to the equipment and software as well as providing the technology support necessary for students taking courses through the NVS STEM Academy.
- ✓ Connecting the STEM Academy academic advisor to counselors at all NVS STEM Academy schools and to college admission and recruitment personnel.

3. Increase STEM capability, and therefore college and career readiness, of Nebraska students by
   - ✓ Matching NVS STEM Academy student career aspirations to appropriate upper-level STEM course work through the development of individualized learning plans.
   - ✓ Linking NVS STEM Academy students to enrichment activities that expose them to new experiences, provide choices for personal development, and reinforce career and college connections.
   - ✓ Establishing a specialized series of college preparatory services to ensure NVS STEM Academy students will be prepared for entry to any Nebraska college of their choice.
   - ✓ Connecting NVS STEM Academy students and teachers with business and industry, non-profit and community associations, or government agencies to provide opportunities to learn about careers in a variety of fields through applied learning opportunities and to assist teachers with the integration of STEM instruction across grades and disciplines.

4. Increase content knowledge, pedagogy and instructional skills, technology integration capabilities, data and standards alignment and implementation abilities, as well as engagement and motivational skills of STEM teachers by
   - ✓ Establishing a Professional Learning Community consisting of all NVS teachers and teachers and administrators in NVS STEM Academy schools.
   - ✓ Providing professional development workshops, access to graduate level courses, and special events for teachers in NVS STEM Academy schools.
   - ✓ Creating opportunities for pre-service teachers and STEM majors to serve as tutors and to complete student teaching assignments, apprenticeships, and internships under the guidance of NVS STEM Academy master teachers.

Background

All but two of the public high school districts in Nebraska are rural and/or small by definition, by geographical location, and/or size of the school population. For example, Valentine Rural High School is the only high school in Cherry County, which is as large in land area as Connecticut. The Wauneta-Palisade District is so large that it covers two time zones. Although the geographic area of these districts is large, the number of students in these schools is less than 400. Overall, immense distances between schools inhibit further consolidations.

Of the public and non-public school (7-12) programs in Nebraska, 156 of them have fewer than 400 student; 67.5% of the high schools have an enrollment of less than 200 students. These small districts face decreasing populations and tax bases, resulting in limited resources and significant challenges drawing qualified teachers to small, isolated towns: However, the schools are important not only to their students' success but also to their communities' (and the state's) economic development.

The cultural diversity of the state student population has changed significantly in the past 20 years with a growing number of minority students attending schools in the rural areas as well as the urban centers. From 1987-1988 to 2007-2008, the percentage of minority students in the school population has increased from 10% to 25%.

Underserved Populations (7-12)	All Students	Black	Hispanic	Asian, Pacific Islanders	Native Americans, Alaskan Natives
Total	130,914	10,479	17,677	2,757	2,238
% of Total	100%	8.0%	13.5%	2.1%	1.7%

The economic impacts experienced by many districts have significantly limited the resources available to schools. The farm economy in Nebraska has experienced a decline over the last 10 years. The job growth rate in Nebraska counties between 1990 and 2008 tied as among the lowest within the Great Plains region. Much of the sluggish job market rates can be attributed to the limited growth in wage and salary jobs, also the region's lowest. Rural farm counties experienced one-fifth the total job growth rate of metropolitan counties. Those families who do choose to stay in rural and small districts are seeing a radical decline in income.

In addition, the populations of low-income and economically distressed families have continued to increase within Nebraska in both rural and urban areas. Figures from recognized standard indicators of individuals in need of financial assistance show 76% of the schools offering lunch programs in Nebraska have 25% or more of the student population participating in the free or reduced lunch subsidized program. In addition, 33.93% of Nebraska schools have 40% or more of the student population participating in the free or reduced lunch subsidized program. Urban, suburban, and rural schools in both large and small districts are affected by the increase in poverty rates within Nebraska.

Nebraska Schools Data		
Type	**# of Schools**	**# of Students**
Lowest Performing [1]	70	54,500+
Highest Need [2]	120	15,000+
High Poverty [3]	63	13,600+
Totals	**235**	**83,600+**

[1] *Schools with 50% or more students performing below proficiency on state mathematics assessments*

[2] *Schools of fewer than 400 students, schools that are geographically isolated with small tax bases, or schools that have 30% or greater of high need students*

[3] *Schools with 50% or more receiving free or reduced lunch*

ELL Nebraska Schools Data		
Range up to 33.7%	**# of Schools**	**# of Students**
4 % to 9%	26	
10% to 19%	9	
Above 20%	5	
Total	**40**	**17,600+**

Academic opportunities that are necessary for college and career readiness are not fully being met due to the constraints on local school budgets, low population, geographic location, and/or small numbers of faculty. One teacher may serve as an entire academic department in a seventh-grade through twelfth-grade attendance center. Schools offer upper level courses every other year on a rotating basis—if at all. Because only one section of a course can be offered, honors or differentiated courses are often not available at either the middle or the high school levels.

Research has shown that it is in the STEM fields where it has historically been most difficult to find highly qualified educators. According to the Teacher Shortage Area data published by the U.S. Department of Education for the 2009-2010 reporting period, Nebraska is experiencing teacher shortages in both mathematics and sciences. This teacher shortage has made the hiring of highly qualified STEM teachers even more challenging for Nebraska's geographically isolated

and highest need schools as well as for difficult-to-staff urban schools. Such staffing problems place all students in low performing and highest need schools at a distinct disadvantage.

Even larger urban districts experience the economic impact of tight budgets, difficult-to-staff schools in high crime or high poverty areas, and school districts with particular recruitment challenges for mathematics, science, and technology teachers.

In its report, *The Opportunity Equation: Transforming Mathematics and Science Education for Citizenship and the Global Economy*, the Commission on Mathematics and Science Education calls for the United States to "mobilize for excellence in mathematics and science education so that all students—not just a select few, or those fortunate enough to attend certain schools – achieve much higher levels of math and science learning." The report goes on to say that all students should be "educated to be STEM-capable no matter where they live, what educational path they pursue, or in which field they choose to work." The Nebraska Virtual School is a new STEM-focused tool that will level the playing field for Nebraska students—whether they live in a geographically isolated region or in a larger urban area, whether they are students in highest need or low performing school districts, or whether they are low achieving or among the most successful.

STEM Curriculum and Instruction

A review of the literature on research into student achievement in science and mathematics outlines a number of factors in both curriculum and instruction that can have a positive impact, particularly on the achievement of low achieving or high-need students and students in historically underachieving groups:

- A culture of high expectations.
- Effort focused on teaching and learning.
- Positive student culture and family engagement.
- Engaging activities where there are opportunities to practice skills and correct errors.
- Opportunities to make contributions to a group.
- Personalized and flexible instruction.

- Connections to career aspirations with relevance of work in upper level mathematics and science.
- The use of multiple approaches to problem solving.
- Tying lessons to real world applications.

NVS provides students with three keys to successful learning: interaction with content, interaction with teachers, and interaction with other students.

Interactive learning opportunities provide the possibility of a dialog between the learner and the course content. Research shows that creating a learning environment that consists of scaffolded learning activities, active exploration, and self assessment enhances a student's ability to learn. Video, audio, and interactive learning activities engage students and help them expand their knowledge of familiar concepts and experiences to more abstract concepts.

Consistent and frequent student to instructor interaction is one of the most important factors in motivating students. Frequent feedback and encouragement from master teachers using best practices provide a learning environment in which students can flourish.

Creating a friendly, social environment is also essential for promoting learning. As students become part of a community, they find that other students motivate them and push them to work harder. Discussions, blogs, and other interactive tools give students time to reflect on their thoughts before contributing their ideas. Students do not have to struggle for a turn to speak, and are thus more likely to participate.

Curriculum

NVS's curriculum expands educational opportunities for students while increasing their 21st Century Skills through technology, global awareness, and problem solving. Developed according to national and Nebraska state academic standards, the college-preparatory curriculum of the Nebraska Virtual School contains rigorous content, engaging multimedia, teaching strategies

based on best practices, interactive elements, opportunities for review, self-evaluation activities, and meaningful standards-based assessments.

Course design is based on national course development and instructional design standards for online curriculum: iNACOL's and NEA's online course development standards; Achieve's America Diploma Project in mathematics benchmarks; PISA, TIMSS, and NAEP benchmarks; ACT's College Readiness Standards and its Quality Core end-of-course models; and College Board's pre-Advance Placement and Advanced Placement course criteria. Curriculum audits are conducted prior to course release, ensuring course content reflects course expectations.

NVS's curriculum scope and sequence is designed to engage disconnected, low achieving students in academically rigorous STEM curriculum placing them on pathways to graduation (meeting Nebraska's increased mathematics and science graduation requirements), post-secondary education, and careers. It also provides opportunities for the most successful students to accelerate beyond what is traditionally available in Nebraska's geographically isolated and highest need schools.

Based on national and state academic standards, the NVS math and science college-preparatory curriculum begins with foundational courses and builds strategically through advanced placement and college level courses, using sound scaffolding principles and best practices to lead to student success. Skill checks, guided practice sections, and reviews help ensure that students gain proficiency in the core concepts before moving on to more complex topics. Science courses include virtual, as well as hands-on, "kitchen," and wet laboratory components.

Core College Preparatory Mathematics and Science Curriculum	
Math Curriculum	**Science Curriculum**
Pre-Algebra	Life Science
First Year Algebra	Physical and Earth Sciences
Geometry	Biology
Advanced Algebra	Chemistry
Pre-calculus	Physics

In addition to the core college preparatory mathematics and science courses listed above, other high school math and science electives, such as Business Mathematics, Science of Health, and Science of Nutrition, are available through NVS. (For additional science elective courses, see sections below on course development, advanced placement, and college credit courses.)

NVS's current technology curriculum includes a series of courses in Microsoft Office Suite and Creative Suite Applications (web design, graphics creation, video and audio editing, multimedia creation, etc.), Introduction to Technology, Internet Gaming, and Introduction to Computer Science. In addition, college credit courses are available in this subject area. (See College Credit course section below.)

Course Development

The Nebraska Virtual School will expand its curriculum by developing new NVS online courses and by adopting online courses that are currently offered by Nebraska schools. Specifically, new NVS course development could include such courses as Principles of Engineering, Digital Electronics, Principles of Biomedical Sciences, or Engineering: The Digital Future, which is focused on engineering and design concepts in wireless and telecommunications, the Internet, electronic music, and other multimedia technologies.

In addition, new science and technology courses—such as Principles of Biomedical Sciences, Human Body Systems, Scientific Research, the Science of Technology, or Biotechnology—would be considered for development or adoption.

Online courses currently offered by Nebraska schools may be adopted as NVS courses through an application process. This process would include review by a panel of educators evaluating the courses both for rigorous academic content based on national and state standards and benchmarks and on standards based instructional course design and development criteria. This adoption process not only expands the NVS curriculum but also provides schools and teachers with support for their continued development efforts.

Additional learning objects, particularly those focused on engineering concepts, will be developed for use in all NVS STEM courses in partnership with Nebraska Educational Telecommunications (NET), the ninth-oldest public station in the nation. NET has a long history of producing high-quality educational materials in television, radio, and interactive media for both a Nebraska and national audience. NET is currently developing five learning objects at the high school level, funded by the Corporation for Public Broadcasting, to explore the interconnections between global earth systems influenced by Antarctica. Titled *Antarctica's Climate Secrets,* the project supplements ANDRILL, an NSF-funded Antarctic drilling initiative at the University of Nebraska-Lincoln.

Advanced Placement

Within the State of Nebraska, access to advanced placement instruction is limited. Currently, advanced placement courses are available in twelve communities. Only in the two larger metropolitan districts is advanced placement available in many subject matter areas or on a consistent basis.

Smaller districts and rural areas currently have limited access to advanced placement STEM courses. According to College Board, only 0.29% of Nebraska students took Advanced Placement STEM course examinations in 2009. This number has not changed significantly over the past five years. (The following chart is continued on the next page.)

NUMBER OF STUDENTS TAKING STEM AP EXAMS (2009)			
COURSE NAME	**NATIONAL**	**NEBRASKA**	**%**
Biology	155,553	397	0.26%
Calculus AB	222,534	675	0.30%
Calculus BC	70,088	275	0.39%
Chemistry	100,510	296	0.29%

NUMBER OF STUDENTS TAKING STEM AP EXAMS (2009)			
COURSE NAME	**NATIONAL**	**NEBRASKA**	**%**
Computer Science A	16,061	10	0.06%
Computer Science AB	4,900	25	0.51%
Physics B	59,797	140	0.23%
Physics C: Elec. & Magnet.	11,907	24	0.20%
Physics C: Mechanics	28,051	53	0.19%
Statistics	114,498	395	0.34%
TOTAL	**783,899**	**2,290**	**0.29%**

NVS STEM Academy will increase the number of students with access to STEM Advanced Placement courses. NVS Advanced Placement courses, which have been approved by the College Board, meet higher-education expectations of college-level courses and prepare students to demonstrate success on the Advanced Placement examinations. Low-income NVS students who complete an NVS advanced placement course will have their Advanced Placement exam fees paid through the state Advanced Placement Test Fee grant program.

AP Math Curriculum	AP Science Curriculum*
AP Statistics and Probability	AP Environmental Science
AP Calculus AB	AP Biology
AP Technology Curriculum	AP Chemistry
AP Computer Science A	AP Physics B
**Calculus BC and Physics C will be developed as warranted.*	

According to Gonzalez et al (2000), AP courses expose college-bound students to "the amounts of homework, study skills, and habits of mind essential for success in college courses." Their research found that students who take AP Exams and score a 3 or higher typically experience greater academic success and college graduation rates than non-AP students. Data reported by Gonzalez et al showed that students enrolled in AP Calculus courses earned the highest average scores on the TIMSS Advanced Mathematics tests, significantly outperforming students in all

other countries, including U.S. students who did not take AP Calculus. Their study also found that students enrolled in AP Physics performed well, scoring significantly above the international average on the TIMSS Physics test; whereas U.S. students not taking AP scored significantly below the international average.

Morgan and Klaric (2007) found that female, African-American, and Hispanic students who had taken AP courses in mathematics, science, or computer science selected a STEM discipline as a major in significantly higher percentages that those students who did not take AP courses. Hargrove, Godin, and Dodd (2008) found that students who scored a 3 or higher on an AP exam were more likely than other students to earn a bachelor's degree within 4 years. This was true even when measured against students who had completed dual enrollment courses. Nevertheless, students who either completed concurrent (dual) enrollment or took the AP exam were more likely to graduate from college than students who had taken neither.

Foundation Courses

Foundations courses in mathematics and science are targeted at both high school students and transitioning middle school students who are not prepared for grade-level academic challenges. These courses are designed to assist students in mastering required content before they move into the core college preparatory sequences. Carefully paced instruction, complemented by interactive and engaging practice focused on improving problem-solving skills, is designed specifically to quickly move students towards academically challenging grade-level coursework.

College Credit Courses

Research has shown that access to dual enrollment opportunities complements and enhances a rigorous high school STEM curriculum. Adelman (2006) reports that concurrent (dual) enrollment enhanced the benefits of a rigorous high school curriculum. Swanson's (2008) findings indicate that concurrent (dual) enrollment students gained "academic momentum" by entering college already having earned credits—that is, students were more likely to persist towards acquiring a degree. Swanson found that concurrent (dual) enrollment "students were more likely to enter college within seven months of high school graduation, to persist through their second year of college, and to have better attitudes toward attending college."

In fulfillment of its goals, NVS STEM Academy, therefore, offers students the opportunity to earn college credit from state and community colleges and universities in Nebraska with courses such as College Algebra and Trigonometry, Multimedia Approach to Computing, Introduction to Computer Science (based on the 3-D graphical Alice programming environment), Astronomy, Earth's Natural Resources, Oceanography, Plant Science, Insect Biology, Biotechnology, Food Science, etc.

The credit must be accepted at all Nebraska colleges and universities for a college course to be listed as an NVS recommended course—only recommended courses would qualify for support through the NVS scholarship pool. (See college preparatory services in the next section for information about the development of learning plans for each NVS student.)

Access to other courses and subject areas

With approval from their local schools and through an application process, NVS students would be eligible to apply for scholarships to cover the cost of enrolling in non-STEM subject matter courses if, for whatever reason, they cannot enroll in those courses through their local school. See Appendix A for a list of a full curriculum of core and elective online courses available through the University of Nebraska-Lincoln Independent Study High School in the following subject areas: World Language, Social Studies, Visual and Performing Arts, Career and Technical Education, English and Language Arts, and Health and Physical Fitness.

Instructional Resources

With excellent content at their disposal, teachers guide students, expanding and clarifying course materials with extra multimedia and interactive games, maps, simulations, videos, etc., from the online resources available to them. In addition, teachers help students visualize challenging concepts using technology such as whiteboards or GeoGebra. Being able to select the most appropriate resource allows teachers to meet the diverse and unique needs of low-achieving students as well as to personalize instruction for ELL, minority, remote, or other student groups.

Research has shown that significant gains in improving teacher quality and student performance have been achieved with careful integration of learning technologies. When aligned with state standards and accompanied by best practices, technologies delivering high-quality digital media (video segments, interactive activities, simulations, audio segments, images, and readings) are powerful tools. Best practices involve media with full educational rights cleared. In addition, this media must be produced explicitly for use by teachers, tutors, and students as well as delivered on-demand over the Internet.

Through its digital resource library, NVS STEM Academy provides all Nebraska teachers, tutors, and students with high quality, teacher-tested, digitally formatted video and audio segments, and interactive games and simulations. The Nebraska Virtual School library of online resources is accessible to teachers, students, and tutors. This online library might include such educational media-on-demand as PowerMedia Plus, National Geographic Education, FREE (Federal Resources for Educational Excellence), the National Science Foundation, SAS Curriculum Pathways, Google Earth, PBS Digital Learning Library through partnership with Nebraska Educational Telecommunications (NET), Discovery Education, and Nebraska Virtual School Hippocampus, NET and statewide curriculum content collection projects, etc.

These digital resources include learning objects such as the following (examples provided are taken from the NET's Public Broadcasting PBS Digital Learning Library):

- *Videos* – Short video clips generally ranging from 30 seconds to five minutes created to convey key concepts. Contextual materials, vocabulary, discussion questions, and other teacher support materials are provided with videos.
- *Interactives* – Flash animations that allow teachers to address content with interactive elements or variables. Students can frequently manipulate the variables and achieve different results, thus helping them understand the inter-relationships of the content. More advanced concepts are covered using an interactive instead of a video clip. Contextual materials, instructions, vocabulary, discussion questions, and other teacher support materials are provided with the interactives.
- *Games* – Educational games have been used in the classroom since the early 1800s, with the spelling bee being one of the most widely known. Today's educational games are much more

sophisticated and interactive. Games are used to help teach or reinforce concepts or to provide skills practice for students.

The online resource library will be fully categorized and searchable so that teachers, tutors, and students can easily navigate the site and search for needed resources. The Nebraska Virtual School STEM Academy provides training for teachers, students, and tutors on the use of these resources.

Teachers

The emphasis in the majority of the literature on improving student achievement in all subject areas—but particularly in the STEM areas—is on training and retaining highly effective teachers. In addition, the literature indicates that one of the major keys to increasing achievement of low achieving students and students in historically underperforming groups (such as Native American, Hispanic, and other minorities, as well as ELL students) is engagement by highly qualified, caring teachers in more academically challenging courses.

To retain highly effective and skilled teachers, the research suggests that teachers be provided better professional development in content, pedagogy, and technology integration; more support and guidance; and better working conditions. In addition, the literature indicates that schools should do a better job of aligning highly effective teachers with lower performing schools as well as in support of low achieving students within higher performing schools. This is exactly what the Nebraska Virtual School STEM Academy accomplishes for Nebraska's geographically isolated, highest need, and lower performing schools and for urban schools with low achieving and high-need students: it provides access to a STEM curriculum taught by highly effective master teachers from across the state. NVS's teachers are provided with the infrastructure, professional development opportunities, instructional focus, resources, and support not easily generated by Nebraska's highest need or lower performing schools.

Student engagement, learning outcomes, and student/teacher interaction are key elements of the Nebraska Virtual School.

In the NVS STEM Academy, communication among teachers and students provides a collaborative learning environment where questions can be answered and ideas exchanged. In this environment, students gain insight into international issues and expand their knowledge of the world. Projects produce meaningful cultural exchanges and allow students to share problem-solving techniques while developing global citizenship skills.

Teachers for the Nebraska Virtual School are endorsed in their subject areas and hold valid Nebraska certificates. Drawn from across the state, NVS teachers are highly effective master teachers, experts in their teaching areas. NVS STEM Academy makes a special effort to recruit bilingual teachers and teachers knowledgeable in working with groups underrepresented in the STEM areas.

Nebraska Virtual School teachers are knowledgeable about the wide variety of instructional resources they can call upon to make a positive difference in student learning. Teachers use a variety of technologies to interact with their classes. They are proficient at managing an online class, building learning communities, creating instructor presence, providing guidance and feedback, and developing rapport with students in an online environment. In addition NVS STEM teachers are proficient at using data to determine student achievement, modifying and supplementing instruction as needed. Teachers establish assignment deadlines; set office hours; develop discussion forums, group projects, or class blogs; and bring in expert speakers through web conferencing.

Teachers enhance student-learning experiences using multimedia and other digital resources. For example, NVS teachers use multimedia, podcasts, or other resources to integrate engineering concepts into the curriculum through focused projects and supplemental enrichment activities that emphasize the interrelatedness of mathematics, science, technology, and engineering.

The Nebraska Virtual School STEM Academy provides professional development and training for NVS teachers. Training includes best practices and national standards for online teaching, new educational and instructional information, and use of technology. NVS works closely with

the University of Nebraska-Lincoln College of Education and Human Sciences to provide professional development for NVS teachers in effective STEM instructional strategies as well as STEM content knowledge that enhances their ability to offer students challenging and engaging courses.

The Nebraska Virtual School provides opportunities for pre-service teachers to gain experience in online teaching, in the integration of technology to ensure student engagement and in-depth learning, and in best practices in STEM education through serving internships and apprenticeships at NVS, shadowing NVS teachers, or serving as NVS tutors. The NVS STEM Academy also provides student teaching opportunities for Nebraska's pre-service teachers.

Supportive Learning Community

According to the Carnegie-IAS Commission on Mathematics and Science and Education (2007), research has shown that students can overcome the challenges resulting from poverty, family issues, peer pressures, second-language learning barriers, and other stresses through building relationships with adults who demonstrate caring and interest in their achievements and have high expectations of them. In addition, the report emphasizes the importance to low-achieving students of access to instruction that is engaging, that provides opportunities to practice skills, and that includes group and interactive activities.

How NVS's STEM curriculum and teachers meet these unique needs has already been outlined above; however, the STEM Academy also provides the supportive relationships within NVS and within the local schools that are so key to resilience and success of all students including low achieving students, particularly the state's high-poverty, ELL, Native American, Black, Hispanic, and other minority students.

Local School Learning Coaches

The Nebraska Virtual School (NVS) STEM Academy is a resource for local schools as they seek to expand the educational opportunities available to their students. Active involvement by local

schools with the Nebraska Virtual School is vital to the success of students enrolled in virtual classes. Participating schools appoint a local learning coach to work with their students and serve as liaison between the school and the NVS.

Key responsibilities of the local school learning coach, who is a certificated teacher, include:

- Acting as liaison between the local school and the virtual school
- Encouraging and supporting students
- Facilitating logistics and communications between the virtual school and the students/local school
- Assisting students to access virtual school courses and other resources
- Monitoring student progress
- Proctoring closed-book exams
- Reporting progress on student work to local school
- Facilitating and monitoring wet labs associated with NVS science courses
- Working with NVS teachers and academic advisor and local school counselors and administrators to identify high performing STEM students, connecting them with relevant enrichment activities and career connections. (See college preparatory services section below.)

The Nebraska Virtual School provides training, stipends, and on-going support for local learning coaches in:

- Effective use of technology to access and communicate with the virtual school
- Required testing procedures (proctor responsibilities)
- Skills needed to encourage students
- Skills needed to supervise students in a variety of subject areas

Tutoring Services

The Nebraska Virtual School provides tutoring services to students needing additional help with concepts or skills.

The Nebraska Virtual School tutors are drawn from secondary education student teachers, practicum students, subject majors, or others who are knowledgeable in subject content and possess good communication skills.

Training for tutors includes:

- Effective use of distance education technologies
- Appropriate communication with students
- Best practices to support student learning
- Use of instructional resources to promote understanding

Technology Support

The Nebraska Virtual School makes available technology support for students, teachers, tutors, local mentors, and others involved with its curriculum. In addition, the Nebraska Virtual School facilitates the provision of necessary computers and applications for its students through partnerships with school districts and Nebraska Educational Service Units.

College and Career Readiness

In releasing its report, *Measures that Matter – Making College and Career Readiness the Mission for America's High Schools* (2008), Achieve and the Education Trust stated, "America's young people are being woefully underprepared for life after high school. While the importance of postsecondary education and training has never been greater, four of every 10 college students need to take remedial courses. Among African-American and Latino students, that number rises to six out of 10. And sadly, students who take remedial courses in college are much more likely to drop out. This preparation gap is taking a real toll on our high school graduates, and on our economy and society as a whole."

In addition to offering high-quality online STEM focused curriculum and instruction and a supportive learning community, NVS also provides additional services to ensure that NVS STEM Academy students are being prepared for advanced study and chosen careers.

College Preparatory Services

Basing their work on the highly successful Grand Island (Nebraska) College Preparatory Academy, the NVS academic advisor will work with local school counselors and learning coaches to help guide NVS students towards college and preparation for a career. With assistance from their local school counselors and the NVS academic advisor, NVS STEM Academy students will develop individualized educational plans using the Nebraska Department of Education online educational and career planning database system. These individualized educational plans will outline the coursework necessary for college and career readiness.

NVS will work with the admissions offices of Nebraska community colleges, state colleges, and universities to identify NVS STEM students who are meeting college entrance requirements and to ensure that NVS STEM Academy students are drawn into campus recruitment activities. The NVS academic advisor will also work closely with local school counselors and learning coaches to ensure that NVS STEM Academy students are provided information on college choices and scholarships and financial aid as well as support and help in navigating these choices and applications.

The NVS academic advisor, together with NVS teachers and local school counselors, will also identify promising STEM students in order to help them form connections with teacher education programs and STEM departments in universities and colleges statewide. The NVS academic advisor will coordinate with local counselors and state college and university teacher education program recruitment advisors to draw promising NVS STEM students into campus-sponsored career and enrichment activities.

Enrichment Activities

In addition to its high quality, rigorous curriculum, the Nebraska Virtual School STEM Academy facilitates involvement of its students in experiential activities. The intent of these enrichment activities is to expose students to new experiences, provide choices for personal development,

and reinforce career and college connections. Scholarship funds for participation will be available to students through an application process. The STEM Academy Academic Advisor works closely with local school administrators, counselors, and teachers to reach out to girls and students from other underrepresented groups, encouraging and supporting their participation in experiential and enrichment activities, connecting them to activities designed specifically to address their needs, and following up with them throughout their participation in the STEM Academy.

Enrichment activities might include:

- Research opportunities and camps located across Nebraska (examples: Cedar Point Biological Station in Ogallala, Nebraska; Ashfall Fossil Beds in Antelope County, Nebraska; Nebraska Agricultural Research and Development Center in Mead, Nebraska; Medical Center in Chadron, Nebraska)
- Internships or shadowing opportunities with partners from Nebraska business and industry, museums, and research centers
- Virtual school clubs
- Study abroad
- E-pals
- Field trips
- Virtual college and career fairs
- School-wide projects (e.g. sister school interactions, service learning opportunities)
- STEM Campus Days

Professional Learning for Teachers

Research suggests that the solution to closing the gap in student mathematics and science achievement is not just more STEM teachers (although, of course, having more highly qualified STEM teachers is still very much a critical part of the solution). Another critical part of the solution is maintaining the skills and commitment of teachers who are knowledgeable, motivating, inspiring, and flexible—teachers who can differentiate strategies for varying situations, students, and content. Highly effective STEM teachers need to

- ✓ have access to the tools necessary to meet diverse student needs,
- ✓ know what excellent teaching looks like,
- ✓ encounter emerging content in the rapidly changing STEM fields,
- ✓ have access to methods of sharing teacher-tested resources,
- ✓ be open to the use of new and emerging strategies and tools, and
- ✓ implement the use of data effectively in designing learning experiences, assessing student achievement, and modifying instruction to meet needs of individual students and groups.

In the section on curriculum and instruction above, NVS's commitment to providing access to the tools necessary to meet diverse student needs was outlined. NVS, however, is also committed to providing professional development opportunities for both NVS teachers and for the teachers whose schools partner with NVS.

Professional Learning Communities

The Nebraska Virtual School sponsors Professional Learning Communities for all NVS online teachers as well as teachers from local schools whose students are enrolled in NVS courses. These PLCs serve to increase teacher expertise in STEM disciplines as well as support the integration of technology resources to enhance teaching and learning by

- ✓ bringing colleagues together to share best instructional practices,
- ✓ establishing a base for incorporating online resources into classes,
- ✓ reviewing current literature on best practices in integrating technology in support of teaching and learning,
- ✓ increasing teacher knowledge and skills in STEM disciplines
- ✓ increasing teacher skill in using data to improve their instruction and impact student achievement, and
- ✓ increasing teacher abilities to identify and implement instructional strategies that effectively address the needs of girls and other underrepresented groups in the STEM areas.

Communication within the PLC is maintained through electronic applications such as a PLC Ning website, targeted tracks at conferences, or web conferencing events.

Additional Training Activities and Graduate Course Work

NVS will leverage already existing Educational Service Unit (ESU), Nebraska Department of Education (NDE), and University/College efforts to enhance the ability of both NVS and partner school teachers to offer their students challenging and engaging STEM curricula. NVS will facilitate, in partnership with ESU staff developers and NDE curriculum coordinators, special workshops and/or a webinar series presented by college/university faculty for members of the NVS Professional Learning Community. (These activities will be open to all non-NVS PLC Nebraska Teachers on a fee basis.) These workshops will focus on what excellence in STEM teaching looks like as well as on how to integrate the tools available in the online resource library to meet the unique needs of low-performing students from diverse groups and locations. In addition, these events will target effective gathering, analyzing of data to inform classroom practice for all students, including high-need students and those underrepresented in the STEM disciplines. Finally, the PLC along with the special workshops and/or webinar series will target the alignment of internationally benchmarked STEM standards that build toward college and career readiness by the time of high school graduation.

In addition, tuition support will be offered to NVS STEM teachers and partner school teachers to participate in college level graduate course work, which stresses both content knowledge and pedagogical issues in the STEM disciplines. For example, NVS teachers and partner school teachers will have access to Teach Nebraska, a program developed by the University of Nebraska-Lincoln (UNL) College of Education and Human Sciences (CEHS) to provide opportunities for teachers to enroll in master's and doctoral level courses in a variety of areas through one simple process.

As part of Teach Nebraska, UNL's Nebraska Math & Science Summer Institutes and the Science for Educators program offer "intellectually rich graduate coursework that enhances a teacher's ability to offer their students challenging courses and curricula" in mathematics, science, and

technology. These online, and in some cases blended, courses were originally created as part of the NSF-funded master's program, Math in the Middle, and the USA Toyota Foundation grant-funded Science for Educators program.

These programs offer a wide array of courses for both middle and secondary school teachers.

- ✓ Mathematics courses include Experimentation, Conjecture, and Reasoning; Functions, Algebra & Geometry; Number Theory and Cryptology; Discrete Math; Statistics; Complex Analysis; and Problems and Complex Numbers.
- ✓ Technology courses include Special Topics in Computer Science: Alice, a Gateway to Computer Science, and Geospatial Technology Applications.
- ✓ Science courses include four Laboratory Earth courses; Objectives and Methods of Science Teaching: Inquiry and the Nature of Science; courses in Teaching Biotechnology, Plant Science, Food Science; Insects as Educational Tools; and Insect Ecology.

Advisory Board

An NVS Advisory Board consisting of business, industry, and community leaders; educators from the Nebraska Department of Education, Nebraska's Educational Service Units, the Nebraska school districts served, and state universities and colleges; representatives from other government and non-profit agencies, such as museums and research centers; and national experts on STEM education will meet quarterly to

- ✓ provide advice to NVS administration,
- ✓ review future plans for NVS,
- ✓ evaluate progress towards expressed goals,
- ✓ provide a forum for collection and expression of recommendations for change,
- ✓ promote communication and establish connections among representative groups, and
- ✓ strengthen the services offered for students and schools.

In addition to providing counsel, Advisory Board members serve as an advocacy body in support of NVS activities. For example, members might develop career days for NVS students, involve

NVS students in industry research experiences as part of an enrichment or applied learning activity, serve as (or assist in identifying) guest lecturers for a class or PLC workshop, participate in developing an engineering curriculum, assist teachers in integrating STEM content across grades and disciplines, promote effective and relevant content, or assume leadership in developing sustainable funding.

School Governance

The NVS STEM Academy has the flexibility to define its own instructional models and associated curriculum to meet the highest academic standards, select and replace staff based on performance measures, implement new structures and formats, and control its budget. Through curriculum audits; teacher and administrator evaluations; on-going and embedded data-informed professional development, coaching, induction, and common planning; and collaborative time for its teachers and principals; NVS continuously measures and evaluates its support systems in order to improve the school's effectiveness in impacting student performance.

The Nebraska Virtual School STEM Academy is supported by the distance education expertise of the University of Nebraska-Lincoln, Independent Study High School (ISHS). Respected as a leader in distance education, ISHS has offered since 1929 a complete high school curriculum along with the administration and certificated faculty to meet the needs of distance learners. Today the school reaches students throughout the United States and overseas. ISHS is Nebraska's only special purpose, distance education public school (Rule 10, Section 013.04) that is fully accredited by the Nebraska Department of Education (1968), the North Central Association Commission on Accreditation and School Improvement (1978), and the Commission on International and Trans-regional Accreditation (2003).

Evaluation

The Nebraska Virtual School STEM Academy includes a data analysis and research component to measure outcomes. This evaluation will measure student learning against state and national standards, course development and teaching against national instructional design and online

teaching standards, and course academic rigor against national benchmarks (such as those developed by Achieve in the American Diploma Project, the College Board, or ACT end of course assessments).

The evaluation will measure the results of the project against target goals in terms of school and student involvement in the NVS STEM Academy, an increase in the number of students prepared for advanced study and careers in the STEM fields through involvement with the STEM Academy, overall improvement in NVS students' achievement in the STEM subjects, and overall decrease in the achievement gap between lower achieving and higher achieving schools and between lower achieving subgroups and higher achieving subgroups in Nebraska's targeted lower performing, highest need, and geographically isolated schools.

The evaluation will outline lessons learned and provide data demonstrating successful strategies and models that can be shared with other schools, teachers, and districts.

Sustainability

After the completion of the grant-funded period of four years, funding for the Nebraska Virtual School will shift to support by the state of Nebraska, possibly through shifting the designation of incentive funds (lottery funds currently designated to support distance learning) and/or through a fee-based structure. The Nebraska Department of Education together with NVS will work with the Nebraska legislators, the governor, and others to develop an ongoing funding method so that Nebraska schools and students can continue to participate in NVS STEM Academy free of charge or through a nominal fee. A business plan will be developed to expand NVS offerings into other subject areas as well as to move NVS beyond the boundaries of the state using a fee-based structure.

Sources

Adding It Up. 2001. National Research Council.

Adelman, C. 2006. *The toolbox revisited: Paths to degree completion from high school through college.* Washington, DC: US Department of Education. Office of Vocational and Adult Education.

Benchmarking for Success. 2008. National Governors Association, Council of Chief State School Officers, Achieve.

Building a STEM Agenda. 2007. National Governors Association.

Campbell, Patricia, Eric Jolly, Lesli Hoey, and Lesley K. Perlman. 2002. *Upping the Numbers: Using Research-Based Decision-Making to Increase Diversity in Quantitative Disciplines.* Report Campbell-Kibler Associates, Inc.

Dossey, John, Katherine Halvorsen, and Sharon McCrone. 2008. *Mathematics Education in the United States: A Capsule Summary Fact Book Written for ICEM 11 National Council of Teachers.*

Dougherty, Chrys, Lynn Mellor, and ShulingJian. 2006. *The Relationship Between Advanced Placement and College Graduation.* 2005 AP Study Series, Report 1. National Center for Educational Accountability.

Engaging Schools: Fostering High School Students' Motivation to Learn. 2004. National Research Council.

Fostering Learning in a Networked World. 2008. National Science Foundation Task Force on Cyberlearning.

Foundations for Success. 2008. National Mathematics Advisory Panel.

Hargrove, Linda, Donn Godinand, and Barbara Dodd. 2007. *College Outcomes Comparisons by AP and Non-AP High School Experiences.* Research Report No. 2008-3. The College Board: New York, NY.

Gonzalez, E., K. O'Connor, and J. Miles. 2000. *How well do Advanced Placement students perform on the TIMSS Advanced Mathematics and Physics Tests?* Chestnut Hill, MA: The International Study Center, Lynch School of Education, Boston College.

Morgan, Rick and John Klaric. 2007. *AP Students in College: An Analysis of Five-Year Academic Careers.* Research Report No. 2007-4. The College Board: New York, NY.

Out of Many, One. 2008. Achieve, Inc.

Rigor at Risk. 2007. ACT.

Rising Above the Gathering Storm. 2005. National Research Council.

Swanson, Joni. *An Analysis of the Impact of High School Dual Enrollment Course Participation on Post-secondary Academic Success, Persistence and Degree Completion.* 2008. University of Iowa, College of Education.

Appendix L

Nebraska's Core Competencies for Early Childhood Professionals

Nebraska's Core Competencies for Early Childhood Professionals

What are Core Competencies? What is Core Knowledge?

Core Knowledge and Core Competencies are what all *adults* who work with children need to know, understand and be able to do to support children's development and school readiness. They provide a broad categorization of knowledge and skills that apply across all roles in the early care and education field.

Nebraska Core Competencies are Voluntary

The competencies, skills, and levels described are voluntary for those working in the early care and education field. Program directors, teachers, family child care home providers and others are encouraged to use *Nebraska's Core Competencies for Early Childhood Professionals* as they find helpful.

Relationships between Early Learning Guidelines and Core Competencies

Nebraska developed voluntary Early Learning Guidelines for children ages birth to three and for children ages three to five. The Nebraska Early Learning Guidelines were developed to describe what children need to learn and be able to do and how adults can support that learning. The Early Learning Guidelines is a resource to assist adults working in early childhood in their planning of meaningful learning experiences for young children. The Core Competencies are Nebraska's description of the knowledge and skills adults, who work with children from birth to age five, need to develop over years of experience and through a course of study.

Early Learning Guidelines

are what children should know, understand, and be able to do

Core Competencies

are what adults who work with children should know, understand, and be able to do to support children in reaching desired outcomes

Levels

There are many skilled early care and education professionals in Nebraska. Nebraska's core competencies describe knowledge and skills based upon six levels of education/experience in the early childhood field. The six levels are:

Level	Description
Level 1	Skills and knowledge anyone entering the early childhood field should have.
Level 2	All skills in level one plus skills and knowledge anyone working in the early childhood field should have after one to two year of employment.
Level 3	Skills and Knowledge anyone working in the early childhood field might have, and specifically the skills you would expect to see in someone with a Child Development Associate (CDA), a one year certificate/diploma in early childhood education, or three years experience in early childhood education. (Includes all of the skills in levels 1 and 2)
Level 4	Skills and knowledge anyone working in the early childhood field might have, and specifically the skills you would expect to see in someone with an Associate's Degree in early childhood education/child development or a related degree and at least three years experience in early childhood education. (Includes all of the skills in levels 1, 2, and 3)
Level 5	Skills and knowledge anyone working in the early childhood field might have, and specifically the skills you would expect to see in someone with a Bachelor's degree in early childhood education, child development, early childhood special education or a related degree and at least three years experience in early childhood education. (Includes all of the skills in levels 1, 2, 3 and 4)
Level 6	Skills and knowledge anyone working in the early childhood field might have, and specifically the skills and knowledge you would expect to see in someone with an advanced degree in early childhood education, child development, early childhood special education or a related degree and at least three years experience in early childhood education. (Includes all of the skills in levels 1, 2, 3, 4 and 5)

Nebraska's Core Competencies are divided into nine areas of knowledge and skill. The nine areas are:

A. Child Growth and Development

B. Health, Safety and Nutrition

C. Learning Environments

D. Planning Learning Experiences and Curriculum

E. Interacting with Children and Providing Guidance to Children

F. Observation, Assessment and Documentation

G. Partnerships with Families and Communities

H. Professionalism and Leadership

I. Administration, Program Planning and Development

Nebraska's Core Competencies Working Document Has Been Completed

Nebraska's April 2009 working document of the Core Competencies has been posted. Changes made to the March 2008 version are relatively minor. The Early Childhood Training Center encourages use of the Core Competencies in describing the skills needed to work in the early childhood education field, to assess professionals' current level of skills and competencies, and to plan what future professional development might be needed.

A brief booklet of level one Core Competencies provides people new to the early childhood field with information on the skills and knowledge that need to be developed within the first year in the field. Please note that this booklet contains only level one skills and competencies for all nine knowledge areas.

Suggested Ways for Using Core Competencies

Nebraska's Core Competencies for Early Childhood Professionals can be used in a variety of ways to improve the knowledge and skills of individuals working in early childhood education. Here are some suggested ways that individuals or programs might use Nebraska's Core Competencies.

Suggested ways for individuals to use the Core Competencies

Suggested ways for programs to use the Core Competencies

Core Competencies Resources

Self Assessments are available to individuals and programs to learn more about current skill strengths and specific areas where further strengths and skills need to be developed.

The Professional Development Plan provides early childhood education professionals with a way to summarize the key skills they want to improve based upon the Core Competencies. A written plan for future professional development can be completed.

The Professional Development Record can be used to track training and continuing education according to Nebraska's Core Competencies.

For more information about *Nebraska's Core Competencies for Early Childhood Professionals*, contact Terry Rohren, 402-557-6894.

Appendix M

Results
Matter in Nebraska

Results Matter in Nebraska:

Measuring Results for Young Children and their Families

New to this site:

- Results Matter fidelity plan, 2009-2010 (November 2009)
- Results Matter master list, October 26, 2009 (November 2009)
- Results Matter online manager form 2009-2010 (November 2009)
- Results Matter requirements for child data collection and online reporting of child progress for children birth to age five have been posted. (August 09)
- Early childhood education program evaluation and quality assurance document (August 2009)
- A new training resource is now available for the Results Matter reliability check, a cooperative training for staff facilitated by Sandy Peterson. For more information, contact Sandy at spc08@cox.net, or call 402-658-4563, or read the article that appeared in the November 2008 issue of What's Up.
- Videos of the fall 2008 Webinars of Online COR training and Online AEPSi.com training have been posted. (December 29, 2008)
- Creative Curriculum answers to your questions (August 2009)

Results Matter Overview

Results Matter in Nebraska is responsive to the federal mandate of the Individuals with Disabilities Act (IDEA) Part C (birth to age three) and Part B, 619 (three to five year olds), as well as the state requirements of Nebraska Department of Education (NDE) Rule 11, Regulations for Early Childhood Programs.

In March of 2005, the stakeholders from Part C and Part B 619 began working with the national Early Childhood Outcomes (ECO) Center and the National Early Childhood Technical Assistance Center (NECTAC) to develop a child and family outcome system to demonstrate effectiveness of our programs, to make decisions for program improvement and to submit timely and accurate reports to the Office of Special Education Program (OSEP). Information about this process will continue to be added to these Web pages as the initiative unfolds in Nebraska.

Results Matter is a child and family outcomes system designed and implemented in 2005-2005 to improve programs and supports for all young children birth to age five, served by school districts, the Early Development Network and their partners. The family, child, and program outcomes apply to all school-based early childhood programs. The purpose of the system is to:

- improve experiences, learning and development and lives of young children (birth to age five) and their families
- inform program practices
- engages families and primary care providers as active participants
- integrates information gathered across settings
- individualizes to address each child's unique ways of learning
- informs decisions about day-to –day learning opportunities for children
- reflects that development and learning are rooted in culture supported by the family

Early Childhood Assessment Results Matter in Nebraska, February 2008 update

Results Matter brochure, February 2009

Family and Child Outcomes

Families

- effectively communicate their children's needs
- help their children develop and learn
- know their rights

Children

- have positive social relationships
- acquire and use knowledge and skills
- take appropriate action to meet their needs
- obtain optimal health

Child Outcome Measurement Tools

- The High/Scope Child Observation Record (COR)
- The Creative Curriculum Developmental Continuum
- The Assessment, Evaluation, and Programming System (AEPS)

Program Outcomes

Programs

- achieve and maintain overall high quality
- have qualified staff
- are consistent with federal and state guidelines

Program Quality Measurement Tools

- Environment Rating Scales (ITERS-R, ECERS-R)
- Early Language and Literacy Classroom Observation (ELLCO)
- NDE Rule 11 reporting and approval for early childhood education programs

NDE Fidelity Process

- Reliability check tips, March 5, 2008
- Using the Results Matter reliability check Web Site, March 5, 2008
- Reliability video vignettes and practice forms, February 27, 2008
- Fidelity Plan, 2009-2010

Reporting Cycle

- AEPSi end-of-year instructions
- Creative Curriculum.net end-of-year instructions
- HighScope.net end-of-year instructions

For additional information on Results Matter in Nebraska Contact one of the following state agency staff:

Part C:
Early Development Network

402-471-4263
Sarah.briggs@dhss.ne.gov

Joan Luebbers
402-471-2463
Joan.luebbers@nebraska.gov

Carol McClain
402-471-4323
Carol.mcclain@nebraska.gov

Part B:
Preschool 3-5

Amy Bunnell
402-471-9329
amy.bunnell@dhss.ne.gov

Jan Thelen
402-471-4319
Jan.thelen@nebraska.gov

Sarah Briggs

Sue Bainter
402-471-1860
Sue.bainter@nebraska.gov

NDE Rule 11

Linda Meyers
402-471-2980
Linda.meyers@nebraska.gov

Melody Hobson
402-471-0263
melody.hobson@nebraska.gov

Jen Benson
402-471-8204
Jen.benson@nebraska.gov

Diane Kvasnicka
402-471-0951
Diane.kvasnicka@nebraska.gov