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ALABAMA STATE SENATE
ALABAMA STATE HOUSE
11 SOUTH UNION STREET, SUITE 737
MONTGOMERY, ALABAMA 36130-4600

ARTHUR ORR
SENATOR
POST OFFICE BOX 305
DECATUR, ALABAMA 35602

DECATUR
256-260-2147
HUNTSVILLE
256-539-5441
MONTGOMERY
334-242-7891

December 30, 2009

Dr. Joe Morton
State Superintendent
Alabama Department of Education
50 North Ripley Street
P.O. Box 302101
Montgomery Alabama 36130-2101

Re: Select Commission on High School Graduation and Student Dropouts

Dear Dr. Morton,

As required by Act Number 2009-229, I am submitting herewith a report of the Select Commission on High School Graduation and Student Dropouts. The Commission, which I was honored to Chair, met five times. The participation among the appointed members was excellent. Because of the strength and diversity of the appointees, I believe the enclosed document provides an attainable road map for our state to follow in a quest to increase our graduation rate here in Alabama. As you know, when a child fails to reach his or her fullest potential due to dropping out of school, we suffer as a society and a state.

The Commission members were very desirous to continue their work on this important issue with a primary focus on supporting and monitoring the progress made across the state. Consequently, we will seek to extend the Commission's existence past its December 31, 2009 termination date during the 2010 Regular Legislative Session. I trust you will be supportive of this effort when a resolution is offered to effectuate such extension. All of the current members with who I have talked have voiced support for continuing on in their role as a Commission member.

In closing, I thank you for your service to our state and welcome any questions or requests for additional information that you or your staff may have.

Yours very truly,

Arthur Orr
Chairman, Select Commission on High School Graduation and Student Dropouts

AO/jlm

Enclosure

(b)(6)

Every Child A Graduate

Executive Summary

Alabama Select Commission on High School Graduation and Student Dropouts

THE MISSION

The Alabama Select Commission on High School Graduation and Student Dropouts was appointed by the Governor, Lt. Governor, Speaker of the House of Representatives, and Chief Justice of the Alabama Supreme Court in July 2009. This diverse group of individuals set out to identify those factors that have led Alabama to this point in the national dropout epidemic and develop a set of recommendations that, when fully implemented, should have a significant and positive effect on the students currently attending our public schools, the communities within which they live, and our state.

The recommendations contained within this Executive Summary are simply a beginning of an ongoing and intensive body of work and should not be viewed as all inclusive. A recommendation will be forthcoming from the Chairman extending the life of the Commission for a five-year period to ensure continuation of the work and, equally as important, accountability for results.

The ambitious goal of this Commission is to see a 25% reduction in our dropout rate by 2015 using as a baseline the dropout rate for the 2008-2009 academic year. It will be through the collaborative efforts of all of Alabama's citizens, in partnership with our business community, that we see this goal become a reality.

Recommendations

	PROJECTED IMPLEMENTATION	RESPONSIBLE PARTY	COST
Alabama Graduation Tracking System	August 2020	Alabama Department of Education	None
Comprehensive Student Support Services System	August 2010	Alabama Department of Education	$770,000
Positive Behavior Supports & The Parent Project	August 2010	Alabama Department of Education	$250,000
Innovative Pathways to Graduation	August 2010—Ongoing	Alabama Department of Education	$1,320,000 (pilot)
Guide for Examining School System Codes of Conduct	August 2010—Ongoing	Alabama Department of Education/ Alabama Association of School Boards	None
Recovery Academies	August 2010—Ongoing	Alabama Department of Education/LEAs and Business Partners	To Be Determined
A+ College Ready Advanced Placement Initiative	August 2010—Ongoing	Alabama Department of Education/A+ and Business Partners	To Be Determined
Mandatory Attendance Age	Dependent on Innovative Pathways to Graduation	Legislature	None
Statewide Public Engagement Campaign	August 2010	Alabama Department of Education and Business Partners	To Be Determined

Recommendation #1

Alabama Graduation Tracking System

(b)(6)

"If someone had asked me why I was so angry they would have realized I was just hungry"

The Commission recognizes the need to identify our at-risk students at the earliest point possible. To that end, the Commission recommends the development and implementation of an Alabama Graduation Tracking System that begins in pre-kindergarten and continues through graduation. Through this tracking system, teachers, counselors, and school administrators will be notified anytime a student's attendance, grades, or disciplinary infractions fall below expected standards. Through this early identification a proactive plan of student and family support can be developed to alleviate future problems.

During the six months since the appointment of the Commission, the Alabama Graduation Tracking System has been developed and will be available for implementation in all of Alabama's schools beginning in August 2010. There will no costs incurred for the local school system in implementing this program.

Recommendation #2

Comprehensive Student Support Services System

"There didn't seem to be anywhere I could turn or anyone who cared enough to help me with my problems, so I left."

The Commission recognizes the need to assist our students with not only their academic but their social, emotional, and health needs as well. To that end, the Commission recommends the development and implementation of a Comprehensive Student Support Services System to coordinate the multiple support services available within the school and the greater community. These services include, but are not limited to, guidance and counseling, school nursing, school resource officers, school social workers, graduation coaches, and the plethora of community agencies providing services to children.

The agency charged with the responsibility for the development of the Comprehensive Student Support Services System will be the Alabama Department of Education with an expected implementation date of August 2010.

To support the implementation of this Comprehensive Student Support Services System, the Commission recommends the establishment of a Regional Student Support Specialist to assist local school systems in the "case management" needs within that region. Based on the Regional In-service Center structure, a total of 11 specialists would be needed with state funding at $770,000 to be distributed proportionally.

Recommendation #3

Positive Behavior Supports
The Parent Project

(b)(6)

"I NEVER FELT THAT MY SCHOOL CARED IF I WAS THERE OR NOT"

The Commission recognizes that the climate and culture of a school plays a crucial role in the success of students. Positive Behavior Supports is a nationally recognized and proven program that, when implemented in a school, has a profound positive effect.

Currently, the Positive Behavior Supports program is being implemented in a fragment of our schools, and it would be the Commission's recommendation that this program be taken to scale and implemented in ALL of Alabama's schools.

Additionally, the Commission recognizes the need for parental support in creating the same type of environment in the home. To this end the Commission recommends that The Parent Project be provided as part of a collaborative effort between local school systems and the juvenile justice system.

To make this recommendation a reality there would need to be an increase in the number of Positive Behavior Support Coaches available throughout the state. The Commission recommends that an allocation of $250,000 be considered in support of this program.

(b)(6)

Recommendation #4

Guide to Innovative Pathways to Graduation

"It wasn't that I couldn't learn, I just learn differently than the other students in my class – sometimes even faster!"

The Commission recognizes that the students of today require a different learning environment than is found in most traditional schools. To that end, the Commission recommends the development and implementation of a Guide to Innovative Pathways to Graduation for use throughout Alabama's schools. These innovative pathways will hold firm to our high academic standards for all students but allow those standards to be obtained at different rates, in different places, and measured by different means, giving students a voice in their educational process.

The agency charged with the responsibility for the development of the Guide to Innovative Pathways to Graduation will be the Alabama Department of Education with an expected delivery date of August 2010.

The Commission also recognizes that local school systems will incur additional expenses as they implement these innovative pathways and recommends that competitive grants of up to $250,000 be awarded to school systems that have developed, submitted, and obtained approval from the Alabama Department of Education for an Innovative Pathways to Graduation plan for their school system. A statewide total of $1,320,000 would be requested to support this program of improvement.

Recommendation #5

GUIDE FOR EXAMINING SCHOOL SYSTEM CODES OF CONDUCT

(b)(6)

"I WANTED TO COMPLETE MY CLASS WORK MISSED DURING MY SUSPENSION BUT MY TEACHER TOLD ME THE POLICY WOULDN'T ALLOW IT."

The Commission has discovered through its work that there exists policies and practices throughout the state that are inconsistent with the state's requirement to provide a free and appropriate education for ALL students. Consequently, the Commission recommends that the Alabama Association of School Boards, in collaboration with the Alabama Department of Education, develop a GUIDE FOR EXAMINING SCHOOL SYSTEM CODES OF CONDUCT with a focus on conflicts with current state law and other administrative codes as they relate to disciplinary actions such as suspension and expulsion as well as the areas of attendance and truancy.

The goal of this recommendation is that existing policies and procedures that prevent students from experiencing success be removed and replaced with policies and procedures and, more importantly, practices that support true changes in student behavior and therefore enhance their opportunities to receive an education and become a graduate.

Recommendation #6

Recovery Academies

(b)(6)

"I had the skills all along, I just didn't fit in."

The Commission recognizes that many students who have already dropped out of Alabama's schools maintain the potential to earn a high school diploma and become a contributing member of their community and our state.

To that end, the Commission recommends the establishment of Recovery Academies for students who have previously left high school but would agree to complete their graduation requirements in an alternative setting. These Recovery Academies would be developed in partnership with local school systems while being administered through a private organization. A strong business community relationship will also be an integral part of this program for internship opportunities, work skills development and mentoring

Funding for these Recovery Academies would be fronted by the organization adminstering the program during the first year of operation and then a prorata share of the earned ADM amount from the local school system would be used until the student graduates.

Recommendation #7

A+ College Ready Advanced Placement Initiative

(b)(6)

"I would have taken more challenging coursework if someone had pushed me."

Alabama has recently been recognized as a national leader in the expansion of Advanced Placement programs to under-represented populations of students through the A+ College Ready Advanced Placement Initiative. In fact, Alabama led the nation in the percentage gain of students participating in Advanced Placement courses and even more importantly also led the nation in the percentage gain in qualifying scores.

Based on the recognized success of this program and the profound impact it can have on the future educational opportunities for students, the Commission recommends that the A+ College Ready Advanced Placement Initiative partner with existing AP programs for expansion throughout the state with a focus on underrepresented areas and underrepresented populations of students.

(b)(6)

Recommendation #8

Mandatory Attendance Age

"Why should I stay? My parents didn't graduate and they have done ok plus the law gives me permission."

The Commission recognizes that to compete in today's global economy a high school diploma is an absolute. With that acknowledgement in mind, the Commission recommends that the school attendance law be amended to require attendance until the age of majority (19) or graduation from high school. Exceptions would be for students with mental, physical, or medical needs that cannot be met in the public school setting and homeschooled students not pursuing an Alabama High School Diploma.

It is also the understanding of the Commission that this requirement will only be realistic upon the implementation of the Innovative Pathways to Graduation component of these recommendations.

Recommendation #9

Statewide Public Engagement Campaign

(b)(6)

"If I had only known how limited my choices would be I would have stayed in school."

The Commission realizes that the negative impact of dropping out on the individual and the nation is not being adequately communicated throughout our state. To that end, the Commission recommends that a Statewide Public Engagement Campaign be developed and that this campaign become an ongoing focus in our state.

The agency charged with the responsibility for the development of the Statewide Public Engagement Campaign will be the Alabama Department of Education in partnership with The Mattie C. Stewart Foundation, America's Promise Alliance, and the many local organizations that support our public schools.

(b)(6)

The Alabama Select Commission on High School Graduation and Student Dropouts

Senator Arthur Orr, Chairman

Senator Tom Butler

Senator Quinton Ross

Senator Rodger Smitherman

Representative Joseph Mitchell

Representative Thad McClammy

Representative DuWayne Bridges

Representative Tommy Sherer

Judge David Breland

Mrs. Ella B. Bell

Dr. Tommy Bice

Dr. Kay Atchison-Warfield

Dr. Marquita Davis

Dr. Cynthia Reed

Dr. Charlotte Williams

Dr. Jeanne Payne

Ms. Christy Mehaffey

Mrs. Caroline Novak

Mr. Jeremiah Newell

Mr. Sherman Suitts

HS_Code	HS_Name	Grads	Enrolled	Remediation	Remediation Percent
001-0015	Autaugaville School	25	9	4	44.4%
001-0040	Billingsley High School	61	24	8	33.3%
001-0050	Marbury High School	67	27	10	37.0%
001-0086	Prattville High School	440	222	57	25.7%
002-0005	Baldwin County High School	206	117	27	23.1%
002-0035	Daphne High School	241	155	27	17.4%
002-0065	Fairhope High School	272	170	29	17.1%
002-0083	Foley High School	296	105	21	20.0%
002-0089	Gulf Shores High School	137	80	15	18.8%
002-0117	Robertsdale High School	225	115	20	17.4%
002-0145	Spanish Fort High School	167	98	12	12.2%
003-0020	Barbour County High School	41	30	10	33.3%
004-0010	Bibb County High School	108	66	24	36.4%
004-0080	West Blocton High School	86	41	15	36.6%
005-0020	Appalachian School	37	21	13	61.9%
005-0040	Cleveland High School	52	25	8	32.0%
005-0050	Hayden High School	133	70	26	37.1%
005-0060	JB Pennington High School	56	33	13	39.4%
005-0070	Locust Fork High School	111	55	24	43.6%
005-0120	Susan Moore High School	66	41	20	48.8%
006-0050	Bullock County High School	69	29	9	31.0%
007-0020	Georgiana High School	36	16	6	37.5%
007-0030	Greenville High School	167	85	38	44.7%
007-0060	McKenzie High School	22	13	4	30.8%
008-0010	Alexandria High School	118	66	19	28.8%
008-0130	Ohatchee High School	60	33	9	27.3%
008-0135	Pleasant Valley High School	76	49	9	18.4%
008-0160	Saks High School	106	60	15	25.0%
008-0180	Weaver High School	64	48	15	31.3%
008-0200	Wellborn High School	71	42	13	31.0%
008-0210	White Plains High School	66	42	8	19.0%
009-0080	Lafayette High School	53	30	19	63.3%
009-0140	Valley High School	145	70	33	47.1%
010-0020	Cedar Bluff High School	31	15	6	40.0%
010-0050	Cherokee County High School	66	39	12	30.8%
010-0060	Gaylesville High School	30	15	7	46.7%
010-0100	Sand Rock High School	51	28	8	28.6%
010-0110	Spring Garden High School	36	15	6	40.0%
011-0010	Chilton County High School	166	96	31	32.3%
011-0060	Isabella High School	45	21	9	42.9%
011-0070	Jemison High School	92	43	12	27.9%
011-0080	Maplesville High School	32	14	9	64.3%
011-0100	Thorsby High School	45	15	6	40.0%
011-0110	Verbena High School	15	4	2	50.0%
012-0020	Choctaw County High School	60	25	7	28.0%

HS_Code	HS_Name	Grads	Enrolled	Remediation	Remediation Percent
012-0080	Southern Choctaw High School	49	24	14	58.3%
013-0010	Clarke County High School	87	55	22	40.0%
013-0030	Coffeeville High School	12	6	5	83.3%
013-0065	Jackson High School	112	60	13	21.7%
014-0040	Clay County High School	54	31	9	29.0%
014-0070	Lineville High School	61	38	7	18.4%
015-0020	Cleburne County High School	119	61	9	14.8%
015-0050	Ranburne High School	74	34	11	32.4%
016-0020	Kinston School	33	21	5	23.8%
016-0040	New Brockton High School	44	30	10	33.3%
016-0060	Zion Chapel High School	40	25	13	52.0%
017-0060	Cherokee High School	38	27	14	51.9%
017-0070	Colbert County High School	59	37	12	32.4%
017-0080	Colbert Heights High School	57	32	18	56.3%
018-0035	Hillcrest High School	115	58	25	43.1%
019-0005	Central High School	73	42	13	31.0%
020-0040	Florala High School	30	17	11	64.7%
020-0050	Pleasant Home School	27	17	4	23.5%
020-0060	Red Level High School	57	31	15	48.4%
020-0080	Straughn High School	76	49	15	30.6%
021-0010	Brantley High School	26	14	6	42.9%
021-0030	Highland Home School	50	18	7	38.9%
021-0050	Luverne High School	68	32	16	50.0%
022-0030	Cold Springs High School	47	27	8	29.6%
022-0060	Fairview High School	97	46	18	39.1%
022-0080	Good Hope High School	84	37	14	37.8%
022-0090	Hanceville High School	54	28	8	28.6%
022-0100	Holly Pond High School	79	47	11	23.4%
022-0140	Vinemont High School	68	38	11	28.9%
022-0160	West Point High School	107	59	22	37.3%
023-0010	Ariton School	48	32	9	28.1%
023-0020	Dale County High School	67	36	13	36.1%
023-0040	George W Long High School	55	39	10	25.6%
024-0020	Dallas County High School	108	60	35	58.3%
024-0080	Keith Middle-High School	44	19	5	26.3%
024-0120	Southside High School	99	53	29	54.7%
025-0030	Collinsville High School	31	19	12	63.2%
025-0045	Crossville High School	88	54	23	42.6%
025-0065	Fyffe High School	64	43	15	34.9%
025-0070	Geraldine School	59	28	7	25.0%
025-0100	Ider School	48	31	7	22.6%
025-0130	Plainview School	73	50	9	18.0%
025-0150	Sylvania School	61	26	11	42.3%
025-0170	Valley Head High School	37	20	3	15.0%
026-0010	Elmore County High School	120	52	8	15.4%

HS_Code	HS_Name	Grads	Enrolled	Remediation	Remediation Percent
026-0020	Holtville High School	95	27	4	14.8%
026-0050	Stanhope Elmore High School	208	94	37	39.4%
026-0070	Wetumpka High School	233	105	26	24.8%
027-0025	Escambia County High School	121	69	32	46.4%
027-0050	Flomaton High School	68	37	9	24.3%
027-0110	W S Neal High School	94	61	23	37.7%
028-0035	Etowah County Alternative High	18	6	2	33.3%
028-0040	Gaston High School	36	22	8	36.4%
028-0060	Glencoe High School	73	47	22	46.8%
028-0075	Hokes Bluff High School	87	60	22	36.7%
028-0120	Sardis High School	85	53	21	39.6%
028-0130	Southside High School	145	116	33	28.4%
028-0150	West End High School	59	33	15	45.5%
029-0020	Berry High School	32	23	12	52.2%
029-0025	Fayette County High School	88	55	26	47.3%
029-0040	Hubbertville School	22	11	3	27.3%
030-0010	Belgreen High School	27	14	6	42.9%
030-0030	Phil Campbell High School	52	26	11	42.3%
030-0040	Red Bay High School	60	27	10	37.0%
030-0065	Tharptown High School	31	11	5	45.5%
030-0090	Vina High School	26	13	6	46.2%
031-0020	Geneva County High School	39	24	12	50.0%
031-0040	Samson High School	35	27	5	18.5%
031-0060	Slocomb High School	57	34	13	38.2%
032-0030	Greene County High School	74	43	23	53.5%
033-0010	Akron Community School East	21	11	4	36.4%
033-0030	Greensboro East High School	54	33	16	48.5%
033-0040	Greensboro West High School	35	14	7	50.0%
033-0050	Hale County High School	56	43	17	39.5%
033-0090	Sunshine High School	26	16	7	43.8%
034-0020	Abbeville High School	46	31	13	41.9%
034-0040	Headland High School	75	47	24	51.1%
035-0010	Ashford High School	91	46	28	60.9%
035-0020	Cottonwood High School	44	13	4	30.8%
035-0040	Houston County High School	56	32	15	46.9%
035-0050	Rehobeth High School	128	67	28	41.8%
035-0080	Wicksburg High School	80	42	15	35.7%
036-0075	North Jackson High School	90	45	13	28.9%
036-0080	North Sand Mountain School	58	29	13	44.8%
036-0090	Paint Rock Valley High School	15	9	4	44.4%
036-0100	Pisgah High School	78	50	13	26.0%
036-0120	Section High School	61	45	16	35.6%
036-0130	Skyline High School	41	29	12	41.4%
036-0150	Woodville High School	28	15	4	26.7%
037-0185	Clay-Chalkville High School	280	179	71	39.7%

HS_Code	HS_Name	Grads	Enrolled	Remediation	Remediation Percent
037-0210	Corner High School	118	79	23	29.1%
037-0280	Erwin High School	160	67	43	64.2%
037-0295	Fultondale High School	54	23	10	43.5%
037-0310	Gardendale High School	203	133	56	42.1%
037-0420	Hueytown High School	182	87	43	49.4%
037-0520	McAdory High School	158	91	47	51.6%
037-0585	Minor High School	222	132	63	47.7%
037-0610	Mortimer Jordan High School	166	84	34	40.5%
037-0690	Oak Grove High School	84	50	27	54.0%
037-0710	Pinson Valley High School	189	99	39	39.4%
037-0735	Pleasant Grove High School	132	95	39	41.1%
037-0795	Shades Valley High School	244	152	37	24.3%
038-0055	South Lamar School	27	19	10	52.6%
038-0060	Sulligent School	32	16	4	25.0%
038-0090	Lamar County High-Intermediate	55	27	14	51.9%
039-0020	Brooks High School	118	85	32	37.6%
039-0030	Central High School	76	45	16	35.6%
039-0070	Lauderdale County High School	84	57	24	42.1%
039-0080	Lexington School	60	44	12	27.3%
039-0110	Rogers High School	117	73	26	35.6%
039-0130	Waterloo High School	31	14	9	64.3%
039-0140	Wilson High School	98	61	11	18.0%
040-0020	East Lawrence High School	103	55	21	38.2%
040-0030	R A Hubbard High School	13	7	5	71.4%
040-0050	Hatton High School	51	34	17	50.0%
040-0070	Hazlewood High School	34	17	11	64.7%
040-0090	Lawrence County High School	111	61	23	37.7%
040-0130	Mount Hope	24	12	4	33.3%
040-0140	Speake	31	16	6	37.5%
041-0010	Beauregard High School	126	61	26	42.6%
041-0020	Beulah High School	61	29	16	55.2%
041-0030	Loachapoka High School	45	17	10	58.8%
041-0060	Smiths Station High School	334	126	63	50.0%
042-0010	Ardmore High School	121	75	18	24.0%
042-0020	Clements High School	55	32	6	18.8%
042-0030	East Limestone High School	130	91	29	31.9%
042-0050	Elkmont High School	91	53	13	24.5%
042-0120	Tanner High School	44	31	13	41.9%
042-0140	West Limestone High School	80	51	18	35.3%
043-0015	Calhoun High School	51	20	9	45.0%
043-0025	Central High School	56	29	10	34.5%
044-0010	Booker T Washington High	137	42	20	47.6%
044-0060	Notasulga High School	30	11	6	54.5%
045-0030	Buckhorn High School	194	126	29	23.0%
045-0070	Hazel Green High School	215	123	32	26.0%

HS_Code	HS_Name	Grads	Enrolled	Remediation	Remediation Percent
045-0095	Madison County High School	137	75	15	20.0%
045-0140	New Hope High School	53	29	8	27.6%
045-0190	Sparkman High School	429	304	80	26.3%
046-0010	Amelia L. Johnson High School	27	12	8	66.7%
046-0050	John Essex High School	20	9	5	55.6%
046-0060	Marengo High School	27	14	4	28.6%
046-0090	Sweet Water High School	36	22	9	40.9%
047-0020	Brilliant High School	24	18	7	38.9%
047-0070	Hackleburg High School	34	24	11	45.8%
047-0090	Hamilton High School	76	54	22	40.7%
047-0100	Marion County High School	24	13	6	46.2%
047-0110	Phillips High School	31	18	16	88.9%
048-0030	Asbury School	50	18	13	72.2%
048-0042	Brindlee Mountain High School	88	43	14	32.6%
048-0100	Douglas High School	91	44	24	54.5%
048-0140	Kate D Smith DAR High School	96	57	17	29.8%
049-0080	Ben C Rain High School	132	44	29	65.9%
049-0100	Baker High School	402	202	39	19.3%
049-0120	Mattie T Blount High School	255	113	51	45.1%
049-0136	Alma Bryant High School	301	96	24	25.0%
049-0190	Citronelle High School	136	58	25	43.1%
049-0230	WP Davidson High School	230	111	28	25.2%
049-0460	Mary G Montgomery High School	304	121	19	15.7%
049-0530	Murphy High School	528	278	77	27.7%
049-0640	Satsuma High School	268	132	31	23.5%
049-0715	Theodore High School	302	132	41	31.1%
049-0730	John L Leflore Magnet School	200	93	49	52.7%
049-0750	CF Vigor High School	142	39	20	51.3%
049-0800	Lillie B Williamson High School	196	49	31	63.3%
050-0020	Excel High School	51	31	10	32.3%
050-0030	Frisco City High School	13	6	2	33.3%
050-0055	J F Shields High School	29	15	6	40.0%
050-0060	J U Blacksher School	36	20	8	40.0%
050-0070	Monroe County High School	94	58	26	44.8%
051-0060	Booker T Washington Magnet High	94	67	10	14.9%
051-0097	Brewbaker Technology Magnet Hig	106	74	22	29.7%
051-0130	Carver Senior High School	210	68	33	48.5%
051-0240	Fews Elementary Alternative	1	0	0	0.0%
051-0300	Goodwyn Junior High School	2	0	0	0.0%
051-0370	Jefferson Davis High School	321	138	63	45.7%
051-0387	Loveless Academic Magnet Progra	93	66	0	0.0%
051-0390	Lanier Senior High School	163	57	28	49.1%
051-0400	Lee High School	294	113	45	39.8%
052-0005	Albert P Brewer High School	152	80	20	25.0%
052-0030	Danville High School	73	47	14	29.8%

HS_Code	HS_Name	Grads	Enrolled	Remediation	Remediation Percent
052-0060	Falkville High School	47	28	16	57.1%
052-0150	Priceville High School	99	60	20	33.3%
052-0180	West Morgan High School	75	42	15	35.7%
053-0035	Marion High School	64	34	15	44.1%
053-0040	Robert C Hatch High School	53	19	10	52.6%
054-0020	Aliceville High School	54	35	27	77.1%
054-0070	Gordo High School	80	51	14	27.5%
054-0080	Pickens County High School	44	24	6	25.0%
055-0030	Goshen High School	49	24	12	50.0%
055-0040	Pike County High School	51	17	4	23.5%
056-0020	Randolph County High School	59	32	9	28.1%
056-0040	Wadley High School	21	13	5	38.5%
056-0060	Woodland High School	57	32	8	25.0%
057-0065	Russell County High School	203	69	36	52.2%
058-0010	Ashville High School	82	36	15	41.7%
058-0075	Moody High School	125	66	31	47.0%
058-0120	Ragland High School	40	21	6	28.6%
058-0130	Springville High School	136	82	27	32.9%
058-0140	Saint Clair County High School	119	32	11	34.4%
059-0010	Calera High	86	42	20	47.6%
059-0020	Chelsea High School	149	99	35	35.4%
059-0060	Montevallo High School	82	32	11	34.4%
059-0081	Oak Mountain High School	382	271	39	14.4%
059-0085	Pelham High School	336	232	79	34.1%
059-0090	Shelby County High School	138	65	17	26.2%
059-0120	Thompson High School	344	198	49	24.7%
059-0160	Vincent Middle High School	60	28	8	28.6%
060-0030	Livingston High School	77	36	21	58.3%
060-0050	Sumter County High School	80	31	12	38.7%
061-0020	BB Comer Memorial High School	52	27	1	3.7%
061-0050	Childersburg High School	107	60	11	18.3%
061-0060	Talladega County Central High	36	8	2	25.0%
061-0080	Fayetteville High School	46	23	2	8.7%
061-0120	Munford High School	81	38	10	26.3%
061-0170	Lincoln High School	101	47	17	36.2%
061-0180	Winterboro High School	31	12	1	8.3%
062-0020	Dadeville High School	72	44	7	15.9%
062-0040	Edward Bell High School	16	10	3	30.0%
062-0065	Horseshoe Bend High School	56	37	5	13.5%
062-0080	Reeltown High School	44	24	7	29.2%
063-0030	Brookwood High School	154	82	23	28.0%
063-0100	Hillcrest High School	229	153	42	27.5%
063-0120	Holt High School	64	30	8	26.7%
063-0160	Northside High School	69	34	8	23.5%
063-0180	Tuscaloosa County High School	336	214	65	30.4%

HS_Code	HS_Name	Grads	Enrolled	Remediation	Remediation Percent
064-0020	Carbon Hill High School	81	54	28	51.9%
064-0050	Cordova High School	64	29	6	20.7%
064-0070	Curry High School	128	87	41	47.1%
064-0170	Oakman High School	68	46	16	34.8%
065-0030	Fruitdale High School	27	11	4	36.4%
065-0040	Leroy High School	66	40	16	40.0%
065-0050	McIntosh High School	42	10	3	30.0%
065-0060	Millry High School	45	24	12	50.0%
065-0090	Washington County High School	58	36	14	38.9%
066-0135	Wilcox Central High School	132	61	28	45.9%
067-0010	Addison High School	42	28	6	21.4%
067-0030	Lynn High School	37	17	8	47.1%
067-0040	Meek High School	45	23	9	39.1%
067-0060	Winston County High School	73	35	15	42.9%
101-0020	Albertville High School	171	107	36	33.6%
*102-0020	Benjamin Russell High School	175	124	13	10.5%
104-0010	Andalusia High School	93	67	27	40.3%
105-0010	Anniston High School	100	48	26	54.2%
106-0020	Arab High School	149	117	32	27.4%
107-0030	Athens High School	195	122	12	9.8%
109-0025	Etowah High School	139	73	26	35.6%
110-0010	Auburn High School	371	240	53	22.1%
113-0080	Bessemer City High School	157	67	45	67.2%
114-0095	George Washington Carver High S	160	50	29	58.0%
114-0390	Huffman High School-Magnet	211	107	62	57.9%
114-0415	Jackson-Olin High School	164	66	35	53.0%
114-0630	Parker High School	150	64	42	65.6%
114-0720	Ramsay High School	140	105	31	29.5%
114-0858	Wenonah High School	218	81	58	71.6%
114-0920	Woodlawn High School-Magnet	188	46	34	73.9%
115-0060	Boaz High School	138	104	44	42.3%
116-0030	TR Miller High School	77	51	24	47.1%
125-0020	Cullman High School	163	122	26	21.3%
126-0010	Daleville High School	77	39	22	56.4%
127-0010	Austin High School	305	195	55	28.2%
127-0030	Decatur High School	215	125	35	28.0%
128-0050	Demopolis High School	151	85	33	38.8%
130-0030	Dothan High School	248	130	66	50.8%
130-0115	Northview High School	214	131	53	40.5%
131-0020	Elba High School	69	46	13	28.3%
132-0050	Enterprise High School	382	224	56	25.0%
133-0010	Eufaula High School	178	110	50	45.5%
137-0020	Fairfield High Preparatory Scho	141	71	42	59.2%
141-0020	Florence High School	276	176	42	23.9%
143-0020	Fort Payne High School	162	108	45	41.7%

HS_Code	HS_Name	Grads	Enrolled	Remediation	Remediation Percent
144-0135	Gadsden City High School	280	151	60	39.7%
146-0010	Geneva High School	84	58	19	32.8%
154-0040	Guntersville High School	111	86	28	32.6%
155-0030	Haleyville High School	89	54	24	44.4%
156-0040	Hartselle High School	189	121	32	26.4%
157-0035	Homewood High School	217	136	21	15.4%
158-0010	Spain Park High School	245	175	32	18.3%
158-0400	Hoover High School	530	332	67	20.2%
159-0020	SR Butler High School	100	26	12	46.2%
159-0052	Columbia High School	114	55	29	52.7%
159-0145	The Seldon Center	9	2	0	0.0%
159-0160	Huntsville High School	368	257	30	11.7%
159-0176	JO Johnson High School	129	68	36	52.9%
159-0200	Lee High School	147	88	34	38.6%
159-0340	Virgil Grissom High School	425	298	40	13.4%
159-0460	New Century Technology Demo Hig	45	24	5	20.8%
162-0020	Jacksonville High School	102	72	16	22.2%
163-0040	Walker High School	186	137	43	31.4%
165-0030	Lanett Senior High School	59	40	26	65.0%
167-0030	Leeds High School	87	40	17	42.5%
168-0030	Linden High School	53	39	15	38.5%
169-0080	Bob Jones High School	661	444	45	10.1%
171-0020	Midfield High School	77	39	25	64.1%
175-0050	Mountain Brook High School	334	197	4	2.0%
176-0040	Muscle Shoals High School	170	130	30	23.1%
178-0020	Oneonta High School	97	77	26	33.8%
179-0055	Opelika High School	237	141	46	32.6%
180-0010	Opp High School	85	54	19	35.2%
181-0020	Oxford High School	236	165	43	26.1%
182-0010	Carroll High School	164	100	57	57.0%
183-0100	Pell City High School	232	118	45	38.1%
184-0030	Central High School	267	95	49	51.6%
185-0020	Piedmont High School	62	44	9	20.5%
188-0020	Handley High School	100	62	26	41.9%
189-0030	Russellville High School	148	108	42	38.9%
190-0030	Scottsboro High School	162	118	32	27.1%
191-0110	Selma High School	192	114	41	36.0%
192-0050	Sheffield High School	58	36	15	41.7%
193-0005	C-Stars	5	2	1	50.0%
193-0050	Sylacauga High School	127	75	9	12.0%
194-0080	Talladega High School	142	65	14	21.5%
195-0030	Tallassee High School	103	48	15	31.3%
197-0030	Tarrant High School	85	32	17	53.1%
198-0010	Thomasville High School	95	58	17	29.3%
199-0010	Charles Henderson High School	131	88	40	45.5%

HS_Code	HS_Name	Grads	Enrolled	Remediation	Remediation Percent
200-0055	Paul W Bryant High School	180	90	33	36.7%
200-0075	Northridge High School	236	152	44	28.9%
200-0160	Central High School	136	61	42	68.9%
201-0010	Deshler High School	79	60	17	28.3%
202-0020	Vestavia Hills High School	387	272	33	12.1%
204-0020	Winfield High School	63	40	16	40.0%
205-0890	Hewitt-Trussville High School	284	189	59	31.2%
999-9999	TOTAL ALL PUBLIC SCHOOLS	41869	23397	7661	32.7%

ALABAMA QUALITY TEACHING STANDARDS

Pursuant to the mission of improving the academic achievement of all students in the public schools of Alabama, teachers will align their practice and professional learning with the following standards:

Standard 1—Content Knowledge: To improve the learning of all students, teachers master the disciplines related to their teaching fields including the central concepts, important facts and skills, and tools of inquiry; they anchor content in learning experiences that make the subject matter meaningful for all students.

Rationale. Researchers identify a strong relationship between teachers' content knowledge and the achievement of their students. Three dimensions of content knowledge contribute to effective teaching: (1) deep knowledge of the academic disciplines related to the subjects of instruction, (2) an understanding of pedagogical content knowledge that is required to make the subject understandable and meaningful for all learners, and (3) knowledge of the state standards and district curriculum for subjects taught at particular instructional levels.

Key Indicators

A. Academic Discipline(s)

1. Knowledge of the structure of the academic disciplines related to the subject-matter content areas of instruction and of the important facts and central concepts, principles, theories, and tools of inquiry associated with these disciplines.
2. Knowledge of ways to organize and present content so that it is meaningful and engaging to all learners whom they teach (pedagogical content knowledge).
3. Ability to use students' prior knowledge and experiences to introduce new subject-area related content.
4. Ability to identify student assumptions and preconceptions about the content of a subject area and to adjust instruction in consideration of these prior understandings.
5. Ability to help students make connections across the curriculum in order to promote retention and transfer of knowledge to real-life settings.

B. Curriculum

1. Knowledge of the content standards and of the scope and sequence of the subject areas of one's teaching fields as defined in the Alabama courses of study for those teaching fields.
2. Ability to provide accommodations, modifications, and/or adaptations to the general curriculum to meet the needs of each individual learner.
3. Ability to select content and appropriately design and develop instructional activities to address the scope and sequence of the curriculum.

Standard 2—Teaching and Learning: To increase the achievement of every student, teachers draw upon a thorough understanding of learning and development; recognize the role of families in supporting learning; design a student centered learning environment; and use research-based instructional and assessment strategies that motivate, engage, and maximize the learning of all students.

Rationale. Instruction and assessment are the vehicles by which teachers design and deliver rigorous and relevant learning experiences for all learners. Research provides compelling evidence relating student achievement to teachers' use of appropriate instructional strategies selected from a rich repertoire based in research and best practice. Researchers have also found a strong classroom learning culture that is strategically organized and managed to be essential to effective use of these strategies.

Key Indicators

A. Human Development

1. Knowledge of the physical, emotional, and social development of young people and of the relationship of these to learning readiness and to cognitive development.
2. Knowledge of the role of language in learning.
3. Knowledge of the general characteristics of disabilities and of their impact on cognitive development and learning.
4. Knowledge of developmentally appropriate instructional and management strategies.
5. Ability to teach explicit cognitive, metacognitive, and other learning strategies to support students in becoming more successful learners.
6. Ability to use knowledge about human learning and development in the design of a learning environment and learning experiences that will optimize each student's achievement.
7. Ability to recognize individual variations in learning and development that exceed the typical range and use this information to provide appropriate learning experiences.

B. Organization and Management

1. Knowledge of the importance of developing learning objectives based on the Alabama courses of study and the needs, interests, and abilities of students.
2. Knowledge of the principles underpinning a sound age-appropriate classroom organization and management plan and of supportive behavior management strategies.
3. Knowledge of the components and characteristics of collaboratively designed and implemented individual behavioral support plans.
4. Knowledge of conflict resolution strategies, school emergency response procedures, and juvenile law.
5. Ability to plan and implement equitable and effective student access to available technology and other resources to enhance student learning.

6. Ability to plan teaching and learning experiences that are congruent with the Alabama courses of study and appropriate for diverse learners.
7. Ability to collect and use data to plan, monitor, and improve instruction.
8. Ability to organize, allocate, and manage the resources of time, space, and activities to support the learning of every student.
9. Ability to organize, use, and monitor a variety of flexible student groupings and instructional strategies to support differentiated instruction.

C. Learning Environment

1. Knowledge of norms and structures that contribute to a safe and stimulating learning environment.
2. Knowledge of factors and situations that promote or diminish intrinsic motivation.
3. Ability to develop a positive relationship with every student and to take action to promote positive social relationships among students, including students from different backgrounds and abilities.
4. Ability to communicate with parents and/or families to support students' understanding of appropriate behavior.
5. Ability to create learning environments that increase intrinsic motivation and optimize student engagement and learning.
6. Ability to use individual behavioral support plans to proactively respond to the needs of all students.
7. Ability to create a print-/language-rich environment that develops/extends students' desire and ability to read, write, speak, and listen.
8. Ability to encourage students to assume increasing responsibility for themselves and to support one another's learning.

D. Instructional Strategies

1. Knowledge of research and theory underpinning effective teaching and learning.
2. Knowledge of a wide range of research-based instructional strategies and the advantages and disadvantages associated with each.
3. Knowledge of strategies that promote retention as well as transfer of learning and the relationship between these two learning outcomes.
4. Knowledge of the importance of parents and/or families as active partners in planning and supporting student learning.
5. Ability to select and support the use of instructional and assistive technologies and to integrate these into a coherent instructional design.
6. Ability to make developmentally appropriate choices in selecting teaching strategies to assist diverse learners in meeting instructional objectives.
7. Ability to evaluate, select, and integrate a variety of strategies such as cooperative learning, discussion, discovery, problem-based learning, and direct instruction into a coherent lesson design.
8. Ability to adjust instruction in response to information gathered from ongoing monitoring of performance via formative assessment.
9. Ability to use questions and questioning to assist all students in developing skills and strategies in critical and high order thinking and problem solving.
10. Ability to use strategies that promote the independence, self-control, personal responsibility, and self-advocacy of all students.

E. Assessment

1. Knowledge of the purposes, strengths, and limitations of formative and summative assessment and of formal and informal assessment strategies.
2. Knowledge of the relationship between assessment and learning and of how to integrate appropriate assessments into all stages of the learning process.
3. Knowledge of measurement-related issues such as validity, reliability, norms, bias, scoring concerns, and ethical uses of tests and test results.
4. Knowledge of current Alabama assessment requirements and procedures.
5. Ability to design and use a variety of approaches to formal and informal assessment to plan instruction, monitor student understanding and progress toward learning, modify teaching and learning strategies, and measure and report student progress related to learning objectives.
6. Ability to collaborate with others to design and score common assessments and to use results to share and compare instructional practice and plan new instruction.
7. Ability to collaborate with others to incorporate accommodations into all assessments as appropriate.
8. Ability to provide a variety of ways for students with diverse needs, including students with disabilities, to demonstrate their learning.
9. Ability to develop rubrics and to teach students how to use them to assess their own performances.
10. Ability to develop and select appropriate performance assessments.
11. Ability to engage all students in assessing and understanding their own learning and behavior.
12. Ability to interpret and use reports from state assessments and results of other assessments to design both group and individual learning experiences.

Standard 3—Literacy: To improve student learning and achievement, teachers use knowledge of effective oral and written communications, reading, mathematics, and technology to facilitate and support direct instruction, active inquiry, collaboration, and positive interaction.

Rationale. Research clearly indicates that one of the strongest correlates to effective teaching is a high level of literacy. Not only do effective teachers demonstrate effective use of the spoken and written language, reading, mathematics, and technology, they also model and actively teach their students the fundamentals of reading, writing, and oral communications across all content areas. Additionally, in this culture where technology is ubiquitous, teachers demonstrate mastery of appropriate instructional technology and integrate technology into instruction of their subject areas.

A. Oral and Written Communications

1. Knowledge of standard oral and written communications.
2. Knowledge of the impact of native language and linguistic background on language acquisition.
3. Knowledge of media communication technologies that enrich learning opportunities.

4. Ability to model appropriate oral and written communications.
5. Ability to demonstrate appropriate communication strategies that include questioning and active and reflective listening.
6. Ability to foster effective verbal and nonverbal communications during ongoing instruction using assistive technologies as appropriate.
7. Ability to integrate skill development in oral and written communications into all content areas that one teaches.
8. Ability to use effective nonverbal communication and respond appropriately to nonverbal cues from students.

B. Reading

1. Knowledge of strategies associated with accelerated, highly specialized, explicit instruction in phonemic awareness, phonics, fluency, vocabulary, and comprehension that significantly expands and increases students' pace of learning and competence in reading, writing, speaking, and listening.
2. Knowledge of assessment tools to monitor the acquisition of reading strategies, to improve reading instruction, and to identify students who require additional instruction.
3. Ability to integrate reading instruction into all content areas that one teaches.
4. Ability to stimulate interest in and foster appreciation for the written word, promote reading growth, and increase the motivation of students to read widely and independently for information and pleasure.

C. Mathematics

1. Knowledge of the role that mathematics plays in everyday life.
2. Knowledge of the concepts and relationships in number systems.
3. Knowledge of the appropriate use of various types of reasoning, including inductive, deductive, spatial and proportional, and understanding of valid and invalid forms of reasoning.
4. Knowledge of both metric and customary measurement and fundamental geometric concepts, including shapes and their properties and relationships.
5. Ability to solve problems using different strategies, to verify and interpret results, and to draw conclusions.
6. Ability to communicate with others about mathematical concepts, processes, and symbols.

D. Technology

1. Knowledge of available and emerging technologies that support the learning of all students.
2. Knowledge of the wide range of technologies that support and enhance instruction, including classroom and school resources as well as distance learning and online learning opportunities.
3. Ability to integrate technology into the teaching of all content areas.
4. Ability to facilitate students' individual and collaborative use of technology, including classroom resources as well as distance and online learning opportunities when available and appropriate.

5. Ability to use technology to assess student progress and manage records.
6. Ability to evaluate students' technology proficiency and students' technology-based products within content areas.

Standard 4—Diversity: To improve the learning of all students, teachers differentiate instruction in ways that exhibit a deep understanding of how cultural, ethnic, and social background; second language learning; special needs; exceptionalities; and learning styles affect student motivation, cognitive processing, and academic performance.

Rationale. Teachers who respect and build upon diversity create a learning environment in which all students feel valued and supported in their learning. Respect for diversity grows out of knowledge of differences, including differences in students' cultural, ethnic, language, social, and experiential backgrounds; differences in their physical, emotional, and social development; differences in their readiness for a particular curricular goal; and differences in their learning styles and strengths. Teachers have a rich understanding of these and other important areas of diversity as well as knowledge of curricular and instructional modifications that improve the learning of the wide range of individual learners in their classrooms.

Key Indicators

A. Cultural, Ethnic and Social Diversity

1. Knowledge of the ways in which student learning is influenced by individual experiences and out-of-school learning, including language and family/community values and conditions.
2. Knowledge of cultural, ethnic, gender, linguistic, and socio-economic differences and of how these may affect individual learner needs, preferences, and styles.
3. Knowledge of the characteristics of one's own culture and use of language and of how they differ from other cultures.
4. Ability to develop culturally responsive curriculum and instruction, i.e., model, teach, and integrate multicultural awareness, acceptance, and appreciation into ongoing instruction.
5. Ability to communicate in ways that demonstrate sensitivity to diversity such as appropriate use of eye contact, interpretation of body language and verbal statements, and acknowledgement of and responsiveness to different modes of communication and participation.

B. Language Diversity

1. Knowledge of the process of second language acquisition and strategies to support the learning of students whose first language is not English.
2. Ability to differentiate between learner difficulties that are related to cognitive or skill development and those that relate to language learning.
3. Ability to collaborate with teachers of English language learners and to assist those students with full integration into the regular classroom.

C. Special Needs

1. Knowledge of the major areas of exceptionality in learning, including the range of physical and mental disabilities, social and emotional disorders, giftedness, dyslexia, and attention deficit disorder.
2. Knowledge of the indicators of the need for special education services.
3. Ability to identify and refer students for diagnosis for special services.
4. Ability to address learning differences and disabilities that are prevalent in an inclusive classroom.

D. Learning Styles

1. Knowledge of research and theory related to learning styles and multiple intelligences.
2. Knowledge of a range of curricular materials and technologies to support the cognitive development of diverse learners.
3. Ability to help students assess their own learning styles and to build upon identified strengths.
4. Ability to design learning experiences that engage all learning styles.

E. General

1. Knowledge of how personal/cultural biases can affect teaching and learning.
2. Ability to involve families, community agencies and organizations, and colleagues in helping support academic achievement of diverse learners.
3. Ability to create a learning community in which individual differences are respected.
4. Ability to assess and diagnose individual student's contexts, strengths, and learning needs and to tailor curriculum and teaching to address these personal characteristics.

Standard 5—Professionalism: To increase the achievement of all students, teachers engage in continuous learning and self improvement; collaborate with colleagues to create and adopt research-based best practices to achieve ongoing classroom and school improvement; and adhere to the Alabama Educator Code of Ethics and federal, state, and local laws and policies.

Rationale. Current research relates teacher collaboration, shared responsibility for student learning, and job-embedded learning in professional community to higher levels of student achievement. This research challenges the independence and isolation that has historically characterized the teaching profession and calls for deprivatization of practice. An underlying premise of professional learning communities is the power of ongoing, continuous learning that takes place in a culture where risk and experimentation are rewarded. In schools where there is a strong professional community, teachers actively participate in creating and sustaining such a learning environment and in maintaining its focus upon improved student learning. Beyond collaboration, teachers exhibit professionalism by demonstrating a personal commitment to continuous learning and improvement; by adhering to high ethical standards; and by maintaining currency with regard to federal, state, and local laws and policies. Teachers assume increased

leadership for schoolwide improvement initiatives and for mentoring of colleagues as they move along their professional pathways.

A. Collaboration

1. Knowledge of the purposes, processes, structures, and potential benefits associated with collaboration and teaming.
2. Knowledge of the roles and responsibilities of members of different types of teams including, but not limited to, Building Based Student Support Teams.
3. Knowledge of roles and responsibilities of para-educators and other paraprofessionals.
4. Ability to involve parents and/or families as active partners in planning and supporting student learning.
5. Ability to share instructional responsibility for students with diverse needs, including students with disabilities, and to develop collaborative teaching relationships and instructional strategies.
6. Ability to share responsibility for all students' learning across the school and collaborate with colleagues to support every student's growth.
7. Ability to participate as reflective members of different types of teams including, but not limited to, Building Based Student Support Teams.
8. Ability to collaborate in the planning of instruction for an expanded curriculum in general education to include Individual Education Plans and other plans such as Section 504 goals for students with disabilities.
9. Ability to communicate and collaborate effectively with colleagues, students, parents, guardians, and significant agency personnel who are included and valued equally as partners.
10. Ability to exhibit the professional dispositions delineated in professional, state, and institutional standards while working with students, colleagues, families, and communities.

B. Continuous, Lifelong Professional Learning

1. Knowledge of a range of professional literature, particularly resources that relate to one's own teaching field(s).
2. Knowledge of a range of professional learning opportunities, including job-embedded learning, district- and state-sponsored workshops, university offerings, and online and distance learning.
3. Knowledge of the processes and skills associated with peer coaching and mentoring.
4. Ability to articulate and reflect on a personal philosophy and its relationship to teaching practice and professional learning choices and commitments.
5. Ability to use best practices, professional literature, and collegial assistance to improve as a teacher and a learner.
6. Ability and willingness to inquire into one's own practice by designing action research to determine the effectiveness of identified instructional strategies.
7. Ability to participate in the creation and nurturance of a learning environment that supports standards-based inquiry, reflective practice, and collaborative learning for teachers at all stages of their careers.

C. Alabama-Specific Improvement Initiatives

1. Knowledge of current and emerging state initiatives and programs including, but not limited to, the Alabama Reading Initiative (ARI); the Alabama Math, Science, and Technology Initiative (AMSTI); and Alabama Connecting Classrooms, Educators and Students Statewide (ACCESS) and their relationship to student achievement.
2. Knowledge of Alabama's state assessment requirements and processes.
3. Ability to integrate statewide programs and initiatives into the curriculum and instructional processes.
4. Ability to communicate with students, parents, and the public about Alabama's assessment system and major state educational improvement initiatives.

D. School Improvement

1. Knowledge of research relating collective responsibility for student learning to increased achievement for all students.
2. Knowledge of the principles of individual and organizational change and a commitment to assume personal responsibility for leading and supporting others in results-oriented changes.
3. Ability to participate in school improvement planning by working collaboratively with teams focused on specific improvement initiatives.
4. Ability to assume increased leadership responsibility in school, district, and state improvement initiatives over the course of one's professional career.

E. Ethics

1. Knowledge of appropriate professional behavior and dispositions expected of professionals as outlined in the Alabama Educator Code of Ethics.
2. Knowledge of safe, responsible, legal, and ethical uses of technologies including fair-use and copyright guidelines and Internet-user protection policies.
3. Ability to use and maintain confidential student information in an ethical and professional manner.
4. Ability to practice safe, responsible, legal, and ethical use of technology and comply with school and district acceptable-use policies including fair-use and copyright guidelines and Internet-user protection policies.

F. Local, State, Federal Laws and Policies

1. Knowledge of laws related to students' and teachers' rights and responsibilities and the importance of complying with those laws, including major principles of federal disabilities legislation (IDEA, Section 504 and ADA), as well as Alabama statutes on child abuse and neglect, and the importance of complying with those laws.
2. Ability to access school, community, state, and other resources and referral services.
3. Ability to access resources to gain information about federal, state, district, and school policies and procedures.
4. Ability to keep accurate records including IEPs, especially records related to federal, state and district policies, and other records with legal implications.

Alabama Standards for Instructional Leaders

To realize the mission of enhancing school leadership among principals and administrators in Alabama resulting in improved academic achievement for all students, instructional leaders will be held to the following standards:

Standard 1: Rationale
This standard addresses the need to prepare instructional leaders who value and are committed to educating all students to become successful adults. Each instructional leader is responsible for creating and articulating a vision of high expectations for learning within the school or district that can be shared by all employees and is supported by the broader school-community of parents and citizens. This requires that instructional leaders be willing to examine their own assumptions, beliefs, and practices; understand and apply research; and foster a culture of continuous improvement among all members of the educational staff. Such instructional leaders will commit themselves to high levels of personal and organizational performance in order to ensure implementation of this vision of learning.

Standard 1: Planning for Continuous Improvement
Engages the school community in developing and maintaining a shared vision; plans effectively; uses critical thinking and problem-solving techniques; collects, analyzes, and interprets data; allocates resources; and evaluates results for the purpose of continuous school improvement.

Standard 1: Key Indicators

1. Knowledge to lead the articulation, development, and implementation of a shared vision and strategic plan for the school that places student and faculty learning at the center
2. Ability to lead and motivate staff, students, and families to achieve the school's vision
3. Knowledge to align instructional objectives and curricular goals with the shared vision
4. Knowledge to allocate and guard instruction time for the achievement of goals
5. Ability to work with faculty to identify instructional and curricular needs that align with vision and resources
6. Ability to interact with the community concerning the school's vision, mission, and priorities
7. Ability to work with staff and others to establish and accomplish goals
8. Ability to relate the vision, mission, and goals to the instructional needs of students
9. Ability to use goals to manage activities
10. Ability to use a variety of problem-solving techniques and decision-making skills to resolve problems
11. Ability to delegate tasks clearly and appropriately to accomplish organizational goals

12. Ability to focus upon student learning as a driving force for curriculum, instruction, and institutional decision-making
13. Ability to use a process for gathering information to use when making decisions
14. Knowledge to create a school leadership team that is skillful in using data
15. Ability to use multiple sources of data to manage the accountability process
16. Ability to assess student progress using a variety of techniques and information
17. Ability to monitor and assess instructional programs, activities, and materials
18. Knowledge to use approved methods and principles of program evaluation in the school improvement process
19. Ability to use diagnostic tools to assess, identify, and apply instructional improvement
20. Ability to use external resources as sources for ideas for improving student achievement

Standard 2: Rationale

This standard addresses the need for instructional leaders to establish teaching and learning as the focal point of schools. It accepts the proposition that all students can learn given enough high-quality instruction, and that student learning is the fundamental purpose of schools. To this end, instructional leaders are responsible for ensuring that decisions about curriculum, instructional strategies (including instructional technology), assessment, and professional development are based on sound research, best practices, school and district data, and other contextual information and that observation and collaboration are used to design meaningful and effective experiences that improve student achievement. Successful instructional leaders must be able to identify, clarify, and address barriers to student learning and communicate the importance of developing learning strategies for diverse populations. In addition, this standard requires that instructional leaders be learners who model and encourage life-long learning. They should establish a culture of high expectations for themselves, their students, and their staff.

Standard 2: Teaching and Learning

Promotes and monitors the success of all students in the learning environment by collaboratively aligning the curriculum; by aligning the instruction and the assessment processes to ensure effective student achievement; and by using a variety of benchmarks, learning expectations, and feedback measures to ensure accountability.

Standard 2: Key Indicators

1. Knowledge to plan for the achievement of annual learning gains, school improvement goals, and other targets related to the shared vision
2. Ability to use multiple sources of data to plan and assess instructional improvement
3. Ability to engage staff in ongoing study and implementation of research-based practices
4. Ability to use the latest research, applied theory, and best practices to make curricular and instructional decisions

5. Ability to communicate high expectations and standards for the academic and social development of students
6. Ability to ensure that content and instruction are aligned with high standards resulting in improved student achievement
7. Ability to coach staff and teachers on the evaluation of student performance
8. Ability to identify differentiated instructional strategies to meet the needs of a variety of student populations
9. Ability to develop curriculum aligned to state standards
10. Knowledge to collaborate with community, staff, district, state, and university personnel to develop the instructional program
11. Knowledge to align curriculum, instructional practices, and assessments to district, state, and national standards
12. Ability to focus upon student learning as a driving force for curriculum, instruction, and instructional decision-making
13. Ability to use multiple sources of data to manage the accountability process
14. Ability to assess student progress using a variety of formal and informal assessments
15. Ability to monitor and assess instructional programs, activities, and materials
16. Ability to use the methods and principles of program evaluation in the school improvement process

Standard 3: Rationale

This standard addresses the need for instructional leaders to recognize quality professional development as the key strategy for supporting significant improvements. Instructional leaders are able to articulate the critical link between improved student learning and the professional learning of teachers. Skillful instructional leaders establish policies and organizational structures that support ongoing professional learning and continuous improvement. They ensure an equitable distribution of resources to accomplish school goals and continuously improve the school's work through the ongoing evaluation of staff development's effectiveness in achieving student learning goals. They make certain that employee annual calendars and daily schedules provide adequate time for learning and collaboration as part of the workday. Instructional leaders also distribute leadership responsibilities among teachers and other employees. Distributed leadership enables teachers to develop and use their talents as members or chairs of school improvement committees, trainers, coaches, mentors, and members of peer review panels. These leaders make certain that their colleagues have the necessary knowledge, skills, and other forms of support that ensure success in these new roles.

Standard 3: Human Resources Development

Recruits, selects, organizes, evaluates, and mentors faculty and staff to accomplish school and system goals.

Works collaboratively with the school faculty and staff to plan and implement effective professional development that is based upon student needs and that promotes both individual and organizational growth and leads to improved teaching and learning.

Initiates and nurtures interpersonal relationships to facilitate teamwork and enhance student achievement.

Standard 3: Key Indicators

1. Knowledge to set high expectations and standards for the performance of all teachers and staff
2. Ability to coach staff and teachers on the evaluation of student performances
3. Ability to work collaboratively with teachers to plan for individual professional development
4. Ability to use a variety of supervisory models to improve teaching and learning
5. Ability to apply adult learning strategies to professional development
6. Knowledge to use the accepted methods and principles of personnel evaluation
7. Knowledge to operate within the provisions of each contract as well as established enforcement and grievance procedures
8. Ability to establish mentor programs to orient new teachers and provide ongoing coaching and other forms of support for veteran staff
9. Ability to manage, monitor, and evaluate a program of continuous professional development tied to student learning and other school goals
10. Knowledge to hire and retain high-quality teachers and staff
11. Ability to provide high-quality professional development activities to ensure that teachers have skills to engage all students in active learning
12. Ability to provide opportunities for teachers to reflect, plan, and work collaboratively
13. Ability to create a community of learners among faculty and staff
14. Ability to create a personal professional development plan for his/her own continuous improvement
15. Ability to foster development of aspiring leaders, including teacher leaders

Standard 4: Rationale

This standard addresses the need for instructional leaders to understand and be able to operate within the larger context of community and beyond, which affects opportunities for all students. Instructional leaders must respond to and influence this larger political, social, economic, and cultural context. Of vital importance is the ability to develop a continuing dialogue with economic and political decision-makers concerning the role of schools and to build collaborative relationships that support improved social and educational opportunities for all children. Instructional leaders must be able to participate actively in the political and policy-making context in the service of education, including proactive use of the legal system to protect students' rights and improve opportunities for all students.

Standard 4: Diversity

Responds to and influences the larger personal, political, social, economic, legal, and cultural context in the classroom, school, and the local community while addressing diverse student needs to ensure the success of all students.

Standard 4: Key Indicators

1. Knowledge to involve school community in appropriate diversity policy implementations, program planning, and assessment efforts
2. Ability to conform to legal and ethical standards related to diversity
3. Ability to perceive the needs and concerns of others and is able to deal tactfully with them
4. Knowledge to handle crisis communications in both oral and written form
5. Ability to arrange for students and families whose home language is not English to engage in school activities and communication through oral and written translations
6. Knowledge to recruit, hire, develop, and retain a diverse staff
7. Knowledge to represent the school and the educational establishment in relations with various cultural, ethnic, racial, and special interest groups in the community
8. Knowledge to recognize and respond effectively to multicultural and ethnic needs in the organization and the community
9. Ability to interact effectively with diverse individuals and groups using a variety of interpersonal skills in any given situation
10. Ability to promote and monitor the delivery of instructional content that provides for diverse perspectives appropriate to the situation

Standard 5: Rationale

This standard addresses the fact that cooperation among schools, the district, parents, and the larger community is essential to the success of instructional leaders and students. Instructional leaders must see schools as an integral part of the larger community. Collaboration and communication with families, businesses, governmental agencies, social service organizations, the media, and higher education institutions are critical to effective schooling. Effective and appropriate communications, coupled with the involvement of families and other stakeholders in decisions, help to ensure continued community support for schools. Instructional leaders must see families as partners in the education of their youngsters and believe that families have the best interest of their children in mind. Instructional leaders must involve families in decisions at the school and district levels. Family and student issues that negatively affect student learning must be addressed through collaboration with community agencies that can integrate health, social, and other services. Such collaboration relies on good relationships with community leaders and outreach to a wide array of business, religious, political, and service agencies. Providing leadership to programs serving all students, including those with special and exceptional needs, further communicates to internal and external audiences the importance of diversity. To work with all elements of the community, instructional leaders must recognize, value, and communicate effectively with various cultural, ethnic, racial, and special interest groups. Modeling community collaboration for staff and then offering opportunities for staff to develop collaborative skills maximizes positive interactions between schools and the community.

Standard 5: Community and Stakeholder Relationships

Identifies the unique characteristics of the community to create and sustain mutually supportive family-school-community relations

Standard 5: Key Indicators

1. Ability to address student and family conditions affecting learning
2. Ability to identify community leaders and their relationships to school goals and programs
3. Ability to communicate the school's vision, mission, and priorities to the community
4. Knowledge to serve as primary school spokesperson in the community
5. Ability to share leadership and decision-making with others by gathering input
6. Ability to seek resources of families, business, and community members in support of the school's goals
7. Ability to develop partnerships, coalitions, and networks to impact student achievement
8. Ability to actively engage the community to share responsibility for student and school success
9. Ability to involve family and community in appropriate policy implementation, program planning, and assessment efforts
10. Knowledge to make parents partners in their student's education

Standard 6: Rationale

This standard addresses the need for effective leadership for technology in schools. An underlying assumption of this standard is that instructional leaders should be competent users of information and technology tools common to information-age professionals. The effective educational leader should be a hands-on user of technology. While technology empowers instructional leaders by the information it can readily produce and communicates, it exponentially empowers the instructional leader who masters the tools and processes that allow creative and dynamic management of available information. Instructional leaders who recognize the potential of technology understand that leadership has a responsibility to ensure technological equity. They must also know that technology can unlock tremendous potential in learners and staff with special and diverse needs.

Standard 6: Technology

Plans, implements, and evaluates the effective integration of current technologies and electronic tools in teaching, management, research, and communication.

Standard 6: Key Indicators

1. Ability to implement a plan for the use of technology, telecommunications, and information systems to enrich curriculum, instruction, and assessment
2. Ability to develop a plan for technology integration for the school community
3. Knowledge to discover practical approaches for developing and implementing successful technology planning
4. Ability to model the use of technology for personal and professional productivity
5. Ability to develop an effective teacher professional development plan to increase technology usage to support curriculum-based integration practices
6. Ability to promote the effective integration of technology throughout the teaching and learning environment
7. Knowledge to increase access to educational technologies for the school

8. Ability to provide support for teachers to increase the use of technology already in the school/classrooms
9. Ability to use technology to support the analysis and use of student assessment data

Standard 7: Rationale

This standard addresses the need to enhance student learning through effective, efficient, and equitable utilization of resources. Instructional leaders must use their knowledge of organizations to create a learning environment conducive to the success of all students. Proper allocation of resources such as personnel, facilities, and technology is essential to creating an effective learning environment. Resource management decisions should give priority to teaching, student achievement, and student development. Also, operational procedures and policies must be established to maintain school safety and security and to strengthen the academic environment. All management decisions, including those regarding human resources, fiscal operations, facilities, legal issues, time management, scheduling, technology, and equipment, should be based on sound organizational practice. Instructional leaders must monitor and evaluate operational systems to ensure that they enhance student learning and reflect the school's and district's accountability to the community. They also actively seek additional sources of financial, human, and physical support. They involve stakeholders to ensure the management and operational decisions take into consideration the needs of multiple constituencies while at the same time focusing the entire community on student achievement as the ultimate goal. To include stakeholders in management decisions, instructional leaders must be competent in conflict resolution, consensus-building, group processes, and effective communication.

Standard 7: Management of the Learning Organization

Manages the organization, facilities, and financial resources; implements operational plans; and promotes collaboration to create a safe and effective learning environment.

Standard 7: Key Indicators

1. Knowledge to develop and administer policies that provide a safe school environment
2. Ability to apply operational plans and processes to accomplish strategic goals
3. Ability to attend to student learning goals in the daily operation of the school
4. Knowledge to identify and analyze the major sources of fiscal and nonfiscal resources for the school including business and community resources
5. Knowledge to build and ability to support a culture of learning at the school
6. Knowledge to manage financial and material assets and capital goods and services in order to allocate resources according to school priorities
7. Knowledge to use an efficient budget planning process that involves staff and community
8. Ability to identify and organize resources to achieve curricular and instructional goals
9. Ability to develop techniques and organizational skills necessary to lead/manage a complex and diverse organization

10. Ability to plan and schedule one's own and others' work so that resources are used appropriately in meeting priorities and goals
11. Ability to use goals to manage activities
12. Knowledge to create and ability to empower a school leadership team that shares responsibility for the management of the learning organization

Standard 8: Rationale

This standard addresses the educational leader's role as the "first citizen" of the school/district community. Instructional leaders should set the tone for how employees and students interact with one another and with members of the school, district, and larger community. The leader's contacts with students, parents, and employees must reflect concern for others as well as for the organization and the position. Instructional leaders must develop the ability to examine personal and professional values that reflect a code of ethics. They must be able to serve as role models, accepting responsibility for using their position ethically and constructively on behalf of the school/district community.

Standard 8: Ethics

Demonstrates honesty, integrity, and fairness to guide school policies and practices consistent with current legal and ethical standards for professional educators.

Standard 8: Key Indicators

1. Knowledge and ability to adhere to a professional code of ethics and values
2. Knowledge and ability to make decisions based on the legal, moral, and ethical implications of policy options and political strategies
3. Knowledge and ability to develop well-reasoned educational beliefs based upon an understanding of teaching and learning
4. Knowledge to understand ethical and legal concerns educators face when using technology throughout the teaching and learning environment
5. Knowledge and ability to develop a personal code of ethics embracing diversity, integrity, and the dignity of all people
6. Knowledge and ability to act in accordance with federal and state constitutional provisions, statutory standards, and regulatory applications
7. Ability to make decisions within an ethical context

290-3-2-.03 Approaches to Earning a Professional Educator Certificate.

(1) Alabama State-Approved Program Approach.

(a) Basic Requirements.

1. An applicant who completes a State-approved program as prescribed in Rules 290-3-3-.02 through .55 may be eligible for a Professional Educator Certificate.

2. Recommendation for certification shall be made directly to the Office by the certification officer at the institution where the State-approved program was completed as prescribed on Form NAL.

3. An applicant who completes a State-approved Class B or Alternative Class A teacher education program on or after January 1, 2003, must successfully complete the current requirements for the basic skills assessments of the Alabama Prospective Teacher Testing Program (APTTP) prior to the issuance of an initial Professional Educator Certificate. An individual who completed a program prior to January 1, 2003, but who did not apply for the initial Professional Educator Certificate on the basis of that program by June 30, 2006, must successfully complete the current requirements for the basic skills assessments of the APTTP prior to the issuance of an initial Professional Educator Certificate. Additional information about the APTTP is in Rule 290-3-2-.01(4).

4. An applicant who completes a State-approved program on or after April 14, 2005, must successfully complete the current requirements for the subject assessment(s) of the APTTP prior to the issuance of an initial Professional Educator Certificate. An individual who completed a program prior to April 14, 2005, but who did not apply for the initial Professional Educator Certificate on the basis of that program by June 30, 2006, must successfully complete the current requirements for the subject assessments of the APTTP prior to the issuance of an initial Professional Educator Certificate. Additional information about the APTTP is in Rule 290-3-2-.01(4).

5. An applicant who completes a State-approved program must complete a criminal history background check. Effective no later than the beginning of fall semester 2008, the criminal history background check must be completed prior to admission to the State-approved teacher education program. Additional information is in Rule 290-3-2-.01(5), Rule 290-3-2-.01(16), and Rule 290-3-2-.02(9)(d).

6. An applicant who completes a State-approved program must be recommended for certification by the institution where the program was completed and submit an application for Alabama certification within 60 calendar months of program completion. An individual who does not apply within that time must contact the institution where the program was completed about meeting current criteria for the approved program. If requirements have changed since program completion, the institution may require the applicant to meet current approved program requirements. In addition, the State may impose current requirements, such as, but not limited to, the APTTP.

(b) Alabama State-approved Class B programs for teaching fields lead to an initial Professional Educator Certificate on the bachelor's degree level.

1. Available programs include early childhood education, elementary education, and specific teaching fields for middle-level, secondary, career and technical, P-12, and special education. Additional information about specific programs is in Rule 290-3-3-.05 through Rule 290-3-3-.41.

2. Additional information about Class B programs is in Rule 290-3-3-.03, Rule 290-3-3-.04, and the rule for the specific teaching field.

(c) Alabama State-approved Alternative Class A programs for teaching fields lead to an initial Professional Educator Certificate on the master's degree level. Applicants for admission to Alternative Class A programs must meet degree requirements, grade point average requirements, and prerequisite coursework requirements prior to unconditional admission. Admission requirements are in Rule 290-3-3-.44(2).

1. Available teaching fields include:

(i) Early childhood education, elementary education, early childhood special education, and collaborative special education teacher K-6 or 6-12.

(ii) Middle-level or secondary single teaching fields.

(iii) Comprehensive middle level or secondary teaching fields (English language arts, general science, or general social science) or career and technical education teaching fields.

(iv) P-12 programs (visual arts, dance, choral or instrumental music, languages other than English, physical education, theatre, and special education except for early childhood special education and collaborative special education teacher K-6 or 6-12).

2. Additional information about Alternative Class A programs is in Rule 290-3-3-.03, Rule 290-3-3-.44, and the rule for the specific teaching field.

3. Special Alternative Certificate (SAC). A superintendent or administrator may recommend issuance of a SAC in order to employ an applicant who is completing requirements for a Class A Professional Educator Certificate in a teaching field through an Alabama Alternative Class A State-approved program. Additional information is in Rule 290-3-2-.06 and on Form SAC.

(d) Alabama State-approved Class A programs for teaching fields lead to a Class A Professional Educator Certificate on the master's degree level.

1. Class A programs for teaching fields are available for:

(i) Advanced certification in the same teaching fields for which Class B certification is available.

(ii) Initial certification in English for speakers of other languages, reading, and special education.

2. Additional information about Class A programs for teaching fields is in Rule 290-3-3-.42 and the rule for the specific teaching field.

3. Special Alternative Certificate (SAC). A superintendent or administrator may recommend issuance of a SAC in order to employ an applicant who is completing requirements for a Class A Professional Educator Certificate in English for speakers of other languages, reading, or an initial certificate in an area of special education through an Alabama Class A State-approved program. Additional information about the SAC for teaching fields is in Rule 290-3-2-.06 and on Form SAC.

(e) Alabama State-approved Class A programs for areas of instructional support lead to a Class A Professional Educator Certificate on the master's degree level.

1. Class A programs for areas of instructional support are available for instructional leadership (formerly educational administration), library-media, school counseling, school psychometry, and sport management. Beginning fall 2007, instructional leadership programs began replacing educational administration programs.

2. Additional information about Class A programs for areas of instructional support is in Rule 290-3-3-.47 and in the rule for the specific area of instructional support.

3. Special Alternative Certificate (SAC). A superintendent or administrator may recommend issuance of a SAC in order to employ an applicant who is completing requirements for a Class A Professional Educator Certificate in an area of instructional support through an Alabama Class A State-approved program. Additional information about the SAC for areas of instructional support is in Rule 290-3-2-.07 and on Form SAC. The SAC is not available in the area of school psychometry.

(f) Alabama State-approved Class AA programs for teaching fields lead to a Class AA Professional Educator Certificate on the sixth-year level. Some institutions require program completers to earn an education specialist degree.

1. Class AA programs for teaching fields are available for initial certification in special education and advanced certification in the same teaching fields for which Class B and Class A certification is available.

2. Additional information about Class AA programs for teaching fields is in Rule 290-3-3-.52.

3. Special Alternative Certificate. A superintendent or administrator may recommend issuance of an SAC in order to employ an applicant who is completing requirements for a Class AA Professional Educator Certificate to earn initial certification in an area of special education through an Alabama State-approved Class AA program. Additional information is in Rule 290-3-2-.06 and on Form SAC.

(g) Alabama State-approved Class AA programs for areas of instructional support lead to a Class AA Professional Educator Certificate on the sixth-year level. Some institutions require program completers to earn the education specialist degree.

1. Class AA programs for areas of instructional support are available for:

(i) Initial certification in school psychology.

(ii) Advanced certification in instructional leadership or educational administration, library-media, and school counseling.

2. Additional information about Class AA programs for areas of instructional support is in Rule 290-3-3-.53.

(2) Alabama Alternative Approaches That Require a Recommendation from an Employing Superintendent.

(a) Basic Requirements.

1. An applicant using an alternative approach must have at least an earned bachelor's degree from a regionally accredited senior institution. The Preliminary Certificate approach requires at least an earned master's degree from a regionally accredited senior institution, except as noted in Rule 290-3-2-.10(6)(b)5.(iii).

2. An applicant must successfully complete the requirements of the Alabama Prospective Teacher Testing Program (APTTP) as required in Rule 290-3-2-.01(4).

3. An applicant must complete a criminal history background check as required in Rule 290-3-2-.01(16).

4. An applicant must have an assigned mentor each year as required in Rule 290-3-2-.01(24).

5. An individual may not be employed for more than three years on the basis of holding a valid Alternative Baccalaureate-Level Certificate, a Career and Technical Alternative Baccalaureate-Level Certificate, a Preliminary Certificate, a Special Alternative Certificate, or any combination of these certificates. However, an individual who earns a Professional Educator Certificate in the teaching field or area of instructional support for which the alternative certificates were issued may be eligible to follow an alternative approach to earning a Professional Educator Certificate in another teaching field or area of instructional support.

6. An individual must hold a valid certificate for all teaching fields or areas of instructional support to which he or she is assigned.

(i) An individual who holds only a valid alternative certificate must be assigned only to the teaching field or area of instructional support for which the alternative certificate was issued in order to meet the requirements for earning a Professional Educator Certificate through an alternative approach.

(ii) An individual who holds a valid Alternative Baccalaureate-Level Certificate, Career and Technical Alternative Baccalaureate-Level Certificate, or Preliminary Certificate for a teaching field or an area of instructional support and a valid Professional Educator Certificate for another teaching field or area of instructional support must be assigned to the area of the alternative certificate for the majority of the day in order to meet the requirements for earning a Professional Educator Certificate through an alternative approach.

7. An applicant seeking a Professional Educator Certificate based on completing the requirements of the Alternative Baccalaureate-Level Certificate approach, the Career and Technical Alternative Baccalaureate-Level Certificate approach, or the Preliminary Certificate approach must submit an application to the Office within six months after the expiration date of the most recent alternative certificate in the same teaching field or area of instructional support. An individual who does not apply within this time forfeits the right to seek a Professional Educator Certificate through the alternative approach in which the individual has participated.

(b) The Alternative Baccalaureate-Level Certificate (ABC) approach is available for some secondary and P-12 teaching fields and allows an individual who has met all ABC requirements to apply for a Class B Professional Educator Certificate. ABCs are issued only upon recommendation from a superintendent or administrator to employ the applicant as a full-time employee who will be teaching in the teaching field and at the grade level for which the ABC is sought. Additional information is in Rule 290-3-2-.08 and on Form ABC. The applicant must document meeting all ABC approach requirements when applying for the Professional Educator Certificate. The requirements include:

1. At least an earned bachelor's degree from a regionally accredited senior institution with an academic major or an acceptable alternative in the area for which the ABC is recommended. Additional information is in Rule 290-3-2-.08(5)(a)2.

2. Basic requirements in Rule 290-3-2-.03(2)(a).

3. Up to 12 semester hours of coursework that meet the requirements on Form ABC and in the letter which accompanies the first ABC. Courses completed during the scholastic year for which the first ABC is issued, or thereafter, must be taken at an Alabama institution with State-approved teacher education programs. A list of appropriate courses is available from the Office. Additional information is in Rule 290-3-2-.08(6).

4. Three full years of full-time, satisfactory teaching experience in the teaching field in no more than two public school systems and/or nonpublic schools while holding a valid ABC. The applicant must complete this experience within the four scholastic years from the beginning date of the first ABC.

(c) The Career and Technical Alternative Baccalaureate-Level (CT ABC) approach is available for some areas of career and technical education and allows an applicant who has met all CT ABC requirements to apply for a Class B Professional Educator Certificate. CT ABCs are issued only upon recommendation from a superintendent or administrator to employ the applicant as a full-time employee who will be teaching in the teaching field and at the grade level for which the CT ABC is sought. Additional information is in Rule 290-3-2-.09 and on Form CT ABC. The applicant must document meeting all CT ABC approach requirements when applying for the Professional Educator Certificate. The requirements include:

1. Basic requirements in Rule 290-3-2-.03(2)(a).
2. At least an earned bachelor's degree from a regionally accredited senior institution with an academic major or an acceptable alternative in the area for which the CT ABC is recommended. Additional information is in Rule 290-3-2-.09(5)(a)2.
3. Up to 12 semester hours of coursework that meet the requirements on Form CT ABC and in the letter which accompanies the first CT ABC. Courses completed during the scholastic year for which the first CT ABC is issued, or thereafter, must be taken at an Alabama institution with State-approved teacher education programs. A list of appropriate courses is available from the Office. Additional information is in Rule 290-3-2-.09(6).
4. Three full years of full-time, satisfactory teaching experience in the teaching field in no more than two public school systems and/or nonpublic schools while holding a valid CT ABC. The applicant must complete this experience within the four scholastic years from the beginning date of the first CT ABC.

(d) The Preliminary Certificate approach is available in school counseling, library-media, and speech and language impaired and results in a Class A Professional Educator Certificate. Preliminary Certificates are issued only upon the recommendation of a superintendent or administrator, except as noted in Rule 290-3-2-.10(6)(a)3., to employ the applicant as a full-time employee in the area for which the Preliminary Certificate is sought. Additional information about the Preliminary Certificate is in Rule 290-3-2-.10 and on Form PRE. The applicant must document meeting all Preliminary Certificate approach requirements when applying for the Professional Educator Certificate. The requirements include:

1. Basic requirements in Rule 290-3-2-.03(2)(a).
2. At least an earned master's degree from a regionally accredited senior institution with an academic major in the area for which the certificate is requested. Additional information is in Rule 290-3-2-.10(5)(a)3.

(i) For school counseling, issuance of the Preliminary Certificate may be recommended by a superintendent or administrator to hire an applicant based on one of the following three options:

(I) Completion of an Alabama State-approved Class A program for school counseling but lacking the required two full years of full-time satisfactory educational experience required for issuance of a Class A Professional Educator Certificate in school counseling.

(II) Completion of a master's level state-approved program for school counseling at an institution in another state and holding a valid professional educator certificate for school counseling from any state but lacking the required two full years of full-time satisfactory educational experience required for issuance of a Class A Professional Educator Certificate in school counseling.

(III) Completion of a master's level program in an area of counseling other than school counseling and holding a valid license as an Associate Licensed Counselor or a Licensed Professional Counselor issued by a state board of examiners in counseling.

(ii) For library-media, a Preliminary Certificate may be recommended by a superintendent or administrator to hire an applicant who has a master's degree with a major in library science.

(iii) For speech and language impaired, a Preliminary Certificate may be recommended by a superintendent or administrator to hire an applicant who has a master's degree with a major in speech and language impaired.

3. Two full years of full-time satisfactory employment in the teaching field or area of instructional support for which the Preliminary Certificates were issued while holding a valid Preliminary Certificate. Additional information is in Rule 290-3-2-.10(8)(a)

(3) Alabama Alternative Approaches That Do Not Require a Recommendation from an Employing Superintendent.

(a) Basic Requirements.

1. An applicant using an alternative approach must have at least an earned bachelor's degree from a regionally accredited senior institution.

2. An applicant must complete a criminal history background check as required in Rule 290-3-2-.01(16).

3. An applicant must successfully complete the requirements of the Alabama Prospective Teacher Testing Program (APTTP) as required in Rule 290-3-2-.01(4).

(b) Additional Teaching Field Approach. This approach is commonly referred to as certification by test (CBT).

1. An applicant who meets the criteria below for using this approach submits an application, including Form CBT, directly to the Office for a Class B Professional Educator Certificate in an additional teaching field. Additional information about a Professional Educator Certificate for teaching fields is in Rule 290-3-2-.04(2). Additional information about the CBT approach is in Rule 290-3-2-.05 and on Form CBT.

2. Available teaching fields include early childhood education, elementary education, and most middle, secondary, and P-12 teaching fields.

3. The requirements of this approach include:

(i) Basic requirements in Rule 290-3-2-.03(3)(a).

(ii) A valid Professional Educator Certificate in a teaching field.

(iii) Documentation on Form EXP of two full years of satisfactory full-time teaching experience at the grade level for which the Professional Educator Certificate is sought.

(iv) Verification of a passing score on the prescribed Praxis II subject assessment of the Alabama Prospective Teacher Testing Program (APTTP) as required in Rule 290-3-2-.01(4).

(c) Speech and Language Impaired Approach.

1. An applicant who meets the criteria below for using the speech and language impaired approach submits an application, including Form CLA, directly to the Office for an appropriate degree level Professional Educator Certificate for speech and language impaired. Additional information about a Professional Educator Certificate for teaching fields is in Rule 290-3-2-.04(2).

2. The requirements of this approach include:

(i) Basic requirements in Rule 290-3-2-.03(3)(a).

(ii) Official transcript verifying at least an earned master's degree from a regionally accredited senior institution with a major in speech and language impaired.

(iii) Verification of the applicant's valid speech-language pathology license or valid renewal card issued by any state's board of examiners in speech pathology and audiology.

(d) National Board for Professional Teaching Standards (NBPTS) Approach.

1. An applicant who meets the criteria below for using the NBPTS approach submits an application, including Form CLA, directly to the Office for a Professional Educator Certificate. Additional information about a Professional Educator Certificate for teaching fields is in Rule 290-3-2-.04(2).

2. Limitations.

(i) The Office will only issue a Professional Educator Certificate based on the NBPTS approach if Alabama issues a certificate comparable to the area(s), grade level(s), and degree level(s) of the NBPTS certificate. Additional information about a Professional Educator Certificate for teaching fields is in Rule 290-3-2-.04(2). Additional information about a Professional Educator Certificate for areas of instructional support is in Rule 290-3-2-.04(3) and (4).

(ii) For areas of instructional support, the applicant must have at least an earned master's degree from a regionally accredited senior institution.

3. The requirements of this approach include:

(i) Basic requirements in Rule 290-3-2-.03(3)(a).

(ii) Official transcript verifying at least an earned bachelor's degree from a regionally accredited senior institution.

(iii) Official transcript(s) of all degrees earned from a regionally accredited senior institution.

(iv) Verification by the Office of the applicant's valid NBPTS certification.

(v) If the application is for an area of instructional support, documentation on Form EXP of the educational experience required for issuance of the Professional Educator Certificate. Additional information is in Rule 290-3-2-.04(3) Footnote "a" and Footnote "e."

4. Degree Level.

(i) If the applicant holds a valid Alabama Professional Educator Certificate, the new area of certification will be issued at the highest degree level of his or her valid Professional Educator Certificate.

(ii) If the applicant does not hold a valid Alabama Professional Educator Certificate, the initial Professional Educator Certificate may be issued at the level of the highest degree in an education field from a regionally accredited senior institution. However, Alabama does not issue certificates at levels above Class AA.

(e) Council for Accreditation of Counseling and Related Educational Programs (CACREP) Approach.

1. An applicant who meets the criteria below for using the CACREP approach submits an application, including Form CRP, directly to the Office for a Professional Educator Certificate in schooling counseling. Additional information about a Professional Educator Certificate for areas of instructional support is in Rule 290-3-2-.04(3).

2. The requirements of this approach include:

(i) Basic requirements in Rule 290-3-2-.03(3)(a).

(ii) Official transcript(s) of all degrees earned from a regionally accredited senior institution.

(iii) Official transcript verifying at least an earned master's degree from a regionally accredited senior institution.

(iv) Official verification of completion of at least a master's degree level CACREP-accredited school counseling program with a GPA in the program of at least 3.0 at a regionally accredited senior institution.

(v) Official verification of the applicant's passing score on the National Counseling Examination for Licensure and Certification (NCE).

3. A Professional Educator Certificate that is issued based on completion of a CACREP-accredited school counseling program will be issued at the master's degree level.

(f) Nationally Certified School Psychologist Approach.

1. An applicant who meets the criteria below for using the Nationally Certified School Psychologist approach submits an application, including Form CLA, directly to the Office for a Professional Educator Certificate in school psychology. Additional information about a Professional Educator Certificate for areas of instructional support is in Rule 290-3-2-.04(3).

2. The requirements of this approach include:

(i) Basic requirements in Rule 290-3-2-.03(3)(a).

(ii) Official transcript(s) of all degrees earned from a regionally accredited senior institution.

(iii) Official transcript verifying at least an earned master's degree from a regionally accredited senior institution.

(iv) A copy of the certifying credential or verification on the most recent Directory of Nationally Certified School Psychologists or in its current supplement.

3. A Professional Educator Certificate that is issued based on the Nationally Certified School Psychologist Approach will be issued at the degree level indicated on the official transcript. Additional information is in Rule 290-3-2-.03(3)(f)2.(iii).

(4) Special Alternative Certificate (SAC).

(a) A SAC allows a local board of education or the chief administrative officer of a nonpublic school or nonpublic school system to employ an applicant who is completing requirements for a Class A Professional Educator Certificate in a teaching field or an area of instructional support through an Alternative Class A or Class A State-approved program.

1. For school counseling, the program must be approved by the Alabama State Board of Education or the Council for Accreditation of Counseling and Related Educational Programs (CACREP).

2. The SAC is also an option for individuals who have been admitted to a Class AA program in special education.

3. The SAC is not available in the area of school psychometry.

(b) The certificate must be recommended by a superintendent or administrator who wishes to employ the applicant in the area in which the Alabama Class A State-approved program or Alabama Class AA State-approved program is being completed.

(c) Additional information about the SAC for teaching fields is prescribed in Rule 290-3-2-.06 and on Form SAC.

(d) Additional information about the SAC for areas of instructional support is in Rule 290-3-2-.07 and on Form SAC.

(e) Successful completion of the requirements of the Alabama Prospective Teacher Testing Program (APTTP) by the dates prescribed in Rule 290-3-2-.06(5)(b)2. for teaching fields and Rule 290-3-2-.07(5)(b)4. and Rule 290-3-2-.07(7)(a) for areas of instructional support.

(f) An applicant who completes all requirements for an Alabama-approved Alternative Class A program, Class A program, or Class AA program is recommended by the institution for the appropriate Professional Educator Certificate.

(5) Program Completion or Certification Earned in Another State or Country.

(a) Basic Requirements.

1. The applicant must meet the requirements of the Alabama Prospective Teacher Testing Program (APTTP) prior to the issuance of an initial Professional Educator Certificate. Additional information about the APTTP is in Rule 290-3-2-.01(4).

2. The applicant must complete a criminal history background check as required in Rule 290-3-2.-01(16).

3. Form EXP must be used to document any required experience. Some Class A and Class AA Professional Educator Certificates in areas of instructional support require prior educational experience. Additional information is in Rule 290-3-2-.04(3), Rule 290-3-2-.04(4), Rule 290-3-2-.03(5)(f)2.(ii), and Rule 290-3-2-.03(5)(f)3.(ii).

4. The applicant must meet requirements in an area for which Alabama issues a certificate or closely-related certificate in terms of area(s), grade level(s), and degree level(s).

5. An applicant who meets requirements in an area for which Alabama previously offered certification may be eligible for certification in that area.

(b) Degree Requirements.

1. Degrees used to meet certification requirements must be from regionally accredited senior institutions, except as noted in Rule 290-3-2-.02(6)(c) and Rule 290-3-2-.03(5)(b)3.

2. Graduate level programs must require at least 30 semester hours of credit.

3. An applicant who has earned at least a bachelor's degree from an institution that is not regionally accredited and who has earned a valid professional educator certificate from the state where the institution is geographically located may be admitted to an Alternative Class A program at an Alabama institution at the discretion of the administrative head of the teacher education unit. If the applicant is unconditionally admitted to an Alternative Class A program, he or she may be eligible for a Special Alternative Certificate (SAC).

(c) Approved-Program Requirements.

1. An applicant who completed a state-approved program in another state or country may be eligible for a Professional Educator Certificate if the application is received in the Office prior to September 1, 2010, regardless of the area for which certification is sought.

2. An applicant who completed a state-approved program in an area other than educational administration or supervision in another state or country may be eligible for a Professional Educator Certificate if the application is received in the Office on September 1, 2010, and thereafter.

3. An applicant who completed a graduate-level (master's degree, sixth-year, specialist, and/or doctoral level) state-approved program in an area of educational administration (or supervision) in another state or country and whose application is received in the Office on September 1, 2010, and thereafter, may be eligible for a Professional Educator Certificate in an area of educational administration (or supervision) if any one of the following criteria is met:

(i) The applicant holds a valid graduate-level (master's degree, sixth-year, specialist, and/or doctoral level) professional educator certificate in an area of educational administration (or supervision) issued by another state or country and verifies at least three full years of full-time administrative (or supervisory) experience.

(ii) The Superintendent has determined that the state standards which were the basis for state-approval of the program completed by the applicant are comparable to Alabama's standards for State-approved programs in instructional leadership. The Superintendent must also have determined the date on which Alabama will begin to accept applications from completers of comparable state-approved programs in that other state or country. The determined date will be the date after which persons admitted to the educational administration (or supervision) state-approved program at any institution in that state or country will have completed a state-approved program comparable to Alabama's State-approved programs in instructional leadership. The applicant must have been admitted to the comparable state-approved program on or after the determined date. [When comparability for a state or country is determined, that information and the date on which Alabama will begin to accept applications from completers of comparable state-approved program in that state or county will be posted on the Department of Education website.]

4. Verification of completion of a state-approved program must be submitted to the Office on Form OAL.

5. An application for Alabama certification based on completing a state-approved program in another state is considered only in the applicant's major program.

6. The applicant must meet basic requirements in Rule 290-3-2-.03(5)(a) and degree requirements in Rule 290-3-2-.03(5)(b).

(d) Foreign Credentials.

1. An application for Alabama certification based on completing a teacher education program at an institution outside the United States is considered only in the applicant's major program.

2. Additional information about foreign credentials is in Rule 290-3-2-.02(12).
3. The applicant must meet requirements in Rule 290-3-2-.03(5)(a), (b), and (c).

(e) National Council for Accreditation of Teacher Education (NCATE).

1. An applicant who completes a state-approved program at a regionally accredited senior institution of higher education accredited by NCATE for the type of certificate sought may be eligible for a Professional Educator Certificate. Additional information about a Professional Educator Certificate is in Rule 290-3-2-.04.

2. The program completed shall have been offered at the degree level for which the institution of higher education was accredited by NCATE at the time the program was completed.

3. The applicant must meet requirements in Rule 290-3-2-.03(5)(a), (b), and (c).

4. This option is not available for an application for certification in educational administration or supervision received in the Office on September 1, 2010, and thereafter, unless criteria in Rule 290-3-2-.03(5)(c)3.(ii) is met.

(f) National Association of State Directors of Teacher Education and Certification (NASDTEC) Interstate Agreement.

1. General information. Current information concerning participating members, program participation, and terms of the current Agreement is available on the NASDTEC website (www.nasdtec.org). Alabama signs the Agreement for teachers, instructional support personnel, and administrators. On August 31, 2008, Alabama withdrew from the Agreement for administrators. Alabama does not use the Agreement:

(i) To facilitate the certification of Career and Technical teachers who have not completed at least a bachelor's degree level state-approved program; and

(ii) For applications received in the Office on September 1, 2010, and thereafter, to facilitate certification in educational administration or supervision.

2. Applicants from states with which Alabama participates in the NASDTEC Agreement may be eligible for a Professional Educator Certificate if they meet one of the following options:

(i) Completed a state-approved program at a regionally accredited senior institution. Additional information is in Rule 290-3-2-.03(5)(c). This option is not available for an application for certification in educational administration or supervision received in the Office on September 1, 2010, and thereafter, unless criteria in Rule 290-3-2-.03(5)(c)3.(ii) is met.

(ii) Hold a professional educator certificate and meet the experience requirements in the current NASDTEC Agreement. This option is not available for an application for certification in educational administration or supervision received in the Office on September 1, 2010, and thereafter.

3. Applicants from states that are not participants in the NASDTEC Agreement may be eligible for a Professional Educator Certificate if they meet one of the following options:

(i) Completed a state-approved program at a regionally accredited senior institution. Additional information is in Rule 290-3-2-.03(5)(c). This option is not available for an application for certification in educational administration or supervision received in the Office on September 1, 2010, and thereafter, unless criteria in Rule 290-3-2-.03(5)(c)3.(ii) is met.

(ii) Hold a professional educator certificate and meet the experience requirements in the current NASDTEC Agreement. This option is not available for an application for certification in educational administration or supervision received in the Office on September 1, 2010, and thereafter.

4. The applicant must meet basic requirements in Rule 290-3-2-.03(5)(a) and degree requirements in Rule 290-3-2-.03(5)(b).

(g) Certification in Another State Requirements.

1. An applicant who holds a valid professional educator certificate in another state may be eligible for a Professional Educator Certificate if Alabama offers a comparable certificate.

2. This option is not available for an application for certification in educational administration or supervision received in the Office on September 1, 2010, and thereafter.

3. Verification of the applicant's certificate shall be received in the Office directly from the issuing authority as prescribed on Form CER or the original certificate shall be submitted.

4. The applicant must meet the basic requirements in Rule 290-3-2-.03(5)(a) and degree requirements in Rule 290-3-2-.03(5)(b).

(h) Certification and Experience in Educational Administration or Supervision in Another State or Country Effective for Applications Received in the Office on September 1, 2010, and Thereafter.

1. An applicant who holds a valid graduate-level (master's degree, sixth-year, specialist, and/or doctoral level) professional educator certificate in educational administration (or supervision) in another state or country may be eligible for a Professional Educator Certificate in educational administration (or supervision) only if the applicant verifies at least three full years of full-time administrative (or supervisory) experience.

2. Verification of the applicant's certificate shall be received in the Office directly from the issuing authority as prescribed on Form CER or the original certificate shall be submitted.

3. The applicant must meet the basic requirements in Rule 290-3-2-.03(5)(a) and degree requirements in Rule 290-3-2-.03(5)(b).

SUPP. NO. 10-2 **TEACHER CERTIFICATION**

290-3-2-.03 Author **290-3-2-.03 History**

Author: Dr. Joseph B. Morton.

Statutory Authority: Ala. Code §§16-3-11, 16-23-1 and 16-23-2 (1975).

History: New 12-19-78, repealed 12-8-94, effective 12-31-96; new adopted 12-8-94, effective 1-1-97, repealed 11-14-96 and amended repealed date of original chapter to 6-30-97 new adopted 1-9-97 effective 7-1-97; amended: 6-14-99; effective 7-19-99; amended 9-1-99; effective 10-14-99; amended 01-11-01, effective 02-15-01, repealed and new adopted 06-13-02; emergency rule to appeal and adopt new filed on 6-13-02; new adopted 8-8-02, effective 9-12-02; emergency rule to appeal and adopt new filed on 10-10-02; new adopted 12-12-02, effective 1-16-03; repealed and new adopted 09-11-03 effective 10-16-03; amended 06-10-04 effective 07-15-04; emergency amended rule adopted 4-14-05, effective 4-14-05; amended rule adopted 6-9-05, effective 7-14-05; repealed and adopted new, 8-4-08, effective 9-18-08; amended 4-8-10, effective 5-13-10.

290-3-2-.04 Professional Educator Certificate.

(1) Overview of the Professional Educator Certificate. A Professional Educator Certificate (PEC) is the highest type of certificate for a teaching field or area of instructional support. A PEC is renewable. It may be issued at the Class B, Class A, or Class AA level. An individual may be eligible for a PEC through a State-approved program, an Alabama alternative approach, or program completion or certification in another state.

(2) Class B, Class A, or Class AA Certificate for Teaching Fields.

Certificate	Grade or Age Levels	Class B	Class A	Class AA
Collaborative Special Education	K-6	a, b	a, d	a, e
Collaborative Special Education	6-12	a, b	a, d	a, e
Early Childhood Special Education	Birth through age 8	a, b	a, d	a, e
Early Childhood	P-3	a, b	a, d	a, e
Elementary	K-6	a, b	a, d	a, e
Elementary-Secondary	P-12	a, b, c	a, c, d	a, c, e
Middle Level	4-8	a, b, c	a, c, d	a, c, e
Secondary	6-12	a, b, c	a, c, d	a, c, e
Special Education	P-12	a, b, c, f	a, c, d	a, c, e

[a]Meet all requirements for the Professional Educator Certificate in the teaching field(s) at this level as prescribed in Rule 290-3-2-.02, Basic Principles, and Rule 290-3-2-.03, Approaches to Earning a Professional Educator Certificate.

[b]Hold an earned bachelor's degree from a regionally accredited senior institution of higher education.

[c]Be issued only in teaching fields in the current edition of the *Subject and Personnel Codes* of the Alabama State Department of Education.

[d]Hold an earned master's degree from a regionally accredited senior institution of higher education.

[e]Complete a State-approved sixth-year program of at least 30 semester hours of graduate credit from a regionally accredited senior institution. The coursework may not have been used for Class B or Class A certification in the same teaching field or area of instructional support. Program completion may result in an education specialist degree.

[f]Initial Class B Professional Educator Certificates in speech and language impaired have not been issued with a valid period beginning after July 1, 2007. Information about the Speech-Language Pathology Assistant Certificate is in Rule 290-3-2-.15.

(3) Class A or Class AA Certificate for Areas of Instructional Support Other Than Instructional Leader.

Area of Instructional Support Personnel	Grade Levels	Class A	Class AA
Educational Administrator	P-12	b, e	c, e
Principal	P-6	b, d, e	c, d, e
Principal	7-12	b, d, e	c, d, e
Principal	P-12	b, d, e	c, d, e
Library-Media	P-12	a, b	a, c
School Counseling	P-12	a, b	a, c
School Psychology	P-12	a, b, d	a, c
School Psychometry	P-12	a, b	a, c
Sport Management	P-12	a, b	N/A
Superintendent	P-12	b, d, e	c, d, e
Supervisor	P-12	b, d, e	c, d, e
Career and Technical Education Administrator	6-12	b, d, e	c, d, e

[a]Meet all requirements for the Professional Educator Certificate in the area at this level as prescribed in Rule 290-3-2-.02, Basic Principles, and Rule 290-3-2-.03, Approaches to Earning a Professional Educator Certificate. Individuals must also complete two full years of full-time satisfactory educational experience, except for those seeking certification through the Council for Accreditation of Counseling and Related Educational Programs (CACREP) approach or the Nationally Certified School Psychologist approach.

[b]Hold an earned master's degree from a regionally accredited senior institution of higher education.

[c]Complete a state-approved sixth-year program of at least 30 semester hours of graduate credit from a regionally accredited senior institution. The coursework may not have been used for Class B or Class A certification in the same teaching field or area of instructional support. Program completion may result in an education specialist degree.

[d]Complete certification requirements for principal, superintendent, supervisor, school psychologist, or career and technical education administrator only through the provisions of a reciprocal agreement.

[e]Meet all requirements for the Professional Educator Certificate in the area at this level as prescribed in Rule 290-3-2-.02, Basic Principles, and Rule 290-3-2-.03, Approaches to Earning a Professional Educator Certificate. For applications received in the Office prior to September 1, 2010, applicants must also verify two full years of full-time satisfactory educational experience and if seeking certification through completion of a state-approved program or certification earned in another state or country, at least one of the two years must have been P-12 classroom teaching experience. For applications received in the Office on or after September 1, 2010, based on completion of a state-approved program as prescribed in Rule 290-3-2-.03(5)(c)3.(ii), applicants must also verify three full years of full-time acceptable professional educational experience in a P-12 setting, which must include at least one full year of full-time P-12 teaching experience. Individuals who used the Preliminary Certificate Approach to earn a Professional Educator Certificate in school counseling, library-media, or speech and language impaired are exempt from the requirement of one year of classroom experience.

(4) Class A Certificate for Instructional Leader.

	Grade Level	Class A	Class AA
Instructional Leader	P-12	a,b	NA
Practicing Instructional Leader	P-12	c, d	NA

[a]Meet all requirements for the Professional Educator Certificate for an instructional leader as prescribed in Rule 290-3-2-.02, Basic Principles, and Rule 290-3-2-.03, Approaches to Earning a Professional Educator Certificate. Prior to admission to an Alabama State-approved program in this area, individuals must also complete the experiential requirement in Rule 290-3-3-.48. For applications based on completion of a state-approved program as prescribed in Rule 290-3-2-.03(5)(c)3.(ii), applicants must also verify three full years of full-time acceptable professional educational experience in a P-12 setting, which must include at least one full year of full-time P-12 teaching experience.

[b]Hold an earned master's degree from a regionally accredited senior institution.

[c]Hold a valid Alabama Professional Educator Certificate in educational administration or instructional leadership.

[d]The individual must have been initially employed as a principal in an Alabama school system or non-public school in the 2009-2010 scholastic year or thereafter. The individual must complete two full years of full-time satisfactory experience as a principal in Alabama. During the first and second year of employment as a principal, individuals must have successfully completed a two-year mentoring program that supports the Alabama Standards for Instructional Leadership, as prescribed in Rule 290-3-3-.48, completed the required Professional Learning Units during each year, and received satisfactory evaluations as a principal.

(5) Valid Period. A Professional Educator Certificate has a valid period of five years.

Author: Dr. Joseph B. Morton.
Statutory Authority: Ala. Const. Amend. 284, Ala. Code §§16-3-11, 16-23-1 and 16-23-2 (1975).
History: New 12-19-78, repealed 12-8-94, effective 12-31-96; new adopted 12-8-94, effective 1-1-97, repealed 11-14-96 and amended repealed date of original chapter to 6-30-97 new adopted 1-9-97 effective 7-1-97; amended: 6- 14-99; effective 7-19-99, repealed and new adopted 06-13-02; emergency rule to repeal and adopt new filed on 6-13-02; new adopted 8-8-02, effective 9-12-02; emergency rule to repeal and adopt new filed on 10-10-02; new adopted 12-12-02, effective 1-16-03; amended 07-13-04 effective 08-17-04; emergency rule adopted 9-14-06, effective 9-14-06; amended 11-9-06, effective 12-14-06; repealed and adopted new, 8-4-08, effective 9-18-08; amended 4-8-10, effective 5-13-10.

FIRST CHOICE

Implementation Guide

2009-2010

FIRST CHOICE Planning Committee Members

- Teresa Boody, World Language Teacher, Shelby County Schools
- Jennifer Box, Assistant Principal, Tuscaloosa City Schools
- Cynthia C. Brown, Director of Curriculum and Instruction, State Department of Education
- Laura Casey, Board Member, Albertville City Schools
- Don Cox, Alabama High School Athletic Association
- Carol Crawford, Education Administrator, State Department of Education
- Tyna Davis, Manager, Education Policy and Professional Practice, Alabama Education Association
- Mark Dixon, Policy Analyst to Governor Bob Riley
- Joe Evans, Alabama High School Athletic Association
- Pam Fossett, Director, Education Policy and Professional Practice, Alabama Education Association
- Jeff Goodwin, Superintendent, Oxford City Schools
- John Henry Heard, III, Superintendent, Perry County Schools
- Pam T. Henson, Instructional Support Director, Baldwin County Schools
- Lynn Hollis, Distance Education Teacher, Trussville City Schools
- Sally Howell, Executive Director, Alabama Association of School Boards
- Linda B. Ingram, Superintendent, Coffee County Schools
- Donna P. Jacobs, Dean of Education, University of North Alabama
- Gloria Linton, Guidance Counselor, Crenshaw County Schools
- Cathy McNeal, Research and Development Director, Huntsville City Schools
- Martin Nalls, Principal, Hoover Freshman Center, Hoover City Schools
- Caroline Novak, President, A+ Education Foundation
- Jennifer Parsons, Board Member, Jefferson County Schools
- Dorinda Phillips, Career Technical Director, Mobile County Schools
- Mark Raines, Career and Technical Education Teacher, Tuscaloosa City Schools
- Danny Stallings, Principal, Meek High School, Winston County Schools
- Kandis Steele, Director of Academic Affairs, Alabama Department of Postsecondary Education
- Carolyn Lee Taylor, Assistant Superintendent Curriculum and Instruction, Mobile County Schools
- Cindy Wade, Mathematics Teacher, Scottsboro City Schools

Middle School Initiative Committee Members

- Stephanie W. Bell, Member, Alabama State Board of Education
- Ardrene Bishop, Director of Federal Programs, Fairfield City Schools
- Cynthia C. Brown, Director of Curriculum and Instruction, State Department of Education
- Mary Jane Caylor, Member, Alabama State Board of Education
- Dennis Coe, Superintendent, Henry County Schools
- Tyna Davis, Manager, Education Policy and Professional Practice, Alabama Education Association
- Mark Dixon, Policy Analyst to Governor Bob Riley
- Dorothy Dolasky, Education Specialist, Curriculum and Instruction, State Department of Education
- Peggy Duck, Science Supervisor, Baldwin County Schools
- Cathy Gassenheimer, Managing Director, A+ Education Foundation
- James C. Gill, Jr., Principal, Peter F. Alba Middle School, Mobile County Schools
- Janet Harris, Superintendent, Cullman City Schools
- Larry P. Haynes, Principal, Oak Mountain Middle School, Shelby County Schools
- C'Kiimba Hobbs, Principal, Hillcrest Middle School, Tuscaloosa County Schools
- Ray Landers, Principal, Boaz Middle School, Boaz City Schools
- Fannie L. Major-McKenzie, Superintendent, Dallas County Schools
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- Sandra Ray, Member, Alabama State Board of Education
- Cindy Reed, Professor, Auburn University
- Tim Solley, Director of Middle School Education, Madison County Schools
- Jeanie Solomon, Resource Specialist, Dothan City Schools
- Joyce Woodburn, Special Services Supervisor, Baldwin County Schools
- Camille Wright, Middle School/Secondary Curriculum and Instruction, Madison City Schools

Alabama High School Graduation Requirements

Beginning with the ninth grade class of the 2009-2010 school year, ALL students will have as their default diploma option the **Advanced Academic Endorsement** to the Alabama High School Diploma. The course requirements for all endorsements to the Alabama High School Diploma are presented in Attachment A.

Should a student and his/her parent or guardian determine that the Advanced Academic Endorsement is not appropriate for the student's educational needs, the parent or guardian may remove the student from the Advanced Academic Endorsement by meeting with the student's counselor and completing the Endorsement Change Request Form (Attachment B). This change in endorsement may occur prior to the student entering high school or at logical points throughout the student's high school experience.

Following the spring administration of the *Alabama High School Graduation Exam* (AHSGE), twelfth grade students who have not passed all sections of the AHSGE may choose the **Credit-Based Endorsement** of the Alabama High School Diploma if approved as an endorsement by the LEA and if the student has met the following criteria:

1. Successfully met the academic course requirements as established by the local school system.
2. Successfully met the course requirements for one career and technical education course.
3. Passed the reading, mathematics, and one other subtest of the AHSGE.

Once a student chooses the Credit-Based Endorsement, it will serve as the final endorsement to the Alabama High School Diploma. A Credit-Based Endorsement Request form must be completed and signed by the graduating senior and his/her parent or guardian and submitted to the high school counselor in order to receive the Credit-Based Endorsement (Attachment C).

Included in the newly adopted requirements of the Advanced Academic Endorsement to the Alabama High School Diploma is the requirement that all students will have an **Online Experience.** An online experience for this purpose is defined as a structured learning environment that utilizes technology—consistently and regularly—with Intranet/Internet-based tools and resources as the delivery method for instruction, research, assessment, and communication.

The online experience may be delivered through a **Teacher-Led** online learning experience much like the traditional classroom but led/managed through a virtual environment or through **Blended Instruction** to include a balanced mix of traditional face-to-face instruction activities along with appropriately designed online experiences. This blended format can provide opportunities for students to work outside the classroom in virtual teams with students from other schools or classrooms to learn writing, research, teamwork, and technology skills.

A student may obtain his/her **Online Credit** through one or more of the following options:

1. Take an online course
2. Participate in an online experience
3. Participate in online experiences incorporated into required courses for the Alabama High School Diploma.

For the online experience to be successful and to meet the **Credit Requirements**, it must meet the following standards:

1. Be relevant and address many learning styles appropriate to the task.
2. Include asynchronous and/or synchronous interaction between teacher and student as well as student and student.
3. Incorporate resources outside of the classroom.
4. Meet the *Alabama Course of Study: Technology* standards for Grades 9-12.
5. Incorporate the following:
   a. **Use** of technology tools for managing and communicating personal information.
   b. **Apply** advanced software features such as built-in thesaurus, templates, and styles to improve the appearance of word processing documents, spreadsheets, and presentations.
   c. **Identify** and **describe** various telecommunications or online technologies such as desktop conferencing, listservs, blogs, and virtual reality.
   d. **Incorporate** a variety of media and formats to **design**, **develop**, **publish**, and **present** products.
   e. **Collaborate** in content-related projects that integrate a variety of media.
   f. **Demonstrate proficiency** in the use of emerging technology resources such as podcasting, Webcasting, compressed video delivery, online file sharing, graphing calculators, and global positioning software.

Credit Recovery

School systems may choose to offer students who have been unsuccessful in mastering content or skills required to receive course credit or earn promotion the opportunity to apply for **Credit Recovery**. Credit Recovery study is based on deficiencies rather than a repeat of the entire course. Students who have not achieved a baseline average of 40 or above (on a 100-point scale) or its equivalent on a locally adopted grading scale must repeat the entire course.

LEAs offering Credit Recovery shall develop program rules, regulations, and processes and shall provide them in writing to students, parents, guardians, and the State Department of Education. At a minimum, they must address the following guidelines for admission and removal, instruction, content and curriculum, grades, and credits:

1. **Admission and Removal**
   LEA rules and regulations, or procedures for admission to and removal from Credit Recovery programs, may include but not be limited to attendance, discipline, availability of coursework, availability of space, appropriate progress, and grades. At a minimum, they should:
   a. Require students to complete an application process (Attachment D).
   b. Require parent/guardian consent.
   c. Require students to have earned a baseline average of 40–59 on a 100-point scale or the equivalent on a locally adopted grading scale.

2. **Instruction**
   a. Teachers of teacher-based programs shall be certified and highly qualified in core academic areas.
   b. Facilitators of computer-based programs:
      i. Shall be certified teachers.
      ii. Shall receive training pertaining to course organization, online/computer-based instruction management, and related technology.
   c. Facilitators of online courses provided by the SDE and which have certified, highly qualified teachers shall:
      i. Be adults approved by the local school board.
      ii. Receive professional development in online methodology and technical aspects of Web-based instruction.
   d. Content standards and concepts to be addressed in Credit Recovery courses should be determined by measures such as:
      i. The teacher who assigned the failing grade to the student describing the course of study content standards that were not met by the student.
      ii. A course and skill-specific diagnostic tool provided by the vendor of the software being used for instruction.
      iii. A comprehensive school or school system test such as a semester exam, a final exam, or a test designed specifically for the Credit Recovery program to identify unmet standards in a course.

3. Content and Curriculum

a. Credit Recovery content may be delivered by a highly qualified teacher.
b. Credit Recovery may be delivered through instructional technology.
c. Credit Recovery curriculum shall be aligned with the Alabama academic content standards approved by the Alabama State Board of Education.

4. Grades

a. LEAs are responsible for establishing specific uniform procedures for evaluation of student progress and awarding of final grades in Credit Recovery programs not to exceed a final score of 70 on a 100-point scale.
b. Options available for Credit Recovery programs include the following:
   i. LEAs shall establish a grading formula that may or may not include the original failing grade in the calculation of the final credit recovery grade.
   ii. LEAs may choose the option of grade forgiveness in which an original grade of F may be replaced with a grade of D or C dependent upon the student's performance in Credit Recovery.
   iii. The Credit Recovery grade will be included in computing the student's overall Grade Point Average.

A sample Credit Recovery Plan, with all required forms and components, is available for use by LEAs in development of their individual school Credit Recovery Plan. This sample plan can be found on the State Department Web site under the Curriculum and Instruction Section.

Credit Advancement

School systems may choose to offer students who exhibit proficiency beyond the level required for all students for an individual course the opportunity to pursue **Credit Advancement** as an alternative to the traditional Carnegie Unit approach to course completion if offered by the local school system. For a student to be eligible for Credit Advancement he/she must:

1. Be recommended by a current or former teacher of the subject/course being considered for Credit Advancement.
2. Have criterion-referenced or norm-referenced test scores that support an above grade-level proficiency of content in the subject/course being considered for Credit Advancement.
3. Complete a Request for Credit Advancement form, signed by the parent or guardian, the high school counselor, and high school principal (Attachment E).

Credit Advancement may occur in the following two ways:

1. The student may request to take an **End-of-Course Assessment** covering all of the standards of the course. A mastery score of 80 or above must be obtained to receive credit for the course through Credit Advancement, and this score will be included in the student's overall Grade Point Average.
2. The student may show **Proficiency** during a course and request permission to work ahead through independent and teacher-supported assignments or through online opportunities. At a point jointly agreed upon by the student and teacher of record, the student will be administered the end-of-course assessment, and if he/she obtains a proficiency score of 80 or above, the student may move forward into the next course in the sequence of that content area. This situation would offer an opportunity for the student to pursue online options or other LEA-developed options for individualized independent study.

During the 2009-2010 school year volunteering school systems will pilot Credit Advancement to determine final guidelines for future implementation across the state.

During this same time end-of-course assessments will be developed for all core academic courses, World Languages, and selected career and technical courses.

Alabama Middle School Initiative

In order to support the increased academic requirements at the high school level, the **Alabama Middle School Initiative** will be expanded simultaneously for the purpose of developing, implementing, evaluating, and refining a comprehensive, whole-school improvement effort that will assist all middle grade students to receive a high-quality, challenging, and appropriate education that prepares them for success in college and career-level courses in high school.

The Alabama Middle School Initiative will use as its base the Southern Regional Education Board (SREB) **Making Middle Grades Work** framework.

This comprehensive framework sets forth the following overarching goals:

1. To increase the percentage of eighth-graders who perform at the proficient level in academic subjects.
2. To provide educational experiences that will close the gaps and increase students' knowledge and skills in reading, mathematics, language arts, science, and social studies.
3. To provide students with opportunities to apply their skills in the fine arts and to explore careers and new technology.

More specifically, the academic expectations for all middle schools will be as follows:

Mathematics: By the end of Grade 8, all students will pass a pre-algebra proficiency test and be able to use algebra skills to solve problems or they will complete Algebra I satisfactorily.

Science: All students will use the scientific process, mathematical analysis, and engineering design to pose questions, seek answers, and develop solutions in physical, life, and earth/space science courses. These classes will incorporate laboratory and technology experiences. Students will design, conduct, analyze, and give oral and written descriptions of scientific investigations.

Reading: All students will demonstrate an overall understanding of eighth-grade material. They will read a minimum of 25 to 30 books or the equivalent across the curriculum each year and will apply various strategies while reading independently to learn in all content areas. They will be able to synthesize, analyze, and formulate crucial opinions from the text.

Language Arts: By the end of Grade 8, students will be able to find, organize, and report information using correct, effective language skills as they communicate in various formats for different audiences and purposes. Students will complete short writing assignments weekly and major reports once a semester and will write research papers to standards that indicate readiness for college-preparatory English in high school.

Social Studies: By the end of Grade 8, students will be able to describe their heritage, their government, the world in which they live, and key economic principles by studying issues of the past, present, and future. They will be able to assess geography's influence on economic, social, and political development.

In addition, the following components will be implemented in all of Alabama's middle schools:

1. An **Advisement Program** through which **ALL** students will have an adult mentor/advisor. A framework for the advisement program will be developed by a representative stakeholder group for implementation beginning with the 2009-2010 school year.
2. A prescriptive reading program for middle grade students reading below grade level. This effort will be provided through the expansion of the **ARI-Adolescent Literacy Program** over the next three years.

It is the goal of the Alabama Middle School Initiative that all middle schools will have had the opportunity to participate in the Making Middle Grades Work initial assessment by the end of the 2012 school year.

ALABAMA HIGH SCHOOL GRADUATION REQUIREMENTS

The Alabama High School Diploma

The Alabama High School Diploma requires the passing of 24 credits of coursework—Mathematics (4), Science (4), Social Studies (4), English (4), Computer Applications (0.5), Physical Education (1), Health Education (0.5), Arts Education (0.5), and Electives (5.5). It also requires the passing of 5/5 sections of the AHSGE. An Alabama High School Diploma may have no endorsement or any one of the four endorsements listed below:

ENDORSEMENT	REQUIREMENTS
Advanced Academic Endorsement	Requires passing all standard coursework including Algebra II with Trig., two foreign languages, and an online experience and passing 5/5 sections of the AHSGE.
Advanced Career and Technical Endorsement	Requires passing the same coursework as the Advanced Academic Endorsement with the exception of foreign language and passing three career and technical courses (or two career and technical courses and another course related to the student's career choice). In addition, 5/5 sections of the AHSGE also must be passed.
Career and Technical Endorsement	Requires passing all standard coursework, passing three career and technical courses, and passing 5/5 sections of the AHSGE.
Credit-Based Endorsement	Requires passing all standard coursework and passing 3/5 sections of the AHSGE, including Reading, Mathematics, and one other section.

A diploma -with or without an endorsement signifies completion of high school and all requirements associated with the awarding of the diploma by the Alabama State Board of Education.

The Alabama Occupational Diploma

The Alabama Occupational Diploma (AOD) is achieved through the standard curriculum or an alternative that is aligned with the Alabama courses of study. The recipients of this diploma are students with some form of learning disability. Those who receive the AOD must take the AHSGE but are not required to pass in order to receive the Alabama Occupational Diploma.

(Place on School Letterhead)

ALABAMA HIGH SCHOOL DIPLOMA ENDORSEMENT CHANGE REQUEST FORM

I,_____, have reviewed the possible options to the Alabama High
(student name)
School Diploma and feel that the Advanced Academic Endorsement is not the most appropriate to meet my individual academic and learning needs. I have discussed this request with my parent/guardian and my high school counselor and understand the academic implications of this change.

I would like to change my option to:

_____ Alabama High School Diploma
_____ Alabama High School Diploma with a Career Technical Endorsement
_____ Alabama Occupational Diploma

_____
Student Signature Date

_____
Parent/Guardian Signature Date

_____
Counselor Signature Date

_____
Principal Signature Date

(Place on School Letterhead)

ALABAMA HIGH SCHOOL DIPLOMA
CREDIT-BASED ENDORSEMENT REQUEST FORM

I, _____, am a graduating senior and have taken the *Alabama High*
(student name)
School Graduation Exam each time it has been offered and have not passed one or more subtests of the exam. I have, however, passed the Reading, Mathematics, and

_____ Sections and the academic classes required for graduation
(one other subtest required)
from my high school. I would, therefore, like to request the Credit-Based Endorsement to the Alabama High School Diploma. I have reviewed this option with my parent/guardian and my high school counselor and understand the academic implications of this change.

_____

Student Signature Date

_____

Parent/Guardian Signature Date

_____

Counselor Signature Date

_____

Principal Signature Date

(Place on School Letterhead)

CREDIT RECOVERY REQUEST FORM

I,_____, request consideration for Credit Recovery in
(student name)

_____. I have read the requirements for admission to the
(name of course failed)
Credit Recovery program and understand my responsibilities if admitted. I am aware that a maximum grade of 70 is available through Credit Recovery and that should I desire a higher option I will be required to take the entire course through traditional methods. My signature and that of my parent/guardian convey our understanding of this grading procedure and all other requirements associated with the Credit Recovery program.

_____
Student Signature Date

_____
Parent Signature Date

_____
Teacher of Course Failed Signature Date
Attached Documentation

_____
Counselor Signature Date

_____
Principal Signature Date

(Place on School Letterhead)

CREDIT ADVANCEMENT REQUEST FORM

I,_____, would like to request the opportunity to obtain credit for
(student name)

_____ through Credit Advancement. I have obtained the
(name of course)
recommendation of former teachers of the subject listed above, and my high school counselor has documented my above-average ability through a review of my performance on state and national assessments of achievement. I realize that I must obtain a score of 80 or above on the comprehensive exam for the course requested to be eligible for Credit Advancement. After receiving my score on the comprehensive exam, I have the option of accepting the grade or pursuing the course through traditional means. Should I accept the exam score, it will be used in the calculation of my Grade Point Average.

_____
Student Signature Date

_____
Parent/Guardian Signature Date

_____
Counselor Signature Date
Attached Documentation

_____
Teacher Signature Date
Attached Documentation

_____
Principal Signature Date

Project Graduation

Implementing the 4-Year Cohort Graduation Rate

Current Multiple Measures

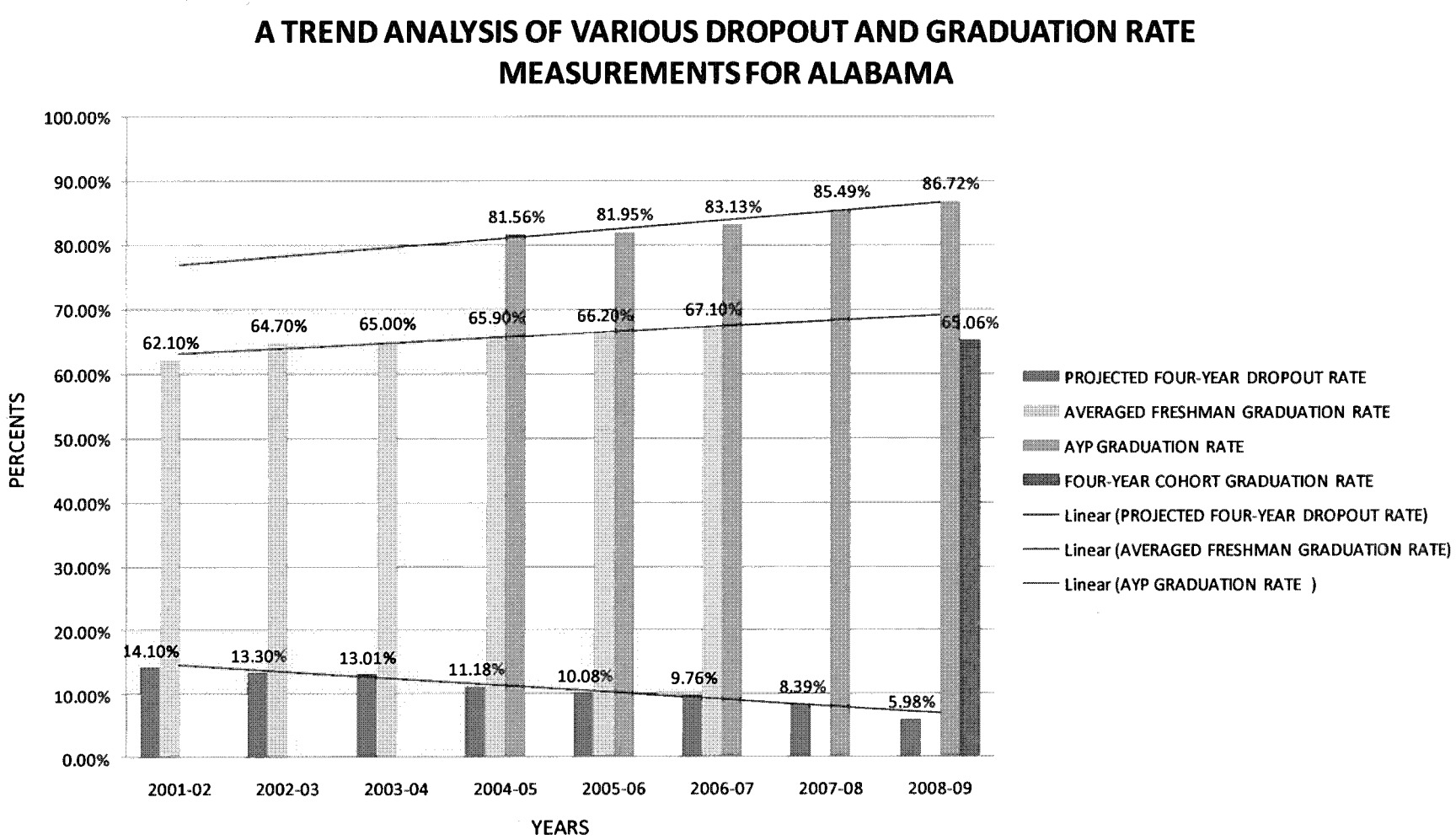
Projected Four-Year Dropout Rate – A measure of the cumulative proportion of the 9th grade class that would drop out prior to graduation if that year's grade-specific dropout rate was to remain constant over the four years until that class is to graduate.

Averaged Freshman Graduation Rate – Number of high school graduates receiving a high school diploma in a given year divided by the average number of students enrolled in 8th grade five years earlier, 9th grade four years earlier, and 10th grade three years earlier.

AYP Graduation Rate – Number of graduates divided by number of graduates, plus the number who exit with documents other than a diploma and number of dropouts from graduating class in 9th, 10th, 11th, and 12th grades.

4-Year Cohort Graduation Rate – Number of on-time graduates in a given year divided by the number of first-time entering 9th graders four years earlier adjusting for transfers in and out.

Multiple Measures



Definitions
4-Year Cohort Graduation Rate

Graduate – A student who receives a high school diploma within four years.

Transfers in – A student who joins a cohort after the beginning of the 9th grade during the 4-year cohort period.

Transfers out – A student who transfers to another school, emigrates, or dies during the 4-year cohort period.

Students NOT Counted as Graduates 4-Year Cohort Graduation Rate

Any student who drops out of school.

Any student who was not promoted to the next grade and who will not graduate with their cohort.

Any student who failed to return.

Any student who passed all required subtests of the AHSGE but did not earn all required credits.

Any student who earned all of credits for graduation but did not pass required subtests of the AHSGE.

Any student who earned a Graduation Certificate in fulfillment of their IEP requirements.

Any student who completed their GED.

"The Numbers"
4-Year Cohort Graduation Rate

9th Grade Cohort of 2005-2006

4-Year Cohort Graduation Rate of 65.06%

	9th Grade/2006	10th Grade/2007	11th Grade/2008	12th Grade/2009	Total	% of Total
9th Grade Cohort	65,233	-----	-----	-----	65,233	100%
Dropouts	1264	1446	1219	464	4,393	7%
Not Promoted/Failed to Return/Did Not Earn Credit	6230	3292	3675	2955	16,152	25%
Exit/Other AHSGE Non Passage Graduation Certificate/GED	-----	-----	-----	2250	2,250	3%
Graduates 4-Year Cohort Rate	-----	-----	-----	42,438	42,438	65%
9th Grade Cohort	-----	-----	-----	-----	65,233	100%

Graduation Rate and Dropout

9th Grade Cohort of 2005-2006

4-Year Cohort Graduation Rate of 65.06%

	9th Grade/2006	10th Grade/2007	11th Grade/2008	12th Grade/2009	Total	% of Total
9th Grade Cohort	65,233	-----	-----	-----	65,233	100%
Dropouts	1264	1446	1219	464	4,393	7%
Not Promoted/Failed to Return/Did Not Earn Credit	6230	3292	3675	2955	16,152	25%
Exit/Other AHSGE Non Passage Graduation Certificate/GED	-----	-----	-----	2250	2,250	3%
Graduates 4-Year Cohort Rate	-----	-----	-----	42,438	42,438	65%
9th Grade Cohort	-----	-----	-----	-----	65,233	100%

PARTNERSHIP FOR ASSESSMENT OF READINESS FOR COLLEGE AND CAREERS
MEMORANDUM OF UNDERSTANDING

Purpose. This document commits states to participate in the Partnership for Assessment of Readiness for College and Career, a state-led consortium that will collaborate on the development of common, high-quality assessments aligned to the Common Core State Standards (CCSS) in English language arts and mathematics for grades 3-8 and high school. The primary goal of the Partnership's work is to measure and document students' college and career readiness against common academic standards and to measure students' progress toward this target throughout the rest of the system.

While participating in the Partnership demonstrates the state's commitment to pursue a common assessment system that enables comparisons against the CCSS across all Partnership states, it does not commit the state to a specific assessment design at this point. Partnership states are still considering several options for the design of a common assessment system in pursuit of the Race to the Top (RTTT) Comprehensive Assessments Grant and will not be asked to commit to the Partnership's application until a later date. Until that time, all participating states will have the opportunity to contribute to and shape the Partnership's proposal.

Preliminary Design Principles. Partnership states have identified the following major purposes and uses for the assessment system. As the Partnership collaborates to develop its application for the RTTT assessment competition, these purposes will guide its work.

- The primary purpose is to measure and document students' **college and career readiness** and to measure students' progress toward this target throughout the rest of the system. Students meeting the college and career readiness standards will be eligible for placement into entry-level credit-bearing, rather than remedial, courses in public 2- and 4-year postsecondary institutions in participating states.

- Additionally, the partnership is committed to ensuring that the assessment results:
  - Are **comparable across states** at the student level;
  - Meet **internationally rigorous benchmarks;**
  - Support valid assessment of **student longitudinal growth**; and
  - Serve as a **signal for good instructional practices.**

- The results must be able to support multiple levels and forms of accountability including:
  - Decisions about **promotion and graduation for individual students,**
  - **Teacher and leader evaluations,** and
  - **School accountability** determinations.

Roles and Responsibilities of Partnership States. The Partnership will employ a multi-level governance and management structure designed to guide the partnership through the submission of the proposal.

- The **Governing States** are comprised of a representative group of leaders from Partnership states that are committed to implementing the assessment system developed by the partnership, should it win a grant from the Race to the Top Comprehensive Assessment System competition, and are responsible for guiding the proposal development process. Each Governing State will commit a team comprised of the chief, assessment director, and other key officials from the SEA, Governor's office, and higher education as appropriate.
- The **Proposal Design Team** will include officials from partnership states who will work with an advisory group of national and international experts to create an assessment system design for the Partnership's proposal. The design team will include as many states as are interested in and capable of contributing to and shaping the design of the proposed next generation assessment system.

- **Participating States** will include other partnership states that are unable to provide staff time to the design team but will provide rapid feedback on drafts of the proposal through the development phase.

State Commitment. This memorandum of understanding is voluntary and non-binding for states. States signing this MOU should do so with the intent of continuing in the Partnership through the proposal development, assessment development, and implementation phases. However, there will be an opportunity for states re-assess their participation in the Partnership before it submits its application for a Race to the Top Comprehensive Assessment Systems Grant by June 23, 2010.

Agreement. The undersigned state leader agrees to the process and structure as described above and attests accordingly by his/her signature below.

Signature(s) for the State of: Alabama	
Authorized State Signature:	
Name: Joseph B. Morton	Date: 5/07/10
Title: State Superintendent of Education	

PARTNERSHIP FOR ASSESSMENT OF READINESS FOR COLLEGE AND CAREERS

PARTICIPATING STATES

MAY 13, 2010

1. Alabama
2. Arizona
3. Arkansas
4. Colorado
5. Delaware
6. District of Columbia
7. Florida
8. Georgia
9. Hawaii
10. Illinois
11. Indiana
12. Kentucky
13. Louisiana
14. Maryland
15. Massachusetts
16. Mississippi
17. New Hampshire
18. New Jersey
19. New York
20. North Dakota
21. Ohio
22. Oklahoma
23. Pennsylvania
24. Rhode Island
25. South Carolina
26. Tennessee

Alabama State Department of Education

Rewards and Interventions Plan

Alabama Accountability System

Joseph B. Morton
State Superintendent of Education

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No person shall be denied employment, be excluded from participation in, be denied the benefits of, or be subjected to discrimination in any program or activity on the basis of disability, sex, race, religion, national origin, color, or age. Ref: Sec. 1983, Civil Rights Act, 42 U.S.C.; Title VI and VII, Civil Rights Act of 1964; Rehabilitation Act of 1973, Sec. 504; Age Discrimination in Employment Act; Equal Pay Act of 1963;Title IX of the Education Amendment of 1972: Title IX Coordinator, P.O. Box 302101, Montgomery, Alabama 36130-2101 or call (334) 242-8444.

Rewards and Interventions Plan
Alabama Accountability System

Introduction

The *No Child Left Behind Act of 2001* (NCLB) was signed into law on January 8, 2002. Title I, Section 1111(b)(2)(A), requires that the state's accountability plan include rewards and interventions that the state will use to hold local education agencies (LEAs) and public schools accountable for student achievement and Adequate Yearly Progress (AYP). Section 1117(b)(1) requires that the state establish a system under Title I, Part A, for making academic achievement awards to recognize schools that significantly close the achievement gap between subgroups of students or that make AYP for two or more consecutive years. This plan describes accountability-related rewards and interventions for Alabama's public schools and LEAs.

Alabama's system of academic standards, assessments, and accountability is a "single" system that applies to all LEAs and all schools without regard to whether an LEA or school receives Title I funds. All LEAs and schools are subject to the state's definition of AYP for achievement of all students and the following subgroups: (1) economically disadvantaged students, (2) students from major racial and ethnic groups, (3) special education students, and (4) limited-English proficient students.

All LEAs and schools are identified for rewards and interventions on the same basis. All schools that do not meet or exceed their annual measurable objectives are subject to progressively more stringent interventions; however, schools that do not receive Title I, Part A, funds are not required, but may choose, to implement the Section 1116(b) requirements for public school choice and supplemental educational services.

Guiding Principles for the System of Rewards and Interventions

The fundamental purpose of the system of rewards and interventions is to support and encourage schools so that all students meet or exceed proficiency on the state's academic content and student academic achievement standards. Alabama's system of rewards and interventions will value progress; reward systematic progress even if the progress is not sufficient to meet AYP; and apply to LEAs and schools. Alabama will employ the following criteria to identify schools and LEAs for academic recognition and/or rewards:

- The school or LEA "significantly" closed the achievement gap between subgroups of students and made progress toward AYP. ("Significantly" will be defined based on year-to-year analyses of test scores and with input from the state's Rewards and Interventions Committee.)
- The school or LEA made AYP for two or more consecutive years.

Alabama's system of rewards for schools identified as being eligible for such rewards will adhere to the following principles:

1. The magnitude of rewards should reflect the magnitude of academic improvement.

2. All schools that meet one or both of the state's criteria for rewards or that exceed other growth expectations in accordance with the state's accountability system should be eligible for rewards that are available during any given year.
3. Rewards should affirm professionalism, boost teacher morale, and enhance the climate of a school.
4. Schools that overcome the greatest challenges or that substantially outperform other schools with similar demographics should receive priority in consideration for rewards.
5. Cash rewards should be available to schools only, and a school's total faculty should make decisions about the use of such rewards. (LEAs should be eligible for non-monetary rewards.)
6. Options for the use and/or type of rewards should be linked to school accountability status, e.g., targeted professional development[1] as determined by academic deficiencies for lower performing schools and special recognition as higher achieving schools.

Alabama's system of interventions for schools identified for improvement will adhere to the following principles:

1. Interventions should result in increased learning opportunities for students.
2. The state's primary response to schools that are not making academic progress should be intensive support to their instructional programs.
3. Interventions should establish a priority for state support to LEAs as they provide appropriate levels of school improvement guidance beginning in the first year of failure to make AYP.
4. The magnitude of interventions should reflect the magnitude of the need for academic improvement.

Requirements for Making Adequate Yearly Progress

A school or LEA must meet all of the following in order to make AYP:

- Annual measurable objectives in reading and mathematics.
- Participation rates in reading and mathematics.
- Additional academic indicator(s).

A school or LEA that does not make AYP for two consecutive years in the same component will be identified for school improvement. Components for AYP are reading (annual measurable objectives and participation rates), mathematics (annual measurable objectives and participation rates), and additional academic indicator(s).

More detailed information about AYP and components and methods used to calculate AYP are in the *Interpretive Guide Alabama Accountability System* found at www.alsde.edu. (Click on *Accountability Reporting*, *Select School Year*, then *Select Report*.)

Descriptions and Examples of Rewards

Alabama's baseline data for implementing accountability requirements that were not required prior to NCLB were derived from spring 2004 assessments. Data from spring 2005 assessments were compared with baseline data to initially recognize high-achieving schools in 2005 and the process will continue annually thereafter. Accountability calculations will be used to identify

[1] Professional development activities must adhere to the "Alabama Standards for Effective Professional Development" that were adopted by the State Board of Education on June 13, 2002. (See Appendix A) The term is further defined in the *No Child Left Behind Act of 2001*, Title IX, Section 9101 Definitions (34). (See Appendix B)

schools and LEAs that make AYP for two or more consecutive years and the state's Rewards and Interventions Committee will assist in identifying schools and LEAs that "significantly" closed the achievement gap between subgroups of students and made progress toward AYP. Rewards for academic achievement will include various methods of public recognition. Recognition for any school or LEA that meets one or both of the state's criteria for rewards will be made in the following ways:

- A recognition indicator, with notation of the criteria met, will be included on the annual LEA and school report cards.
- A list of LEAs and schools to be recognized will be released and published in accordance with the State Department of Education's (SDE) methods and procedures for public notifications.

Criteria for Recognition

Alabama will annually recognize schools that make the greatest gains in closing the achievement gap and make progress toward AYP or that make AYP for two or more consecutive years. Determination of "greatest gains" will be made on a year-by-year basis and with guidance from the state's Rewards and Interventions Committee. Criteria for monetary rewards are as follows:

- **Advancing the Challenge**—School where the percent of students scoring advanced in reading and math exceeds the state's percent scoring advanced. (School must have at least an 80% poverty rate or have 90% of students score advanced in reading and 90% of students score advanced in mathematics.)
- **Meeting the Challenge**—School that meets AYP for two consecutive years. (School must have at least an 80% poverty rate.)
- **Exceeding the Challenge**—School with subgroup whose percent of students scoring proficient in reading and math exceeds its state counterpart. (School will receive a monetary reward for each subgroup.)
- **Addressing the Challenge**—School with subgroup that closes the achievement gap in the percent of students scoring proficient in reading and math by at least 15% when compared to its state counterpart. (School will receive a monetary reward for each subgroup.)
- **Torchbearer School**—School meeting multiple criteria including poverty, high test scores, and making AYP for two consecutive years.

Additionally, principals and teachers who are highly effective and have been instrumental in closing the achievement gap and/or making AYP will be identified to serve as peer consultants on the State Support Team.

Reward Categories

The **types of rewards offered vary according to the financial resources available**. Any federal funds reserved for academic achievement awards in accordance with Section 1117 will be supplemental to state funds that are available for the applicable year. Cash awards to schools are to be distributed as the faculty determines in instructional improvement programs and/or materials voted on by the teaching faculty. Examples of ways that reward monies may be used are shown below.

- Supplemental services, such as tutorial assistance, that have proven to be effective.

- Additional human, financial, and/or material resources, e.g., funds to pay highly skilled teachers at a commensurate rate of pay to work with struggling learners after school.
- Additional personnel, e.g., a substitute teacher that allows a teacher to attend professional development activities.
- High-quality professional development opportunities, including release time and travel opportunities for professional growth activities.
- Increased funds for instructional supplies.
- Mentoring programs for teachers.
- Academic content study that is fully paid, partially paid, and/or not paid but available to teachers.
- Alternatives to the traditional school day and school year.

Analyses of test scores will allow for comparisons and acknowledgment of progress among the same group of students as they progress to the next higher grade for the "All Students" category and for specified subgroups. LEAs and schools may compare achievement of the same group of students across years in addition to the usual practice of comparing, for example, this year's Grade 3 students to last year's Grade 3 students. SDE staff will continue exploring ways in which growth indicators can be used to identify and recognize improvements in student achievement.

Descriptions of Interventions

The SDE will continue to identify, assign accountability status, and publicly report schools and LEAs that do not make AYP or that do not meet other progress/growth expectations as described in the Alabama Accountability System. The SDE uses a priority system to provide assistance to LEAs with schools in the greatest need regardless of whether the assistance is requested. State assistance activities are focused on helping build capacity at the LEA level.

Any school that receives Title I funds and implements a schoolwide program or a targeted assistance program is subject to the interventions described in Section 1116(b). Because of the financial requirements for transportation related to public school choice and for supplemental educational services, schools that do not receive Title I funds are not *required* to implement those interventions, but may choose to do so. If the LEA does not otherwise have the fiscal resources to implement these corrective action(s), it *may* reallocate federal resources received under Title II and/or Title VI as applicable and appropriate.

State Support Team

Local school systems identified for LEA Improvement and those with schools identified for Year 3 or more of School Improvement are required by the SDE to hire **school improvement specialists**. LEAs identified for improvement are required by NCLB to reserve funds for professional development, and these funds may be applied to hiring these specialists, if appropriate.

Support for local school systems is provided by **Regional School Improvement Coaches** who are part of the statewide system of support. A Regional School Improvement Coach is assigned to work in each of the state's eleven in-service regions. These coaches work with local school systems to build their capacity to support all schools; however, focused support is provided to

LEAs that have schools identified for improvement. Regional School Improvement Coaches support LEA school improvement specialists through ongoing, comprehensive training and consistent communications about school improvement strategies.

Support for schools as identified are provided by Peer Mentors. A Peer Mentor is assigned to work in schools in multiple years of school improvement (*School Improvement Year 4 – Plan for Restructuring* or greater.)

Continuous Improvement Plan

No Child Left Behind (1116)(b)(3) describes the required process for plan development when a school is identified for school improvement. Beginning with the first year of not making AYP, a school team must develop a plan that utilizes scientifically research based strategies to address student achievement challenges as identified by an in-depth analysis of the data. Alabama's Continuous Improvement Plan (CIP) template should be used by all schools in improvement **and** Title I schools not in improvement to facilitate the planning process. Three templates are available based on the specific school scenario: Title I Schoolwide, Title I Targeted Assistance or Non-Title. The final plan must be approved by the local education agency's board members and signed by the Superintendent, federal programs coordinator, principal, and committee members. All school improvement plans (including all signature pages) must be posted in the local education agency's *eGAP* document library no later than 90 days after identification. A CIP is effective for a 2 year period and should be reviewed and revised monthly.

The Continuous Improvement Plan should be developed by a school team that is representative of the challenges being addressed with support from the local education agency. Team members that **must** be present include the principal, guidance counselor, district School Improvement Specialist (or other designee), appropriate content area teachers, parent representatives, and student representatives (as appropriate). Depending on the data, additional members may include special population representatives (Technology Coordinator, Special Education, ELL, etc.), district Federal Programs Coordinator, district Chief School Financial Officer, community stakeholders or any other member as appropriate.

Revisions. The CIP is a document that is designed to guide the school improvement effort of the school. It should be reviewed regularly and revised as needed in response to the school's progress on the identified goals and strategies. Once the plan is Board approved and signed, it is not necessary to obtain additional Board approval when revisions are made to the plan.

Posting. As indicated, the CIP is designed to be an ongoing reflection of the school's actions in response to student achievement challenges. The State Department of Education (SDE) is responsible for monitoring and supporting this process. To aid in this process, all plans developed due to a school improvement status must be posted in the local education agency's *eGAP* document library according to the following posting schedule:

CIP status	Timeline
Initial Board approved plan	November 3, 2009
Midyear Review and Revisions	February 25, 2010
Final Reflections and Projections	May 21, 2010

Note: This posting schedule also applies to the LEA Improvement Plan if an LEA is identified with an improvement status.

First Year of Not Making AYP

Any school that does not make AYP for the first time in one or more goals in the accountability matrix is identified by the state as *Did Not Make AYP*. Appendix C(1) depicts the matrix used for AYP determination. Appendix C(2) and C(3) are examples of a school and an LEA accountability status report. Additional notations on accountability reports indicate the component(s) and the corresponding number of years for which the LEA or school has not made improvement.

In consultation with school staff, parents, and LEA staff, any school that fails to make AYP for the first time ***must*** do **all** of the following:

1. Conduct an **analysis of needs** of the school's students, programs, and staff.
2. Develop a Continuous Improvement Plan (CIP) that specifically addresses the program(s), grade(s), subject(s), teacher(s), leadership, and other factors that directly impact the area(s) for which AYP was not made. (A sample CIP format is located in the *eGAP* Document Library.)
3. **Receive approval** of the CIP from the local board of education.
4. **Implement** the Continuous Improvement Plan.

The LEA must provide oversight and other support that goes **beyond that which has been provided in the past** for school improvement efforts and may request assistance from the SDE to develop and implement school and LEA improvement plans. The SDE may, at its discretion and based on the LEA's prior academic history, provide technical assistance from the State Support Team regardless of whether such assistance is requested.

The first time an LEA does not make AYP, it should analyze its needs and plan strategies to address the components in which it did not make AYP. These strategies should then be approved by the LEA board of education.

Second Year of Not Making AYP–School Improvement Year 1

Any school that does not make AYP for a second consecutive year in the **same component** is identified by the state for *School Improvement Year 1*. The LEA is required to provide direction as the school revisits the CIP developed in the previous year. The plan may be revised in consultation with school staff, parents, LEA staff, and SDE staff. For each school that does not make AYP, the LEA must receive assistance from an "outside expert". The "outside expert" or knowledgeable consultant may be selected from State Support Team representatives, regional in-service centers, colleges and universities, or other designated entities. The plan must be developed not later than three (3) months after notification of identification, cover a two-year period, be approved by the LEA within 45 days of its receipt of the plan, and include all of the components required for such plans for schools in Section 1116(b)(3)(A)(*i-x*).

In addition to receiving assistance from an outside expert, the LEA may also reorganize the school day or the school to directly address the academic achievement problem(s) that caused the

school to be identified for improvement; **and** ***must*** implement **at least one** of the following intervening actions:

1. Implement **high-quality professional development** that directly addresses the academic achievement problem(s) that caused the school or LEA to be identified for improvement.
2. Institute and fully implement an **intensive and focused instructional program** or model, providing appropriate needs-based, content-specific professional development for all relevant staff. The program and professional development must be scientifically research-based and offer substantial promise of improving achievement of low-achieving students and enabling the school or LEA to make AYP.
3. Implement **supplemental educational services**. If the school receives Title I, Part A, funds, supplemental services from the state-approved list of supplemental educational services providers *may* be offered to parents of eligible students and the cost of services may be paid from Title I, Part A, funds by the LEA or the local school. If the school does not receive Title I, Part A, funds, the supplemental educational services may be made available from the state-approved list. In a non-Title I school, the cost of services may be paid from local, state at-risk, Title VI or other available funds as appropriate.

Additionally, any Title I school in *School Improvement Year 1* ***must*** implement **all** of the following actions:

4. Provide **written notice** of the school's status to parents of each student enrolled in the school in a format and, to the extent practicable, in a language that the parents can understand. [Section 1116(b)(6).]
5. Offer **public school choice** in accordance with Title I, Section 1116. If, for any reason, the school cannot offer public school choice and the state concurs that the school cannot offer choice, the school must implement supplemental educational services to eligible students from a service provider on the state's approved list in accordance with Section 1116.
6. Budget and spend not less than 10% of its current year Title I allocation to provide **high-quality professional development** that directly addresses the academic achievement problem(s) that caused the school to be identified for school improvement [Section 1116(b)(3)(A)(iii)]. A USDE guidance letter written in 2004 stated that, in keeping with the authority to combine funds in such a program, schoolwide schools must be able to demonstrate that they have spent an amount equivalent to 10% of their Title I allocation on professional development. This amount is not required to be taken totally from Title I funds. (Letter from Raymond Simon, Assistant Secretary, Office of Elementary and Secondary Education, U.S. Department of Education, to Leigh Manasevit, Esq., June 30, 2004.)

LEA Improvement Year 1

School systems identified for *LEA Improvement Year 1* must post the LEA Improvement Plan using the template based on NCLB Section 1116(C)(7)(A)(*i-viii*) in the **eGAP Document Library.** School systems in delay status must revise previously submitted LEA Improvement Plans and post as noted above.

Any LEA that receives Title I funds and is identified for LEA Improvement Year 1 ***must*** address the professional development needs of its instructional staff by budgeting and spending not less than 10% of its current Title I allocation to provide high-quality professional development that directly addresses the academic achievement problem(s) that caused the LEA to be identified for improvement. (According to Section 1116(c)(7)(A)(*iii*), Title I school-level funds budgeted and

spent in the same year by individual Title I-funded schools identified for improvement may be included in the LEA's 10% reservation for LEA improvement. Funds reserved under Section 1119 to assist teachers in meeting the highly qualified teacher requirement may not be included in the LEA's 10% reservation for LEA improvement.)

Third Year of Not Making AYP–School Improvement Year 2

Any school that does not make AYP for three consecutive years in the **same component** is identified by the state for *School Improvement Year 2*. The SDE will assist LEAs in reviewing and revising improvement plans to focus on the area(s) that caused schools to not make AYP through a formal on-site instructional review process focused on research-based components found in high-performing schools called **Essential Elements for Instructional Leaders and Quality Teachers.** This SDE-directed review process will involve LEAs, school improvement specialists, and retired master teachers in looking at components such as teaching and learning, professionalism, human resource development, and diversity. Data will be collected through classroom observations, evidence-gathering interviews, and school and district level documents. The LEA must increase support and technical assistance for improving academic achievement through available resources, outside experts, and school improvement specialists. The LEA staff, in consultation with the SDE, may choose to extend the school day and/or the school year and/or restructure the internal organization of the school to address the academic achievement problem(s) that caused the school to be identified for improvement. The LEA ***must*** also implement at least **one** of the following intervening actions:

1. **Replace the school staff** that are relevant to the failure to make AYP.
2. **Decrease school-based decisions** and assign a district-level staff person to oversee day-to-day operation of the school's instructional program.
3. **Significantly decrease** operational and/or instructional management authority at the school level.
4. **Institute and implement**, or continue implementation of, an intensive and focused instructional program or model begun in the previous year, making modifications, if needed, based on an analysis of the previous year's results.
5. **Implement supplemental educational services** or strengthen tutoring support in after-school programs. If the school does not receive Title I, Part A, funds, the supplemental educational services may be made available from the state-approved provider list. In a non-Title I school, the cost of services may be paid from federal Title VI, state At-Risk, or other available funds.

The SDE will continue to provide technical assistance and guidance for external support from members of the State Support Team for high-quality professional development. If the LEA does not otherwise have the fiscal resources to implement the intervening action(s), it ***must*** reallocate federal resources received under Title II and/or Title VI as applicable and appropriate.

Additionally, any Title I school in *School Improvement Year 2* ***must*** implement ***all*** of the following additional actions.

6. Provide **written notice** about the school's status to parents of each student enrolled in the school in a format and, to the extent practicable, in a language that the parents can understand. [Section 1116(b)(6)]
7. Continue to offer **public school choice** in accordance with Section 1116.

8. Implement **supplemental educational services** to eligible students in accordance with Section 1116.
9. **Budget and spend** not less than an amount equivalent to 10% of its current year Title I allocation **to provide high-quality professional development** that directly addresses the academic achievement problem(s) that caused the school to be identified for school improvement. [Section 1116(b)(3)(A)(iii)] Note: A 2004 USDE guidance letter stated that, in keeping with the authority to combine funds in such a program, schoolwide schools must be able to demonstrate that they have spent an amount equivalent to 10% of their Title I allocation on professional development. This amount is not required to be taken totally from Title I funds. (See citation in the previous section.)

LEA Improvement Year 2

School systems that do not make AYP for three consecutive years must post the revised LEA Improvement Plan using the template based on NCLB Section 1116(C)(7)(A)(*i-viii*) in the **eGAP Document Library.** These plans must continue to be revised or updated and posted every year that the LEA is identified for any improvement status.

LEAs identified for *LEA Improvement Year 2* that receive Title I funds ***must*** continue to address the professional development needs of its instructional staff by budgeting and spending not less than 10% of its current Title I allocation to provide high-quality professional development to directly address the academic achievement problems that caused the LEA to be identified for improvement. (According to Section 1116(c)(7)(A)(*iii*), Title I school-level funds budgeted and spent in the same year by individual Title I-funded schools identified for improvement may be included in the LEA's 10% reservation for LEA improvement. Funds reserved under Section 1119 to assist teachers in meeting the highly qualified teacher requirement may not be included in the LEA's 10% reservation for LEA improvement.)

Fourth Year of Not Making AYP–School Improvement Year 3 Corrective Action

Any school that does not make AYP for four consecutive years in the **same component** is identified by the state for *School Improvement Year 3-Corrective Action.* Such identification may, at the discretion of SDE staff, result in state intervention at the LEA level. The local school principal and local superintendent will meet with the Corrective Action/Restructuring Specialist to review previous plans for improvement and determine next steps. An example of this could be the assignment of a Peer Mentor.

The LEA, in consultation with the SDE, may implement supplemental educational services in accordance with Title I, Section 1116; extend the school day and/or the school year; and/or re-organize the internal organization of the school to address the academic achievement problem(s) that caused the school to be identified for improvement. The LEA ***must*** implement **one or more** of the following corrective actions.

1. **Replace school or LEA staff** responsible for the continued failure to make AYP.
2. **Continue implementation** of the intensive and focused instructional program or model begun in the previous year, making modifications if needed based on an analysis of the previous year's results.

3. **Implement needs-based**, content-specific **professional development** that is scientifically research-based.
4. **Significantly decrease** operational and/or instructional **management authority** at the school or LEA level.
5. **Appoint an outside expert** to oversee the day-to-day management of the school and to advise in decisions that impact making AYP, based on its Continuous Improvement Plan.

The SDE will continue to provide technical assistance and guidance for external support from members of the State Support Team for high-quality professional development. If the LEA does not otherwise have the fiscal resources to implement the intervening action(s), it ***must*** reallocate federal resources received under Title II and/or Title VI as applicable and appropriate.

In addition to the above actions, any Title I school identified for *School Improvement Year 3* ***must*** implement **all** of the following actions:

6. Provide **written notice** of the school's status to parents of each student enrolled in the school in a format and, to the extent practicable, in a language that the parents can understand. [Section 1116(b)(6).]
7. Continue to offer **public school choice** in accordance with Section 1116.
8. Implement **supplemental educational services** to eligible students in accordance with Section 1116.
9. Budget and spend not less than 10% of its Title I allocation to provide **high-quality professional development** that directly addresses the academic achievement problem that caused the school to be identified for school improvement. [Section 1116(b)(3)(A)(iii)] Although the July 2006 LEA and School Improvement Non-Regulatory Guidance from the U.S. Department of Education (USDE), Section H-5, states that, "*The statute does not require a school identified for corrective action or restructuring to spend not less than 10 percent of its Title I, Part A funds for professional development*," the SDE encourages school systems to keep this requirement as part of the support for high-quality professional learning directly connected to the school's corrective action and restructuring efforts.

LEA Improvement Year 3-Corrective Action

LEAs not making AYP for four consecutive years are identified for *LEA Improvement Year 3* and are subject to having the SDE apply one or more of the following **Corrective Actions**:

- **Assign oversight** of the academic program to an outside expert identified collaboratively between the LEA and the Deputy State Superintendent of Education.
- **Defer, reduce, or redirect** state and/or federal funds. Direct school systems to **adopt a new rigorous curriculum** more closely aligned with the state curriculum standards and assessments.
- Direct school systems to **replace school principals and executive officers** relevant to the failure to make AYP.
- **Remove schools** from local school board control.
- **Direct a reorganization** that clusters specified schools under an executive officer approved by the state.
- **Direct the restructuring** of the LEA central office.

In addition, any **LEA** that receives Title I funds and is identified for *LEA Improvement Year 3* ***must*** address the professional development needs of its instructional staff by budgeting and

spending not less than 10% of its current Title I allocation to provide high-quality professional development that directly addresses the academic achievement problem(s) that caused the LEA to be identified for improvement. (According to Section 1116(c)(7)(A)(*iii*), funds budgeted and spent in the same year by individual Title I-funded schools identified for improvement may be included in the LEA's 10% reservation for LEA improvement. Funds reserved under Section 1119 to assist teachers in meeting the highly qualified teacher requirement may not be included in the LEA's 10% reservation for LEA improvement.)

Fifth Year of Not Making AYP–School Improvement Year 4
Plan for Restructuring

Any school that does not make AYP for five consecutive years in the **same component** will be identified by the state for *School Improvement Year 4.* Such identification may, at the discretion of SDE staff, result in full state intervention at the LEA level. In addition to continuing to implement successful Year 3 options, the local school system ***must*** begin the planning process for restructuring the school and adopt one or more of the following **alternative governance structures** at the **direction of the SDE:**

1. **Replace all or most of the school staff** that are relevant to the failure to make AYP.
2. **Contract** with a **management company** or **employ an independent "turn-around specialist"** that would work at the direction of the local school system's board of education to make and carry out instructional decisions. The specialist or entity employed would have to meet specific criteria set forth by the SDE.
3. **Initiate a regional and national search for a distinguished principal**. The local school system would engage in a search for an experienced education professional to serve as the principal for a minimum of three years. Desired skills would include having led a successful school improvement process with experiences in increasing student achievement, recruiting and retaining highly qualified staff, providing quality professional learning for teachers, engaging parents and other stakeholders in the school improvement process, and building leadership capacity in teachers in a school.
4. **Identify any other major restructuring reform** that addresses **all** the restructuring factors based on research including: making significant changes in governance, addressing environmental factors, and concentrating on any needed changes in leadership and organizational factors. (Reference: School Restructuring Options Under No Child Left Behind: *What Works When*? [2005], The Center for Comprehensive School Reform and Improvement; www.centerforcsri.org.)

The SDE will continue to provide technical assistance and guidance for external support from members of the State Support Team for high-quality professional development. If the LEA does not otherwise have the fiscal resources to implement the intervening action(s), it ***must*** reallocate federal resources received under Title II and/or Title VI as applicable and appropriate.

In addition to the above actions, any Title I school identified for *School Improvement Year 4* ***must*** implement **all** of the following actions:

5. Provide **written notice** of the school's status to parents of each student enrolled in the school in a format and, to the extent practicable, in a language that the parents can understand. [Section 1116(b)(6)]
6. Continue to offer **public school choice** in accordance with Section 1116.

7. Implement **supplemental educational services** to eligible students in accordance with Section 1116.
8. Budget and spend not less than 10% of its Title I allocation to provide **high-quality professional development** that directly addresses the academic achievement problem that caused the school to be identified for school improvement. [Section 1116(b)(3)(A)(iii)] Although the July 2006 LEA and School Improvement Non-Regulatory Guidance from the U.S. Department of Education (USDE), Section H-5, states that, "*The statute does not require a school identified for corrective action or restructuring to spend not less than 10 percent of its Title I, Part A funds for professional development*," the SDE encourages school systems to keep this requirement as part of the support for high-quality professional learning directly connected to the school's corrective action and restructuring efforts.

Peer Mentors

Exemplary educators, Peer Mentors, are hired as part of the statewide system of support to provide instructional support to principals and teachers in schools identified as *School Improvement Year 4 – Plan for Restructuring* or greater and/or schools that have failed to make AYP for four years. Assigned by the SDE to work in identified schools, Peer Mentors provide technical assistance that strengthens and aligns curriculum as these schools plan for restructuring processes.

LEA Improvement Year 4

LEAs not making AYP for five consecutive years are identified for *LEA Improvement Year 4* and are subject to **Restructuring Actions** from the SDE, which ***must*** then apply at least **one** of the following interventions:

- **Defer, reduce, or redirect** state and/or federal funds.
- Direct school systems to **adopt a new rigorous curriculum** more closely aligned with the state curriculum standards and assessments.
- Direct school systems to **replace school principals and executive officers** relevant to the failure to make AYP.
- **Remove schools** from local school board control.
- **Direct a reorganization** that clusters specified schools under an executive officer approved by the state.
- **Direct the restructuring** of the LEA central office.

In addition, any **LEA** that receives Title I funds and is identified for *LEA Improvement Year 4* ***must*** address the professional development needs of its instructional staff by budgeting and spending not less than 10% of its current Title I allocation to provide high-quality professional development that directly addresses the academic achievement problem(s) that caused the LEA to be identified for improvement. (According to Section 1116(c)(7)(A)(*iii*), funds budgeted and spent in the same year by individual Title I-funded schools identified for improvement may be included in the LEA's 10% reservation for LEA improvement. Funds reserved under Section 1119 to assist teachers in meeting the highly qualified teacher requirement may not be included in the LEA's 10% reservation for LEA improvement.)

Sixth Year of Not Making AYP–School Improvement Year 5 Restructuring

Any school that does not make AYP for six consecutive years in the **same component** will be identified by the state for *School Improvement Year 5.* Such identification may, at the discretion of SDE staff, result in full state intervention at the LEA level. The LEA may continue interventions implemented during the previous year and, in consultation with the SDE, ***must*** implement the restructuring of the school governance plan developed during the previous year.

In addition to continuing any successful options, the local school system ***must*** implement an additional **one** of the following **alternative governance structures at the direction of the Deputy State Superintendent** that had not been initiated the previous year:

1. **Temporarily suspend the decision-making role of the school principal.**
2. **Replace all or most of the school staff**, which may include the principal, who are relevant to the school's inability to make adequate yearly progress.
3. **Enter into a contract with an entity**, such as an external educational management organization with a demonstrated record of effectiveness, to operate the school.

The SDE will continue to provide technical assistance and guidance for external support from members of the State Support Team for high-quality professional development. If the LEA does not otherwise have the fiscal resources to implement the intervening action(s), it ***must*** reallocate federal resources received under Title II and/or Title VI as applicable and appropriate.

Additionally, any Title I school identified for *School Improvement Year 5* ***must*** implement **all** of the following actions:

4. Provide **written notice** of the school's status to parents of each student enrolled in the school in a format and, to the extent practicable, in a language that the parents can understand. [Section 1116(b)(6)]
5. Continue to offer **public school choice** in accordance with Section 1116.
6. Implement **supplemental educational services** to eligible students in accordance with Section 1116.
7. Budget and spend not less than 10% of its Title I allocation to provide **high-quality professional development** that directly addresses the academic achievement problem that caused the school to be identified for school improvement. [Section 1116(b)(3)(A)(iii)] Although the July 2006 LEA and School Improvement Non-Regulatory Guidance from the U.S. Department of Education (USDE), Section H-5, states that, "*The statute does not require a school identified for corrective action or restructuring to spend not less than 10 percent of its Title I, Part A funds for professional development*," the SDE encourages school systems to keep this requirement as part of the support for high-quality professional learning directly connected to the school's corrective action and restructuring efforts.

LEA Improvement Year 5

LEAs not making AYP for six consecutive years are identified for *LEA Improvement Year 5* and are subject to **Restructuring Actions** which may include any combination of the following interventions:

- **Defer, reduce, or redirect** state and/or federal funds.
- Direct LEAs to **replace school principals and executive officers** relevant to the failure to make AYP.
- **Remove schools** from local school board control.
- **Direct a reorganization** that clusters specified schools under an executive officer approved by the state.
- **Direct the restructuring** of the LEA central office.

Any LEA that receives Title I funds and is identified for *LEA Improvement Year 5* ***must*** address the professional development needs of its instructional staff by budgeting and spending not less than 10% of its current Title I allocation to provide high-quality professional development that directly addresses the academic achievement problem(s) that caused the LEA to be identified for improvement. (According to Section 1116(c)(7)(A)(*iii*), funds budgeted and spent in the same year by individual Title I-funded schools identified for improvement may be included in the LEA's 10% reservation for LEA improvement. Funds reserved under Section 1119 to assist teachers in meeting the highly qualified teacher requirement may not be included in the LEA's 10% reservation for LEA improvement.)

Not Making AYP for Seven or More Years–School Improvement Years 6+ Implement Restructuring

In the event that the strategies for restructuring implemented the previous year are not successful in assisting the school to make AYP, the LEA must advance into the most acute phase of SDE support. The State Support Team will focus support at the local school system's central office to strengthen the capacity of LEAs to support continuous improvement on all school campuses and provide focused support to schools/districts in improvement as they scrutinize school performance data and adjust/modify/retain successful strategies from the previous year. The SDE will direct the LEA in creating an alternative governance structure for its schools that must be reflected by a **Restructuring School Improvement Plan** that will be prepared to implement **all** of the following **alternative governance** structures:

1. **Suspend the decision-making role of the school principal** and have the central office take over the administration of the school through the appointment of a central office administrator to govern the school.
2. **Replace all or most of the school staff** relevant to the school's continued inability to make adequate yearly progress.
3. **Enter into a contract with a "turnaround" specialist or an entity** such as an external educational management organization with a demonstrated record of effectiveness to operate the school.

The SDE will continue to provide technical assistance and guidance for external support from members of the State Support Team for high-quality professional development. If the LEA does not otherwise have the fiscal resources to implement the intervening action(s), it ***must*** reallocate federal resources received under Title II and/or Title VI as applicable and appropriate.

In addition to the above actions, any Title I school identified for *School Improvement Year 6+* ***must*** implement **all** of the following actions:

4. Provide **written notice** of the school's status to parents of each student enrolled in the school in a format and, to the extent practicable, in a language that the parents can understand. [Section 1116(b)(6)]
5. Continue to offer **public school choice** in accordance with Section 1116.
6. Implement **supplemental educational services** to eligible students in accordance with Section 1116.
7. Budget and spend not less than 10% of its Title I allocation to provide **high-quality professional development** that directly addresses the academic achievement problem that caused the school to be identified for school improvement. [Section 1116(b)(3)(A)(iii)] Although the July 2006 LEA and School Improvement Non-Regulatory Guidance from the U.S. Department of Education (USDE), Section H-5, states that, "*The statute does not require a school identified for corrective action or restructuring to spend not less than 10 percent of its Title I, Part A funds for professional development*," the SDE encourages school systems to keep this requirement as part of the support for high-quality professional learning directly connected to the school's corrective action and restructuring efforts.

Delay in Progression and Removal from School or LEA Improvement

The state will, for a period not to exceed one year, delay progression in the designation of the "years of improvement" and implementation of interventions required for any year of school improvement, corrective action, or restructuring if at least **one** of the following conditions exists:

1. The school or LEA **makes AYP for one year in the component for which it was identified for improvement**.
2. The school's failure to make AYP in the component for which it was identified for improvement is **due to exceptional or uncontrollable circumstances**.

The LEA, however, must ensure continuation of improvement or restructuring strategies that resulted in making AYP (NCLB Section 1116(b)(7)(D); 34 CFR 200.35). If a school or LEA does not make AYP in the component for which it was identified for improvement in the year following the delay, progression in years identified for improvement and associated interventions must continue as if the delay never occurred.

It is possible that a school or LEA may not make AYP for two consecutive years and be identified for *School Improvement Year 1* in a different component while implementing interventions for an earlier identification for school or LEA improvement. **The school or LEA is required to implement interventions applicable to the longest standing identification for improvement.**

A school or LEA that has been identified for improvement remains in school or LEA improvement status and must implement applicable interventions until it has made AYP for two consecutive years in the component for which it was identified for improvement. The school or LEA is then removed from improvement and is no longer obligated to implement interventions associated with not making AYP in that component.

Possibility of Simultaneous Rewards and Interventions

It is possible and feasible that a school may be identified and rewarded for academic achievement while it is identified for improvement because each school is required to make AYP in each cell. In this case, a school might be eligible for rewards while continuing implementation of interventions. This condition should not be construed as inconsistent; rather, it emphasizes the importance of describing academic achievement in a school or LEA very precisely in terms of subjects and subgroups of students.

APPENDIX A

ALABAMA STANDARDS FOR EFFECTIVE PROFESSIONAL DEVELOPMENT

The Alabama State Board of Education adopted the following standards on June 13, 2002. These standards are embedded in the NCLB definition of professional development in Title IX, Section 9101 (34).

Standard 1: Effective professional development organizes adults into learning communities whose goals are aligned with those of the school, the district, and the state.

Standard 2: Effective professional development requires knowledgeable and skillful school and district leaders who actively participate in and guide continuous instructional improvement.

Standard 3: Effective professional development requires resources to support adult learning and collaboration.

Standard 4: Effective professional development uses disaggregated student data to determine adult learning priorities, monitor progress, and help sustain continuous improvement.

Standard 5: Effective professional development uses multiple sources of information to guide improvement and demonstrate its impact.

Standard 6: Effective professional development prepares educators to apply research to decision making.

Standard 7: Effective professional development uses learning strategies appropriate to the intended goal.

Standard 8: Effective professional development applies knowledge about human learning and change.

Standard 9: Effective professional development provides educators with the knowledge and skills to collaborate.

Standard 10: Effective professional development prepares educators to understand and appreciate all students, create safe, orderly and supportive learning environments, and hold high expectations for their academic achievement.

Standard 11: Effective professional development deepens educators' content knowledge, provides them with research-based instructional strategies to assist students in meeting rigorous academic standards, and prepares them to use various types of classroom assessments appropriately.

Standard 12: Effective professional development provides educators with knowledge and skills to involve families and other stakeholders appropriately.

APPENDIX B

No Child Left Behind Act of 2001
Section 9101 – Definitions

(34) PROFESSIONAL DEVELOPMENT- The term professional development' —

(A) includes activities that —

(i) improve and increase teachers' knowledge of the academic subjects the teachers teach, and enable teachers to become highly qualified;

(ii) are an integral part of broad schoolwide and districtwide educational improvement plans;

(iii) give teachers, principals, and administrators the knowledge and skills to provide students with the opportunity to meet challenging State academic content standards and student academic achievement standards;

(iv) improve classroom management skills;

(v)(I) are high quality, sustained, intensive, and classroom-focused in order to have a positive and lasting impact on classroom instruction and the teacher's performance in the classroom; and

(II) are not 1-day or short-term workshops or conferences;

(vi) support the recruiting, hiring, and training of highly qualified teachers, including teachers who became highly qualified through State and local alternative routes to certification;

(vii) advance teacher understanding of effective instructional strategies that are —

(I) based on scientifically based research (except that this subclause shall not apply to activities carried out under part D of title II); and

(II) strategies for improving student academic achievement or substantially increasing the knowledge and teaching skills of teachers; and

(viii) are aligned with and directly related to —

(I) State academic content standards, student academic achievement standards, and assessments; and

(II) the curricula and programs tied to the standards described in subclause (I) except that this subclause shall not apply to activities described in clauses (ii) and (iii) of section 2123(3)(B);

(ix) are developed with extensive participation of teachers, principals, parents, and administrators of schools to be served under this Act;

(x) are designed to give teachers of limited English proficient children, and other teachers and instructional staff, the knowledge and skills to provide instruction and appropriate language and academic support services to those children, including the appropriate use of curricula and assessments;

(xi) to the extent appropriate, provide training for teachers and principals in the use of technology so that technology and technology applications are effectively used in the classroom to improve teaching and learning in the curricula and core academic subjects in which the teachers teach;

(xii) as a whole, are regularly evaluated for their impact on increased teacher effectiveness and improved student academic achievement, with the findings of the evaluations used to improve the quality of professional development;

(xiii) provide instruction in methods of teaching children with special needs;

(xiv) include instruction in the use of data and assessments to inform and instruct classroom practice; and

(xv) include instruction in ways that teachers, principals, pupil services personnel, and school administrators may work more effectively with parents; and

(B) may include activities that —

(i) involve the forming of partnerships with institutions of higher education to establish school-based teacher training programs that provide prospective teachers and beginning teachers with an opportunity to work under the guidance of experienced teachers and college faculty;

(ii) create programs to enable paraprofessionals (assisting teachers employed by a local educational agency receiving assistance under part A of title I) to obtain the education necessary for those paraprofessionals to become certified and licensed teachers; and

(iii) provide follow-up training to teachers who have participated in activities described in subparagraph (A) or another clause of this subparagraph that are designed to ensure that the knowledge and skills learned by the teachers are implemented in the classroom.

APPENDIX C(1)

Matrix for AYP Determinations
2008-2009 School Year

Component →	Reading		Mathematics		Additional Academic Indicator
Group ↓	Met Participation Goal	Met Proficiency Goal	Met Participation Goal	Met Proficiency Goal	Met Graduation Goal/ Attendance Goal
All Students					
Special Education					
American Indian/ Alaskan Native					
Asian/Pacific Islander					
Black					
Hispanic					
White					
Limited English Proficient					
Free/Reduced Meals					

APPENDIX C(2)

Welcome to

Alabama AYP Accountability Reporting & Appeals System

School Status Report

Alabama Department of Education
Adequate Yearly Progress Status for 2008-2009
Based on School Year 2007-2008 Data

999 Anoka County - 9999 Gopher High School

Note: This report uses abbreviations & symbols. View Legend

2008-2009 AYP Status	This school met 17 goals out of 17 (100%).
	Made AYP
	Not in School Improvement

Reading

Made AYP Not in School Improvement	Percent Participation Goal = 95%	Met Participation Goal	Proficiency Index Goal = 0.00	Met Proficiency Goal
All Students	96	Yes	15.03	Yes
Special Education	94	Yes(UA)	-8.27	Yes(SH)
American Indian / Alaskan Native	No Data	No Data	No Data	No Data
Asian / Pacific Islander	~	N/A	~	N/A
Black	98	Yes	14.30	Yes
Hispanic	100	N/A	15.63	N/A
White	93	N/A	25.09	N/A
Limited English Proficient	~	N/A	~	N/A
Free / Reduced Meals	99	Yes	15.60	Yes

Mathematics

Made AYP Not in School Improvement	Percent Participation Goal = 95%	Met Participation Goal	Proficiency Index Goal = 0.00	Met Proficiency Goal
All Students	97	Yes	16.99	Yes
Special Education	94	Yes(UA)	-2.41	Yes(CI)
American Indian / Alaskan Native	No Data	No Data	No Data	No Data
Asian / Pacific Islander	~	N/A	~	N/A
Black	97	Yes	16.49	Yes
Hispanic	100	N/A	20.18	N/A
White	96	N/A	21.78	N/A
Limited English Proficient	~	N/A	~	N/A
Free / Reduced Meals	96	Yes	16.78	Yes

Additional Academic Indicator - Graduation Rate

Made AYP Not in School Improvement	Graduation Rate Goal = 90%	Met Additional Academic Indicator
All Students	68%	Yes(IM)

Legend

Symbol	Definition
~	Fewer than 10 students
N2	Small school rule for participation
*	Small school rule for proficiency
UA	Uniform Averaging
SH	Safe Harbor
CI	Confidence Interval
IM	Improvement
N/A	Not applicable (for subgroups), fewer than 40 students
2%	Proficiency adjustment made for students with disabilities - the 2% rule which only applies to the Special Education subgroup

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APPENDIX C(3)

Welcome to

Alabama AYP Accountability Reporting & Appeals System

System Status Summary Report

Alabama Department of Education
Adequate Yearly Progress Status for 2008-2009
Based on School Year 2007-2008 Data

999 Anoka County

2008-2009 AYP Status	Made AYP
	Not in School Improvement

System Status Summary Report

	3 - 5 Grade Span	6 - 8 Grade Span	High School Span	System AYP
Reading AYP	Yes	Yes	Yes	Yes
Mathematics AYP	Yes	Yes	Yes	Yes
Additional Academic Indicator AYP	Yes	Yes	Yes	Yes

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Welcome to:

Alabama AYP Accountability Reporting & Appeals System

System Status Report

Alabama Department of Education
Adequate Yearly Progress Status for 2008-2009
Based on School Year 2007-2008 Data

999 Anoka County : 3 - 5 Grade Span

Note: This report uses abbreviations & symbols. View Legend

2008-2009 AYP Status	This system met 20 goals out of 21 (95.24%).

Reading

Made AYP	Percent Participation Goal = 95%	Met Participation Goal	Proficiency Index Goal = 0.00	Met Proficiency Goal
All Students	99	Yes	15.72	Yes
Special Education	99	Yes	-17.35	Yes(2%)
American Indian / Alaskan Native	~	N/A	~	N/A
Asian / Pacific Islander	~	N/A	~	N/A
Black	99	Yes	11.77	Yes
Hispanic	~	N/A	~	N/A
White	100	Yes	17.66	Yes
Limited English Proficient	~	N/A	~	N/A
Free / Reduced Meals	100	Yes	12.89	Yes

Mathematics

Made AYP	Percent Participation Goal = 95%	Met Participation Goal	Proficiency Index Goal = 0.00	Met Proficiency Goal
All Students	100	Yes	11.92	Yes
Special Education	99	Yes	-13.83	Yes
American Indian / Alaskan Native	~	N/A	~	N/A
Asian / Pacific Islander	~	N/A	~	N/A
Black	97	Yes	8.07	Yes
Hispanic	~	N/A	~	N/A
White	100	Yes	18.05	Yes
Limited English Proficient	~	N/A	~	N/A
Free / Reduced Meals	100	Yes	8.33	Yes

Additional Academic Indicator - Attendance Rate

Made AYP	Attendance Rate Goal = 95%	Met Additional Academic Indicator
All Students	98%	Yes

Legend

Symbol	Definition
~	Fewer than 10 students
N2	Small school rule for participation
*	Small school rule for proficiency
UA	Uniform Averaging
SH	Safe Harbor
CI	Confidence Interval
IN	Improvement
N/A	Not applicable (for subgroups), fewer than 40 students
2%	Proficiency adjustment made for students with disabilities - the 2% rule which only applies to the Special Education subgroup

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Welcome to

Alabama AYP Accountability Reporting & Appeals System

System Status Report

Alabama Department of Education
Adequate Yearly Progress Status for 2008-2009
Based on School Year 2007-2008 Data

999 Anoka County : 6 - 8 Grade Span

Note: This report uses abbreviations & symbols. View Legend

2008-2009 AYP Status	This system met 21 goals out of 21 (100%).

Reading

Made AYP	Percent Participation Goal = 95%	Met Participation Goal	Proficiency Index Goal = 0.00	Met Proficiency Goal
All Students	100	Yes	19.62	Yes
Special Education	97	Yes	-9.31	Yes(2%)
American Indian / Alaskan Native	No Data	No Data	No Data	No Data
Asian / Pacific Islander	No Data	No Data	No Data	No Data
Black	99	Yes	18.27	Yes
Hispanic	~	N/A	~	N/A
White	100	Yes	24.11	Yes
Limited English Proficient	~	N/A	~	N/A
Free / Reduced Meals	96	Yes	16.07	Yes

Mathematics

Made AYP	Percent Participation Goal = 95%	Met Participation Goal	Proficiency Index Goal = 0.00	Met Proficiency Goal
All Students	100	Yes	22.55	Yes
Special Education	98	Yes	2.82	Yes
American Indian / Alaskan Native	No Data	No Data	No Data	No Data
Asian / Pacific Islander	No Data	No Data	No Data	No Data
Black	98	Yes	15.52	Yes
Hispanic	~	N/A	~	N/A
White	100	Yes	28.72	Yes
Limited English Proficient	~	N/A	~	N/A
Free / Reduced Meals	97	Yes	19.39	Yes

Additional Academic Indicator - Attendance Rate

Made AYP	Attendance Rate Goal = 95%	Met Additional Academic Indicator
All Students	97%	Yes

Legend

Symbol	Definition
~	Fewer than 10 students
N2	Small school rule for participation
*	Small school rule for proficiency
UA	Uniform Averaging
SH	Safe Harbor
CI	Confidence Interval
IM	Improvement
N/A	Not applicable (for subgroups), fewer than 40 students
2%	Proficiency adjustment made for students with disabilities - the 2% rule which only applies to the Special Education subgroup

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Welcome to

Alabama AYP Accountability Reporting & Appeals System

System Status Report

Alabama Department of Education
Adequate Yearly Progress Status for 2008-2009
Based on School Year 2007-2008 Data

999 Anoka County : High School Span

Note: This report uses abbreviations & symbols. View Legend

2008-2009 AYP Status	This system met 17 goals out of 17 (100%).

Reading

Made AYP	Percent Participation Goal = 95%	Met Participation Goal	Proficiency Index Goal = 0.00	Met Proficiency Goal
All Students	100	Yes	1.60	Yes
Special Education	96	N/A	-55.08	N/A
American Indian / Alaskan Native	No Data	No Data	No Data	No Data
Asian / Pacific Islander	~	N/A	~	N/A
Black	98	Yes	-2.94	Yes(CI)
Hispanic	No Data	No Data	No Data	No Data
White	100	Yes	7.94	Yes
Limited English Proficient	~	N/A	~	N/A
Free / Reduced Meals	100	Yes	-7.34	Yes(UA)

Mathematics

Made AYP	Percent Participation Goal = 95%	Met Participation Goal	Proficiency Index Goal = 0.00	Met Proficiency Goal
All Students	100	Yes	14.45	Yes
Special Education	100	N/A	-20.96	N/A
American Indian / Alaskan Native	No Data	No Data	No Data	No Data
Asian / Pacific Islander	~	N/A	~	N/A
Black	100	Yes	9.71	Yes
Hispanic	No Data	No Data	No Data	No Data
White	99	Yes	27.12	Yes
Limited English Proficient	~	N/A	~	N/A
Free / Reduced Meals	100	Yes	10.45	Yes

Additional Academic Indicator - Graduation Rate

Made AYP	Graduation Rate Goal = 90%	Met Additional Academic Indicator
All Students	79%	Yes(IM)

Legend

Symbol	Definition
~	Fewer than 10 students
N2	Small school rule for participation
*	Small school rule for proficiency
UA	Uniform Averaging
SH	Safe Harbor
CI	Confidence Interval
IM	Improvement
N/A	Not applicable (for subgroups), fewer than 40 students
2%	Proficiency adjustment made for students with disabilities - the 2% rule which only applies to the Special Education subgroup

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Appendix A10

Ed Trust Honors Four Schools With Dispelling the Myth Awards

Printer-friendly version

Publication date: November 9 2009

Public schools from Alabama, Georgia, Michigan and New York are proving that low-income and minority students achieve at high levels when taught at high levels

WASHINGTON (November 9, 2009) – On Thursday, November 12, The Education Trust will present the seventh annual Dispelling the Myth Awards to four outstanding schools from across the country that are educating low-income and minority students to high academic levels.

The awards recognize schools for making significant progress in narrowing gaps in academic achievement among student groups, generating achievement levels that significantly exceed the averages in their states, or improving student performance at a rapid pace.

This year's Dispelling the Myth Award recipients are:

P.S. 83 Luis Muñoz Rivera Elementary School, East Harlem, N.Y.

Parks Middle School, Atlanta

North Godwin Elementary School, Wyoming, Mich.

George Hall Elementary School, Mobile, Ala.

"These educators will be the first to tell you that their work isn't easy, nor is it ever done. But their successes provide both inspiration and information about what works to make schools powerful engines for improving the lives of their students," said Kati Haycock, president of The Education Trust. "The Dispelling the Myth Award winners remind us that low-income students and students of color can achieve at high levels and that schools can make an enormous difference in the lives of all young people and thus in the country's future. "

These schools challenge the insidious belief that student achievement has more to do with who the students are than how and what they are taught. Each award-winning school is different,

yet their success stories have common themes—high expectations, rigorous curricula, high-quality instruction, and regular tracking of student progress. The result: Virtually all students attending these schools meet or exceed state standards.

The Dispelling the Myth awardees will be honored for their important work during the 20th annual Education Trust National Conference. Themed "When the Going Gets Tough: Smart Choices and Bold Action to Raise Achievement and Close Gaps," the conference convenes educators from across the country to discuss effective strategies for closing the gaps in achievement and opportunity that persist in our nation's K-12 schools. Among the featured speakers at the awards dinner, U.S. Secretary of Education Arne Duncan will talk about the need to ensure that all of America's schools work for all of America's students.

About the 2009 Dispelling the Myth Award winners:

P.S. 83 Luis Muñoz Rivera Elementary School
East Harlem, N.Y.
At Luis Muñoz Rivera Elementary School, many students arrive at the school door already behind. But staff members begin with what the kids can do and build from there. And like their students, the teachers are expected to learn and grow. Balancing collaboration and supervision, Principal Frances Castillo has created what one teacher calls "one big family," resulting in steadily increasing student achievement. In 2006, 67 percent of students at P.S. 83 met state English Language Arts standards, but by 2009, virtually all students met those standards.

Parks Middle School
Atlanta
Plywood covers windows on hundreds of foreclosed homes in the neighborhood surrounding Parks Middle School. Identified by the state as being "in need of improvement" for seven consecutive years, the school used to be just as forlorn as the neighborhood is today. But Parks has revived under the leadership of Principal Christopher Waller. In 2006, only 44 percent of the school's African-American sixth-graders met state math standards; this year 88 percent met them.

North Godwin Elementary School
Wyoming, Mich.

Like most of Michigan, Grand Rapids has been hit hard by the recession and suffered a further blow in 2009 when the local General Motors stamping plant shut down. But just down the street from the plant, North Godwin Elementary School keeps its students' options open by helping almost all of them meet or exceed state standards—even those whose first language is not English. Teacher selection, induction, and evaluation are driving the school's improvement.

George Hall Elementary School
Mobile, Ala.

George Hall Elementary School is located in one of the poorest parts of Mobile. In 2004, when Mobile Public Schools ordered George Hall to reorganize and restaff, less than half of the school's fourth-graders were reading or doing math on grade level. Terri Tomlinson, the new district-appointed principal, spent her first summer at the school clearing the building of debris. Even before she began work, she says, "I knew achievement wouldn't be a problem." Today, George Hall is one of the highest performing elementary schools in Alabama, with 95 percent of students meeting state standards in reading and mathematics.

For more information, contact **Lauren Stephens**, 202/293-1217 x373

Closing the Gaps, Pre-K-12, Quality Curriculum and Assignments

State of Alabama
Race to the Top LEA Memorandum of Understanding

This Memorandum of Understanding ("MOU") is entered into by and between the Alabama State Department of Alabama ("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.

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 convening, communities of practice, or other practice-sharing events that are organized or sponsored by the State or by the U.S. Department of Education ("ED");
3) Post to any website specified by the State or ED, in a timely manner, all non-proprietary products and lessons learned developed using funds associated with the Race to the Top grant;
4) Participate, as requested, in any evaluations of this grant conducted by the State or ED;
5) Be responsive to State or ED requests for information including on the status of the project, project implementation, outcomes, and any problems anticipated or encountered;
6) Participate in meetings and telephone conferences with the State to discuss (a) progress of the project, (b) potential dissemination of resulting non-proprietary products and lessons learned, (c) plans for subsequent years of the Race to the Top grant period, and (d) other matters related to the Race to the Top grant and associated plans.

B. State Responsibilities

In assisting Participating 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 the 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, and 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 modification.

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.

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 heron 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

_____

LEA Superintendent Signature/Date

_____

Printed Name/Title

_____

LEA School Board President/Date

_____

Printed Name/Title

_____

Local Teacher Union Representative/Date

_____

Printed Name/Title

_____

Joseph B. Morton, State Superintendent of Education/Date

_____

Printed Name/Title

A. 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

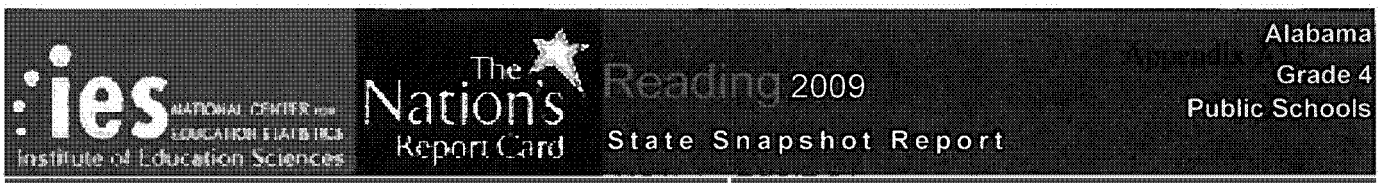
Authorized LEA Signature/Date

Print Name/Title

For the State

Authorized State Signature/Date

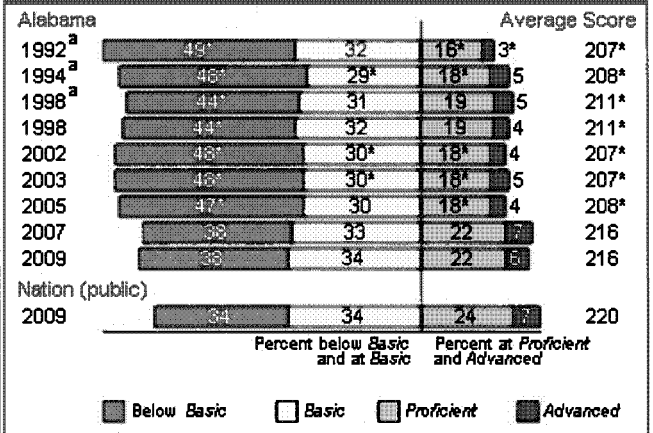
Print Name/Title



Overall Results

- In 2009, the average score of fourth-grade students in Alabama was 216. This was lower than the average score of 220 for public school students in the nation.
- The average score for students in Alabama in 2009 (216) was not significantly different from their average score in 2007 (216) and was higher than their average score in 1992 (207).
- In 2009, the score gap between students in Alabama at the 75th percentile and students at the 25th percentile was 47 points. This performance gap was not significantly different from that of 1992 (48 points).
- The percentage of students in Alabama who performed at or above the NAEP *Proficient* level was 28 percent in 2009. This percentage was not significantly different from that in 2007 (29 percent) and was greater than that in 1992 (20 percent).
- The percentage of students in Alabama who performed at or above the NAEP *Basic* level was 62 percent in 2009. This percentage was not significantly different from that in 2007 (62 percent) and was greater than that in 1992 (51 percent).

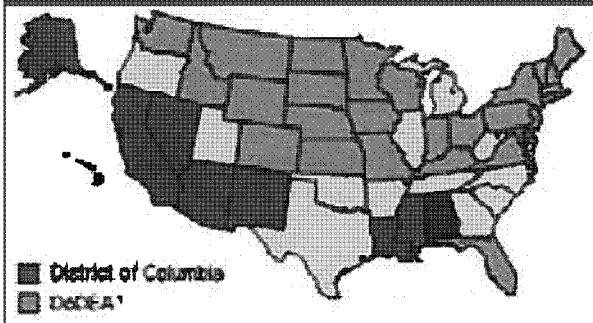
Achievement Level Percentages and Average Score Results



* Significantly different ($p < .05$) from state's results in 2009.
[a] Accommodations not permitted.

NOTE: Detail may not sum to totals because of rounding.

Compare the Average Score in 2009 to Other States/Jurisdictions

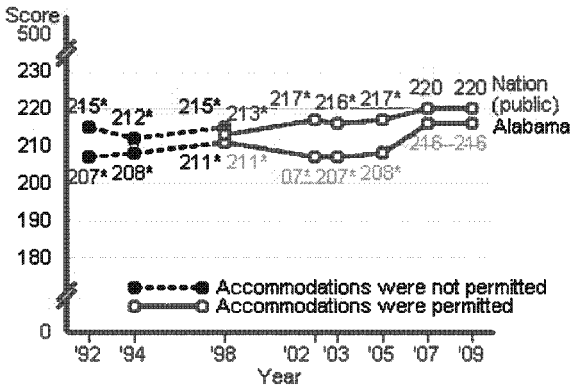


[1] Department of Defense Education Activity schools (domestic and overseas).

In 2009, the average score in Alabama was

- lower than those in 30 states/jurisdictions
- higher than those in 9 states/jurisdictions
- not significantly different from those in 12 states/jurisdictions

Average Scores for State/Jurisdiction and Nation (public)



* Significantly different ($p < .05$) from 2009.

Results for Student Groups in 2009

Reporting Groups	Percent of students	Avg. score	Percentages at or above Basic	Percentages at or above Proficient	Percent at Advanced
Gender					
Male	52	212	57	25	4
Female	48	221	68	32	7
Race/Ethnicity					
White	61	225	73	36	8
Black	33	201	44	13	1
Hispanic	4	200	43	18	4
Asian/Pacific Islander	1	‡	‡	‡	‡
American Indian/Alaska Native	#	‡	‡	‡	‡
National School Lunch Program					
Eligible	54	204	49	16	2
Not eligible	46	231	78	43	10

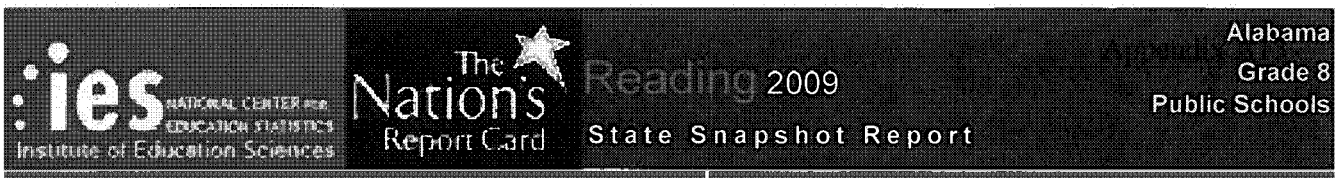
Rounds to zero. ‡ Reporting standards not met.

NOTE: Detail may not sum to totals because of rounding, and because the "Information not available" category for the National School Lunch Program, which provides free/reduced-price lunches, and the "Unclassified" category for race/ethnicity are not displayed.

Score Gaps for Student Groups

- In 2009, female students in Alabama had an average score that was higher than that of male students.
- In 2009, Black students had an average score that was 24 points lower than that of White students. This performance gap was not significantly different from that in 1992 (30 points).
- In 2009, Hispanic students had an average score that was 25 points lower than that of White students. Data are not reported for Hispanic students in 1992, because reporting standards were not met.
- In 2009, students who were eligible for free/reduced-price school lunch, an indicator of low income, had an average score that was 27 points lower than that of students who were not eligible for free/reduced-price school lunch. This performance gap was not significantly different from that in 1998 (29 points).

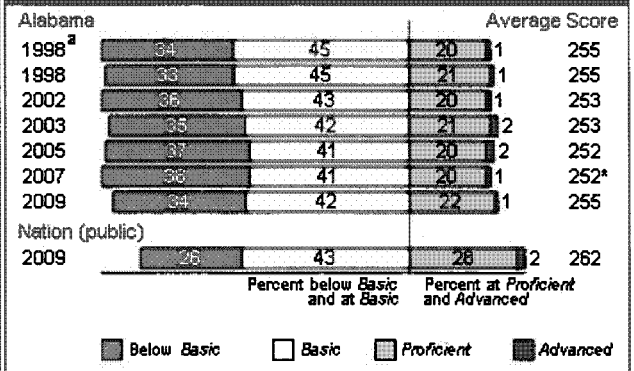
NOTE: Statistical comparisons are calculated on the basis of unrounded scale scores or percentages.



Overall Results

- In 2009, the average score of eighth-grade students in Alabama was 255. This was lower than the average score of 262 for public school students in the nation.
- The average score for students in Alabama in 2009 (255) was higher than their average score in 2007 (252) and was not significantly different from their average score in 1998 (255).
- In 2009, the score gap between students in Alabama at the 75th percentile and students at the 25th percentile was 47 points. This performance gap was not significantly different from that of 1998 (44 points).
- The percentage of students in Alabama who performed at or above the NAEP *Proficient* level was 24 percent in 2009. This percentage was not significantly different from that in 2007 (21 percent) and was not significantly different from that in 1998 (22 percent).
- The percentage of students in Alabama who performed at or above the NAEP *Basic* level was 66 percent in 2009. This percentage was not significantly different from that in 2007 (62 percent) and was not significantly different from that in 1998 (67 percent).

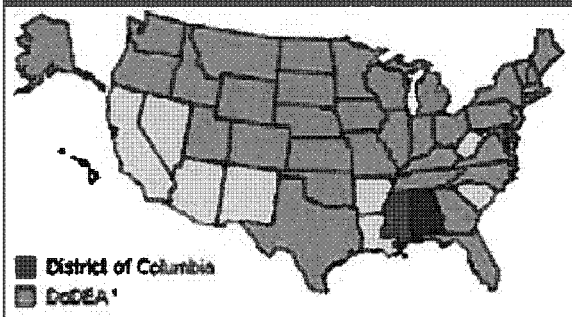
Achievement Level Percentages and Average Score Results



* Significantly different ($p < .05$) from state's results in 2009.
[a] Accommodations not permitted.

NOTE: Detail may not sum to totals because of rounding.

Compare the Average Score in 2009 to Other States/Jurisdictions

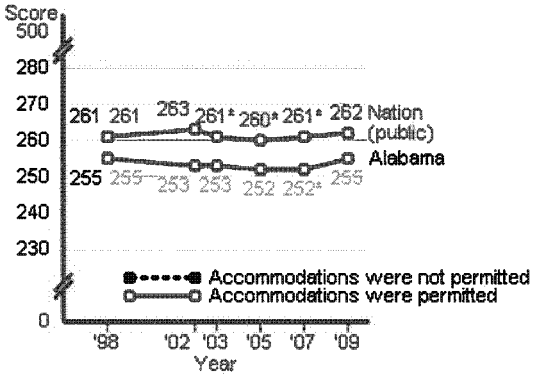


[1] Department of Defense Education Activity schools (domestic and overseas).

In 2009, the average score in Alabama was

- lower than those in 40 states/jurisdictions
- higher than those in 2 states/jurisdictions
- not significantly different from those in 9 states/jurisdictions

Average Scores for State/Jurisdiction and Nation (public)



* Significantly different ($p < .05$) from 2009.

Results for Student Groups in 2009

Reporting Groups	Percent of students	Avg. score	Percentages at or above Basic	Percentages at or above Proficient	Percent at Advanced
Gender					
Male	51	249	59	19	1
Female	49	261	72	28	2
Race/Ethnicity					
White	60	264	77	31	2
Black	35	238	46	9	#
Hispanic	3	245	53	23	4
Asian/Pacific Islander	1	‡	‡	‡	‡
American Indian/Alaska Native	1	‡	‡	‡	‡
National School Lunch Program					
Eligible	50	243	52	12	#
Not eligible	50	267	80	35	2

Rounds to zero. ‡ Reporting standards not met.

NOTE: Detail may not sum to totals because of rounding, and because the "Information not available" category for the National School Lunch Program, which provides free/reduced-price lunches, and the "Unclassified" category for race/ethnicity are not displayed.

Score Gaps for Student Groups

- In 2009, female students in Alabama had an average score that was higher than that of male students.
- In 2009, Black students had an average score that was 27 points lower than that of White students. This performance gap was not significantly different from that in 1998 (28 points).
- In 2009, Hispanic students had an average score that was 19 points lower than that of White students. Data are not reported for Hispanic students in 1998, because reporting standards were not met.
- In 2009, students who were eligible for free/reduced-price school lunch, an indicator of low income, had an average score that was 24 points lower than that of students who were not eligible for free/reduced-price school lunch. This performance gap was not significantly different from that in 1998 (24 points).

NOTE: Statistical comparisons are calculated on the basis of unrounded scale scores or percentages.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 1998–2009 Reading Assessments.

ies NATIONAL CENTER FOR EDUCATION STATISTICS
Institute of Education Sciences

The Nation's Report Card

Mathematics 2009

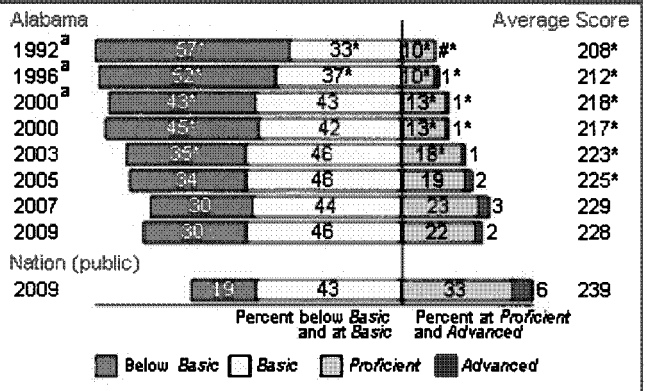
Snapshot State Report

Alabama
Grade 4
Public Schools

Overall Results

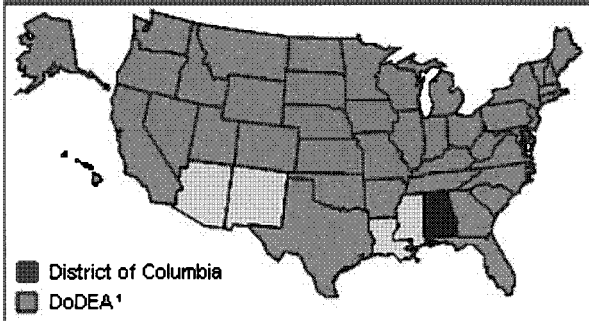
- In 2009, the average score of fourth-grade students in Alabama was 228. This was lower than the average score of 239 for public school students in the nation.
- The average score for students in Alabama in 2009 (228) was not significantly different from their average score in 2007 (229) and was higher than their average score in 1992 (208).
- In 2009, the score gap between students in Alabama at the 75th percentile and students at the 25th percentile was 39 points. This performance gap was not significantly different from that of 1992 (45 points).
- The percentage of students in Alabama who performed at or above the NAEP *Proficient* level was 24 percent in 2009. This percentage was not significantly different from that in 2007 (26 percent) and was greater than that in 1992 (10 percent).
- The percentage of students in Alabama who performed at or above the NAEP *Basic* level was 70 percent in 2009. This percentage was not significantly different from that in 2007 (70 percent) and was greater than that in 1992 (43 percent).

Achievement-Level Percentages and Average Score Results



* Significantly different ($p < .05$) from state's results in 2009.
\# Rounds to zero.
[a] Accommodations not permitted.
NOTE: Detail may not sum to totals because of rounding.

Compare the Average Score in 2009 to Other States/ urisdictions

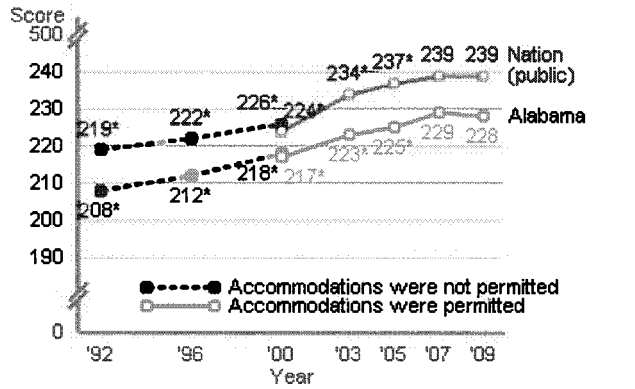


[1] Department of Defense Education Activity schools (domestic and overseas).

In 2009, the average score in Alabama was

- lower than those in 46 states/jurisdictions
- higher than that in 1 state/jurisdiction
- not significantly different from that in 4 states/jurisdictions

Compare the Average Score to Nation (public)



* Significantly different ($p < .05$) from 2009.

Results for Student Groups in 2009

Reporting Groups	Percent of students	Avg. score	Percentages at or above Basic	Percentages at or above Proficient	Percent at Advanced
Gender [1]					
Male 52		228	70	25	3
Female	48	228	71	24	2
Race/Ethnicity					
White 61		237	82	34	4
Black 33		211	49	7	#
Hispanic 4		220	61	11	1
Asian/Pacific Islander	1	‡	‡	‡	‡
American Indian/Alaska Native	#	‡	‡	‡	‡
National School Lunch Program [1]					
Eligible 54		217	57	13	#
Not eligible	46	241	86	39	5

\# Rounds to zero. ‡ Reporting standards not met.

NOTE: Detail may not sum to totals because of rounding, and because the "Information not available" category for the National School Lunch Program, which provides free/reduced-price lunches, and the "Unclassified" category for race/ethnicity are not displayed.

Score Gaps for Student Groups

- In 2009, female students in Alabama had an average score that was not significantly different from that of male students. This performance gap was not significantly different from that in 1992 (0 point).
- In 2009, Black students had an average score that was 26 points lower than that of White students. This performance gap was not significantly different from that in 1992 (30 points).
- In 2009, Hispanic students had an average score that was 17 points lower than that of White students. Data are not reported for Hispanic students in 1992, because reporting standards were not met.
- In 2009, students who were eligible for free/reduced-price school lunch, an indicator of poverty, had an average score that was 23 points lower than that of students who were not eligible for free/reduced-price school lunch. This performance gap was not significantly different from that in 1996 (25 points).

NOTE: Statistical comparisons are calculated on the basis of unrounded scale scores or percentages.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 1992–2009 Mathematics Assessments.

ies NATIONAL CENTER FOR EDUCATION STATISTICS
Institute of Education Sciences

The Nation's Report Card Mathematics 2009

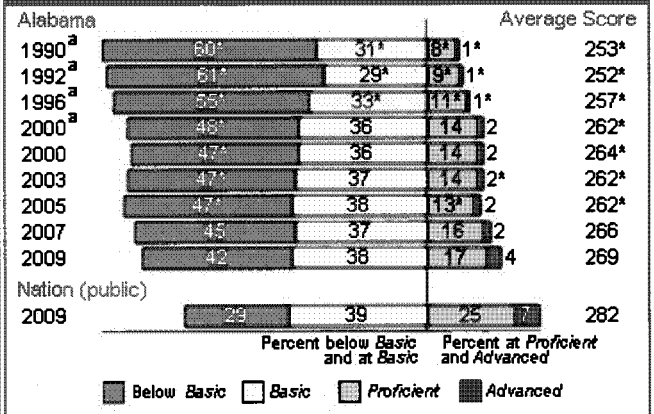
Snapshot State Report

Alabama
Grade 8
Public Schools

Overall Results

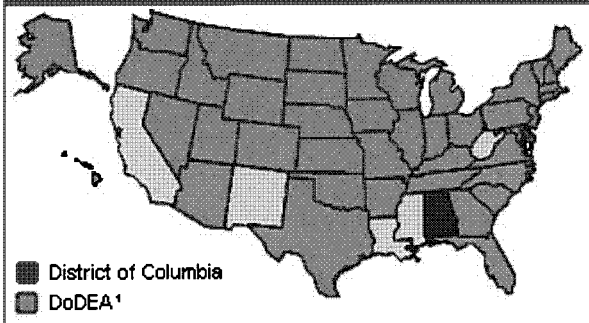
- In 2009, the average score of eighth-grade students in Alabama was 269. This was lower than the average score of 282 for public school students in the nation.
- The average score for students in Alabama in 2009 (269) was not significantly different from their average score in 2007 (266) and was higher than their average score in 1990 (253).
- In 2009, the score gap between students in Alabama at the 75th percentile and students at the 25th percentile was 49 points. This performance gap was not significantly different from that of 1990 (48 points).
- The percentage of students in Alabama who performed at or above the NAEP *Proficient* level was 20 percent in 2009. This percentage was not significantly different from that in 2007 (18 percent) and was greater than that in 1990 (9 percent).
- The percentage of students in Alabama who performed at or above the NAEP *Basic* level was 58 percent in 2009. This percentage was not significantly different from that in 2007 (55 percent) and was greater than that in 1990 (40 percent).

Achievement-Level Percentages and Average Score Results



* Significantly different ($p < .05$) from state's results in 2009.
ª Accommodations not permitted.
NOTE: Detail may not sum to totals because of rounding.

Compare the Average Score in 2009 to Other States/ urisdictions

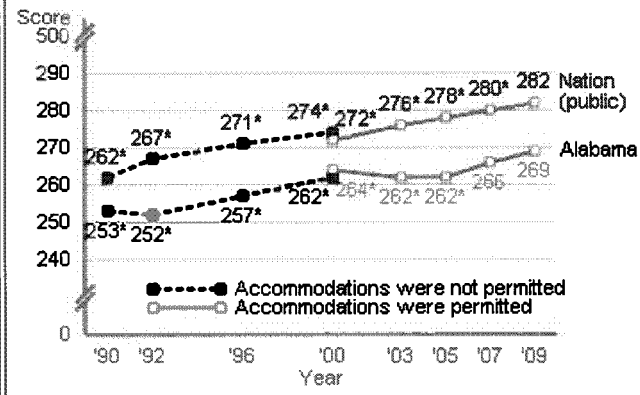


¹ Department of Defense Education Activity schools (domestic and overseas).

In 2009, the average score in Alabama was

- lower than those in 45 states/jurisdictions
- higher than that in 1 state/jurisdiction
- not significantly different from that in 5 states/jurisdictions

Compare the Average Score to Nation (public)



* Significantly different ($p < .05$) from 2009.

Results for Student Groups in 2009

Reporting Groups	Percent of students	Avg. score	Percentages at or above *Basic*	Percentages at or above *Proficient*	Percent at *Advanced*
Gender ¹					
Male 51		268	58	21	4
Female	49	269	58	20	3
Race/Ethnicity					
White 60		280	72	29	5
Black 35		248	34	6	1
Hispanic 3		260	49	10	#
Asian/Pacific Islander	1	‡	‡	‡	‡
American Indian/Alaska Native	1	‡	‡	‡	‡
National School Lunch Program ¹					
Eligible 50		255	44	10	1
Not eligible	50	282	73	31	6

Rounds to zero. ‡ Reporting standards not met.

NOTE: Detail may not sum to totals because of rounding, and because the "Information not available" category for the National School Lunch Program, which provides free/reduced-price lunches, and the "Unclassified" category for race/ethnicity are not displayed.

Score Gaps for Student Groups

- In 2009, female students in Alabama had an average score that was not significantly different from that of male students. This performance gap was not significantly different from that in 1990 (2 points).
- In 2009, Black students had an average score that was 32 points lower than that of White students. This performance gap was not significantly different from that in 1990 (30 points).
- In 2009, Hispanic students had an average score that was 20 points lower than that of White students. Data are not reported for Hispanic students in 1990, because reporting standards were not met.
- In 2009, students who were eligible for free/reduced-price school lunch, an indicator of poverty, had an average score that was 27 points lower than that of students who were not eligible for free/reduced-price school lunch. This performance gap was not significantly different from that in 1996 (33 points).

NOTE: Statistical comparisons are calculated on the basis of unrounded scale scores or percentages.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 1990–2009 Mathematics Assessments.

Division of Teaching and Learning

Office of Standards, Instruction and Assessment

Curriculum and Instruction
Student Assessment
Alabama Reading Initiative (ARI)
Alabama Math, Science and Technology Initiative(AMSTI)
Career Technical Education
Alabama Connecting Classrooms, Educators and Students Statewide (ACCESS)

Office of Educator Education, Evaluation and Professional Learning

Recruitment
Teacher/Leader Education
Teacher/Leader Certification
Teacher/Leader Evaluation
Professional Development
In-Service Centers

Office of School Improvement, Innovation and Support

School Improvement
Prevention and Support
Special Education
Federal Programs
Technology Initiatives
PBS, RtI, MMGW, HSTW

Office of Data, Research and Accountability

Research and Development
Data/Information Systems
Accountability Reporting
Comprehensive Centers
US Department of Education
Council of Chief State School Officers/SCAS

JIM FOLSOM, JR.
LIEUTENANT GOVERNOR

ALABAMA STATE HOUSE
MONTGOMERY, ALABAMA 36130

STATE OF ALABAMA

May 24, 2010

Dr. Joseph B. Morton
State Superintendent of Education
Alabama Department of Education
P.O. Box 302101
Montgomery, Alabama 36130-2101

Dear Dr. Morton:

I write to strongly support Alabama's Race to the Top application. Race to the Top is an excellent opportunity for Alabama to continue its efforts to improve education and provide our students with the tools they need to succeed.

Ensuring that every Alabama child receives a high-quality education is one of my top priorities. I have worked with the Alabama Legislature, our Governor, and our State Department of Education to increase investments in programs that are delivering results and supporting our teachers in the classroom. As we continue this work, Race to the Top will allow us to build on our successes and take Alabama to the next level.

Alabama's application for Race to the Top funding features a strong plan that will raise standards and improve outcomes. Improving our efforts to recruit, train, and reward effective teachers is critical to our continued progress. I also applaud the laser-like focus the plan puts on turning around our lowest-performing schools.

Alabama strives to provide a world-class education system that will allow our students to compete in the global economy. Alabama's Race to the Top application supports that mission, and I strongly support your efforts.

Sincerely,

Jim Folsom

Jim Folsom, Jr.
Lt. Governor

11 SOUTH UNION STREET, SUITE 725 • (334) 242-7900 (O) • (334) 242-4661 (FAX)
E-MAIL: info@ltgov.alabama.gov

HOUSE OF REPRESENTATIVES

SETH HAMMETT
Speaker

11 SOUTH UNION STREET
MONTGOMERY, ALABAMA 36130
334-242-7668

May 24, 2010

Dr. Joseph B. Morton
State Superintendent of Education
Alabama Department of Education
P.O. Box 302101
Montgomery, Alabama 36130-2101

Dear Dr. Morton:

I write to support Alabama's Race to the Top application. This is a great opportunity for Alabama and I commend you for your efforts.

Over the last few years, Alabama has made significant progress in education. The Alabama Legislature has worked with the Governor and the State Department of Education to fund innovative programs such as the Alabama Reading Initiative and the Alabama Math, Science, and Technology Initiative. Both are excellent foundations for greater reforms.

Alabama's Race to the Top application sets a high standard that makes college and career readiness the expectation for all students. I believe Alabama's approach will help us recruit, train, retain, and support our teachers as they provide our children with the education they deserve.

I thank you for your dedication to excellence and I support your efforts.

Sincerely,

Seth Hammett
Speaker of the House

ALABAMA STATE SENATE
ALABAMA STATE HOUSE
MONTGOMERY, ALABAMA 36130-4600

ALABAMA

HANK SANDERS
STATE SENATOR 23RD DISTRICT
P.O. BOX 1290
SELMA, ALABAMA
36702
SELMA, (334) 875-9264
MONTGOMERY (334) 242-7860

COMMITTEES:
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COMMERCE, TRANSPORTATION
& UTILITIES
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ETHICS & ELECTION
ECONOMIC EXPANSION & TRADE
EDUCATION
ENERGY & NATURAL RESOURCES
FINANCE & TAXATION GENERAL FUND
JUDICIARY
LOCAL LEGISLATION #1

May 26, 2010

Dr. Joseph B. Morton
State Superintendent of Education
State Department of Education
P.O. Box 302101
Montgomery, AL 36130-2101

Dear Dr. Morton:

On March 8, 2010, my wife (b)(6) [redacted], Secretary of Education Arne Duncan, State Senator Vivian Figures, Reverend F. D. Reese, you, and I held hands as we did a symbolic march across Edmund Pettus Bridge in Selma. The attached picture on the application captures this scene. This event emphasized the need for education to be highlighted as the civil rights issue of this generation for our state and nation. The march came one day after the 45th Anniversary of "Bloody Sunday" and reenactment of the 1965 Selma-to-Montgomery March. You have chosen to feature this theme in Alabama's Race To The Top application which is due in the U.S. Department of Education on June 1, 2010. I am very proud to lend my full support.

The bold references outlined in the state's plan represent the voices of Alabama citizens in my Senate district, in the region of Alabama known as the Black Belt (named after the black soil that has grown cotton and other crops for generations) and the entire citizenry of Alabama. Our public school students need these kinds of bold initiatives to grow and flourish. The following must become integral and well supported elements of the quality education we must offer every child: FIRST CHOICE; the Reading Initiative; the Math, Science, and Technology Initiative; Teacher Mentoring; the Arts; and continuous improvement in the preparation of future teachers and leaders.

While much remains to be done, thank you for supporting a plan that will propel our state forward.

Sincerely,

Hank Sanders

Hank Sanders
State Senator, District 23

SPENCER BACHUS
6TH DISTRICT, ALABAMA

COMMITTEE:
FINANCIAL SERVICES,
RANKING REPUBLICAN MEMBER

Congress of the United States
House of Representatives
Washington, DC

2246 RAYBURN HOUSE OFFICE BUILDING
WASHINGTON, DC 20515
(202) 225-4921

1900 INTERNATIONAL PARK DRIVE
SUITE 107
BIRMINGHAM, AL 35243
(205) 969-2296

703 SECOND AVENUE NORTH
P.O. BOX 502
CLANTON, AL 35046
(205) 280-0704
http://www.house.gov/bachus

May 27, 2010

Dr. Joseph Morton
Superintendent of Education
Alabama Department of Education
P.O. Box 302101
Montgomery, AL 36130-2101

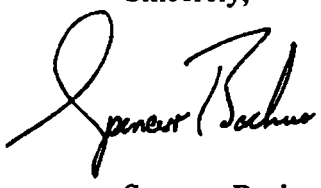
Dear Dr. Morton,

Please accept this letter requesting that Alabama's Race to the Top application be given full consideration. The State of Alabama has made great strides in the advancement of its education system over the past several years, which can be seen by the jump in national rankings, and this program would continue that progress.

It is my understanding that this program will allow the state to address some of the most critical challenges in building and sustaining a first class education system by creating common core standards in subjects that need the most attention, such as math and science. The applicants also plan to address challenges associated with the recruitment, retention, and mentoring of quality instructors under a merit based compensation system. This dedication to the advancement of student and teacher performance in education will continue to move the state forward and keep our students competitive in today's global economy.

You should be commended for your commitment and dedication to excellence in the Alabama Department of Education. It is an honor to serve as your Representative in Washington, DC and if I can ever be of assistance, please do not hesitate to contact my office.

Sincerely,



Spencer Bachus
Member of Congress

STB/CMG

PRINTED ON RECYCLED PAPER

BOBBY BRIGHT
2ND DISTRICT, ALABAMA

COMMITTEES:
ARMED SERVICES
AIR AND LAND FORCES
TERRORISM AND UNCONVENTIONAL THREATS AND CAPABILITIES
READINESS
AGRICULTURE
CONSERVATION, CREDIT, ENERGY, AND RESEARCH
RURAL DEVELOPMENT, BIOTECHNOLOGY, SPECIALTY CROPS, AND FOREIGN AGRICULTURE
SMALL BUSINESS
REGULATIONS AND HEALTHCARE
RURAL DEVELOPMENT, ENTREPRENEURSHIP, AND TRADE

Congress of the United States
House of Representatives
Washington, DC 20515–0102

May 27, 2010

Dr. Joseph Morton
State Superintendent of Education
Alabama Department of Education
P.O. Box 302101
Montgomery, Alabama 36130-2101

Dear Dr. Morton,

I am writing to express my utmost support for Alabama's Race to the Top application. I am pleased that Alabama has this opportunity to make significant educational progress and promote success in the classroom.

I believe educating our children is vital to the future of Alabama and our nation. Alabama's students deserve highly qualified teachers, access to essential learning tools in the classroom, and a curriculum that encourages a solid foundation of knowledge while preparing students for careers in the global economy. As the Representative for Alabama's 2nd Congressional District, I am always looking for ways to ensure that a quality education is provided for our youth.

Alabama's Race to the Top application presents a set of innovative education reforms that will strengthen standards, develop effective systems to track student progress and help turn around Alabama's lowest achieving schools. In addition, these Race for the Top reforms will help local educational agencies recruit, reward, and retain effective teachers in schools across Alabama. These innovative reforms will put Alabama on the path of closing achievement gaps, increasing high school graduation rates, and enhancing the likelihood that students are adequately prepared to prosper in college and in the workplace.

For these reasons, I fully support Alabama's Race to the Top application and I look forward to the results of the competition.

Sincerely,

Bobby Bright

Bobby Bright
Member of Congress

188 N FOSTER STREET, SUITE 105
DOTHAN, AL 36305
PHONE: (334) 794-9680
FAX: (334) 671-1480

22 MONROE STREET, SUITE 1B
MONTGOMERY, AL 36104
PHONE: (334) 277-9113
FAX: (334) 277-8534

1205 LONGWORTH HOUSE OFFICE BUILDING
WASHINGTON, DC 20515
PHONE: (202) 225-2901
FAX: (202) 226-8913

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JO BONNER
1ST DISTRICT, ALABAMA

ASSISTANT REPUBLICAN WHIP

REPUBLICAN STUDY COMMITTEE

SERVING BALDWIN, CLARKE, ESCAMBIA, MOBILE, MONROE AND WASHINGTON COUNTIES

Congress of the United States
House of Representatives
Washington, DC 20515

APPROPRIATIONS
SUBCOMMITTEES:
COMMERCE, JUSTICE, SCIENCE
LABOR, HEALTH AND HUMAN SERVICES, EDUCATION

ETHICS
RANKING MEMBER

ALAN C. SPENCER
CHIEF OF STAFF

May 26, 2010

Dr. Joseph B. Morton
Superintendent
Alabama Department of Education
Post Office Box 302101
Montgomery, AL 36130-2101

Dear Dr. Morton:

I would like to take this opportunity to offer my support for the State of Alabama and the Alabama Department of Education who are applying for funding through the *Race to the Top* grant program made available through the American Recovery and Reinvestment Act of 2009.

It is my understanding that through this program, Alabama intends to enable every student within the state with the educational basis needed to attend and graduate college and be career ready. Alabama's plan promises to raise standards among teachers and leaders which will ultimately improve outcomes overall. By raising the standards of our teachers, Alabama will not only recruit, but also retain, the most qualified within the educational field, thus giving our leaders of tomorrow incomparable opportunities.

It is my pleasure to support Alabama's application in any way possible, and am hopeful that it will be successful. If you feel that I may be of further assistance or can provide you with any additional information, please don't hesitate to let me know.

With best regards, I am

Sincerely,

Jo Bonner
Member of Congress

JB:bj

2236 RAYBURN HOUSE OFFICE BUILDING
WASHINGTON, DC 20515
(202) 225-4931
FAX: (202) 225-0562
www.house.gov/bonner

11 NORTH WATER STREET, SUITE 15290
MOBILE, AL 36602
(251) 690-2811
FAX: (251) 690-2815
TOLL FREE: 1-800-288-USA1

1302 NORTH MCKENZIE STREET
FOLEY, AL 36535
(251) 943-2073
FAX: (251) 943-2093

ROBERT B. ADERHOLT
4TH DISTRICT, ALABAMA

1433 LONGWORTH HOUSE OFFICE BUILDING
WASHINGTON, DC 20515
TELEPHONE: (202) 225-4876

WEB PAGE: www.house.gov/aderholt

COMMITTEE ON APPROPRIATIONS
RANKING MEMBER,
LEGISLATIVE BRANCH

COMMERCE, JUSTICE, SCIENCE

COMMITTEE ON THE BUDGET

The 111th Congress
U.S. House of Representatives

May 25, 2010

Dr. Joseph B. Morton
Superintendent
Alabama Department of Education
P O Box 302101
Montgomery, Alabama 36130

Dear Dr. Morton:

As a Member of Congress from Alabama, I am writing to show my support for the application for Alabama's Race to the Top.

Alabama's application for Race to the Top funding features a strong plan that will raise standards and improve outcomes. Improving our efforts to recruit, train, and reward effective teachers is critical to our continued progress. I also applaud the laser-like focus the plan puts on turning around our lowest-performing schools.

Alabama strives to provide a world-class education system that will allow our students to compete in the global economy. Alabama's Race to the Top application supports that mission.

If you need additional information or if I can be of further service, please contact Jennifer Taylor in my Cullman district office at (256)734-6043.

Thank you very much for your time and attention to this matter.

Sincerely,

Robert B. Aderholt
Member of Congress

247 CARL ELLIOTT BUILDING
1710 ALABAMA AVENUE
JASPER, AL 35501
TELEPHONE: (205) 221-2310

205 FOURTH AVENUE NE
SUITE 104
CULLMAN, AL 35055
TELEPHONE: (256) 734-6043

107 FEDERAL BUILDING
600 BROAD STREET
GADSDEN, AL 35901
TELEPHONE: (256) 546-0201

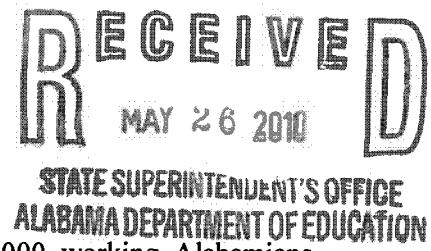
MORGAN COUNTY COURTHOUSE
P.O. BOX 668
DECATUR, AL 35602
TELEPHONE: (256) 350-4093

2 North Jackson,
Montgomery, Alabama
36104

P.O. Box 76,
Montgomery, Alabama
36101-0076

334-834-6000
Fax: 334-262-7371
www.bcatoday.org

BUSINESS COUNCIL
OF ALABAMA



Dr. Joseph B. Morton, Superintendent
Alabama State Department of Education
P.O. Box 302101
Montgomery, Alabama 36130-2101

Dear Dr. Morton:

On behalf of the Business Council of Alabama and the over 750,000 working Alabamians represented through it's membership, we are writing to express our support for Alabama's Race to the Top grant application. This unprecedented opportunity gives Alabama the leverage to build upon the successes of the past as we build a 21st century, world-class public school system.

The bold reforms outlined in the state's plan represent the voices of Alabama citizens, including those within our organization, and we realize the positive impact this will have not only on our current and future students but also on the economic climate of our state and our ability to attract and retain future business and industry. As the largest end user of the product of our educational system, we are constantly seeking avenues to improve the quality of our future workers.

The Business Council of Alabama applauds Governor Bob Riley and you for developing an ambitious state plan for reform. We realize there remains much to be done over the next several years as these concepts and aspirations become reality. The Business Council of Alabama looks forward to the opportunities to support you in an appropriate manner as we collectively partner to move Alabama forward.

Sincerely,

William J. Canary
President
Chief Executive Officer

Anita L. Archie
Sr. VP, Governmental Affairs
Legal Advisor

L. Ralph Stacy
Sr. VP, Strategic Communications
Exec, Director, The Partnership

A+ EDUCATION PARTNERSHIP
GREAT SCHOOLS FOR EVERY CHILD

P.O. Box 4433, Montgomery, AL 36103
334-279-1886 or 800-253-8865 in state
Fax 334-279-1543
www.aplusala.org

May 27, 2010

Dr. Joseph B. Morton, Superintendent
Alabama State Department of Education
P.O. Box 302101
Montgomery, Alabama 36130-2101

Dear Dr. Morton:

On behalf of the A+ Education Partnership, we are writing to express our support for Alabama's Race to the Top grant application. This unprecedented opportunity gives Alabama the leverage to build upon the successes of the past as we build a 21st century, world-class public school system. We look forward to the opportunities to extend the work of the Governor's Commission on Quality Teaching through the new emphasis on teacher effectiveness.

The bold reforms outlined in the state's plan represent the voices of Alabama citizens, including those within our organization, and we realize the positive impact this will have not only on our current and future students but also on the economic climate of our state and our ability to attract and retain future business and industry.

The A+ Education Partnership applauds Governor Bob Riley and you for developing an ambitious state plan for reform. We realize there remains much to be done over the next several years as these concepts and aspirations become reality. A+ commits to support you in any way you deem appropriate as we collectively partner to move Alabama forward.

Sincerely,

(b)(6)

Caroline Novak
President

Cathy Gassenheimer
EVP for the Alabama Best Practices Center

BSC
BIRMINGHAM-SOUTHERN COLLEGE

Department of Education

Box 549027
900 Arkadelphia Road
Birmingham, Alabama 35254

205 226-4810
National 1 800 523-5793
Fax 205 226-3065

Dr. Joseph B. Morton, Superintendent
Alabama State Department of Education
P.O. Box 302101
Montgomery, Alabama 36130-2101

RECEIVED
MAY 26 2010
STATE SUPERINTENDENT'S OFFICE
ALABAMA DEPARTMENT OF EDUCATION

Dear Dr. Morton:

On behalf of the Birmingham Southern College, I am writing to express my support for Alabama's Race to the Top grant application. This unprecedented opportunity gives Alabama the leverage to build upon the successes of the past as we build a 21st century, world-class public school system.

The bold reforms outlined in the state's plan represent the voices of Alabama citizens, including those within our organization, and we realize the positive impact this will have not only on our current and future students but also on the economic climate of our state and our ability to attract and retain future business and industry.

The BS-C Department of Education applauds Governor Bob Riley and you for developing an ambitious state plan for reform. We realize there remains much to be done over the next several years as these concepts and aspirations become reality. Birmingham Southern commits to support you in any way you deem appropriate as we collectively partner to move Alabama forward.

Sincerely,

Louanne Clayton Jacobs
Chair, Department of Education

ATHENS STATE UNIVERSITY

ATHENS STATE UNIVERSITY IN-SERVICE CENTER

RECEIVED
MAY 27 2010
STATE SUPERINTENDENT'S OFFICE
ALABAMA DEPARTMENT OF EDUCATION

Debra Baird
Executive Director

Charlotte Feigley
Assistant Director

Shawn Birdwell
Budget Analyst

Jennifer Bunnell
Secretary

May 24, 2010

Dr. Joseph B. Morton, Superintendent
Alabama State Department of Education
P.O. Box 302101
Montgomery, Alabama 36130-2101

Dear Dr. Morton:

On behalf of the Athens State University Regional In-Service Center, I am writing to express my support for Alabama's Race to the Top grant application. This unprecedented opportunity gives Alabama the leverage to build upon the successes of the past as we build a 21st century, world-class public school system.

The bold reforms outlined in the state's plan represent the voices of Alabama citizens, including those within our organization, and we realize the positive impact this will have not only on our current and future students but also on the economic climate of our state and our ability to attract and retain future business and industry.

The Athens State University Regional In-Service Center applauds Governor Bob Riley and you for developing an ambitious state plan for reform. We realize there remains much to be done over the next several years as these concepts and aspirations become reality. Athens State University Regional In-Service Center commits to support you in any way you deem appropriate as we collectively partner to move Alabama forward.

Sincerely,

Charlotte Feigley

Charlotte Feigley
Assistant Director, Regional In-Service Center
Athens State University

300 North Beaty Street Athens, Alabama 35611 Phone 256-216-6622 1-800-300-6384 Fax 256-216-6623 E-mail charlotte.feigley@athens.edu
Physical Address: 1115A Highway 31 South Athens, Alabama
"A member of the Alabama College System"

ATHENS STATE
UNIVERSITY

DEBRA BAIRD
DEAN, COLLEGE OF EDUCATION
Freehauf House

RECEIVED
MAY 25 2010
STATE SUPERINTENDENT'S OFFICE
ALABAMA DEPARTMENT OF EDUCATION

May 14, 2010

Dr. Joseph B. Morton, Superintendent
Alabama State Department of Education
P.O. Box 302101
Montgomery, Alabama 36130-2101

Dear Dr. Morton:

On behalf of Athens State University, I am writing to express my support for Alabama's Race to the Top grant application. This unprecedented opportunity gives Alabama the leverage to build upon the successes of the past as we build a 21st century, world-class public school system.

The bold reforms outlined in the state's plan represent the voices of Alabama citizens, including those within our organization, and we realize the positive impact this will have not only on our current and future students but also on the economic climate of our state and our ability to attract and retain future business and industry.

The University and the College of Education applauds Governor Bob Riley and you for developing an ambitious state plan for reform. We realize there remains much to be done over the next several years as these concepts and aspirations become reality. Athens State commits to support you in any way you deem appropriate as we collectively partner to move Alabama forward.

Sincerely,

(b)(6)

Debra J. Baird, Dean
College of Education

415 Hargrove Street Athens, Alabama 35611 Phone 256-216-6617 1-800-522-0272 Fax 256-216-6646 Email debra.baird@athens.edu

STATE OF ALABAMA
GOVERNOR BOB RILEY

DEPARTMENT OF CHILDREN'S AFFAIRS
135 South Union Street, Suite 215
P.O. Box 302755
Montgomery, Alabama 36130
www.children.alabama.gov
Phone: (334) 353-2700
Fax: (334) 353-2701

MARQUITA DAVIS, Ph.D.
COMMISSIONER

May 14, 2010

Dr. Joseph B. Morton, Superintendent
Alabama State Department of Education
P.O. Box 302101
Montgomery, Alabama 36130-2101

Dear Dr. Morton:

On behalf of the Alabama Department of Children's Affairs, I am writing to express my support for Alabama's Race to the Top grant application. This unprecedented opportunity gives Alabama the leverage to build upon the successes of the past as we build a 21st century, world-class public school system.

The bold reforms outlined in the state's plan represent the voices of Alabama citizens, including those within our organization, and we realize the positive impact this will have not only on our current and future students but also on the economic climate of our state and our ability to attract and retain future business and industry.

As Commissioner of the Alabama Department of Children's Affairs, I applaud Governor Bob Riley and you for developing an ambitious state plan for reform. We realize there remains much to be done over the next several years as these concepts and aspirations become reality. The Alabama Department of Children's Affairs commits to support you in any way you deem appropriate as we collectively partner to move Alabama forward.

Sincerely,

Marquita Furness Davis
Commissioner

COMMITTEES

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Subcommittees:
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Water Resources and Environment
Economic Development, Public Buildings and Emergency Management

SCIENCE AND TECHNOLOGY
Subcommittees:
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Subcommittees:
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Parker Griffith, M.D.
Congress of the United States
Fifth District, Alabama

417 Cannon House Office Building
Washington, DC 20515
202-225-4801
202-225-4392 fax

DISTRICT OFFICES:
2101 Clinton Avenue West, Suite 302
Huntsville, Alabama 35805
256-551-0190

Morgan County Courthouse
Box 668
Decatur, Alabama 35602
256-355-9400

The Bevill Center
1011 George Wallace Boulevard
Tuscumbia, Alabama 35674
256-381-3450

http://griffith.house.gov

May 26, 2010

Dr. Joseph B. Morton
State Superintendent of Education
Alabama Department of Education
P.O. Box 302101
Montgomery, Alabama 36130-2101

Dear Dr. Morton:

It is my pleasure to offer my strong support for Alabama's Race to the Top application. This program, Race to the Top, is an excellent opportunity for Alabama, and I offer my enthusiastic backing for your efforts.

Alabama has made great strides in the quality of education offered to the students of this state. I have provided support for education programs in the past and will continue to do so in the future. The Race to the Top will allow us to expand and build on the successes thus far and move Alabama to an even higher level of excellence for teachers and students.

In my judgment, Alabama's Race to the Top application sets a high standard that makes college and career readiness the expectation of everyone associated with quality education.

Please accept my congratulations and full support for your efforts in the Race to the Top application.

Sincerely,

Parker Griffith

Parker Griffith
Member of Congress

Alabama Commission on Higher Education

Mailing Address: P.O. Box 302000 ❑ Montgomery, Alabama 36130-2000
Delivery Address: 100 North Union Street ❑ Montgomery, Alabama 36104-3758
Telephone: (334) 242-1998 ❑ ATTNet: 220-1998 ❑ Fax: (334) 242-0268
www.ache.state.al.us

Bob Riley
Governor

May 14, 2010

Dr. Joseph B. Morton
Superintendent
State Department of Education
P.O. Box 302101
Montgomery, AL 36130

Dear Dr. Morton:

On behalf of the Alabama Commission on Higher Education, I am writing to express my support for Alabama's Race to the Top grant application. This unprecedented opportunity gives Alabama the leverage to build upon the successes of the past as we build a 21st century, world-class public school system and complements Higher Education's, Forging Strategic Alliances, 2009-2014 effort.

The bold reforms outlined in the state's plan represent the voices of Alabama citizens, including those within our organization, and we realize the positive impact this will have not only on our current and future students, but also on the economic climate of our state and our ability to attract and retain future business and industry.

The Commission applauds Governor Bob Riley and you for developing an ambitious state plan for reform. We realize there remains much to be done over the next several years as these concepts and aspirations become reality. The Alabama Commission on Higher Education commits to support you in any way you deem appropriate as we collectively partner to move Alabama forward.

Sincerely,

Gregory G. Fitch, Ph.D.
Executive Director

GGF/dn

May 18, 2010

Dr. Joseph B. Morton, Superintendent
Alabama State Department of Education
P.O. Box 302101
Montgomery, Alabama 36130-2101

Dear Dr. Morton:

On behalf of the Alabama Public Television, I am writing to express my support for Alabama's Race to the Top grant application. This unprecedented opportunity gives Alabama the leverage to build upon the successes of the past as we build a 21st century, world-class public school system.

Alabama Public Television has a longstanding commitment to providing trustworthy educational resources and media for teachers and students. Alabama Public Television is pleased to collaborate with the Alabama Department of Education in offering high-quality, effective online professional development for teachers through the successful eLearning for Educators program. We look forward to continuing efforts to integrate new and emerging media technologies into our educational resources and to making them available in ways that will support effective teaching and learning.

The bold reforms outlined in the state's plan represent the voices of Alabama citizens, including those within our organization, and we realize the positive impact this will have not only on our current and future students but also on the economic climate of our state and our ability to attract and retain future business and industry.

Alabama Public Television applauds Governor Bob Riley and you for developing an ambitious state plan for reform. We realize there remains much to be done over the next several years as these concepts and aspirations become reality. Alabama Public Television commits to support you in any way you deem appropriate as we collectively partner to move Alabama forward.

Sincerely,

Allan A. Pizzato
Executive Director

ALABAMA PUBLIC TELEVISION
2112 11TH AVENUE SOUTH / SUITE 400 / BIRMINGHAM, AL 35205-2884
www.aptv.org

(b)(6) [redacted]

UAHuntsville, Institute for Science Education
320 Sparkman Drive, Huntsville, AL 35899
Office: (256) 824-2357 FAX: (256) 824-6961
AMSTEC@amstec.org

AMSTEC

Alabama Mathematics, Science, and Technology Education Coalition

2007 – 2009
AMSTEC
Board of Directors

Charles R. Nash, Board Chair
The University of Alabama System

James "Randy" Bounds, Treasurer
Colsa Corporation

Carla Roberson, Secretary
Alabama Power Company

Brenda Terry, Director
The University of Alabama in Huntsville, Institute for Science Education

Directors:

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Tuskegee University

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Consultant

Michael Froning
The University of Alabama at Birmingham

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The University of Alabama at Birmingham

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Robert Meintzer
AL Geological Survey

Gary Martin
Auburn University

Thad Mauldin
Qualis Corporation

Paul Mohr
Alabama Commission on Higher Education

Susan Pruet
Mobile Education Foundation

Tina Watts
Boeing Corporation

May 17, 2010

Dr. Joseph B. Morton, Superintendent
Alabama State Department of Education
Post Office Box 302101
Montgomery, Alabama 36130-2101

Dear Dr. Morton:

On behalf of the Board of Directors and members of the ***Alabama Mathematics, Science, and Technology Education Coalition (AMSTEC)***, I am writing to express our support for ***Alabama's Race to the Top*** grant application. This unprecedented opportunity gives the people of Alabama a strong incentive and leverage to build upon the successes of the present as we continue to strive towards the building of a 21st Century, world-competitive public school system that serves and meets the needs of **all** of Alabama's children.

The significant and realistic reforms outlined in the state's plan represent the voices of Alabama citizens, including those within our organization, and we realize the positive impact this will have not only on our current and future students, but also on the economic climate of our state and our ability to attract and retain future business and industry. We also realize how heavily successful higher education, workforce development, and economic prosperity depend upon successful PK-12 Education.

Our statewide coalition of business and industry, K-12 education, and higher education members applauds Governor Bob Riley and you for developing an ambitious and challenging state plan for reform and systemic improvements. We realize there remains much to be done over the next several years as these aspirations, concepts, and outcomes are realized. We commit our support to you in any way that will add value to this collective partnership to move Alabama forward as we improve the conditions and outcomes for teaching and learning in our state; especially in the areas of, science, technology, engineering, and mathematics (STEM).

Sincerely,

(b)(6) [redacted]

Charles R. Nash, Chairman

Brenda H. Terry

Brenda Terry, Executive Director

Alabama Mathematics, Science, and Technology Education Coalition (AMSTEC)

Neil E. Lamb, Ph.D.
Director of Educational Outreach
HudsonAlpha Institute for Biotechnology
601 Genome Way
Huntsville, AL 35806

Email: nlamb@hudsonalpha.org
Telephone: 256-327-0457
FAX: 256-327-0979
Webpage: hudsonalpha.org

May 17, 2010

Dr. Joseph B. Morton, Superintendent
Alabama State Department of Education
P.O. Box 302101
Montgomery, Alabama 36130-2101

Dear Dr. Morton:

As the Director of Educational Outreach for the HudsonAlpha Institute for Biotechnology, I am so pleased to express my support for Alabama's Race to the Top grant application. This unprecedented opportunity offers Alabama the activation energy to build upon our past achievements and meet the goal of creating a top-tier, 21st century public education program.

The bold reforms outlined in the state's plan are especially exciting to those of us involved in science and math education across the K-12 spectrum. HudsonAlpha is a nonprofit research institute with a strong focus on improving science education for students through hands-on module development and educator training. We have developed a fruitful partnership with the Alabama State Department of Education to increase student content knowledge related to genetics and biotechnology, as well as the application of these concepts to everyday life. This collaboration provides materials and support to more than 25,000 Alabama students each year. From this perspective, we can clearly see how the programs outlined in the Race to the Top application will benefit our current and future students, strengthening the skills and knowledge base of tomorrow's workforce. In turn, this improves the economic climate of our state and our ability to attract and retain future business and industry.

We recognize you and Governor Bob Riley have developed an ambitious state plan for reform. Much will need to be done over the next several years as these concepts and aspirations become reality. HudsonAlpha commits to support you in any way you deem appropriate as we collectively partner to move Alabama forward.

Sincerely,

Neil E. Lamb, Ph.D.
Director of Educational Outreach

OFFICE OF THE DEAN
COLLEGE OF EDUCATION

May 20, 2010

Dr. Joseph B. Morton, Superintendent
Alabama State Department of Education
P.O. Box 302101
Montgomery, Alabama 36130-2101

Dear Dr. Morton:

On behalf of Alabama State University, I am writing to express my support for Alabama's Race to the Top grant application. This unprecedented opportunity gives Alabama the leverage to build upon the successes of the past as we build a 21st century, world-class public school system.

The bold reforms outlined in the state's plan represent the voices of Alabama citizens, including those within our organization, and we realize the positive impact this will have not only on our current and future students but also on the economic climate of our state and our ability to attract and retain future business and industry.

Alabama State University applauds Governor Bob Riley and you for developing an ambitious state plan for reform. We realize there remains much to be done over the next several years as these concepts and aspirations become reality. Alabama State University commits to support you in any way you deem appropriate as we collectively partner to move Alabama forward.

Sincerely,

John S. Gooden, Ed.D.
Dean, College of Education
Alabama State University

ALABAMA
STATE
UNIVERSITY
P.O. Box 271
MONTGOMERY,
ALABAMA
36101-0271
334.229.4250
www.alasu.edu

College of Education

Office of the Dean

May 17, 2010

THE UNIVERSITY OF
ALABAMA
EDUCATION

Dr. Joseph B. Morton, Superintendent
Alabama State Department of Education
P.O. Box 302101
Montgomery, Alabama 36130-2101

Dear Dr. Morton:

On behalf of the College of Education at The University of Alabama, I am writing to express my support for Alabama's Race to the Top grant application. The level of the proposed reform is an unprecedented opportunity for Alabama to leverage the successes of the past as we build a 21st century, world-class public school system.

The bold reforms outlined in the state's plan represent the voices of Alabama citizens, including those within our organization, and we realize the positive impact this will have not only on our current and future students but also on the economic climate of our state and our ability to attract and retain future business and industry.

The College of Education at The University of Alabama applauds Governor Bob Riley and you for developing an ambitious state plan for reform. We realize there remains much to be done over the next several years as these concepts and aspirations become reality. Our College commits to support you in any way you deem appropriate as we collectively partner to move Alabama forward.

Sincerely,

(b)(6)

James E. McLean, Ph.D.
Dean and University Professor

JEM:mo

201 Carmichael Hall
Box 870231
Tuscaloosa, Alabama 35487-0231
(205) 348-6050
FAX (205) 348-6873

UNIVERSITY OF SOUTH ALABAMA

COLLEGE OF EDUCATION
OFFICE OF THE DEAN

TELEPHONE: (251) 380-2738
UCOM 3600 • MOBILE, ALABAMA 36688-0002
FAX: (251) 380-2748
E-mail: coeadmin@usouthal.edu

May 14, 2010

Dr. Joseph B. Morton, Superintendent
Alabama State Department of Education
P.O. Box 302101
Montgomery, Alabama 36130-2101

Dear Dr. Morton:

On behalf of the University of South Alabama, the College of Education is delighted to support Alabama's Race to the Top grant application. We view our collaboration with you as a continuation of our already existing efforts to transform teacher education and to impact directly public education in Alabama.

We are committed to implementing rigorous state certification standards and to working in harmony with your efforts to support teachers and principals as they work to improve our instructional programs, particularly in schools that have been defined as high need hard to staff schools.

Alabama's Reform Agenda that focuses on College and Career Readiness and closing the achievement gap among children of color is strategically aligned with the mission and vision of the College of Education and the University. As you know, we have been working with schools in our area to review and strengthen core curricula and to focus research initiatives on the utilization of longitudinal student data systems.

Our track record of working with agencies such as the National Science Foundation has led to joint efforts to enrich the teaching to STEM disciplines through the enhanced preparation of STEM teacher education candidates. As a direct result, we have the experience and knowledge base necessary to aid in the development of effective alternative certification programs.

Please know that we will commit whatever resources we can to make Race to the Top successful. We realize that the path will not be an easy one, but no worthwhile venture ever is.

Please call on us if we can be of further assistance.

Sincerely,

(b)(6)

Richard L. Hayes, Ed.D.
Professor and Dean

AN EQUAL OPPORTUNITY/EQUAL ACCESS INSTITUTION

THE UNIVERSITY OF WEST ALABAMA

L I V I N G S T O N

RECEIVED
MAY 21 2010
STATE SUPERINTENDENT'S OFFICE
ALABAMA DEPARTMENT OF EDUCATION

May 19, 2010

Dr. Joseph B. Morton, Superintendent
Alabama State Department of Education
P.O. Box 302101
Montgomery, Alabama 36130-2101

Dear Dr. Morton:

On behalf of the Julia S. Tutwiler College of Education at the University of West Alabama, I am writing to express my support for Alabama's Race to the Top grant application. This opportunity gives Alabama leverage to build upon the successes of the past in order to create a world-class public school system. Alabama has been a leader in 21st century skills development through the use of innovative programs such as ACCESS, ALEX, and GEMS-U. The Race to the Top grant would allow expansion of these successful programs and the addition of other innovative approaches to education.

The bold reforms outlined in the state's plan will result in a positive impact on our current and future students. It will also improve the economic climate of our state and our ability to attract and retain future business and industry.

The University of West Alabama applauds Governor Bob Riley and you for developing an ambitious state plan for reform. We realize there remains much to be done over the next several years as these concepts and aspirations become reality. The University of West Alabama commits to support you as we collectively partner to move Alabama forward.

Sincerely,

(b)(6)

Kathy Chandler, Dean

Julia S. Tutwiler
College of Education
UWA Station 8
Livingston, AL 35470

NCATE
The Standard of Excellence in Teacher Preparation

(205) 652-3421
Fax: (205) 652-3706
www.uwa.edu

Tuskegee University

Founded by Booker T. Washington

College of Liberal Arts
and Education
Office of the Dean

Telephone: (334) 724-4191
FAX: (334) 724-4196

May 14, 2010

RECEIVED
MAY 21 2010
STATE SUPERINTENDENT'S OFFICE
ALABAMA DEPARTMENT OF EDUCATION

Dr. Joseph B. Morton, Superintendent
Alabama State Department of Education
P.O. Box 302101
Montgomery, Alabama 36130-2101

Dear Dr. Morton:

On behalf of the Division of Education in the College of Liberal Arts and Education, I am writing to express my support for Alabama's Race to the Top grant application. This unprecedented opportunity gives Alabama the leverage to build upon the successes of the past as we build a 21st century, world-class public school system.

The bold reforms outlined in the state's plan represent the voices of Alabama citizens, including those within our organization, and we realize the positive impact this will have not only on our current and future students but also on the economic climate of our state and our ability to attract and retain future business and industry.

The College of Liberal Arts and Education applauds Governor Bob Riley and you for developing an ambitious state plan for reform. We realize there remains much to be done over the next several years as these concepts and aspirations become reality. The College of Liberal Arts and Education commits to support you in any way you deem appropriate as we collectively partner to move Alabama forward.

Sincerely,

(b)(6)

Carlton E. Morris
Interim Dean

Tuskegee, Alabama 36088

JACKSONVILLE STATE UNIVERSITY
700 Pelham Road North
Jacksonville, Alabama 36265-1602

College of Education & Professional Studies
Office of the Dean

(256) 782-5445 phone
(256) 782-5169 fax

May 19, 2010

Dr. Joseph B. Morton, Superintendent
Alabama State Department of Education
P.O. Box 302101
Montgomery, AL 36130-2101

Dear Dr. Morton:

Jacksonville State University is in full support of the Alabama's ***Race to the Top*** grant application. The benefits to the children of Alabama, as well as the state in general, are enormous. We are in the 21st century, and our education programs should reflect such. Being a part of the ***Race to the Top*** initiative should be a priority for everyone I the state, in my opinion.

Jacksonville State University acknowledges and appreciates Governor Bob Riley and you for your efforts to develop an impressive state reform plan. Yet, we understand and acknowledge there is much yet to be done in hopes of making this initiative a reality for Alabama. Therefore, it is our pleasure to partner with you and others to move Alabama forward.

Please feel free to call on me at any time you deem I can be of service.

Sincerely,

(b)(6)

John B. Hammett II, Ph.D.
Professor & Dean

An Equal Opportunity / Affirmative Action Employer

JUDSON COLLEGE

Knowledge and Faith for a Purposeful Life

RECEIVED
MAY 19 2010
STATE SUPERINTENDENT'S OFFICE
ALABAMA DEPARTMENT OF EDUCATION

May 14, 2010

Dr. Joseph B. Morton, Superintendent
Alabama State Department of Education
P.O. Box 302101
Montgomery, Alabama 36130-2101

Dear Dr. Morton:

On behalf of the Department of Education at Judson College, I am writing to express my support for Alabama's Race to the Top grant application. This unprecedented opportunity gives Alabama the leverage to build upon the successes of the past as we build a 21st century, world-class public school system.

The bold reforms outlined in the state's plan represent the voices of Alabama citizens, including those within our organization, and we realize the positive impact this will have not only on our current and future students but also on the economic climate of our state and our ability to attract and retain future business and industry.

The Department of Education at Judson College applauds Governor Bob Riley and you for developing an ambitious state plan for reform. We realize there remains much to be done over the next several years as these concepts and aspirations become reality. The Department of Education at Judson College commits to support you in any way you deem appropriate as we collectively partner to move Alabama forward.

Sincerely,

Gwen McCorquodale

Gwenyth Jaye McCorquodale, Ph. D.
Department Chair
Associate Professor
Department of Education
Judson College
334-683-5140

302 Bibb Street, Marion, Alabama 36756 Phone (334) 683-5100 Fax (334) 683-5147 E-mail: admissions@judson.edu

Alabama A&M UNIVERSITY

School of Education
Office of the Dean
P. O. Box 262
Normal, Alabama 35762
(256) 372-5500 Office
(256) 372-5636 Fax

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MAY 19 2010
STATE SUPERINTENDENT'S OFFICE
ALABAMA DEPARTMENT OF EDUCATION

May 14, 2010

Dr. Joseph B. Morton, Superintendent
Alabama State Department of Education
P.O. Box 302101
Montgomery, Alabama 36130-2101

Dear Dr. Morton:

On behalf of the School of Education at Alabama A&M University, I am writing to express my support for Alabama's Race to the Top grant application. This unprecedented opportunity gives Alabama the leverage to build upon the successes of the past as we build a 21st century, world-class public school system.

The bold reforms outlined in the state's plan represent the voices of Alabama citizens, including those within our organization, and we realize the positive impact this will have not only on our current and future students but also on the economic climate of our state and our ability to attract and retain future business and industry.

The School of Education at Alabama A&M University applauds Governor Bob Riley and you for developing an ambitious state plan for reform. We realize there remains much to be done over the next several years as these concepts and aspirations become reality. The School of Education commits to support you in any way you deem appropriate as we collectively partner to move Alabama forward.

Sincerely,

(b)(6) [redacted]

Larry Powers, Dean

RECEIVED
MAY 19 2010
STATE SUPERINTENDENT'S OFFICE
ALABAMA DEPARTMENT OF EDUCATION

SPRING HILL COLLEGE 1830

May 17, 2010

Dr. Joseph B. Morton, Superintendent
Alabama State Department of Education
P.O. Box 302101
Montgomery, Alabama 36130-2101

Dear Dr. Morton:

On behalf of the Spring Hill College Division of Teacher Education, I am writing to express my support for Alabama's Race to the Top grant application. This unprecedented opportunity gives Alabama the leverage to build upon the successes of the past as we build a 21st century, world-class public school system.

Division of
Teacher Education

The bold reforms outlined in the state's plan represent the voices of Alabama citizens, including those within our organization, and we realize the positive impact this will have not only on our current and future students but also on the economic climate of our state and our ability to attract and retain future business and industry.

We applaud Governor Bob Riley and you for developing an ambitious state plan for reform. We realize there remains much to be done over the next several years as these concepts and aspirations become reality, and we commit to support you in any way you deem appropriate as we collectively partner to move Alabama forward.

Sincerely,

(b)(6)

Ann A. Adams, Ed.D.
Division Chair
251-380-3479
aadams@shc.edu

4000 Dauphin Street
Mobile, Alabama
36608-1791
(251) 380-3477
(251) 460-2184 *fax*

AUBURN
MONTGOMERY

May 14, 2010

Dr. Joseph B. Morton, Superintendent
Alabama State Department of Education
P.O. Box 302101
Montgomery, Alabama 36130-2101

Dear Dr. Morton:

On behalf of the School of Education at Auburn University Montgomery, I am writing to express my support for Alabama's Race to the Top grant application. This unprecedented opportunity gives Alabama the leverage to build upon the successes of the past as we build a 21st century, world-class public school system.

The bold reforms outlined in the state's plan represent the voices of Alabama citizens, including those within our organization, and we realize the positive impact this will have not only on our current and future students but also on the economic climate of our state and our ability to attract and retain future business and industry.

The School of Education applauds Governor Bob Riley and you for developing an ambitious state plan for reform. We realize there remains much to be done over the next several years as these concepts and aspirations become reality. The School of Education at Auburn Montgomery commits to support you in any way you deem appropriate as we collectively partner to move Alabama forward.

Sincerely,

(b)(6)

Jennifer A. Brown, Dean

RECEIVED
MAY 19 2010
DEPUTY STATE SUPERINTENDENT
Tommy Bice

AUBURN UNIVERSITY AT MONTGOMERY
School of Education
P.O. Box 244023, Montgomery, AL 36124-4023; Telephone: 334-244-3413; Fax: 334-244-3835, www.aum.edu

STILLMAN

May 18, 2010

Dr. Joseph B. Morton, Superintendent
Alabama State Department of Education
P.O. Box 302101
Montgomery, Alabama 36130-2101

Dear Dr. Morton:

On behalf of **Stillman College**, I am writing to express my support for Alabama's Race to the Top grant application. This unprecedented opportunity gives Alabama the leverage to build upon the successes of the past as we build a 21st century, world-class public school system.

The bold reforms outlined in the state's plan represent the voices of Alabama citizens, including those within our organization, and we realize the positive impact this will have not only on our current and future students but also on the economic climate of our state and our ability to attract and retain future business and industry.

Additionally, this institution applauds Governor Bob Riley and you for developing an ambitious state plan for reform. We realize there remains much to be done over the next several years as these concepts and aspirations become a reality. We commit this support to you in any way you deem appropriate as we collectively partner to move Alabama forward.

Thank you for this opportunity to share in this exciting time in education. We look forward to a bright future for our state and our nation as a result of this great investment.

Sincerely,

Linda Bradford

Linda Bradford, Ph.D.
Dean of Education
Assistant Vice President for Academic Affairs

The University of Alabama System

THE UNIVERSITY OF ALABAMA • THE UNIVERSITY OF ALABAMA AT BIRMINGHAM • THE UNIVERSITY OF ALABAMA IN HUNTSVILLE

Charles Ray Nash
Vice Chancellor for Academic and Student Affairs

May 17, 2010

Dr. Joseph B. Morton, Superintendent
Alabama State Department of Education
P.O. Box 302101
Montgomery, Alabama 36130-2101

Dear Dr. Morton:

On behalf of the Office of Academic and Student Affairs of The University of Alabama System, I am writing to express my support for *Alabama's Race to the Top* grant application. This unprecedented opportunity gives the people of Alabama a strong incentive and the leverage to build upon the successes of the present as we continue to strive towards the building of a 21st Century, world-competitive public school system that serves and meets the needs of **all** our children.

The bold and realistic reforms outlined in the state's plan represent the voices of Alabama citizens, including those within our organization, and we realize the positive impact this will have not only on our current and future students, but also on the economic climate of our state and our ability to attract and retain future business and industry. We also realize how heavily successful Higher Education depends upon successful PK-12 Education.

The System and my office applaud Governor Bob Riley and you for developing an ambitious and challenging state plan for reform and improvement. We realize there remains much to be done over the next several years as these aspirations, concepts, and outcomes are realized. We commit our support to you in any way that will add value to this collective partnership to move Alabama forward as we improve the conditions and outcomes for teaching and learning in our state.

Sincerely,

(b)(6)

Charles R. Nash

cc: Chancellor Malcolm Portera

401 Queen City Avenue • Tuscaloosa, Alabama 35401-1551
Telephone (205) 348-8347 • Facsimile (205) 348-5206
Electronic Mail • cnash@uasystem.ua.edu

May 21, 2010

Dr. Joseph B. Morton, Superintendent
Alabama State Department of Education
P. O. Box 302101
Montgomery, Alabama 35130-2101

Dear Dr. Morton,

The Alabama Council of Regional Inservice Centers is pleased to offer our encouragement and support to Alabama's Race to the Top grant application. The 11 regional inservice centers represented are located in 11 universities across the state and we work directly with the local school systems in our respective regions. The Inservice Center network is a unique cooperative arrangement involving the State Department of Education, Higher Education, and local school systems. The Inservice Centers have a long history of working to support and implement education initiatives within the state. These initiatives include Alabama Reading Initiative, Technology in Motion, Science in Motion and Alabama Math, Science and Technology Initiative.

The reforms you describe in the state's plan are based on discussions reflecting the opinion of a wide variety of individuals and organizations within the state. These reforms will allow our state to continue to improve the educational opportunities for every child in our state.

Thank you for your significant leadership in this effort. We look forward to continuing to work with you to implement these reforms and we offer you our wholehearted support.

(Signature sheet attached)

Regional Inservice Center
229 Education Building
901 13th Street South
205.934.2316
Fax 205.934.2317

The University of
Alabama at Birmingham
Mailing Address:
EB 229
1530 3RD AVE S
BIRMINGHAM AL 35294-1250

Tammy Alexander, Alabama A& M University

Evelyn Hodge, Alabama State University

Charlotte Feigley, Athens State University

Vicki Miller, Auburn University

Vicky Brown, Jacksonville State University

(b)(6)

Terry White, Troy University

Jill Driver, University of Alabama

Boyd Rogan, University of Alabama at Birmingham

Rebecca Richardson, University of Montevallo

Earl Gardner, University of North Alabama

Mary Michael Campbell, University of South Alabama

UAB SCHOOL OF EDUCATION

May 21, 2010

Dr. Joseph B. Morton, Superintendent
Alabama State Department of Education
P. O. Box 302101
Montgomery, Alabama 35130-2101

Dear Dr. Morton,

The Regional Inservice Center at the University of Alabama at Birmingham is pleased to offer its support to the Alabama's Race to the Top application. We are pleased that the Inservice Centers throughout the state are such an integral part of the application. We will work diligently with you to make these exciting reforms a reality in Alabama.

Thank you for your leadership in making the application possible.

Sincerely,

Boyd Rogan

Boyd Rogan
Director
UAB Regional Inservice Center

Regional Inservice Center
229 Education Building
901 13th Street South
205.934.2316
Fax 205.934.2317

The University of
Alabama at Birmingham
Mailing Address:
EB 229
1530 3RD AVE S
BIRMINGHAM AL 35294-1250

College of Education

THE UNIVERSITY OF
ALABAMA
EDUCATION

May 21, 2010

Dr. Joseph B. Morton, Superintendent
Alabama State Department of Education
P.O. Box 302101
Montgomery, Alabama 36130-2101

Dear Dr. Morton:

This is a letter of support for Alabama's Race to the Top grant application. With this grant Alabama could build on its past successes to help create a highly effective 21st century public school system.

The University of Alabama Regional In-Service Education Center believes the reforms outlined in the state's plan will positively impact not only current and future students but also Alabama's economy and its ability to attract and retain future business and industry.

By virtue of our eleven locations throughout the state, the Alabama Regional In-Service Education Centers are uniquely positioned to deliver job-embedded, ongoing professional development to every teacher and/or school in the state. Each Center has a longstanding history and relationship with the designated school districts in its geographic area. These relationships enable us to facilitate proposed reforms easily and efficiently.

The University of Alabama Regional In-Service Education Center is willing, prepared, and looks forward to partnering in these reform efforts.

Sincerely,

Jill Shearin Driver

Dr. Jill Shearin Driver, Director
The University of Alabama In-Service Education Center

In-Service Education Center
Alabama Science in Motion
Technology in Motion
Alabama Reading Initiative
Alabama Reading First Initiative
Alabama Math, Science,
Technology Initiative

1818 University Blvd.
Box 870231
Tuscaloosa, Alabama 35401
(205) 348-6605
FAX (205) 348-0992
http://inservice.ua.edu

UNIVERSITY OF SOUTH ALABAMA

COLLEGE OF EDUCATION
SOUTH ALABAMA RESEARCH
AND INSERVICE CENTER

TELEPHONE: (251) 380-2741
UCOM 3208 • MOBILE, ALABAMA 36688-0002
FAX: (251) 380-2707

May 20, 2010

Dr. Joseph B. Morton, Superintendent
Alabama State Department of Education
P.O. Box 302101
Montgomery, Alabama 36130-2101

Dear Dr. Morton:

The South Alabama Research and Inservice Center at the University of South Alabama is pleased to offer our support of Alabama's Race to the Top grant application.

The reforms described in the state's plan reflect the ideas and opinions of a wide variety of groups, organizations, and individuals. Reforms such as those described in the state's plan will increase the rigor of our educational system and have a tremendous impact on educational opportunities for all students in our state.

Thank you for your leadership in this ambitious and most important effort. We look forward to continuing our collaboration with the Alabama Department of Education and to the implementation of these reforms.

Sincerely,

Mary Michael Campbell

Mary Michael Campbell, Ph.D.
Associate Director

Regional In-Service Education Center

May 14, 2010

Dr. Joseph B. Morton, Superintendent
Alabama State Department of Education
P.O. Box 302101
Montgomery, Alabama 36130-2101

Dear Dr. Morton:

On behalf of the University of Montevallo Regional In-Service Education Center, I am writing to express my support for Alabama's Race to the Top grant application. This unprecedented opportunity gives Alabama the leverage to build upon the successes of the past as we build a 21st century, world-class public school system.

The bold reforms outlined in the state's plan represent the voices of Alabama citizens, including those within our organization, and we realize the positive impact this will have not only on our current and future students but also on the economic climate of our state and our ability to attract and retain future business and industry.

This In-Service Center applauds Governor Bob Riley and you for developing an ambitious state plan for reform. We realize there remains much to be done over the next several years as these concepts and aspirations become reality. The Regional In-Service Education Center at the University of Montevallo fully commits to support you in any way you deem appropriate as we collectively partner to move Alabama forward.

Sincerely,

Rebecca Richardson

Rebecca Richardson
Director

2790 Pelham Parkway · Pelham, Alabama 35124
Telephone: 205/358-8543 Fax: 205/358-8788
The University of Montevallo is an affirmative action-equal opportunity institution.

Southeast Alabama
Regional Inservice
Center

342 Hawkins Hall

Troy, Alabama
36082

334-670-3495/3494
334-670-3621 FAX

RECEIVED
MAY 24 2010
STATE SUPERINTENDENT'S OFFICE
ALABAMA DEPARTMENT OF EDUCATION

May 14, 2010

Dr. Joseph B. Morton, Superintendent
Alabama State Department of Education
P.O. Box 302101
Montgomery, Alabama 36130-2101

Dear Dr. Morton:

TROY UNIVERSITY

On behalf of the Southeast Alabama Regional Inservice Center, I am writing to express my support for Alabama's Race to the Top grant application. This unprecedented opportunity gives Alabama the leverage to build upon the successes of the past as we build a 21st century, world-class public school system.

The bold reforms outlined in the state's plan represent the voices of Alabama citizens, including those within our organization, and we realize the positive impact this will have not only on our current and future students but also on the economic climate of our state and our ability to attract and retain future business and industry.

The Southeast Alabama Regional Inservice Center applauds Governor Bob Riley and you for developing an ambitious state plan for reform. We realize there remains much to be done over the next several years as these concepts and aspirations become reality. Our Inservice Center commits to support you in any way you deem appropriate as we collectively partner to move Alabama forward.

Sincerely,

(b)(6)

Terry S. White
Program Development Specialist

ACT
FIFTY YEARS 1959|2009

Preparing Alabama Students for College and Career

The ACT
EXPLORE
PLAN
QualityCore
WorkKeys

State Programs
500 ACT Drive
P. O. Box 168
Iowa City, IA 52243-0168

ACT Southeast Office
3355 Lenox Road NE
Suite 320
Atlanta, GA 30326-1332

Description of Assessments and Services: ACT'S COLLEGE AND CAREER READINESS SYSTEM

This project outline represents 2009-2010 program and pricing information as requested by the Alabama State Department of Education for the delivery of EXPLORE®, PLAN®, the ACT®, QualityCore®, and WorkKeys® assessments and services to schools and districts affiliated with the Alabama State Department of Education.

Longitudinal College Readiness Assessments

EXPLORE, PLAN and the ACT provide a longitudinal, systematic approach to educational and career planning, assessment, instructional support, and evaluation. The system focuses on the integrated, higher-order thinking skills students develop in grades K-12 that are important for success both during and after high school.

These programs can meet the needs of individual schools, districts, and states. Each assessment program includes four key components that form the foundation for the system:

- Assessment—Student achievement is assessed at three key transition points —8th/9th, 10th, and 11th/12th grades—so that academic progress can be monitored to ensure that each student is prepared to reach his/her post-high school potential.
- Guidance for Instruction—Instructional materials and support services help classroom teachers prepare their students for successive grade transition and college readiness. This component reinforces the direct link between the content and skills measured in the assessment programs and those that are taught in high school classrooms.
- Evaluation—Comprehensive academic reporting and need(s) information provides teachers and administrators with a comprehensive analysis of academic growth between administrations for individuals, groups, grade levels, schools, districts, etc.
- Student Planning—Process through which students can identify career and educational goals early and then be guided and directed in the pursuit of those goals.

Appropriate data is provided at key transition points that young people face:

- **EXPLORE:** The EXPLORE program is designed to help 8th and 9th grade students explore a broad range of options for their future academic and career success. EXPLORE prepares students for their high school coursework and post–high school choices.
- **PLAN:** The PLAN program provides a high school midpoint evaluation of a student's college and career readiness. It is a comprehensive guidance resource that helps students measure their current academic development, explore career/training options, and make plans for the remaining years of high school and post-graduation years. PLAN also assists in the identification of academic areas that may require some level of intervention or remediation.
- **The ACT:** The ACT test assesses high school students' general educational development, their readiness to begin college-level work, and is highly regarded and accepted as an admissions assessment at virtually all universities and colleges in the United States.

These key components of ACT's College Readiness System work together to respond to the needs of students, teachers, school administrators, and state educational agencies. EXPLORE, PLAN and the ACT are best used in a systemic approach in the following ways:

Students:

- Identify career and educational options
- Establish goals
- Determine courses needed to fulfill career and educational plans
- Evaluate educational/career progress

Teachers and Counselors:

- Effectively guide students
- Advise the best course of study based on student plans
- Deliver effective instruction
- Evaluate student progress
- Evaluate instruction

School and District Administrators as well as State Educational Agencies:

- Document success in meeting academic standards
- Evaluate the effectiveness of specific educational programs
- Monitor progress toward desired educational outcomes
- Provide career and educational planning, instructional support, assessment, and longitudinal evaluation
- Verify student progress from grades 8 through 12
- Assist in determining the need for curriculum adjustments

Deliverables
EXPLORE and PLAN

- Each participating student, school and district will receive EXPLORE and PLAN test materials and scoring and enhanced reporting services.

In addition, the following will be provided to the Alabama State Department of Education:

- Summary Profile Report with Presentation Packet aggregating data from all participating schools.
- College Readiness Standards Reporting Package aggregating data from all participating schools.
- Data File on CD aggregating data from all participating schools.
- Item Response Summary Report aggregating data from all participating schools.

The ACT

- Each participating student and school will receive standard ACT test materials, scoring, and reporting services.
- Each participating district will receive a District Summary Profile Report based on all student data for the designated testing population.
- The Alabama State Department of Education will receive an aggregate Summary Profile Report and data file based on all student data for the designated testing population.

Instructional Improvement

QualityCore is ACT's research-based instructional improvement program designed to help schools better ensure that all students are college and career ready. The program consists of three components:

- **QualityCore® End-of-Course Assessments:** The QualityCore program measures the learning outcomes all students need to attain in order to succeed in college. Each assessment includes problem-based items embedded in contexts that are accessible and relevant to high school students. These real-world problems require practical

applications of concepts, theories, principles, and processes. Assessments available include:

- English 9, 10, 11, and 12
- Algebra I, Geometry, Algebra II, Precalculus
- Biology, Chemistry, and Physics
- U.S. History

- **Formative Item Pools and Benchmark Assessments:** For each course, QualityCore includes a pool of multiple-choice and constructed-response items aligned to course objectives and depth of knowledge levels. Teachers may use items from the pool to develop quizzes and other interim assessment tools. Each QualityCore course also has its own set of four to six benchmark assessments. The benchmarks are composed of multiple-choice and constructed-response items from the formative item pool, clustered around a particular set of objectives assessed on the QualityCore end-of-course tests.

- **Educator's Resources**:
  Providing a Research-Based Model for Rigor in the Classroom
  QualityCore provides a wealth of educator resources to shape rigorous content and improve outcomes. All materials are based on empirical research of classrooms that have a proven success record in preparing students for college.

  Educators Guide: Provides practical information on how all the Educator's Resources are intended to be used. Includes activities to guide instructors in comparing their current instructional materials with the QualityCore materials, which reflect a data-based proven approach to rigorous instruction.

  Course Objectives: Enables educators to align school curricula with the essential knowledge and skills students need to be prepared for postsecondary education or workforce training programs.

  Course Description and Syllabus: Describes pedagogical strategies that make a course rigorous, define course content, and set forth classroom policies that encourage learning.

  Course Outline and Instructional Unit Plan: Suggests a year-long course sequence for all course objectives and the objectives to be covered in each unit.

Test Blueprints: Describes the thinking skills and content that are measured by questions in each end-of-course assessment, so that curricula and interim assessments may be aligned with the essential skills that will be measured.

Guidelines for Developing Instructional Units: Provides a step-by-step process for designing instruction for specific learning goals, student needs, student characteristics, and learning contexts.

Model Instructional Units: Illustrates how the course objectives for each course are connected to instruction and can be delivered in the classroom. Teachers may use as-is, or as a model to assess the quality of existing units, or as a way to develop new instructional units.

Deliverables

QualityCore assessment score reports are delivered online through a secure, user-friendly interface that presents individual and group achievement data relevant to the user's role.

- For Teachers–Student and Classroom Reports
- For District Administrators–Student, Classroom, School, and District Reports
- For State Administrators–Student, Classroom, School, District, and State Reports

Reports provide local, state, and national comparisons of students' performance within each course, as well as evaluate students' progress toward college readiness on a course-by-course basis.

Data are reported graphically and are printable. Data may also be extracted in a format suitable for ad hoc reports and analyses.

Flexible QualityCore options include:

- Online ordering and reporting
- Two 45-minute sessions: choose between 35–37 item multiple-choice plus constructed-response, or
  70–76 item multiple-choice
- Computer-based or paper-and-pencil format

WorkKeys

WorkKeys is a job skills assessment system measuring "real world" skills that employers believe are critical to job success. These skills are valuable for any occupation – skilled or professional - and at any level of education. Through the use of WorkKeys, students are able to show they are ready for work, can be eligible to earn a National Career Readiness Certificate or state certificate and have an advantage with employers who accept or require job applicants to have WorkKeys scores. A growing number of states nationwide are adopting WorkKeys to ensure that all their workers have needed skills.

Assessments

The abilities to learn, listen, communicate, work in teams, and solve problems are important assets for any worker, regardless of career choice. WorkKeys assessments measure these abilities in four key areas:

Communication
Business Writing, Listening, Reading for Information, Writing

Problem Solving
Applied Mathematics, Applied Technology, Locating Information, Observation

Interpersonal Skills
Teamwork

Job Analysis

The WorkKeys job profiling component offers a concrete way for organizations to analyze the skills needed for specific jobs and to describe those needs to educators, students, and job applicants.

For each position, job profiling identifies the skills and WorkKeys skill levels an individual must have to perform successfully. By comparing job profile information with individuals' scores on the WorkKeys tests, organizations can make reliable decisions about hiring, training, and program development. Job profiling meets the validity and fairness requirements of EEOC guidelines.

Training
WorkKeys enables educators, individuals, and employers to identify skill gaps and guide training decisions to improve WorkKeys scores when necessary. Training resources are available online and through the ACT Center™ network and WorkKeys partner sites, as well as one-stop career centers, Workforce Investment ACT centers, and school-to-work consortiums. The option to improve skills is a "win-win" situation for everyone—making individuals more employable and businesses more competitive through a better-trained workforce.

National Career Readiness Certificate

ACT's National Career Readiness Certificate (NCRC) ensures that an individual has certain foundational skills that are important across a range of jobs. The NCRC offers individuals, employers, and educators an easily understood, conveniently attained, and universally valued credential that will contribute to the nation's workforce and economic development objectives.

Recipients are awarded certificates of Gold, Silver, or Bronze levels, depending on their skill levels in Applied Mathematics, Reading for Information, and Locating Information. With multiple skill levels, individuals can use this information to receive training and advance in a selected career path. The certificate is a portable credential, allowing employees to use it anywhere in the nation. The certificate can complement diplomas, degrees, and resumes, and gives job seekers an advantage in the interview process.

WorkKeys scores can be used by students to determine how their skills measure up to those required in the workforce. Educators can use the scores to see how well they are preparing graduates for different occupations.

Millions of WorkKeys assessments are administered through high schools and other educational institutions each year. The criterion-referenced assessments can be used singularly or in combination, and each takes about one hour to complete.

Deliverables
Standard scoring is included in the price of the tests. Results for paper-and-pencil tests are usually available from ACT within ten working days and instant score reports are available for computer-based tests.

Schools receive both individual and group WorkKeys reports following each test administration. The individual report indicates a student's skill level for each assessment administered, along with a description of the tasks associated with the skill level and strategies to improve performance in that skill. Group reports help the school track performance for all students who took the assessments.

Description of Estimated Fees

ACT applauds Alabama's desire to implement an integrated college and career readiness solution. The implementation of multiple ACT programs will be strongly considered when ACT presents to the state final prices. Depending on the state's needs, there are varied approaches to factoring in this high-volume, multiple program adoption.

The ultimate cost of any state testing program hinges on factors such as the requirements of the state, the administration model, and customization (augmentation, reporting, etc.). We do believe that ACT's college and career readiness solutions provide a good value when compared to other options. Students, parents and educators understand the test and value their use and transportability in the educational and workforce arenas. Policymakers value the comparability of ACT results across states, which is not possible via the use of state tests. Finally, the use of the ACT can address other needs that the state might have (e.g., increasing college enrollments, promoting core course-taking, reducing remediation, etc) These factors should be considered when considering the overall costs, the value and the return on investment of any state testing program.

Below are the estimated costs for an Alabama Sate Department of Education implementation of **EXPLORE, PLAN, the ACT, QualityCore, and WorkKeys** assessments in the 2009-10 school year. These costs are based on ACT's projected fees and student enrollment for the 2008-2009 school year (source: Alabama Department of Education website). These estimates are for working discussions of the Alabama State Department of Education only:

Program	Grade	# Students	Unit Cost	Estimated Cost*
EXPLORE	8th	57,809	$6.46	$373,446.14
PLAN	10th	56,559	$8.16	$461,521.44
The ACT	11th	49,587	$32.00	$1,586,784.00
QualityCore	9th – 12th	150,000**	$17.75	$2,662,500.00
WorkKeys	12th	46,763***	3 tests each at $5.00	$2,104,335.00
Project Management****				$100,000

**The estimated costs, projected fees and pricing quotes set forth in this document are intended for discussion purposes only. This cost estimate is based upon projected fees for assessments, training, and standard reporting. Other services and requests would be negotiated between ACT and the Alabama Department of Education.*

***Estimated students across 3-4 courses taking paper and pencil multiple choice assessments.*

**** Estimate reflects each student taking the three assessments required to be eligible for a National Career Readiness Certificate - Applied Math, Reading for Information and Locating Information.*

*****Project Management includes dedicated resources for building and monitoring project schedules, coordination and facilitation of regular conference calls and meetings, oversight of state report production, and communication with the Alabama State Department of Education and users.*

Consulting Services

In an effort to support successful integration of ACT's college and career readiness system, ACT will provide in-kind consulting services as follows:

- General program support via phone and email
- In collaboration with ADE, facilitate implementation/test administration workshops, with support materials for test administration, interpretation, instructional support, and reporting
- In collaboration with ADE, facilitate EXPLORE/PLAN/ACT interpretive workshops for school and district staff

In addition, ACT offers at an additional fee professional development services related to QualityCore.

Implementation

ACT is excited to work with the Alabama Department of Education as ADE leaders seek to increase college and career readiness. We stand ready to present final and detailed costs as well as timelines for implementation. In general, the following guidelines apply to each of the programs as listed below. Special consideration should be given to the required planning and communication related to each program.

The ACT

To plan for and facilitate a statewide administration of the ACT in Spring, 2010, ACT would need to know of Alabama's intentions no later than **June 30, 2009**. Of course, details and requirements would not be finalized on that date, but could be finalized in the months that follow. Other ACT testing models could be implemented with less lead time, but would not likely result in Alabama State Department of Education desired level of participation (e.g. issuing vouchers that enable students to register for the ACT on established National Test dates using the voucher as payment).

EXPLORE & PLAN

Implementation of statewide EXPLORE & PLAN can be planned and executed fairly quickly and efficiently, though it should be noted that there is relatively high volume of testing in Alabama and early communication to schools and districts might prevent confusion for users. ACT would recommend that ADE express intentions to fund EXPLORE or PLAN testing as early as possible, but no later than **July 31st**, in order for ADE and ACT to collaborate on a communication plan to schools and districts.

QualityCore

Implementation of a designated number of QualityCore courses can also be accomplished in relatively short order, especially if testing is not to begin until Spring, 2010. Primary consideration should be given to the need to provide teachers and administrators access to QualityCore Educator Resources as soon as possible, preferably prior to the start of a new academic year.

Workkeys

A statewide administration of WorkKeys is certainly feasible for Spring, 2010 and may even be possible for Fall 12th graders. ACT would need to learn of ADE's intentions as soon as possible to pursue the Fall '09 option and no later than **July 31st** to allow for planning for a Spring, 2010 administration.

Other Opportunities
As ADE considers solutions and options, ACT would be happy to discuss the possibility of piloting any of the above programs in selected schools or districts. For example, the Mobile School District intends to participate in ACT's District Choice State Testing program, which could essentially serve as a 'demonstration project' for ACT state testing in Alabama. Through this program, all 11th graders in the district will be taking the ACT on a weekday at the district's expense. Other programs could be phased in or offered on a limited basis in collaboration with the State.

Conclusion
Allocating state resources to ensure increased College and Career Readiness of all Alabama students will expand opportunity for all future Alabama graduates. ACT looks forward to continued conversations towards implementing ACT's College and Career Readiness programs and solutions.

Questions regarding this proposal can be directed to:

Paul Weeks
Assistant Vice President
State Programs
ACT, Inc.
500 ACT Drive
Iowa City, IA 52242
319-337-1353
319-337-1354

Jacque Twiggs
Director
Elementary/Secondary Services
ACT Southeast Office
3355 Lenox Road NE, Suite 320
Atlanta, GA 30326-1335
1-404-231-1952

DATA QUALITY CAMPAIGN
Using Data To Improve Student Achievement
www.DataQualityCampaign.org

ALABAMA

DQC 2009 Annual Survey Update and State Progress Report

The Data Quality Campaign (DQC) was launched in 2005 to help states develop robust longitudinal data systems that can provide policymakers and educators with information to help adjust policies and practices to improve student achievement. The DQC has identified 10 Essential Elements of a robust data system (see below) and 10 Actions all states must take to ensure effective use of data (see reverse side).

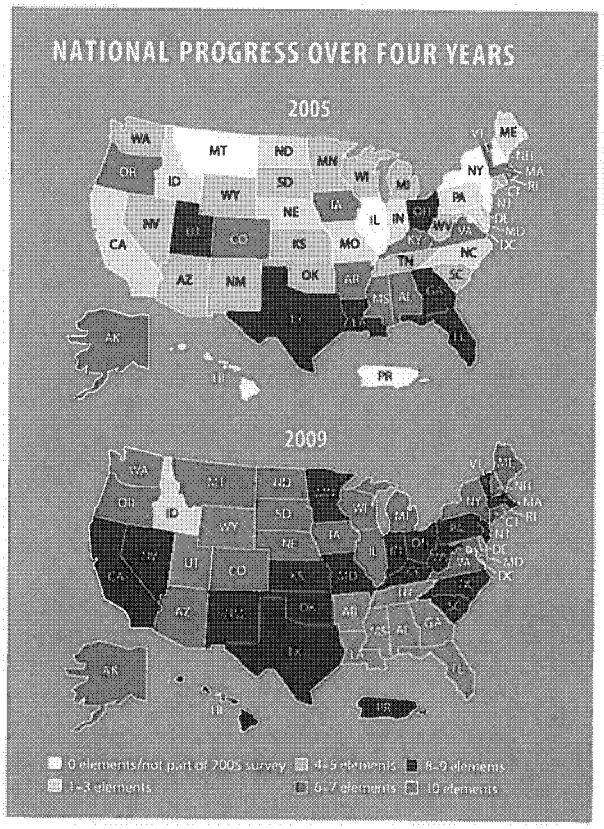
State Status on the 10 Essential Elements

Element		State Status
1.	A unique student identifier	✓
2.	Student-level enrollment, demographic and program participation information	✓
3.	The ability to match individual students' test records from year to year to measure academic growth	✓
4.	Information on untested students	✓
5.	A teacher identifier system with the ability to match teachers to students	✓
6.	Student-level transcript information, including information on courses completed and grades earned	✓
7.	Student-level college readiness test scores	✓
8.	Student-level graduation and dropout data	✓
9.	The ability to match student records between the P–12 and postsecondary systems	✓
10.	A state data audit system assessing data quality, validity and reliability	✓

Key Policy Questions

States that have all 10 Essential Elements have the capacity to answer key policy questions. Based on survey responses, Alabama has the ability to answer the following key policy questions:

- ▷ Which schools produce the strongest academic growth for their students? *(Elements 1, 2, 3, 4)* — **YES**
- ▷ Which middle school achievement levels indicate that a student is on track to succeed in rigorous courses in high school? *(Elements 1, 3, 6, 7)* — **YES**
- ▷ Does the state have the necessary elements to calculate a longitudinal graduation rate, according to the calculation agreed to in the 2005 National Governors Association compact? *(Elements 1, 2, 8, 10)* — **YES**
- ▷ What high school performance indicators (e.g., enrollment in rigorous courses or performance on state tests) are the best predictors of students' success in college or the workplace? *(Elements 1, 3, 7, 9)* — **YES**
- ▷ What percentage of high school graduates require remedial education in college? *(Elements 1, 8, 9)* — **YES**
- ▷ Which teacher preparation programs produce graduates whose students have the strongest academic growth? *(Elements 1, 3, 4, 5)* — **YES**

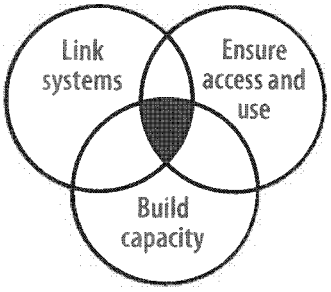


State Contact
Patricia Eiland, *Programming Manager — ISS* ■ Alabama Department of Education ■ peiland@alsde.edu

Looking Ahead: States Must Take Actions To Promote the *Use* of Data

Creating state longitudinal data systems able to provide answers to key questions about performance is a vital first step. However, states also must have policies and practices in place so that stakeholders throughout the education system can access, understand and use the information effectively. Specifically, states should focus on three overarching imperatives for changing the culture around data use to maximize their investment in longitudinal data systems:

- **Expand** the ability of state longitudinal data systems to link across the P–20/workforce pipeline;
- **Ensure** that data can be accessed, analyzed and used by multiple stakeholders including educators, parents and researchers; and
- **Build** the capacity of all stakeholders to use longitudinal data.



In January 2010, the DQC will issue its first report on individual states' progress on the 10 State Actions to ensure the effective use of longitudinal data. The results will provide greater detail on how states are changing policies and practice to promote links across systems, ensure appropriate access to new data and analysis, and strengthen stakeholder capacity to use the information.

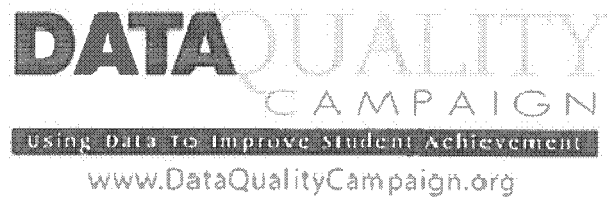
10 STATE ACTIONS TO ENSURE EFFECTIVE DATA USE

To ensure key stakeholders have access to and are using data effectively, states must:

1. Link state K–12 data systems with early learning, postsecondary education, workforce, social services and other critical state agency data systems.
2. Create stable, sustained support for robust state longitudinal data systems.
3. Develop governance structures to guide data collection, sharing and use.
4. Build state data repositories (e.g., data warehouses) that integrate student, staff, financial and facility data.
5. Implement systems to provide all stakeholders timely access to the information they need while protecting student privacy.
6. Create progress reports with individual student data that provide information educators, parents and students can use to improve student performance.
7. Create reports that include longitudinal statistics on school systems and groups of students to guide school-, district- and state-level improvement efforts.
8. Develop a purposeful research agenda and collaborate with universities, researchers and intermediary groups to explore the data for useful information.
9. Implement policies and promote practices, including professional development and credentialing, to ensure that educators know how to access, analyze and use data appropriately.
10. Promote strategies to raise awareness of available data and ensure that all key stakeholders, including state policymakers, know how to access, analyze and use the information.

The DQC will publish results on the 10 State Actions in January 2010. For additional information, visit www.DataQualityCampaign.org/resources/384.

For more information about the DQC survey, visit www.DataQualityCampaign.org or contact Bi Vuong at Bi@DataQualityCampaign.org.



Contact: Rebecca Carson
202-251-2612, Rebecca@DataQualityCampaign.org
Embargoed until 12:01 a.m. Nov. 23

DATA QUALITY CAMPAIGN Announces Annual Progress Report on State Education Data Systems

Momentum builds to meet ARRA's 2011 implementation goal; states begin to focus on linking data systems, ensuring access to this information and building capacity to use this information.

Washington, DC — Nov. 23, 2009 — Every state is on track to have a longitudinal data system that follows student progress from preschool through college by 2011, according to the fourth annual report released today by the Data Quality Campaign (DQC). However, many states still lack key elements that could inform critical policy discussions like college and career readiness and teacher impact, states the report, which was released during the Council of Chief State School Officers' (CCSSO) Annual Policy Forum this weekend.

States have capitalized on the momentum fueled by the American Recovery and Reinvestment Act (ARRA). Not only has every Governor and Chief State School Officer committed to building longitudinal data systems by 2011 as a condition of receiving state stabilization funds, but the requirements for Race to the Top funding and the IES State Longitudinal Data Grants are also promoting the effective use of this data to inform decision-making and teaching and to improve outcomes.

Since its launch in 2005, the DQC, a national partnership to improve the quality, accessibility and use of data in education, has surveyed states on their progress toward meeting the 10 Essential Elements of developing and using longitudinal data systems to improve student achievement. Longitudinal data — data gathered on the same student from year to year — make it possible to follow individual student academic growth, determine the value-added of specific programs, and identify consistently high-performing classrooms, schools and systems.

Key findings from the 2009 survey of all 50 states, the District of Columbia, and Puerto Rico:

- 11 states have all ten Elements (no state had all ten Elements in 2005 and just six states had ten Elements in 2008)
- 31 states have eight or more of the Elements
- Only two states have fewer than five Elements
- All but one state collect student-level enrollment, demographic and program participation data or collect student-level graduation and dropout data.

"Education reform is not about sweeping mandates or grand gestures. It's about systematically examining, learning and building on what we're doing right and fixing what hasn't worked for our children. The Data Quality Campaign has challenged states to expose the good, the bad, and the ugly about our schools and focus the national conversation on how data can lay the groundwork for reform," said U.S. Department of Education Secretary Arne Duncan.

The 2009 survey finds that more states are collecting the data to answer these key questions:

- Which schools produce the strongest academic growth for their students? (44 states collect data needed to answer this question, up from 21 in 2005)

- What high school performance indicators (e.g., enrollment in rigorous courses or performance on state tests) are the best predictors of students' success in college or the workplace? (13 states, up from 2 in 2005)
- What percentage of high school graduates requires remediation in college? (30 states, up from 8 in 2005)

These improvements have been driven by significant and sustained commitments by states and the federal government. However, many states lack critical Elements essential for addressing college and career readiness and the impact that teachers have on student achievement (Elements 5, 6, and 7).

- Only 23 states collect transcript information on courses taken, completed and grades earned; and only 37 states collect college readiness test scores such as AP, ACT, SAT.
- Since 2008, just three additional states reported that they have a teacher identifier system with the ability to match teachers to students; 24 states can now make this link.

In order to make themselves eligible for Race to the Top funding, many states are addressing obstacles, including legal barriers, to linking and/or using teacher and student information, and as a result, it is likely that many more states will report having the ability to link student and teacher information next year.

"Thanks to broad support, Maine recently passed legislation making it easier to follow individual progress from preschool through postsecondary education and into the workforce. Stimulus funds provide further incentive to address the barriers around linking data across agencies and systems to ensure that this rich information isn't just collected but able to be accessed and used to improve decision making and outcomes," said Maine Commissioner Susan Gendron, President of CCSSO's Board of Directors.

In prior years, states reported that a lack of political will and resources to implement the elements and change the culture around data use were the greatest barriers to building state data systems. The inclusion of data as one of the four assurances of the State Fiscal Stabilization Fund in the ARRA has reinforced the vital role of data as an integral part of a state's strategic education improvement efforts. The challenge remains to build understanding and use of these powerful longitudinal data among all stakeholders so that there is continual demand for these information systems well beyond the expiration of the federal stimulus dollars.

Looking Ahead: States Must Take Actions to Promote the *Use* of Data

Creating state longitudinal data systems and collecting vital information to answer key questions about performance is an important first step. However, states must also have policies and practices in place so that stakeholders throughout the education system can access, understand, and be able to use the information effectively. When states have longitudinal data that are shared and tailored to users' needs, stakeholders can act on the information to:

- Continuously improve programs and practice;
- Better define student success with transparent, well understood and broadly accepted performance indicators;
- Accurately forecast a student's readiness for key transitions from preschool through high school and into college and careers and provide necessary supports and interventions;
- Answer day-to-day questions and evaluate issues such as strengths and weaknesses identified by formative assessments, intervention effectiveness, and the relationships among attendance, mobility, and standardized test scores; and
- More effectively allocate resources (e.g., time, money and staff) based on returns on investment.

Specifically, states need to focus on the following key actions:

- Expand the ability of state data systems to link across the P-20/Workforce pipeline;

- Ensure that data can be accessed, analyzed and used by multiple stakeholders including educators, parents, and researchers; and
- Build the capacity of all stakeholders to use longitudinal data.

"The goal of implementing a comprehensive statewide data system in all 50 states is within reach," said Mississippi Governor Haley Barbour. "Mississippi was proud to report all 10 Essential Elements in 2009 but we realize that the hard work is just beginning. State policymakers and educators must come together to develop and implement a plan to make it feasible for stakeholders at all levels to use data daily in their decision making – it's time to move from building systems to using data for continuous improvement."

In January 2010, the DQC will release its first survey results on state status on implementing the *DQC 10 State Actions to Ensure Effective Use of Data*. This January report will provide greater detail on how states are changing policies and practices to promote linkages across systems, ensure appropriate access to new data and analysis, and strengthen stakeholder capacity to use the information.

******

The DQC is a national, collaborative effort to encourage and support state policymakers to improve the collection, availability and use of high-quality education data and to implement state longitudinal data systems to improve student achievement. The campaign provides tools and resources that assist state development of quality longitudinal data systems, while providing a national forum for reducing duplication of effort and promoting greater coordination and consensus among the organizations focusing on improving data quality, access and use.

The Bill & Melinda Gates Foundation is the founding funder; additional support has been provided by the Casey Family Programs, the Lumina Foundation for Education, the Michael & Susan Dell Foundation, and The Pew Charitable Trusts.

In September 2009, DQC conducted its fifth annual survey about state data systems to determine the number of states that have built the infrastructure to tap into the power of longitudinal data.

For more information, visit www.DataQualityCampaign.org.

Progress on the 10 Essential Elements of Longitudinal Data Systems

Longitudinal data — data gathered on the same student from year to year — make it possible to follow individual student academic growth, determine the value-added of specific programs, and identify consistently high-performing schools and systems. The DQC has identified the following 10 Essential Elements of a longitudinal data system and annually reports state progress in implementing each element:

1. A unique student identifier that connects student data across key databases and across years. (50 states, up from 36 in 2005)
2. Student-level enrollment, demographic, and program participation information. (51 states, up from 38 in 2005)
3. The ability to match individual students' test records from year to year to measure academic growth. (50 states, up from 32 in 2005)
4. Information on untested students and the reasons they were not tested. (46 states, up from 25 in 2005)

5. A teacher identifier system with the ability to match teachers to students. (24 states, up from 13 in 2005)
6. Student-level transcript data, including information on courses completed and grades earned. (23 states, up from 7 in 2005)
7. Student-level college readiness tests scores. (37 states, up from 7 in 2005)
8. Student-level graduation and dropout data. (51 states, up from 34 in 2005)
9. The ability to match student records between P-12 and postsecondary systems. (31 states, up from 12 in 2005)
10. A state data audit system assessing quality, validity and reliability. (49 states, up from 19 in 2005)

Appendix A17

DATA QUALITY CAMPAIGN

Using Data To Improve Student Achievement

ANNUAL PROGRESS REPORT *on* STATE DATA SYSTEMS

(b)(6)

[redacted]

Coming in January 2010: Survey results for the DQC 10 State Actions

November 2009

Update on the DQC 10 Essential Elements

www.DataQualityCampaign.org

Using **Longitudinal Data** To Improve Individual and Education System Performance

Faced with the need to create a competitive workforce and dramatically improve the quality of America's education system, states have embraced an aggressive policy agenda to better prepare students for postsecondary education and careers. To inform this agenda, states also have made enormous progress over the past four years on developing robust student-level longitudinal data systems able to track individual student progress over time and through their educational careers.

Thanks to states' hard work and leadership, more states have the ability to use valid, reliable and consistent information to make decisions across the education sector. This important work has recently been affirmed by the inclusion of data as one of the four assurances of the State Fiscal Stabilization Fund in the American Recovery and Reinvestment Act (ARRA). In fact, these stimulus requirements have already produced tangible results, including:

- Every governor and chief state school officer has committed to building a P–20/workforce longitudinal data system with all 10 Essential Elements by 2011.
- Policy issues previously considered "untouchable" are now being discussed. States are addressing obstacles, including legal barriers, to linking and/or using teacher and student information.

(b)(6)

States Make Remarkable Progress
But Still Have More Work To Do

Each year, the Data Quality Campaign (DQC) surveys all 50 states, the District of Columbia and Puerto Rico to assess states' progress toward implementing the 10 Essential Elements of a high-quality longitudinal data system. In 2005, no states reported having all 10 Elements. This year, **11 states** have all 10 Elements (up from six states in 2008). Other signs of progress include:

- **31 states** have eight or more Elements.
- Only **two states** have fewer than five Elements in place.
- **All but one state** collect student-level enrollment, demographic and program participation data (Element 2) and student-level graduation and dropout data (Element 8).
- **All but two states** have a unique student identifier that connects student data across key databases and across years (Element 1) and have the ability to match students' test records from year to year to measure academic growth (Element 3).

These improvements have been driven by significant and sustained commitments by states and the federal government. However, many states lack critical Elements essential for addressing college and career readiness and the impact that teachers have on student achievement (Elements 5, 6 and 7):

- Only **23 states** collect transcript information on courses taken and completed and grades earned (Element 6), and only **37 states** collect college readiness test scores (such as Advanced Placement, ACT and SAT) (Element 7). These data, when combined with postsecondary remediation and success data, can provide important information about the alignment of high school exit standards and postsecondary entrance requirements.
- Since 2008, just **three additional states** reported that they have a teacher identifier system with the ability to match teachers to students (Element 5).

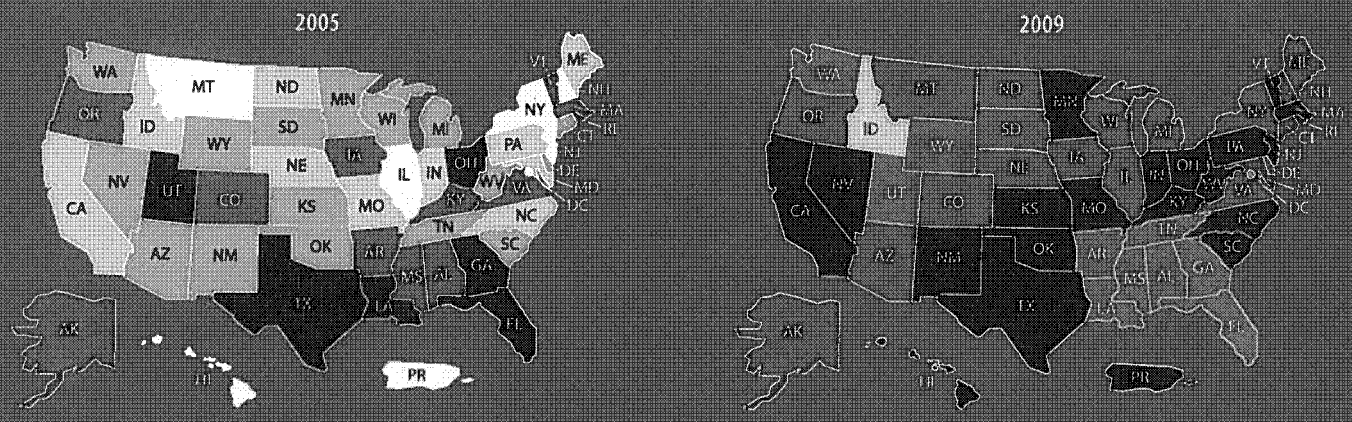
ARRA has motivated states to remove barriers to data sharing, and it provides a strategic opportunity to engage a broad range of state stakeholders in a thoughtful dialogue around how data systems should be built, expanded and used to inform decisions to improve both individual and system outcomes.

More States Have the Ability To Answer Key Questions

- Which schools produce the strongest academic growth for their students? *(44 states collect data needed to answer this question, up from 21 in 2005)*
- Which achievement levels in middle school indicate that a student is on track to succeed in rigorous courses in high school? *(17 states, up from 3 in 2005)*
- Does the state have the necessary elements to calculate a longitudinal graduation rate, according to the calculation agreed to in the 2005 National Governors Association compact? *(47 states, up from 14 in 2005)*
- What high school performance indicators (e.g., enrollment in rigorous courses or performance on state tests) are the best predictors of students' success in college or the workplace? *(21 states, up from 2 in 2005)*
- What percentage of high school graduates requires remediation in college? *(30 states, up from 8 in 2005)*
- Which teacher preparation programs produce the graduates whose students have the strongest academic growth? *(21 states, up from 5 in 2005)*

(b)(6)

Progress Over Four Years



To see state-by-state results and find out more about what it takes to create a longitudinal data system, go to **www.DataQualityCampaign.org**.

10 Essential Elements of a Longitudinal Data System

To build a robust longitudinal data system, states must include the following **10 Essential Elements:**

		Number of states* that reported having this element	
		2005	**2009**
1	A unique student identifier that connects student data across key databases and across years	36	50
2	Student-level enrollment, demographic and program participation information	38	51
3	The ability to match individual students' test records from year to year to measure academic growth	32	50
4	Information on untested students and the reasons they were not tested	25	46
5	A teacher identifier system with the ability to match teachers to students	13	24
6	Student-level transcript data, including information on courses completed and grades earned	7	23
7	Student-level college readiness test scores	7	37
8	Student-level graduation and dropout data	34	51
9	The ability to match student records between the P–12 and postsecondary systems	12	31
10	A state data audit system assessing quality, validity and reliability	19	49

*This includes the District of Columbia and Puerto Rico.

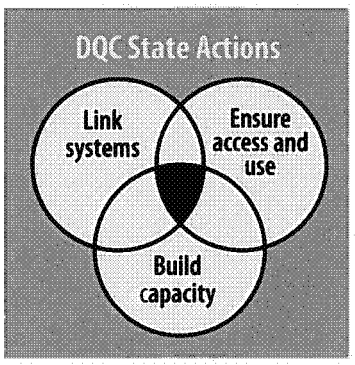
Looking Ahead: States Must Take Actions To Promote the *Use* of Data

Creating state longitudinal data systems and collecting vital information to answer key questions about performance is an important first step. However, states also must have policies and practices in place so that stakeholders throughout the education system can access, understand and be able to use the information effectively.

When states have longitudinal data that are shared and tailored to users' needs, stakeholders can act on the information to:

- Continuously improve program and practice;
- Better define student success with transparent, well understood and broadly accepted performance indicators;
- Accurately forecast a students' readiness for key transitions from preschool through high school and into college and careers and provide necessary supports and interventions;
- Answer day-to-day questions and evaluate issues such as strengths and weaknesses identified by formative assessments; intervention effectiveness; and the relationships among attendance, mobility and standardized test scores; and
- More effectively allocate resources (e.g., time, money and staff) based on returns on investment.

The 2008 DQC survey reveals that **28 states** have the ability to link their postsecondary data with K–12 systems, **44 states** have the capacity to identify students in public prekindergarten programs and link this information with K–12 education data, and **8 states** share information with workforce.



However, far fewer states are actively sharing this information and using it to drive decisionmaking. **In January 2010, the DQC will release its first report on the 10 State Actions to ensure the effective use of longitudinal data,** which will provide greater detail on how states are changing policies and practices to promote linkages across systems, ensure appropriate access to new data and analysis, and strengthen stakeholder capacity to use the information.

10 State Actions To Ensure Effective Data Use

Expand the ability of state data systems to link across the P–20/ workforce pipeline.

1. Link state K–12 data systems with early learning, postsecondary education, workforce, social services and other critical state agency data systems.
2. Create stable, sustained support for robust longitudinal data systems.
3. Develop governance structures to guide data collection, sharing and use.
4. Build state data repositories (e.g., data warehouses) that integrate student, staff, financial and facility data.

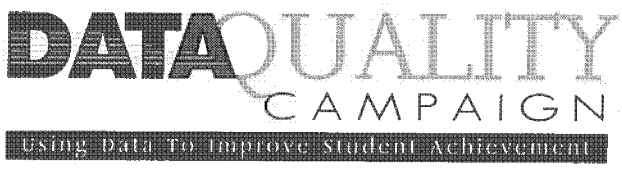
Ensure that data can be accessed, analyzed and used by multiple stakeholders including educators, parents and researchers.

5. Implement systems to provide all stakeholders timely access to the information they need while protecting student privacy.
6. Create progress reports with individual student data that provide information educators, parents and students can use to improve student performance.
7. Create reports that include longitudinal statistics on school systems and groups of students to guide school-, district- and state-level improvement efforts.

Build the capacity of all stakeholders to use longitudinal data.

8. Develop a purposeful research agenda and collaborate with universities, researchers and intermediary groups to explore the data for useful information.
9. Implement policies and promote practices, including professional development and credentialing, to ensure that educators know how to access, analyze and use data appropriately.
10. Promote strategies to raise awareness of available data and ensure that all key stakeholders, including state policymakers, know how to access, analyze and use the information.

To learn more, visit www.DataQualityCampaign.org/files/NextStep.pdf.



The Data Quality Campaign (DQC) is a national, collaborative effort to encourage and support state policymakers to improve the availability and use of high-quality education data to improve student achievement. The campaign will provide tools and resources that will help states implement and use longitudinal data systems, while providing a national forum for reducing duplication of effort and promoting greater coordination and consensus among the organizations focused on improving data quality, access and use.

Managing Partners

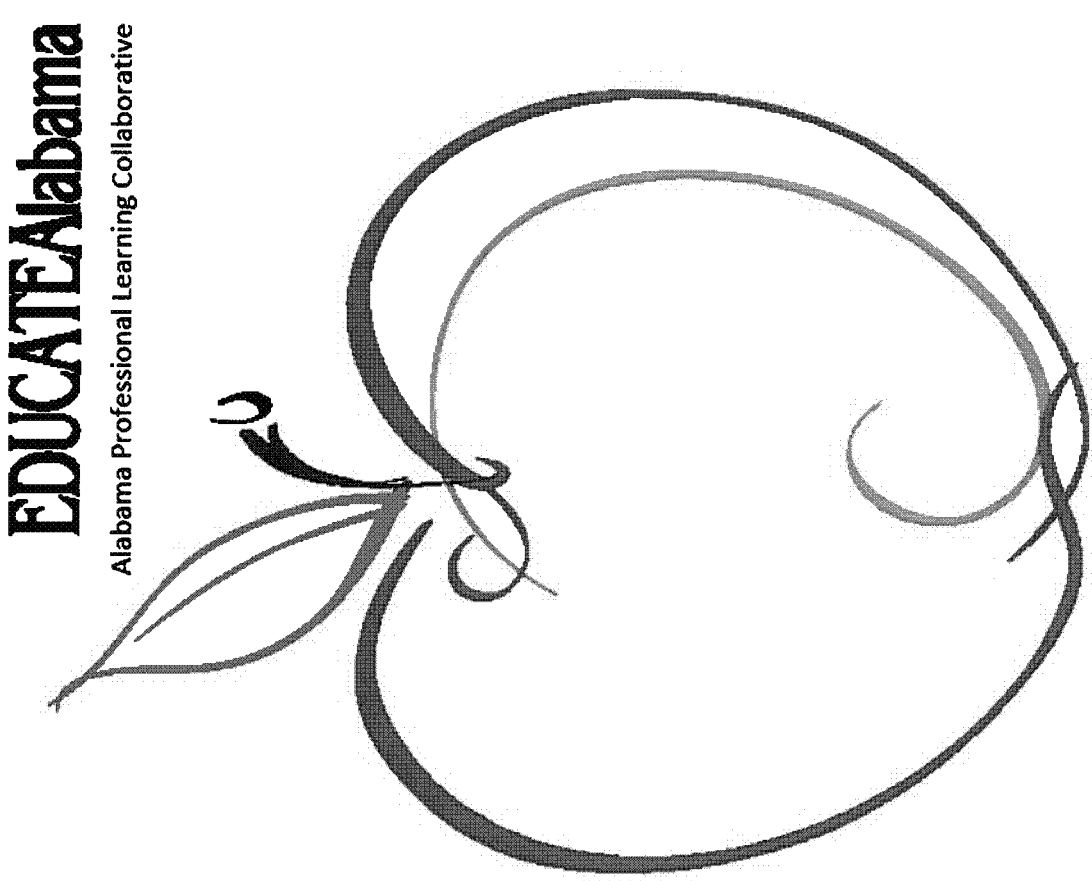
- Achieve, Inc.
- Alliance for Excellent Education
- Council of Chief State School Officers
- Education Commission of the States
- The Education Trust
- National Association of State Boards of Education
- National Association of System Heads
- National Center for Educational Achievement
- National Center for Higher Education Management Systems
- National Conference of State Legislatures
- National Governors Association Center for Best Practices
- Schools Interoperability Framework Association
- State Educational Technology Directors Association
- State Higher Education Executive Officers

For a list of endorsing partners, please visit www.DataQualityCampaign.org.

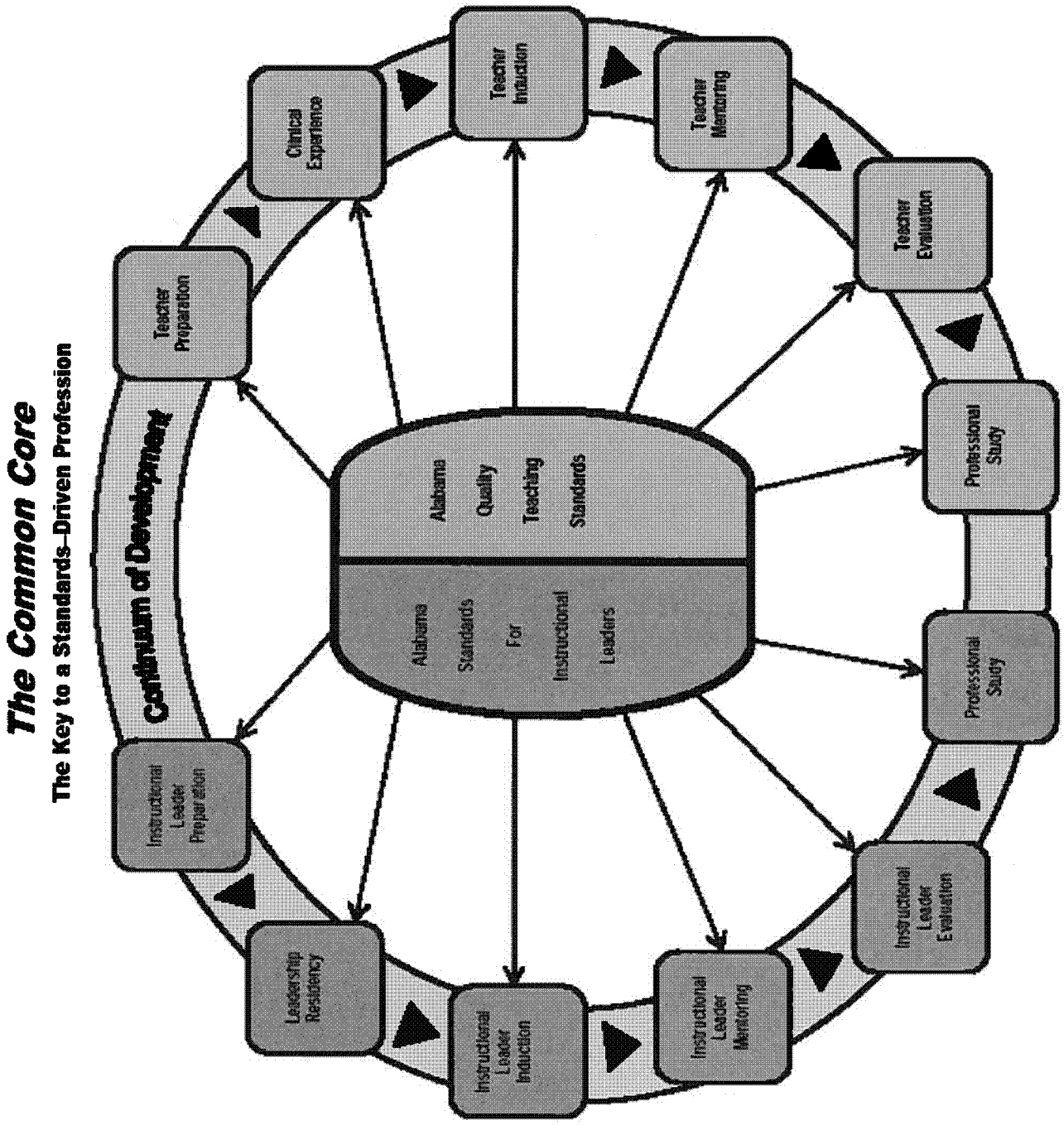
Visit the Data Quality Campaign Web site (www.DataQualityCampaign.org) for more about the:

- 10 Essential Elements and the 10 State Actions required to establish, maintain and use a quality longitudinal data system;
- Results of the DQC's 2009 update of its annual survey that show where your state stands on the 10 Essential Elements;
- Tools, materials, meetings and information that can aid states and interested organizations seeking to ensure increased quality, accessibility and use of data; and
- Information on how your organization can partner with the DQC to generate the understanding and will to build and use state longitudinal data systems.

Visit www.SchoolDataDirect.org for information about public schools nationwide.



Creating a Collaborative Culture for Alabama's Educators


The Common Core
The Key to a Standards–Driven Profession
Continuum of Development
Teacher Preparation
Clinical Experience
Teacher Induction
Teacher Mentoring
Teacher Evaluation
Professional Study
Professional Study
Instructional Leader Evaluation
Instructional Leader Mentoring
Instructional Leader Induction
Leadership Residency
Instructional Leader Preparation
Alabama Quality Teaching Standards
Alabama Standards For Instructional Leaders

ALABAMA QUALITY TEACHING STANDARDS

Pursuant to the mission of improving the academic achievement of all students in the public schools of Alabama, teachers will align their practice and professional learning with the following standards:

Standard 1— Content Knowledge

To improve the learning of all students, teachers master the disciplines related to their teaching fields including the central concepts, important facts and skills, and tools of inquiry; they anchor content in learning experiences that make the subject matter meaningful for all students.

Standard 2—Teaching and Learning

To increase the achievement of every student, teachers draw upon a thorough understanding of learning and development; recognize the role of families in supporting learning; design a student centered learning environment; and use research-based instructional and assessment strategies that motivate, engage, and maximize the learning of all students.

Standard 3—Literacy

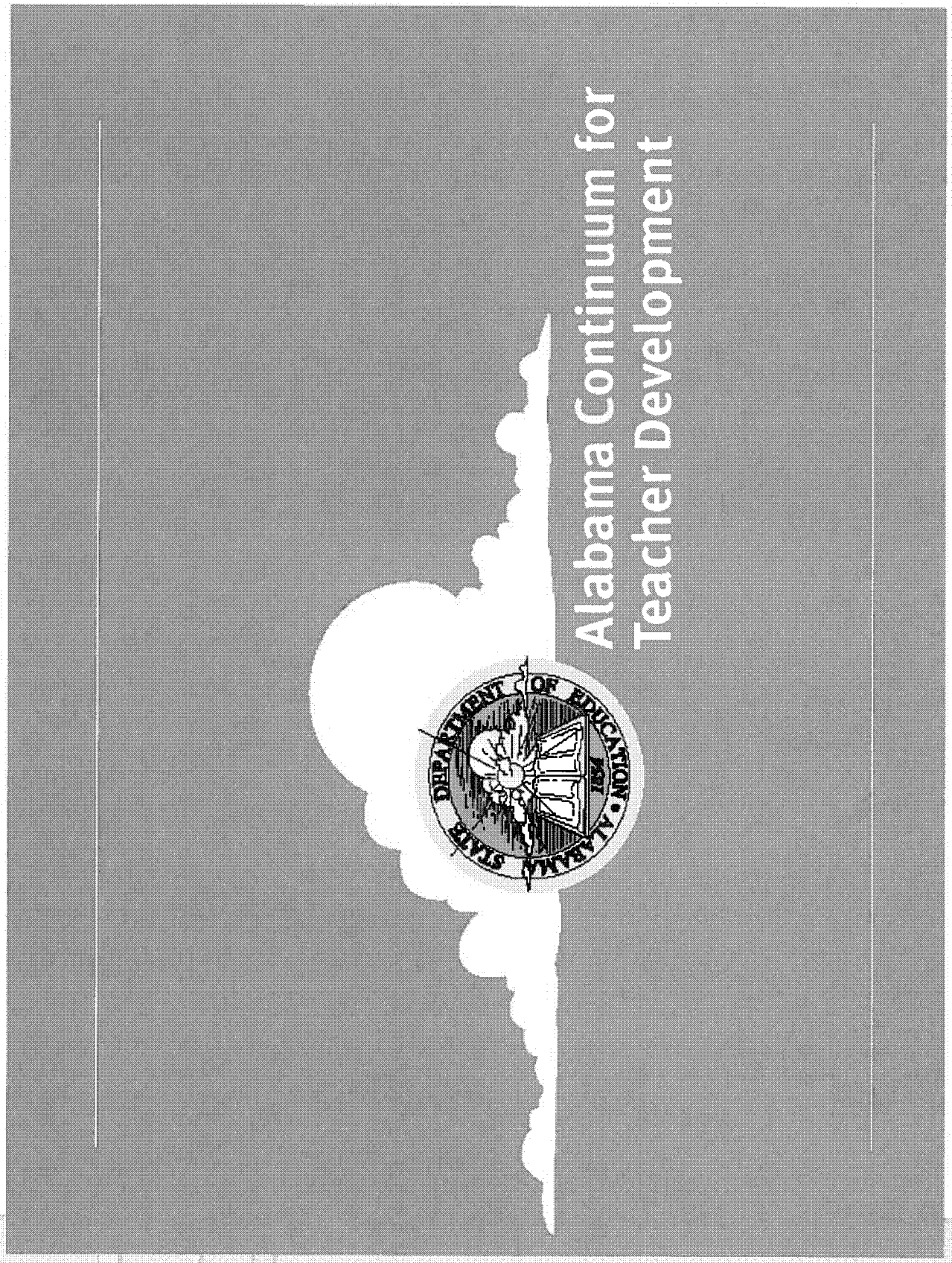
To improve student learning and achievement, teachers use knowledge of effective oral and written communications, reading, mathematics, and technology to facilitate and support direct instruction, active inquiry, collaboration, and positive interaction.

Standard 4—Diversity

To improve the learning of all students, teachers differentiate instruction in ways that exhibit a deep understanding of how cultural, ethnic, and social background; second language learning; special needs; exceptionalities, and learning styles affect student motivation, cognitive processing, and academic performance.

Standard 5—Professionalism

To increase the achievement of all students, teachers engage in continuous learning and self improvement; collaborate with colleagues to create and adopt research-based best practices to achieve ongoing classroom and school improvement; and adhere to the Alabama Educator Code of Ethics and federal, state, and local laws and policies.


STATE DEPARTMENT OF EDUCATION • ALABAMA
Alabama Continuum for
Teacher Development

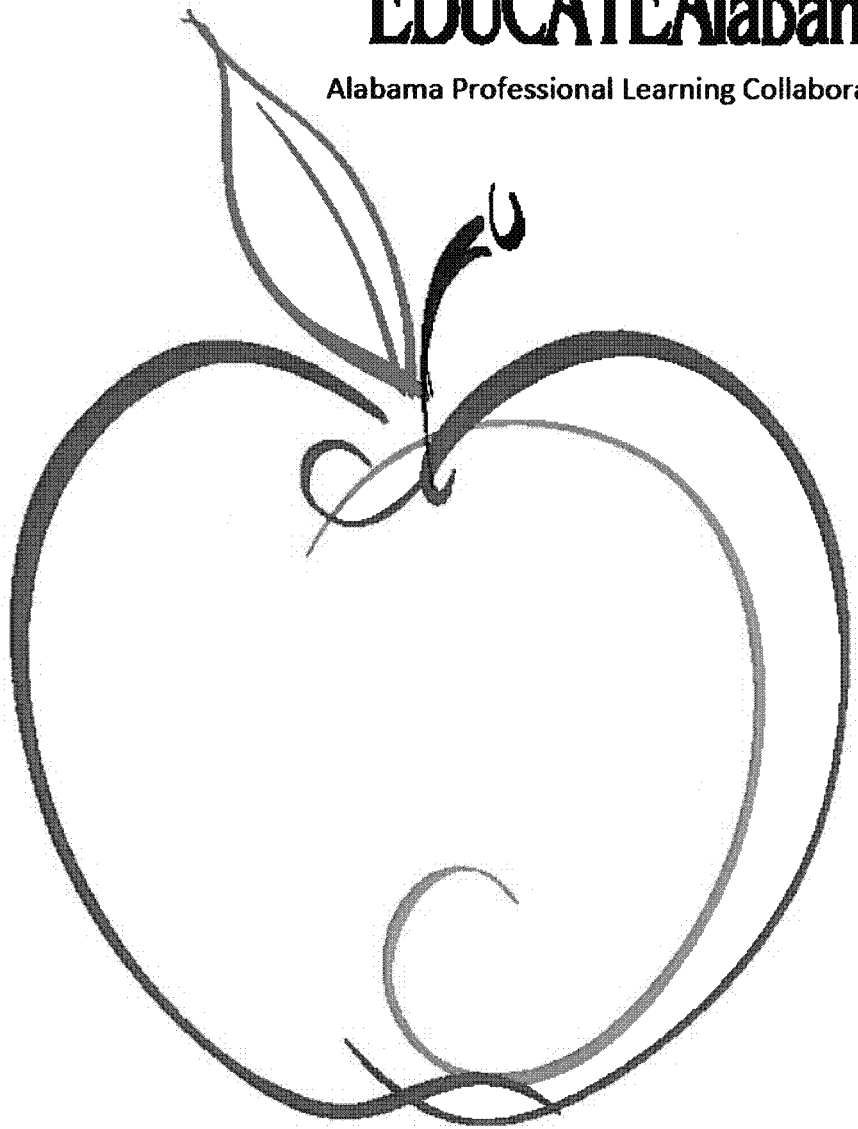
EDUCATE Alabama
Alabama Professional Learning Collaborative
Creating a Collaborative Culture for Alabama's Educators

Standard 1: Content Knowledge

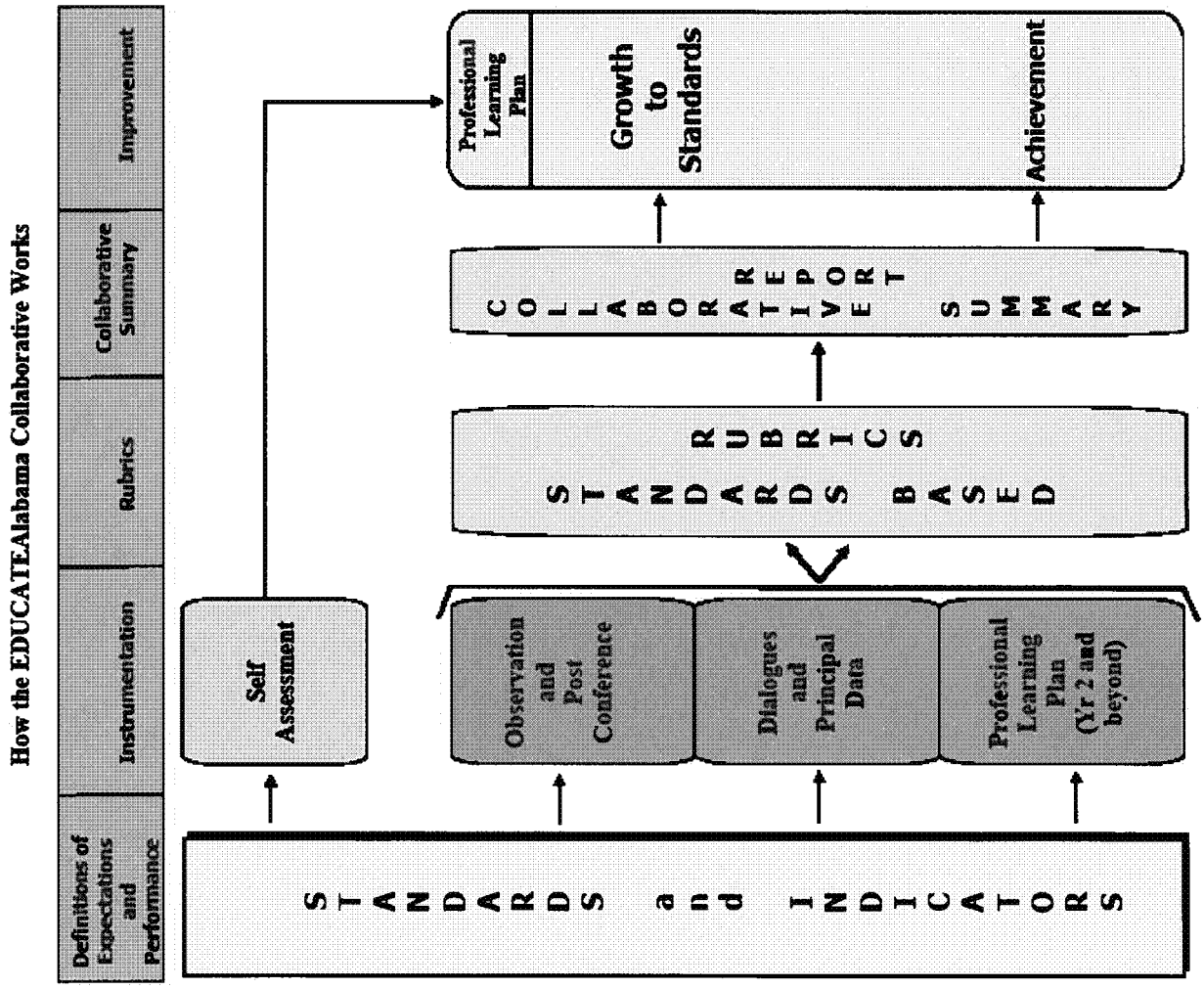
	Emerging	Applying	Integrating	Innovating
1.1 Deep knowledge of subject-matter	• Uses knowledge of subject matter to design rigorous units and lessons. • Teaches appropriate to age and developmental levels.	• Incorporates resources to motivate and academically challenge all learners.	• Focuses instruction on key concepts, themes, multiple perspectives, and interrelationships in subject matter, as well as facts. • Works with colleagues to plan units and lessons that serve to immerse learners actively in the discipline and to think analytically and creatively about the content.	• Uses comprehensive knowledge of subject matter and student development to ensure that all learners understand related facts and concepts within and across content areas. • Introduces students to current advances related to the discipline, knowledge of which has been gained from journals, websites, and other sources. • Collaborates with colleagues to incorporate research findings into unit and lesson designs.
1.2 Activates learners' prior knowledge, experience, and interests and uses this information	• Uses students' prior knowledge to introduce lessons, connect learners to key concepts, and deepen understanding.	• Plans and delivers lessons that assess student knowledge through questioning. • Identifies learner misconceptions concerning content and modifies activities to develop new understandings.	• Uses multiple methods to continually gain new information about students upon which to develop content and instruction and meet learning goals for all learners. • Engages colleagues and students in formulation of questions and learning activities that draw upon and respond to learners' varied experiences, knowledge, and interests.	• Contextualizes and deepens students' understanding of content knowledge. • Works with/leads colleagues to identify factors influencing student learning and acts on those results.
1.3 Connects curriculum to other content areas and real-life settings to promote retention and relevance	• Uses questions and other strategies to help learners connect content to previous learning, other subject areas, and real-life problem solving. • Demonstrates relevant connections for learners, as needed.	• Organizes and presents units of study and lessons that demonstrate connections to key concepts and skills from other disciplines. • Teaches rigorous and relevant lessons that engage students in applying key concepts and skills across disciplines.	• Works with colleagues to integrate academic disciplines.	• Collaborates with colleagues to plan, assess, and revise integrated curricula.
1.4 Designs instructional activities based on state content standards	• Plans instructional activities that align with Alabama's Courses of Study. • Designs learning activities that integrate multiple content standards. • Communicates clearly the connections between the standards and the knowledge and skills being taught.	• Uses multiple resources, including textbooks, to develop plans (units, lesson) that are aligned with content standards.	• Enables all learners to meet state content standards through differentiated planning for individual differences. • Collaborates with colleagues in using a wide range of methods and resources to promote learners' deep understanding of content and demonstration of knowledge and skills embedded in state standards.	• Creates varied and differentiated opportunities for learners to develop, monitor, and extend learning related to state standards. • Provides leadership that engages colleagues in ongoing analysis and mapping of curriculum to ensure alignment of state standards with content being taught.

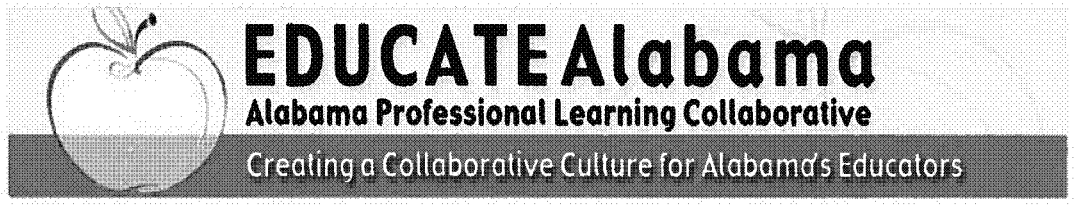
EDUCATEAlabama

Alabama Professional Learning Collaborative



Creating a Collaborative Culture for Alabama's Educators


How the EDUCATEAlabama Collaborative Works
Definitions of Expectations and Performance
Instrumentation
Rubrics
Collaborative Summary
Improvement
STANDARDS and INDICATORS
Self Assessment
Observation and Post Conference
Dialogues and Principal Data
Professional Learning Plan (Yr 2 and beyond)
STANDARDS BASED
COLLABORATIVE SUMMARY
Professional Learning Plan
Growth to Standards
Achievement



Side-by-side comparison of

EDUCATEAlabama

&

Alabama Professional Education Personnel Evaluation Program (PEPE)

PEPE		EDUCATEAlabama
Self-Assessment	→	Self-Assessment
Classroom Observations	→	Classroom Observations
Structured Interview Supervisor's Review Form	→	Dialogues and Principal Data
Evaluation Summary Report	→	Collaborative Summary Report
Professional Development Plan	→	Professional Learning Plan

- Self- Assessment format remains the same but based on the Quality Teacher Standards and accompanying continuum
- Observations are changed from one (1) for tenured and (2) for non-tenured, with scripting, under PEPE to a minimum of two (2) observations, with anecdotal notes, for ALL teachers under EDUCATEAlabama
- Structured Interview and the Supervisor's Review Form under PEPE are revised/replaced with Dialogues and Principal Data under EDUCATEAlabama
- Evaluation Summary Report under PEPE is replaced with the Collaborative Summary Report under EDUCATEAlabama
- Professional Development Plan is revised for clarity but has the same expectation of teacher growth and development

EDUCATEAlabama
Teacher Post-Observation Conference Record

Teacher: _____ *Evaluator:* _____
(Provide evaluator name only if different from the name on the CSX form)

School System: _____ *School:* _____ *Date:* _____

Subject/Grade: _____ *No. of Students:* _____ *Start Time:* _____

Observation No.: ☐ 1 ☐ 2 ☐ *First-Year Teacher* ☐ *Non-Tenured Teacher*
☐ *Tenured Teacher*

Special Conditions (to be specified by teacher)

☐ *Special Population* ☐ *Overcrowded Conditions* ☐ *Inadequate Technology* ☐ *Subject Change*
☐ *Inadequate Facilities* ☐ *Inadequate Resources* ☐ *Other:* _____
(Specify)

Comments:

1. What is the content/topic of the unit of instruction of which this lesson was a part?

2. What has been previously taught (this unit)? What will be taught following this lesson (this unit)?

3. How is this unit aligned with Alabama's courses of study?

4. What were your specific objectives for this lesson?

5. What learner differences exist in this class? What accommodations did you make for some or all of them in this lesson? This unit?

Differences: ☐ Special Needs ☐ Achievement ☐ Motivation ☐ Learning Styles
☐ Developmental Levels ☐ Interests ☐ Language(s) ☐ Other _____

6. What student and teacher activities were planned for today?

7. How and when will accomplishment of objectives be measured (if not measured during the lesson)?

☐ Teacher-Made Tests ☐ Commercially Made Tests ☐ Textbook Tests ☐ Standardized Tests
☐ System-Developed Tests ☐ Homework ☐ Work Products/Projects ☐ Student Performance ☐ Other

(over)

EDUCATEALABAMA

DIALOGUE DATA

This form will be used for clarifying or probing of standards, indicators, or areas not observed.

Educator: _____ **Evaluator:** _____ **Date:** _____

Dialogue Focus: _____
Standard/Indicator/Area

Notes:

EDUCATEALABAMA
COLLABORATIVE SUMMARY REPORT: TEACHERS

Teacher: _____ ID: _____ Evaluator: _____ ID: _____

School System: _____ School: _____ Date: _____

Use the rubric provided and the data available for each indicator to develop a level of practice. Use pattern analysis to generate a level of practice for the Standard.	*Levels of Practice* Emerging	Applying	Integrating	Innovating
Standard 1: Content Knowledge				
1.1 Demonstrates deep knowledge of subject-matter content and ability to organize related facts/concepts/skills.				
1.2 Activates learners' prior knowledge, experience, and interests and uses this information.				
1.3 Connects curriculum to other content areas and real-life settings to promote retention and relevance.				
1.4 Designs instructional activities based on state content standards.				
1.5 Instructional accommodations, modifications, and adaptations meet the needs of each individual learner.				

	Classroom Observation 1	Classroom Observation 2	Dialogue/Principal Data
1.1			
1.2			
1.3			
1.4			
1.5			

Teacher/Evaluator Comments:

EDUCATEAlabama PROFESSIONAL LEARNING PLAN
School Year 20____-20____

Educator: _____ **Position:** _____

Directions: *This plan should result from conversations based on a combination of a self-assessment utilizing the rubrics provided, the Collaborative Summary Report (CSR), and subject-area/grade-level/schoolwide student achievement goals. It should focus on the knowledge and practices that would assist the educator in achieving the professional learning needed to progress to higher levels of teaching practice found on the AQTS rubrics. The plan usually should address no more than two indicators, providing time for deep learning to occur in both areas. The indicators chosen should be prioritized based on agreed-upon needs.*

Goal 1 Focus	Proposed Action Steps, Activities, and Outcomes	Timelines
Standard/Indicator		
End of PLP Cycle Reflection and Impact on Personal Practice and Student Learning		
Additional Educator/Evaluator Comments		

Goal 2 Focus	Proposed Action Steps, Activities, and Outcomes	Timelines
Standard/Indicator		
End of PLP Cycle Reflection and Impact on Personal Practice and Student Learning		
Additional Educator/Evaluator Comments		

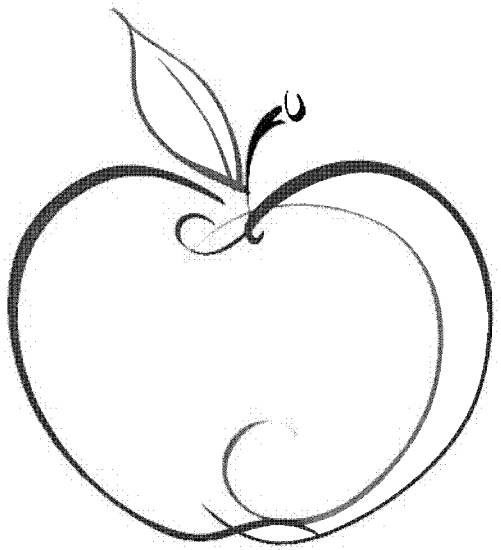
We agree upon the Goals, Action Steps, Activities, Proposed Outcomes and Timeline Listed.

_____ _____ _____ _____
Educator Date Evaluator Date

Signatures indicate we have discussed the Reflection and Impact described.

_____ _____ _____ _____
Educator Date Evaluator Date

Approach to the Professional Learning Collaborative for the Formative Evaluation of Teachers



Appendix A18

Standard 3: Rationale

This standard addresses the need for instructional leaders to recognize quality professional development as the key strategy for supporting significant improvements. Instructional leaders are able to articulate the critical link between improved student learning and the professional learning of teachers. Skillful instructional leaders establish policies and organizational structures that support ongoing professional learning and continuous improvement. They ensure an equitable distribution of resources to accomplish school goals and continuously improve the school's work through the ongoing evaluation of staff development's effectiveness in achieving student learning goals. They make certain that employee annual calendars and daily schedules provide adequate time for learning and collaboration as part of the workday. Instructional leaders also distribute leadership responsibilities among teachers and other employees. Distributed leadership enables teachers to develop and use their talents as members or chairs of school improvement committees, trainers, coaches, mentors, and members of peer review panels. These leaders make certain that their colleagues have the necessary knowledge, skills, and other forms of support that ensure success in these new roles.

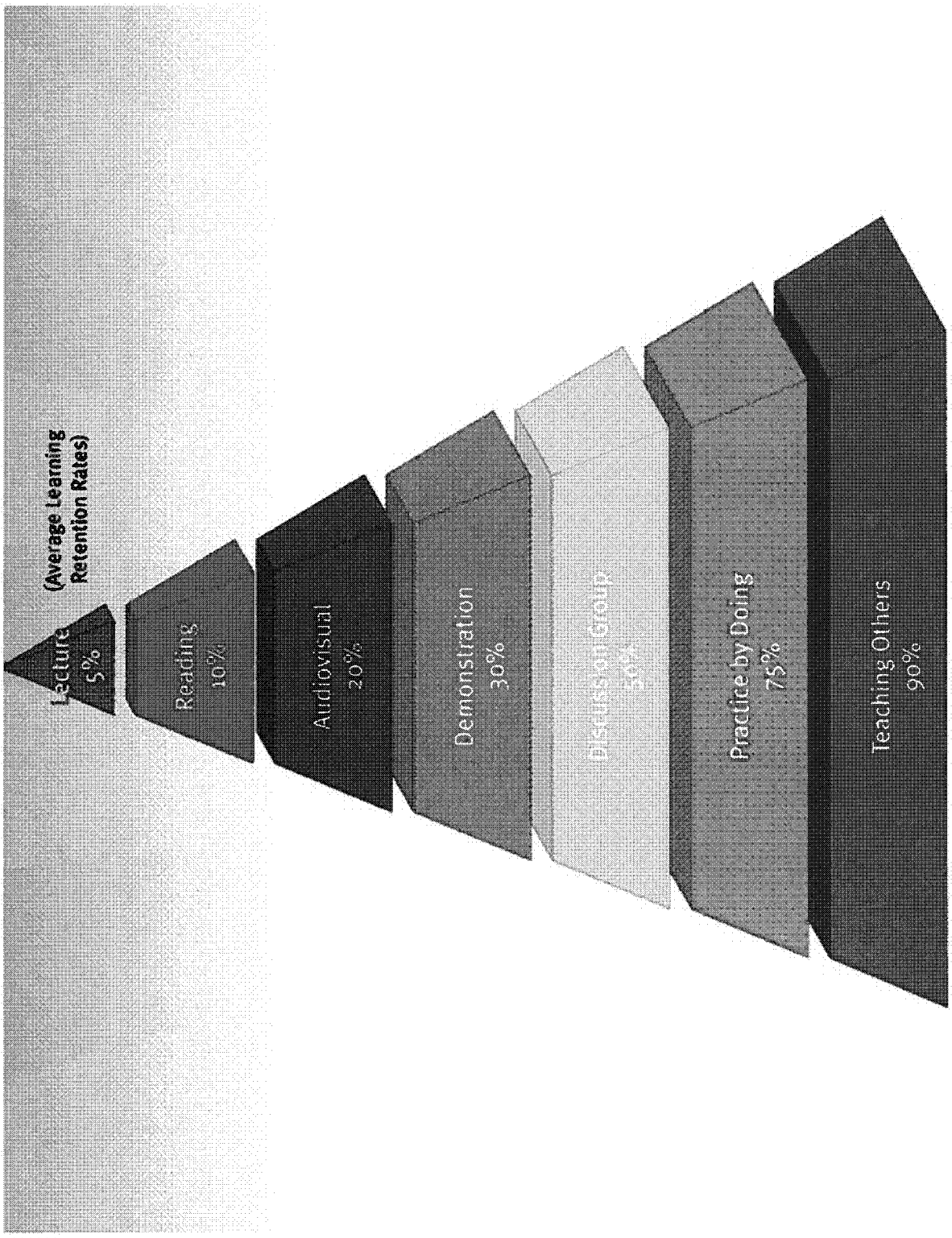
Standard 3: Human Resources Development

Recruits, selects, organizes, evaluates, and mentors faculty and staff to accomplish school and system goals. Works collaboratively with the school faculty and staff to plan and implement effective professional development that is based upon student needs and that promotes both individual and organizational growth and leads to improved teaching and learning.

Initiates and nurtures interpersonal relationships to facilitate teamwork and enhance student achievement.

Standard 3: Key Indicators

1. Knowledge to set high expectations and standards for the performance of all teachers and staff
2. Ability to coach staff and teachers on the evaluation of student performances
3. Ability to work collaboratively with teachers to plan for individual professional development
4. Ability to use a variety of supervisory models to improve teaching and learning
5. Ability to apply adult learning strategies to professional development
6. Knowledge to use the accepted methods and principles of personnel evaluation
7. Knowledge to operate within the provisions of each contract as well as established enforcement and grievance procedures
8. Ability to establish mentor programs to orient new teachers and provide ongoing coaching and other forms of support for veteran staff
9. Ability to manage, monitor, and evaluate a program of continuous professional development tied to student learning and other school goals
10. Knowledge to hire and retain high-quality teachers and staff
11. Ability to provide high-quality professional development activities to ensure that teachers have skills to engage all students in active learning
12. Ability to provide opportunities for teachers to reflect, plan, and work collaboratively
13. Ability to create a community of learners among faculty and staff
14. Ability to create a personal professional development plan for his/her own continuous improvement
15. Ability to foster development of aspiring leaders, including teacher leaders


(Average Learning Retention Rates)
Lecture 5%
Reading 10%
Audiovisual 20%
Demonstration 30%
Discussion Group 50%
Practice by Doing 75%
Teaching Others 90%

EDUCATEAlabama Training Module 1:
The EDUCATEAlabama Process

Outline

Delivery. This module will be delivered entirely online.

Components. Text and test

Materials Needed. All needed materials are online. Can be downloaded, if desired.

Content

1. Explanation of why a new teacher evaluation system is needed (new standards)

2. Explanation of changes from the PEPE system:

   - formative evaluation system
   - differences between formative and summative evaluation
   - no numerical scores, but four levels of practice: Emerging, Applying, Integrating, Innovating
   - rubrics define each level of practice for each performance indicator
   - expectations for performance (Level 2 is OK). (always working to be better)
   - fewer data collection instruments and procedures; observation, principal first-hand knowledge, dialogues, Collaborative Summary Report, Professional Learning Plan. (Self-assessment is important.)

3. How the collaborative evaluation process works

   - explanation of visual display
   - explanation of steps and timelines

4. The EDUCATEAlabama training program for evaluators

   - explanation of localized training
   - explanation of online and face-to-face training components
   - description of modules and timelines

5. Teacher orientation

   - online module
   - principal/teacher meetings

<u>Click and Question.</u> Submit questions about content of module to Tammy and Elainer

<u>Activities</u>

- Check Your Knowledge (questions about module content with feedback)
- Module 2 Test (complete and submit)

EDUCATEAlabama Training Module 2:
Quality Teaching Standards

Outline

Delivery. This module will be delivered entirely online.

Components. Text, Activities, Test

Materials Needed. All needed materials are online. Participant may want to download certain materials for ready reference during the module (e.g., EDUCATEAlabama Standards)

Module Objectives

1. To ensure user knowledge and understanding of the new Alabama teaching standards (AQTS).
2. To ensure user knowledge and understanding of the EDUCATEAlabama rubrics derived from the standards and how to use them.
3. To ensure user knowledge and understanding of the relationships among the EDUCATEAlabama version of the AQTS, the rubrics, and the data collection instruments and process.
4. To ensure user understanding of the EDUCATEAlabama rubrics and the Alabama Continuum for Teacher Development

Content

1. Explanation of the development of the Alabama Quality Teaching Standards (AQTS).
2. Explanation and examination of the EDUCATEAlabama version of the AQTS.
3. Identification of classroom observable and non-classroom observable standards, indicators, and definition items.
4. Identification of practices defined in the standards which are "cross-cutting"; i.e., practices emphasized in more than one standard
5. Practice Activity. Locate and Label
6. Explanation and examination of the EDUCATEAlabama rubrics
   - rubric for each performance indicator
   - no numeric ratings; but four levels of practice
   - expectation for continuous improvement of practice
   - practice level 2 (Applying) is OK – a new way to think about performance
7. Explanation of relationships among standards, data collection, instruments/procedures, and rubrics
   - data collection aligned with standards
   - explanation and examination of data collection instruments and procedures
     - Self-Assessment and its use

EDUCATEAlabama Training Module 3:
Building Trust and Conducting Classroom Observations

Outline

Delivery. Online instruction and face-to-face activities

Components. Text, video activities, face-to-face activities, performance task

Materials Needed: All needed materials will be provided online or by LEA coordinator.

Module Objectives

1. To ensure user understanding of the importance of trust in the formative evaluation process.
2. To provide suggestions for building trust in the formative evaluation process.
3. To ensure evaluator ability to rightly conduct classroom observation and use the results.

Content

Module 4a (Building Trust)

1. Thoughts on the importance of trust in the formative evaluation process. (online)
2. Suggestions for building trust in the formative evaluation process. (online)
   - listening
   - use of self-assessment data
   - post-observation discussion
   - the dialogue process
   - a collaborative approach to the CSR
   - a collaborative approach to the Professional Learning Plan (PLP)

Module 4b (Classroom Observation)

1. Anecdotal Notes: How are they different from scripting? (with examples) (online)
2. Review of observable standards, indicators, and definition items and their use. (online)
   - observable practices
   - having the list of observables at hand (lists and drop-down boxes)
3. Practice note taking with feedback (online video #1)
4. Practice note taking with feedback (online video #2)
5. Explanation of classroom observation requirements (online)
   - two observations
   - time requirements

EDUCATEAlabama Training Module 4:
Dynamic Dialogue and Evaluator First Hand Knowledge

Outline

Delivery. This module will be delivered entirely online.

Components. Text, activities, test

Materials Needed. All needed materials are online. Some materials (Dialogue Data form, standards lists) may need to be downloaded for easy reference.

Module Objectives

1. To ensure user understanding of the dialogue component, when it should be used, and how it should be used.
2. To ensure user ability to record essential dialogue data,
3. To ensure user understanding of the evaluator first-hand knowledge component, when and how it should be used.

Content

Module 5a (Dynamic dialogues)

1. What is a dialogue? (Explanation)
   - a two-way interchange/discussion
2. When and how should dialogue(s) become a part of the EDUCATEAlabama process?
   - lack of evaluator first-hand knowledge
   - Fall teacher/principal orientation process (identification of areas for dialogue)
   - Spring dialogues – piggybacked on second post-observation conference or separately scheduled
3. Areas most likely to require dialogues
   - collaboration
   - leadership
   - assessment
   - diversity
4. Conducting a dialogue
   - lead question in agreed upon area
   - anecdotal notes (form provided)
   - probing questions

EDUCATEAlabama Training Module 5:
Building a Collaborative Professional Culture

Outline

Delivery. Online instruction and face-to-face activities

Components. Text, face-to-face activities, performance tasks

Materials Needed. Needed materials are either online or provided by LEA coordinators/facilitators in face-to-face activities

Module Objectives

1. To ensure that evaluators can lead completion of the Collaborative Summary Report (CSR).
2. To ensure that evaluators can lead completion of the Professional Learning Plan (PDP).

Content

1. Explanation and examination of the Collaborative Summary Report (online)
2. Explanation of the Collaborative CSR process (online)
   - summarization of evaluator data on CSR
   - role of teacher self-assessment
   - discussion and adjustments
   - rating levels of practice
3. Explanation and examination of the Professional Learning Plan (online)
4. Explanation of the collaborative PLP process (online)
   - teacher and evaluator roles
   - use of CSR data
5. Explanation of the use of the PLP in the next evaluation (online)
6. **Face-to-Face Activity**

   Evaluators (principals, assistant principals) come together with LEA coordinators/facilitators in one or more groups within the LEA

   - recording of anecdotal notes for Dialogue Video #3.
   - consensus completion of a CSR, given dialogue data, principal data, and observation data with feedback.
   - practice completion of CSR 2, given dialogue data, principal data, and observation data and discussion (performance task).
   - practice completion of a PLP, given completed CSR (performance task).

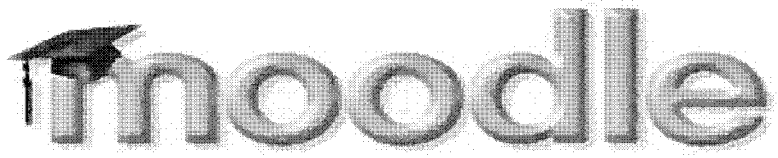
TRAINING SCHEDULES FOR EDUCATE ALABAMA

The new EDUCATE Alabama teacher evaluation system will be implemented statewide this coming school year (2009-2010). The system's foundation is Alabama's new Quality Teaching Standards (AQTS) and it has new instruments and procedures. Therefore, those implementing the system will need new training. However, that training will be delivered within local school systems, coordinated and facilitated by local personnel.

Many aspects of the training will be delivered online for both facilitators and evaluators through use of the web and a learning management system (Moodle), but principals and assistant principals being trained will need to meet face-to-face with local coordinators for certain activities, e.g., consensus rating of observations and dialogues.

The training will consist of five modules. It is designed to create flexibility and provide those being trained (facilitators, principals, assistant principals, etc.) the opportunity to earn a state-approved PLU. The modules will be rolled out over a period of 7 months (June - January). Content will parallel the steps and timeframe for the formative evaluation process, and facilitators will need to complete each module prior to its availability to professional study participants. Facilitator training will consist of completion of each basic module and completion of the additional material provided to assist facilitators in their local roles and responsibilities.

MODULES	COMPLETION TIMELINE FOR FACILITATORS	COMPLETION TIMELINE FOR PROFESSIONAL STUDY PARTICIPANTS	IMPLEMENTATION
Introduction to Moodle Delivery: Online	June 15 – July 15	July 15 – August 15	
Module 1. The EDUCATE Alabama Process Delivery: Online	June15 – July 15	July 15 – August 15	
Module 2. Alabama Quality Teaching Standards and the Teacher Evaluation System Delivery: Online	July 15 – August 8	August 9 – August 31	
Module 3. Building Trust and Observation Training Delivery: Online and face-to-face	August 9 – September 5	September 6 – October 4	Teacher Orientation (August – September) 2 parts: online module, principal meets with teacher to be evaluated.
Module 4. Dynamic Dialogue Delivery: Online and face-to-face	October 1 – October 31	November 1 – 30	Observation #1 (October)
Module 5. Building a Collaborative Professional Culture Delivery: Online and face-to-face	December 1 – January 4	January 4 – February 2	
			Observation #2 (February-April) Dialogues (February – March) Dialogues can be conducted with 2nd post-observation conference or separately CSR/PL Plan (April) School and District Analysis (May)



A Student Guide to using Moodle

v educatealabama.alsde.edu

Moodle

- What is Moodle?
  - An Online Course Management System for delivering courses through the Internet
  - The system allows users to not only complete the modules and take tests, it will allow them to interact with other facilitators/coordinators and the Department.
- What is my Role as a Coordinator/Facilitator?
  - Take the online course for coordinators/facilitators and attend some face-to-face training
  - Monitor online training for the evaluators in your school district
  - Provide training at the face-to-face meetings of evaluators in your school district
- What do I need to access Moodle?
  - You will need access to the Internet through a high speed connection and the online learning site is accessible by either a PC or a MAC computer.

Alabama State Dept. of Education - Microsoft Internet Explorer

http://v-educatealabama.alsde.edu/

File Edit View Favorites Tools Help

Alabama State Dept. of Education

Page Tools

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EDUCATE Alabama

Alabama Professional Learning Collaborative

Creating a Collaborative Culture for Alabama's Educators

Login

Username

Password

Login

Create new account
Lost password?

Latest news

(No news has been posted yet)

Wikipedia

WIKIPEDIA
The Free Encyclopedia

English

Welcome to Alabama State Dept. of Education's e-learning portal!

Calendar

May 2009

Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

Online Users

(last 5 minutes)

Tammy Starnes

Current Time

You are not logged in. (Login)

Internet 100%

EDUCATE Alabama
Alabama Professional Learning Collaborative

Evaluation Research and Resources

Brandt, C., Thomas, J. & Burke, M. State policies on teacher evaluation practices in the Midwest Region. July 2008. http://ies.ed.gov/ncee/edlabs/regions/midwest/pdf/technical/tr_004MW.pdf

Chait, R. From Qualifications to Results: Promoting Teacher Effectiveness Through Federal Policy. January 2009. http://www.americanprogress.org/issues/2009/01/pdf/hat.pdf

Goe, L. & Croft, A. Methods of Evaluation Teacher Effectiveness. March 2009. http://www.tqsource.org/publications/RemdPractice_EvaluatingTeacherEffectiveness.pdf

Goe, L., Bell, C. & Little, O. Approaches to Evaluating Teacher Effectiveness: A Research Synthesis. June 2008. http://www.tqsource.org/publications/EvaluatingTeachEffectiveness.pdf

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Key Issue: Identifying How Highly Effective Leaders Support Teachers. March 2008. http://www2.tqsource.org/strategies/hot/HighlyEffectiveLeaders.pdf

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Mathers, C., Oliva, M. & Laws, S. Improving Instruction Through Effective Teacher Evaluation: Options for States and Districts. February 2008. http://www.ndcatlas.org/site/publications/tech_brief_docs/documents/National%20TQ%20Center%20-%20Teacher%20Evaluation.pdf

Tuch, T. & Robinson, K. Rush to Judgment: Teacher Evaluation in Public Education. January 2008. http://www.educationsector.org/usr_doc/RushToJudgment_ES_Jan08.pdf

Tuch, T. Fixing Teacher Evaluation. October 2008. http://www.aasl.org/publications/educational_leadership/vol66/num02/Fixing_Teacher_Evaluation.aspx

Websites

- http://www.tqsource.org/webcasts/evaluateEffectiveness/resources.php
- http://www.cccc.edu.gov/policy/research/Synthesis/Research%20Synthesis_0%20All.pdf
- http://www.edweek.org/ew/articles/2009/04/06/32guarienca.h28.html
- http://www.answers.com/topic/overview-of-teacher-evaluation
- http://www.tsdc.org/services/tq_services/trainings/2009/FebOS/building_better_tqm.aspx
- http://www.state.tn.us/education/tvde/doc/TeacherEffectiveness2007_03.pdf
- http://www.tqsource.org/faq.php
- http://www2.tqsource.org/strategies/hot.aspx
- http://www.tqsource.org/tqsTools.php
- http://www.tqsource.org/publications.php

ALABAMA EDUCATION NEWS

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replace Continuing Education Units (CEUs) as the method for maintaining instructional der certification in Alabama.

WHAT TO A PLU?

It is now the choice call on educators during to maintain their instructional certification. Instructional leaders include individuals holding valid instructional leader certificates such as superintendents, principals, d administrators, instructional leaders, and more. Professional Learning Unit(PLU) replace Continuing Education Units (CEUs) as the method for g instructional leader certification in Alabama. The transition from PLUs to CEUs will begin in 2009, with full implementation anticipated in 2014. Jesse Bass, coordinator of the Leadership and Evaluation Unit at the Alabama Department of Education, said, "PLUs offer educators a better opportunity to experience professional learning with greater depth. A CEU is based on seat time at one course, while a PLU supports comprehensive professional study over time."

To maintain instructional leader certification educators will be required to earn five PLUs over a five-year time period; one must be earned through professional studies approved by the Alabama Council for Leadership Development (ACLD) and one may be earned through professional studies approved by local education agencies (LEAs). The fifth PLU may be earned from professional studies approved by either the ACLD, mentioned on page ...

ALABAMA EDUCATION NEWS

(b)(6)

[redacted]

The Alabama State Board of Education recently adopted Educate Alabama, a new educator evaluation process that replaces Professional Educators Personal Evaluation (PEPE) with a more creative, effective, teacher-oriented process.

Deputy State Superintendent of Education Dr. Tommy Bice and the key component to EDUCATE ALABAMA is the fact that it is a collaborative process between the principal and the teacher. From beginning to end, he said, the effort is moving with the sole purpose of improving the effectiveness of instruction in the classroom and the skill level of the teacher. Bice said PEPE was a very stable, model process at the time it was developed and over the time that it has been used, but the population and the profession has changed. The implementation of EDUCATE ALABAMA dramatically reduces the amount of time it takes to perform an effective evaluation (by approximately 4 hours per teacher) and increases the effectiveness of individual teacher development.

One of the most time consuming aspects of PEPE was scripting. This is a process by which an assessor would go into a teacher's class to observe and write down, word for word, everything the teacher and the student said while the observation was being conducted. The purpose of scripting was to ensure transparency in the evaluation process. Should a score be questioned, the exact reason in which the score was assigned could be traced back and identified to defend the score. Bice said, from a practitioner's perspective, the excessive nature of scripting was a distraction from actually watching the transaction and occasion to instruction that occur which are so important to the instructional process.

Another cumbersome component to PEPE was a structured interview that could be conducted orally or in writing. Teachers would respond to a set of predetermined questions, but even the initial interview was performed the questions would remain the same for all subsequent interviews. Bice said, the rehearsal aspect of this exercise caused the process itself to lack purpose.

To much so, written responses could simply be copied from a previous interview and used over again. He said, this resulted in enormous amounts of

"EDUCATE ALABAMA is based on the quality teaching standards that were developed and adopted by the Alabama State Board of Education."
– Dr. Tommy Bice, Deputy State Superintendent of Education

Appendix A1

Tammy H. Starnes, Evaluation Coordinator
tstarnes@alsde.edu

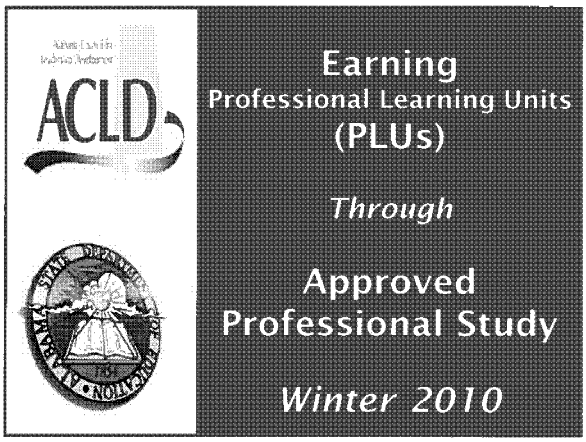
Elainer Jones, Evaluation Administrator
ejones@alsde.edu

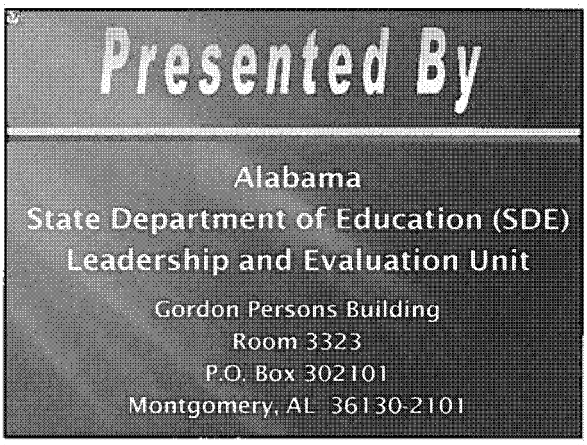
Evaluation & Leadership Section

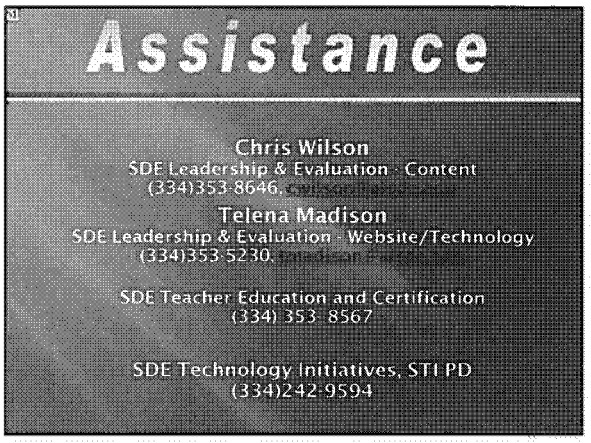
www.alabamapepe.com
http://ti sp.alsde.edu/qt/default.aspx
http://alex.state.al.us/showleaderpg.php?lnk=aldhomepage

http://v-educatealabama.alsde.edu/

334-242-9962


ACLD
Earning
Professional Learning Units
(PLUs)
Through
Approved
Professional Study
Winter 2010


Presented By
Alabama
State Department of Education (SDE)
Leadership and Evaluation Unit
Gordon Persons Building
Room 3323
P.O. Box 302101
Montgomery, AL 36130-2101


Assistance
Chris Wilson
SDE Leadership & Evaluation - Content
(334)353-8646.
Telena Madison
SDE Leadership & Evaluation - Website/Technology
(334)353-5230.
SDE Teacher Education and Certification
(334) 353-8567
SDE Technology Initiatives, STI PD
(334)242-9594

Slide 2

n7 Alabama State Department of Education
nsims, 6/19/2007

Slide 3

n1 Alabama State Department of Education
nsims, 6/19/2007

Information

Visit

http://www.alex.state.al.us/leadership

Select

ACLD Professional Study (PS) Application and Resources

Today's Focus

- *Alabama Council for Leadership Development (ACLD)*
- *Maintaining Instructional Leader Certification*
- *Earning Professional Learning Units*
- *Approved Professional Study*

ACLD

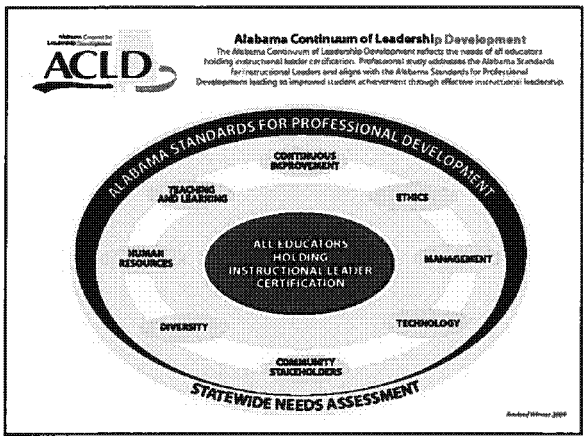
Appointed By
State Superintendent of Education

Serve Three-Year Staggered Term

Members
Superintendents
Central office instructional leaders
Principals
Assistant principals
Teachers

Supported by
SDE Leadership and Evaluation Unit

Alabama Administrative Code 290-4-3-.01



Alabama Standards for Instructional Leaders

- Planning for Continuous Improvement
- Teaching and Learning
- Human Resources Development
- Diversity
- Community and Stakeholder Relationships
- Technology
- Management of the Learning Organization
- Ethics

Each Standard

Preceded by *Rationale*

Has several *Key Indicators*

Key Indicators are written as *Knowledge or Ability Statements*

Alabama Standards for Professional Development (abridged)

1. Organize adults into learning communities
2. Require knowledgeable and skillful school and district leaders
3. Provide resources
4. Use disaggregated student data
5. Use multiple sources of information
6. Prepare educators to apply research
7. Use learning strategies
8. Apply knowledge about human learning and change
9. Provide educators with collaborative skills
10. Prepare educators to understand and appreciate all students
11. Deepen educators' content knowledge
12. Provide educators with knowledge and skills to involve families and stakeholders

Approved Professional Study

Fully addresses
- Alabama Standards for Instructional Leaders

Completely aligns to
- Alabama Standards for Professional Development

Approved two ways
- ACLD
- Local education agency (LEA) superintendent

Applies to
- All educators maintaining instructional leader certification

Only method to earn Professional Learning Units

ACLD Approved Professional Study

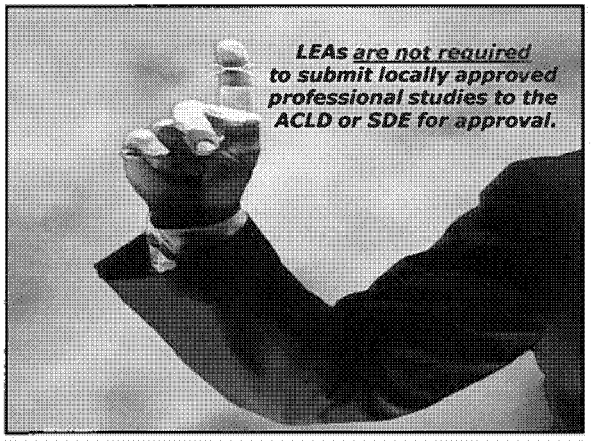
Who may apply?
Agencies/organizations/associations/groups
Vendors/private providers
Local education agencies (LEAs)
Others

How do you apply?
Complete and submit an
ACLD Professional Study Application
NOW AVAILABLE ONLINE !!
On Leadership Website

How is a professional study application approved?
ACLD reviews and approves each application

LEA Approved Professional Study

- LEAs may provide approved professional study.
- LEAs may approve professional study provided by other entities.
- LEAs *are not required* to submit locally approved professional studies to the ACLD and/or SDE.
- LEAs may use any ACLD forms/applications in developing/implementing locally approved professional studies.
- The ACLD and SDE will provide technical assistance upon request.



Professional Learning Unit (PLU)

WHAT IS A PLU?

- *Content driven, long term*
- *Fully addresses* the Alabama Standards for Instructional Leaders
- *Completely aligned* to the Alabama Standards for Professional Developmen
- *Earned upon completion* of approved professional study
- *Replaces the continuing education unit (CEU)*

WHO MUST EARN A PLU?

- *All educators* electing to maintain their *instructional leader certification*

HOW WILL PLUs BE RECORDED?

- *Software Technology Incorporated, Professional Development (STI PD)*
- *For approved college courses to earn PLU credit, official transcripts must be submitted (in sealed envelopes) from the institution.*

PLU Requirements

- To maintain instructional leader certification, *five PLUs must be earned over a five-year certification cycle.*
- *At least two PLUs must be earned from ACLD* approved professional studies.
- *Two PLUs may be earned from an LEA* approved professional study.
- The *fifth PLU may be earned from* professional studies approved by *either the ACLD or the LEA.*

WHEN DID THIS BEGIN?

- *2009*
  - *A method for transitioning from CEUs to PLUs over a five-year period is in place.*
  - *Complete conversion to PLUs anticipated by 2014.*

Important

Approved Professional Study
and
Professional Learning Units

- *ARE* directly related to an individual's instructional leader certification.
- *ARE NOT* related to an individual's position, role or place of employment.

Instructional Leader

Includes anyone holding a valid Alabama certificate in
one or more of the following areas:

- *Superintendent*
- *Superintendent-Principal*
- *Principal (any grade level)*
- *Educational Administrator*
- *Supervisor (any subject and/or grade level)*
- *Administrator of Career and Technical Education*
- *Instructional Leader*

Obtain A Certificate Copy

- *Submit a Duplicate Certificate Request (Form DUP)*
- *Submit a $30 fee to the SDE*
- *If employed by an LEA, the LEA will have Form DUP*
- *All individuals, regardless of employment, may obtain Form DUP by going to the SDE website at www.alsde.edu.*
  - *Click on Sections*
  - *Select Teacher Education and Certification*
  - *Select Publications*
  - *Select Forms*
  - *Select Form DUP and download*
- *Directions for completion of form and fee submission are included in Form DUP*

Additional Certificate Access Information

- *Individuals may also access their certificate information at*
- *Once there, go to Teaching in Alabama on the Home Page.*
  - *There is no charge for this method of access.*
  - *Individuals will not obtain another certificate. However, their certificate information is available at this site.*

ACLD APPROVED PROFESSIONAL STUDIES

Winter 2010

State Department of Education

Alabama Math, Science, & Technology Initiative
- *Standards 1 & 2*

Alabama Reading Initiative
- *Standard 2*

Curriculum/Instruction: Making Middle Grades Work
- *Standard 1*

Federal Programs - *Coordinators*
- *Standard 7*

Federal Programs - *English Language Learners*
- *Standard 2*

Federal Programs – *School Improvement*
- *Standard 1*

ACLD APPROVED PROFESSIONAL STUDIES

Winter 2010

State Department of Education

Leadership/Edvantia, Incorporated
Shared Leadership
Re-culturing for Student Success
- *Standards 1 & 5*

Leadership/Federal Programs
Alabama Leadership Success Academy
- *Standard 1*

Leadership/Evaluation – *EDUCATEAlabama*
- *Standard 7*

ACLD APPROVED PROFESSIONAL STUDIES

Winter 2010

Agencies, Associations, Organizations

Alabama Association of School Boards
- *Standard 1*

Alabama Education Association
- *Standards 1,2,4, 5, 6, & 7*

Alabama Reading Associaton
- *Standard 2*

Council for Leaders in Alabama Schools
- *Standards 1,2,3,4,6, & 7*

School Superintendents of Alabama
- *Standards 6 & 7*

School Superintendents of Alabama/A+
- *Standard 1*

School Superintendents of Alabama/Apple Inc.
- *Standard 6*

ACLD APPROVED PROFESSIONAL STUDIES

Winter 2010

Other Entities

e-Learning for Alabama Educators
AL Public Television/State Department of Education
- *Standards 1 & 6*

Education Leadership Center for the Wiregrass
- *Standards 1,2, & 7*

ACLD APPROVED PROFESSIONAL STUDIES

Winter 2010

Private Providers

Curriculum Advantage, Inc.
- *Standard 2*

Education & Assessment Solutions, Inc.
- *Standard 2*

Information Transport Solutions, Inc.
- *Standard 6*

ACLD APPROVED PROFESSIONAL STUDIES

Winter 2010

Local Education Agencies

Auburn City
- *Standard 1*

Blount County
- *Standard 2*

Cleburne County
- *Standard 2*

Cullman County
- *Standards 1 & 5*

Elmore County
- *Standard 2*

Ft. Payne City
- *Standard 2*

Gadsden City
- *Standard 7*

Lawrence County
- *Standard 1*

Phenix City
- *Standards 2 & 6*

Shelby County
- *Standard 1*

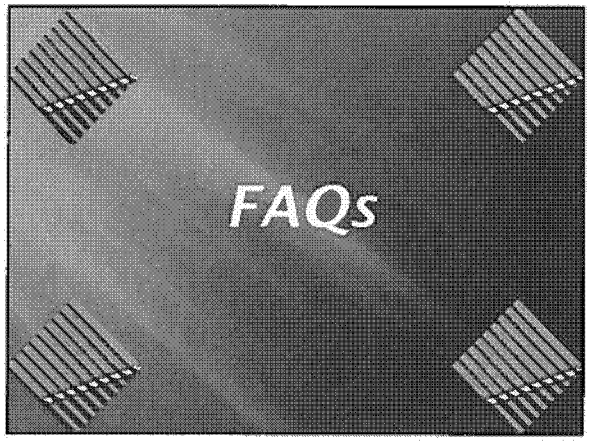
Vestavia Hill City
- *Standard 7*

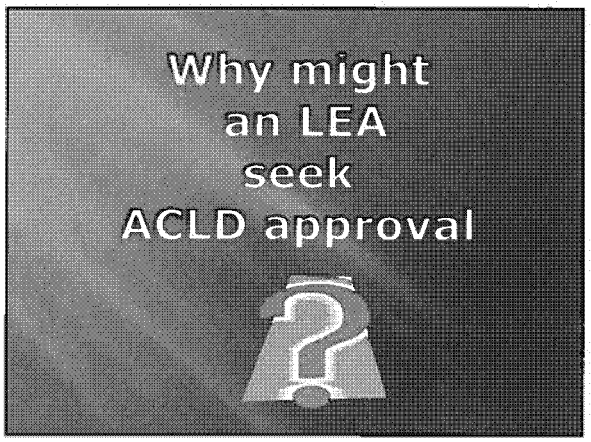
More ACLD Approved Studies Now Available

Go to

http://www.alex.state.al.us/[illegible]

Click on
ACLD Approved Professional Studies



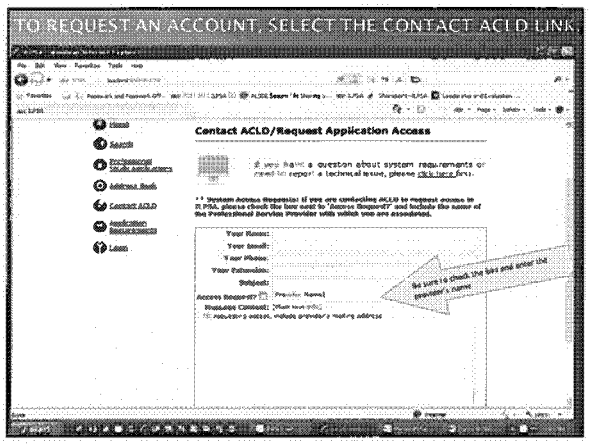


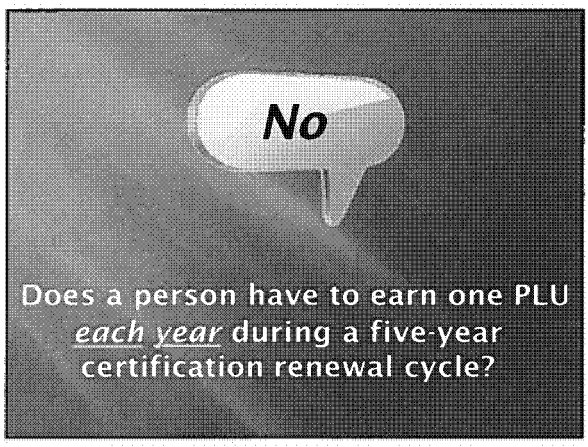
INSTRUCTIONAL LEADERSHIP PROFESSIONAL STUDY APPLICATION (ILPSA)

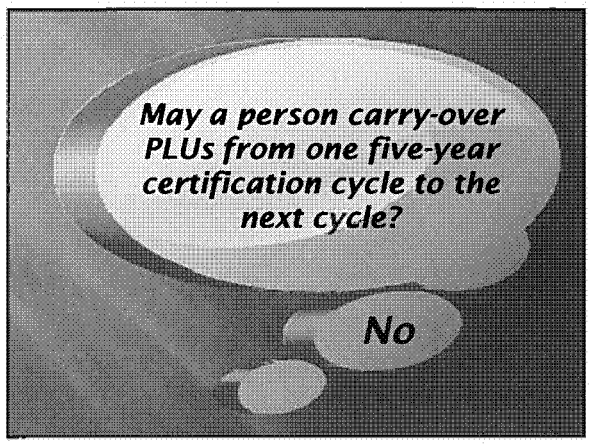
ONLINE MANAGEMENT SYSTEM

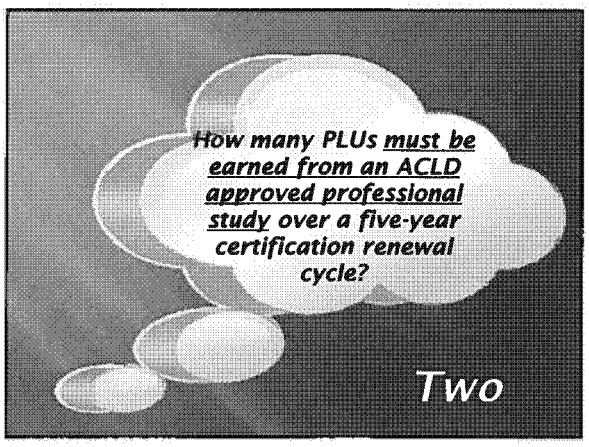
To view ACLD approved professional study applications, follow the steps listed below:

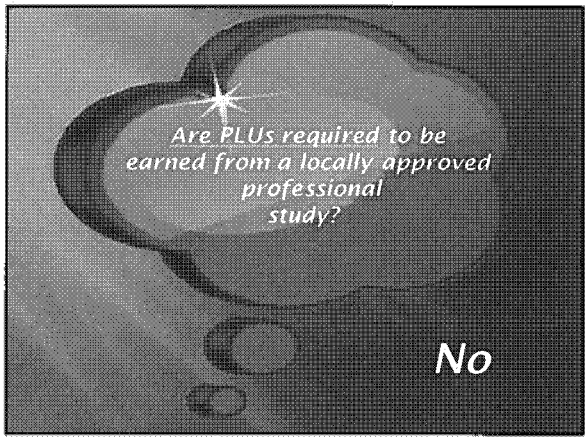
1. Go to https://www.leadership[illegible]
2. Select the Search link
3. Select the Fiscal Year 2009, under the *Public Application Search* section
4. Then, click the Search button to populate the list
5. Next, select the View Application link
6. Then, select View/Print Entire Application link to see all content

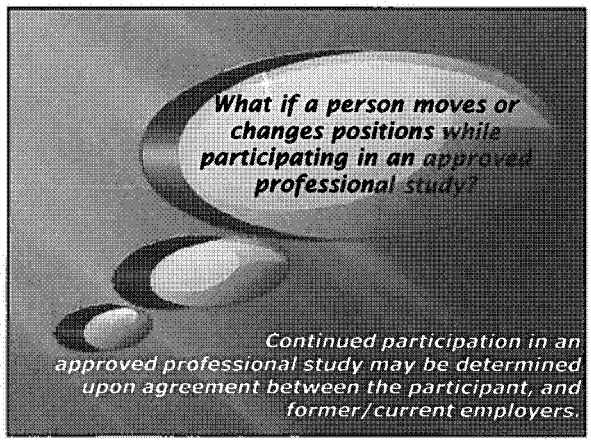

TO REQUEST AN ACCOUNT, SELECT THE CONTACT ACLD LINK
Contact ACLD/Request Application Access


No
Does a person have to earn one PLU each year during a five-year certification renewal cycle?

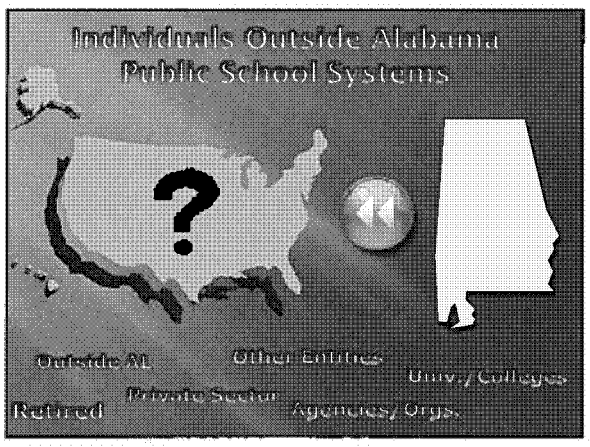

May a person carry-over PLUs from one five-year certification cycle to the next cycle?
No

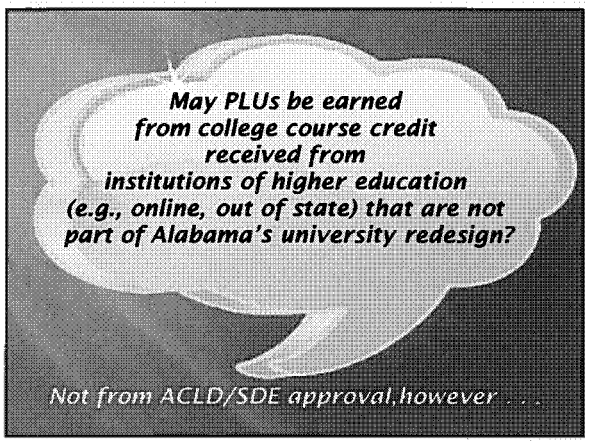

How many PLUs must be earned from an ACLD approved professional study over a five-year certification renewal cycle?
Two

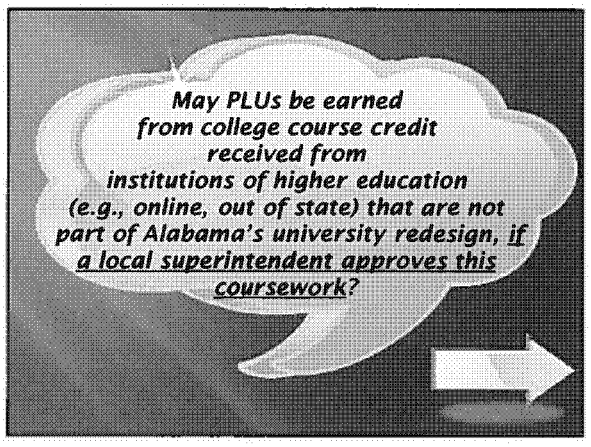

Are PLUs required to be earned from a locally approved professional study?
No


What if a person moves or changes positions while participating in an approved professional study?
Continued participation in an approved professional study may be determined upon agreement between the participant, and former/current employers.

Are there approved professional studies for persons not employed in Alabama public school systems?
Yes !


Individuals Outside Alabama Public School Systems
Outside AL
Other Entities
Univ./Colleges
Private Sector
Agencies/Orgs.
Retired


May PLUs be earned from college course credit received from institutions of higher education (e.g., online, out of state) that are not part of Alabama's university redesign?
Not from ACLD/SDE approval, however . . .



Education specialist or doctoral level administrative coursework completed at institutions outside of Alabama may be used as a PLU *only* if the course is approved by the *Alabama superintendent or headmaster*.

No more than three PLUs approved by the local superintendent may be used towards the renewal of a certificate in administration and/or supervision.

Note
All coursework at Alabama institutions that have been approved for use as a PLU (through the SDE) can be found at http://alex.state.al.us/leadership.

Approved Professional Study Status Since the Last ACLD Review

Date of Last Review = 1/12/10

Approved = 57

Pending = 11

ACLD **APPROVED PROFESSIONAL STUDIES

**

The Alabama Council for Leadership Development (ACLD) and the Alabama State Department of Education (SDE) do not endorse any groups, organizations, associations, agencies, individuals, private providers, vendors, and/or any other entities that submit Professional Study (PS) Applications for ACLD approval to earn Professional Learning Unit (PLU) status.

ACLD approval is strictly for the content and delivery of the professional study provided through the application process.

To Participate In ACLD Approved Professional Study

- Preview the approved professional studies (PS) on Leadership & Evaluation website.
- Contact the provider listed by each PS you find of interest.
- The provider should assist by providing:
  - *Additional information on the PS*
  - *A method/means to register for the PS*
  - *Assistance/facilitation during the PS*
  - *Documentation of successful completion of PS to earn professional learning unit(s) through Software Technology Incorporated, Professional Development (STI PD)*

To Participate In Locally Approved Professional Study

- *Contact the person responsible for professional development at your local education agency (LEA) central office.*
- *Determine if locally approved professional study is available to you.*
- *Participate, as applicable, and as allowed by your local superintendent and/or supervisor.*
- *Upon successful completion of locally approved professional study:*
  - Ensure participation is documented through STI PD, in accordance with local policies.

FAQ Memorandum

January 13, 2009
from
State Superintendent of Education
Joseph B. Morton

Points to Remember

- *Questions asked by over 4,200 Alabama educators*
- *Responses were compiled from the ACLD and SDE*
- *Applies to individuals holding a valid Alabama instructional leader certificate*
- *FAQ Document is marked DRAFT, January 13, 2009*
  - *Responses may be subject to change as new instructional leader certification and the approved professional state process is refined*

YOU MAY COPY !!

Note

PLUS for Education Specialist & Doctoral Courses

September 1, 2009
SDE Memorandum to Deans of Education

Go to:
http://www.alcoholstatecouncil.us/teachers.htm

Click on:

Questions about graduate courses to earn a Professional Learning Unit

More Questions

(b)(6)

[redacted]

(b)(6)

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.

	Signature	
Governor:		
Chief State School Officer:		5/28/09

Action Item No. G.2.o.
Alabama State Board of Education
May 14, 2009

RESOLUTION TO PARTICIPATE IN A STATE-LED COMMON SET OF STANDARDS IN ENGLISH AND MATHEMATICS

WHEREAS, in order for public education in America to be competitive worldwide, students in the United States must be proficient in English and Mathematics, in addition to several other subjects: and

WHEREAS, the National Governors Association (NGA) and the Council of Chief State School Officers (CCSSO) have committed to work together to create a state-led (not a federal government-led) effort to develop a common core of standards in English and Mathematics; and

WHEREAS, any state that participates in development of the common core of standards is not bound to adopt or implement the standards if they are disagreeable with state policies and/or practices:

NOW, THEREFORE, BE IT RESOLVED, That the Alabama State Board of Education does hereby approve the Alabama Department of Education's participation in the developmental efforts of the NGA/CCSSO in English and Mathematics.

Done, this the 14th day of May 2009.

Dear State Partners:

Thank you so much for taking a look at this *unproofed, unformatted* final version of the Common Core State Standards for English Language Arts & Literacy in History/Social Studies, Science, and Technical Subjects.

This final version is built on your excellent and thorough feedback. We want to begin by thanking you again for your work and that of your teams and the educators in your state. As you may know, we were also in receipt of ten thousand comments from the public Web site, so this draft reflects those comments as well. Finally, of course, several teacher organizations and other leading educational organizations and experts have continued to give us detailed feedback, so our work reflects this as well.

So thank you, thank you, thank you for your constructive feedback, conversation, and joint problem solving throughout the process. We never would have gotten to this final version without so much help and input from you. We hope you can now consider it your own work as well as ours.

In this note, we wanted to outline briefly themes from the feedback, how we incorporated the feedback, and what will be in the appendices and glossary that are not being sent now but will be in the published version.

Themes from the feedback and how we revised the Standards:

1. *Attending more fully to technical reading and writing*: Several states felt we had not adequately addressed technical reading and writing, and the Standards are substantially enhanced in this regard. You will notice the change in the title to make technical texts explicit. Also, we have threaded the demands of technical reading and writing throughout the grade-specific standards. Additional samples of technical reading will be added to Appendix B, and samples of student technical writing will be included in Appendix C.

2. *Ensuring text complexity is treated as a goal that does not overly constrain student reading throughout the year*: States were concerned that the way we had framed the text complexity requirements of the Standards seemed to limit attention to individual student needs during the year. We have substantially revised standard 10 on reading complex texts to ensure it is clear that it is an end-of-year expectation.

3. *Clarifying the grade-by-grade progressions, rendering them smoother and clearer to support high-quality instruction and assessment.* All of the progressions have been reviewed repeatedly and with care; we think you will find them far clearer as grade-specific standards year to year.

4. *Making sure the K–2 material is developmentally appropriate*: We have revised the K–2 standards to ensure that they are developmentally appropriate and that key skills such as fluency are extended to grade 5. In a similar vein, we have made standards pertaining to such areas as media and research applicable at the earliest grades in response to overwhelming feedback to do so.

5. *Expanding the richness of multimedia literacy and global diversity:* We have enhanced the Standards to address a fuller range of media and electronic text. We have also added clearer language on the need to study world literature and works from diverse cultures.

There are many other changes, based, as always, on our understanding of the feedback as well as the evidence for college and career readiness. We have made several clarifications that have been requested. We consider all of the changes we have made refinements, not radical revisions.

The appendices and glossary that will be published with the final Standards:

As requested, we will be adding a glossary of key terms. We are also refining Appendices A, B, and C in accord with your feedback.

Now that this is the final version, we are asking whether there are inadvertent errors that remain. Please let us know of any such errors by May 18th. We will not have the capacity to add significant new material or to make significant changes. However, we ask that states keep in mind their flexibility to add 15 percent to the Standards if they believe there is essential material that needs greater attention.

We have made every effort to listen closely and act with care and judgment. Thanks again for all your help and collaboration.

Best regards,

The ELA/Literacy Writing Team (Sue, David, and Jim)

COMMON CORE STATE STANDARDS FOR

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

DRAFT

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Introduction

The Common Core State Standards for English Language Arts & Literacy in History/Social Studies, Science, and Technical Subjects ("the Standards") are the culmination of an extended, broad-based effort to fulfill the charge issued by the states to create the next generation of K–12 standards in order to help ensure that all students are college and career ready in literacy no later than the end of high school.

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 on the most important international models as well as research and input from numerous sources, including state departments of education, scholars, assessment developers, professional organizations, educators from kindergarten through college, and parents, students, and other members of the public. In their design and content, refined through successive drafts and numerous rounds of feedback, the Standards represent a synthesis of the best elements of standards-related work to date and an important advance over that previous work.

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

The Standards are an extension of a prior initiative led by CCSSO and NGA to develop College and Career Readiness (CCR) standards in reading, writing, speaking, listening, and language as well as in mathematics. The CCR Reading, Writing, and Speaking and Listening Standards, released in draft form in September 2009, serve, in revised form, as the backbone for the present document. Grade-specific K–12 standards in reading, writing, speaking, listening, and language translate the broad (and, for the earliest grades, seemingly distant) aims of the CCR standards into age- and attainment-appropriate terms.

The Standards set requirements for English language arts (ELA) but also for literacy in history/social studies, science, and technical subjects. Just as students must learn to read, write, speak, listen, and use language effectively in a variety of content areas, so too must the Standards specify the literacy skills and understandings required for college and career readiness in multiple disciplines. Literacy standards for grade 6 and above are predicated on teachers of ELA, history/social studies, science, and technical subjects using their content area expertise to help students meet the particular challenges of reading, writing, speaking, listening, and language in their respective fields. It is important to note that the 6–12 literacy standards in history/social studies, science, and technical subjects are not meant to replace content standards in those areas but rather to supplement them. States may incorporate the standards into their standards for these subjects or adopt them as content area literacy standards.

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

May 2010

Key Design Considerations

CCR and grade-specific standards

The CCR standards anchor the document and define general, cross-disciplinary literacy expectations that must be met for students to be prepared to enter college and workforce training programs ready to succeed. The K–12 grade-specific standards define end-of-year expectations and a cumulative progression designed to enable students to meet college- and career-readiness expectations no later than the end of high school. The CCR and high school grade-specific standards work in tandem to define the college- and career-readiness line—the former providing broad standards, the latter providing additional specificity. Hence, both should be considered when developing college- and career-readiness assessments.

Students advancing through the grades are expected to meet each year's grade-specific standards, retain or further develop skills and understandings mastered in preceding grades, and work steadily toward meeting the more general expectations described by the CCR standards.

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

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

A focus on results rather than means

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

An integrated model of literacy

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

Research and media skills blended into the Standards as a whole

To be ready for college, workforce training, and life in a technological society, students need the ability to gather, comprehend, evaluate, synthesize, and report on information and ideas, to conduct original research in order to answer questions or solve problems, and to analyze and create a high volume and extensive range of print and nonprint texts in media forms old and new. The need to conduct research and to produce and consume media is embedded into every aspect of today's curriculum. In like fashion, research and media skills and understandings are embedded throughout the Standards rather than treated in a separate section.

Shared responsibility for students' literacy development

The Standards insist that instruction in reading, writing, speaking, listening, and language be a shared responsibility within the school. The K–5 standards include expectations for reading, writing, speaking, listening, and language applicable to a range of subjects, including but not limited to ELA. The grades 6–12 standards are divided into two sections, one for ELA and the other for history/social studies, science, and technical subjects. This division reflects the unique, time-honored place of ELA teachers in developing students' literacy skills while at the same time recognizing that teachers in other areas must have a role in this development as well.

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

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

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

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

The Standards aim to align instruction with this framework so that many more students than at present can meet the requirements of college and career readiness. In K–5, the Standards follow NAEP's lead in balancing the reading of literature with the reading of informational texts, including texts in history/social studies, science, and technical subjects. In accord with NAEP's growing emphasis on informational texts in the higher grades, the Standards demand that a significant amount of reading of informational texts take place in and outside of the ELA classroom. Fulfilling the standards for 6–12 ELA requires much greater attention to a specific category of informational text—literary nonfiction—than has been traditional. Because the ELA classroom must focus on literature (stories, drama, and poetry) as well as literary nonfiction, a great deal of informational reading in grades 6–12 must take place in other classes if the NAEP assessment framework is to be matched instructionally.[1] To measure students' growth toward college and career readiness, assessments aligned with the Standards should adhere to the distribution of texts across grades cited in the NAEP framework.

NAEP likewise outlines a distribution across the grades of the core purposes and types of student writing. Similar to the Standards, the 2011 NAEP framework cultivates the development of three mutually reinforcing writing capacities: writing to persuade, to explain, and to convey real or imagined experience. Evidence concerning the demands of college and career readiness gathered during development of the Standards concurs with NAEP's shifting emphases: standards for grades 9–12 describe writing in all three forms, but, consistent with NAEP, the overwhelming focus of writing throughout high school should be on writing to argue and to inform or explain.[2]

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

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

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

What is not *covered by the Standards*

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

1) The Standards define what all students are expected to know and be able to do, not how teachers should teach. The Standards must be complemented by a well-developed, content-rich curriculum consistent with the expectations laid out in this document.

2) While the Standards do attempt to focus on what is most essential, they do not describe all that can or should be taught. A great deal is left to the discretion of teachers and curiculum developers. The aim of the Standards is to articulate the fundamentals, not to set out an exhaustive list nor a set of restrictions that limits what can be taught beyond what is specified herein.

3) The Standards do not define the nature of advanced work for students who meet the Standards prior to the end of high school. For those students, advanced work in such areas as literature, composition, language, and journalism should be available. This

[1] The percentages on the table reflect the sum of student reading, not just reading in ELA settings. Teachers of senior English classes, for example, are not required to devote 70 percent of reading to informational texts. Rather, 70 percent of student reading across the grade should be informational.

[2] As with reading, the percentages in the table reflect the sum of student writing, not just writing in ELA settings.

work should provide the next logical step up from the college and career readiness baseline established here.

4) The Standards set grade-specific standards but do not define the intervention methods or materials necessary to support students who are well below or well above grade-level expectations. It is also beyond the scope of the Standards to define the full range of supports appropriate for English language learners and for students with special needs. At the same time, all students must have the opportunity to learn and meet the same high standards if they are to access the knowledge and skills necessary in their post-school lives. The Standards should be read as allowing for the widest possible range of students to participate fully from the outset, along with appropriate accommodations to ensure maximum participaton of students with special education needs. For example, for students with disabilities *reading* should allow for use of Braille, screen reader technology, or other assistive devices, while *writing* should include the use of a scribe, computer, or speech-to-text technology. In a similar vein, speaking and *listening* should be interpreted broadly to include sign language. No set of grade-specific standards can fully reflect the great variety in abilities, needs, learning rates, and achievement levels of students in any given classroom. However, the Standards do provide clear signposts along the way to the goal of college and career readiness for all students.

5) While the ELA and content area literacy components described herein are critical to college and career readiness, they do not define the whole of such readiness. Students require a wide-ranging, rigorous academic preparation and, particularly in the early grades, attention to such matters as social, emotional, and physical development and approaches to learning. Similarly, the Standards define literacy expectations in history/social studies, science, and technical subjects, but literacy standards in other areas, such as mathematics and health education, modeled on those herein are strongly encouraged to allow for a comprehensive, schoolwide literacy program.

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

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

- **They demonstrate independence.**

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

- **They build strong content knowledge.**

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

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

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

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

Students are engaged and open-minded—but discerning—readers and listeners. They work diligently to understand precisely what an author or speaker is saying, but they also question an author's or speaker's assumptions and assess the veracity of claims.

- **They value evidence.**

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

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

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

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

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

How to Read This Document

Overall Document Organization and Main Features

The Standards comprise three main sections: a comprehensive K–5 section and two content area–specific sections for grades 6–12, one for ELA and one for history/social studies, science, and technical subjects. Three appendices (lettered A, B, and C) accompany the main document.

Each section is divided into *strands*. K–5 and 6–12 ELA have Reading, Writing, Speaking and Listening, and Language strands; the 6–12 history/social studies, science, and technical subjects section focuses on Reading and Writing. Each strand is headed by a strand-specific set of *College and Career Readiness Anchor Standards* that is identical across all grades and content areas.

Standards for each grade within K–8 and for grades 9–10 and 11–12 follow the CCR standards in each strand. Each *grade-specific standard* (as these standards are collectively referred to) corresponds to the same-numbered CCR standard. Put another way, each CCR standard has an accompanying grade-specific standard translating the broader CCR statement into grade-appropriate end-of-year expectations.

Individual CCR standards can be identified by their strand, CCR status, and number (R.CCR.6, for example). Individual grade-specific standards can be identified by their strand, grade, and number or number and letter so that RI.4.3, for example, stands for Reading, Informational Text, grade 4, standard 3. Likewise, W.5.1a stands for Writing, grade 5, standard 1a. Strand designations can be found in brackets alongside the full strand title.

Who is responsible for which portion of the Standards

A single K–5 section lists CCR and grade-specific standards for reading, writing, speaking, listening, and language across the curriculum, reflecting the fact that most or all of the instruction students in these grades receive comes from one teacher. Grades 6–12 are covered in two content area–specific sections, the first for the English language arts teacher and the second for teachers of history/social studies, science, and technical subjects. Each section uses the same CCR standards but also includes grade-specific standards tuned to the literacy requirements of the particular discipline(s).

Key Features of the Standards

Reading: Text complexity and the growth of comprehension

The Reading standards place equal emphasis on the sophistication of what students read and the skill with which they read. Standard 10 defines a grade-by-grade "staircase" of increasing text complexity that rises from beginning reading to the college- and career-readiness level. Whatever they are reading, students must also show a steadily growing ability to discern more from and make fuller use of text, including making an increasing number of connections among ideas and between texts, considering a wider range of textual evidence, and becoming more sensitive to inconsistencies, ambiguities, and poor reasoning in texts.

Writing: Text types, responding to reading, and research

The Standards acknowledge the fact that whereas some writing skills, such as the ability to plan, revise, edit, and publish, are applicable to many types of writing, other skills are more properly defined in terms of specific writing types: arguments, informative/explanatory texts, and narratives. Standard 9 stresses the importance of the writing-reading connection by requiring students to draw and write about evidence from literary and informational texts. Because of the centrality of writing to most forms of inquiry, research standards are prominently included in this strand, though skills important to research are infused throughout the document.

Speaking and Listening: Flexible communication and collaboration

Including but not limited to skills necessary for formal presentations, the Speaking and Listening standards require students to develop a range of broadly useful oral communication and interpersonal skills. Students must learn to work together, express and listen to ideas, integrate information from oral, visual, and multimodal sources, evaluate what they hear, use digital media and visual displays strategically to help achieve communicative purposes, and adapt speech to context and task.

Language: Conventions and vocabulary

The standards on conventions and effective language use include the essential "rules" of formal written and spoken English, but they also approach language as a matter of craft and informed choice among alternatives. The vocabulary standards focus on understanding words, their relationships, and

their nuances and on acquiring new words and phrases, particularly general academic and domain-specific vocabulary.

Appendices A, B, and C

Appendix A contains supplementary material on reading, writing, speaking and listening, and language as well as a glossary of key terms. Appendix B consists of text exemplars illustrating the complexity, quality, and range of reading appropriate for various grade levels. Appendix C includes annotated samples demonstrating at least adequate performance in student writing at various grade levels.

Standards for English Language Arts & Literacy in History/Social Studies, Science, and Technical Subjects

K–5

College and Career Readiness Anchor Standards for Reading

The K–5 standards on the following pages define what students should understand and be able to do by the end of each grade. They relate to their College and Career Readiness (CCR) counterparts by number. The CCR and grade-specific standards are necessary complements—the former providing broad standards, the latter providing additional specificity—that together define the skills and understandings that all students must demonstrate.

Key Ideas and Details

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

Craft and Structure

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

Integration of Knowledge and Ideas

7. Integrate and evaluate content presented graphically, visually, orally, and multimodally as well as in words within and across print and digital sources.*
8. Delineate and evaluate the argument and specific claims in a text, including the validity of the reasoning as well as the relevance and sufficiency of the evidence.
9. Analyze how two or more texts address similar themes or topics in order to build knowledge or to compare the approaches the authors take.

Range of Reading and Level of Text Complexity

10. Read and comprehend complex literary and informational texts independently and proficiently.

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

Note on range and content of student reading

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

Reading Standards for Literature K–5

[RL]

The following standards offer a focus for instruction each year and help ensure that students gain adequate exposure to a range of texts and tasks. Rigor is also infused through the requirement that students read increasingly complex texts through the grades. Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades.

Kindergartners:	Grade 1 students:	Grade 2 students:
Key Ideas and Details		
1. With prompting and support, ask and answer questions about key details in a text.	**1.** Ask and answer questions about key details in a text.	**1.** Ask and answer such questions as *who*, *what*, *where*, *when*, *why*, and *how* to demonstrate understanding of key details in a text.
2. With prompting and support, retell familiar stories, including key details.	**2.** Retell stories, including key details, and demonstrate understanding of their central message or lesson.	**2.** Recount stories, including fables and folktales from diverse cultures, and determine their central message, lesson, or moral.
3. With prompting and support, identify characters, settings, and major events in a story.	**3.** Describe characters, settings, and major events in a story, using key details.	**3.** Describe how characters in a story respond to major events and challenges.
Craft and Structure		
4. Ask and answer questions about unknown words in a text.	**4.** Identify words and phrases in stories or poems that suggest feelings or appeal to the senses.	**4.** Describe how words and phrases (e.g., regular beats, alliteration, rhymes, repeated lines) supply rhythm and meaning in a story, poem, or song.
5. Recognize common types of texts (e.g., storybooks, poems).	**5.** Explain major differences between books that tell stories and books that give information, drawing on a wide reading of a range of text types.	**5.** Describe the overall structure of a story, including describing how the beginning introduces the story and the ending concludes the action.
6. With prompting and support, name the author and illustrator of a story and define the role of each in telling the story.	**6.** Identify who is telling the story at various points in a text.	**6.** Acknowledge differences in the points of view of characters, including by speaking in a different voice for each character when reading dialogue aloud.
Integration of Knowledge and Ideas		
7. With prompting and support, describe the connection between pictures or other illustrations and the overall story in which they appear.	**7.** Refer to pictures, illustrations, and details in a story to describe characters, setting, or events.	**7.** Use information from illustrations, other visual elements (e.g., maps), and the words in a print or digital text to demonstrate understanding of the characters, setting, or plot.
8. (Not applicable to literature)	**8.** (Not applicable to literature)	**8.** (Not applicable to literature)
9. With prompting and support, compare and contrast the adventures and experiences of characters in familiar stories.	**9.** Compare and contrast the adventures and experiences of characters in stories.	**9.** Compare and contrast two or more versions of the same story (e.g., Cinderella stories) by different authors or from different cultures.
Range of Reading and Level of Text Complexity		
10. Actively engage in group reading activities with purpose and understanding.	**10.** With prompting and support, read appropriately complex prose and poetry for grade 1.	**10.** By the end of the year, read literature, including stories, poetry, and drama, in the grades 2–3 text complexity band proficiently, with scaffolding as needed at the high end of the range.

Grade 3 students:	Grade 4 students:	Grade 5 students:
Key Ideas and Details		
1. Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.	**1.** Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text.	**1.** Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text.
2. Recount stories, including fables, folktales, and myths from diverse cultures; determine the central message, lesson, or moral and explain how it is conveyed through key details in the text.	**2.** Determine a theme of a story, drama, or poem from details in the text; summarize the text.	**2.** Determine a theme of a story, drama, or poem from details in the text, including how characters in a story or drama respond to challenges or how the speaker in a poem reflects upon a topic; summarize the text.
3. Describe characters in a story (e.g., their traits, motivations, or feelings) and explain how their actions contribute to the sequence of events.	**3.** Describe in depth a character, setting, or event in a story or drama, drawing on specific details in the text (e.g., a character's thoughts, words, or actions).	**3.** Compare and contrast two or more characters, settings, or events in a story or drama, drawing on specific details in the text (e.g., how characters interact).
Craft and Structure		
4. Determine the meaning of words and phrases as they are used in a text, distinguishing literal from nonliteral language.	**4.** Determine the meaning of words and phrases as they are used in a text, including those that allude to significant characters found in mythology (e.g., *Herculean*), drawing on a wide reading of classic myths from a variety of cultures and periods.	**4.** Determine the meaning of words and phrases as they are used in a text, including figurative language such as metaphors and similes.
5. Refer to parts of stories, dramas, and poems when writing or speaking about a text, using terms such as *chapter*, *scene*, and *stanza*; describe how each successive part builds on earlier sections.	**5.** Explain major differences between poems, drama, and prose and refer to the core structural elements of poems (e.g., stanza, verse, rhythm, meter) and drama (e.g., casts of characters, setting descriptions, dialogue, acts, scenes, stage directions) when writing or speaking about a text.	**5.** Explain how a series of chapters, scenes, or stanzas fits together to provide the overall structure of a particular story, drama, or poem.
6. Distinguish their own point of view from that of the narrator or those of the characters.	**6.** Compare and contrast the point of view from which different stories are narrated, including the difference between first- and third-person narrations.	**6.** Describe how a narrator's or speaker's point of view influences how events are described.
Integration of Knowledge and Ideas		
7. Explain how specific images and illustrations contribute to or clarify a story (e.g., create mood, emphasize particular aspects of characters or settings).	**7.** Integrate information gained from illustrations and other visual elements in a text with the words to demonstrate understanding of how the characters, setting, and plot interact and develop.	**7.** Analyze how visual and multimedia elements in conjunction with words contribute to the meaning, tone, or beauty of a text (e.g., graphic novel, multimedia presentation of fiction).
8. (Not applicable to literature)	**8.** (Not applicable to literature)	**8.** (Not applicable to literature)
9. Compare and contrast the themes, settings, and plots of stories written by the same author about the same or similar characters (e.g., in books from a series).	**9.** Compare and contrast the treatment of similar themes and topics (e.g., opposition of good and evil) and patterns of events (e.g., the quest) in stories, myths, and traditional literature from different cultures.	**9.** Compare and contrast stories in the same genre (e.g., mysteries and adventure stories) on their approaches to similar themes and topics.

Grade 3 students:	Grade 4 students:	Grade 5 students:
Range of Reading and Level of Text Complexity		
10. By the end of the year, read and comprehend literature, including stories, dramas, and poetry, in the grades 2–3 text complexity band independently and proficiently.	**10.** By the end of the year, read and comprehend literature, including stories, dramas, and poetry, in the grades 4–5 text complexity band proficiently, with scaffolding as needed at the high end of the range.	**10.** By the end of the year, read and comprehend literature, including stories, dramas, and poetry, in the grades 4–5 text complexity band independently and proficiently.

Reading Standards for Informational Text K–5

[RI]

Kindergartners:	Grade 1 students:	Grade 2 students:
Key Ideas and Details		
1. With prompting and support, ask and answer questions about key details in a text.	**1.** Ask and answer questions about key details in a text.	**1.** Ask and answer such questions as *who*, *what*, *where*, *when*, *why*, and *how* to demonstrate understanding of key details in a text.
2. With prompting and support, identify the main topic and retell key details of a text.	**2.** Identify the main topic and retell key details of a text.	**2.** Identify the main topic of a multiparagraph text as well as the focus of specific paragraphs within the text.
3. With prompting and support, describe the connection between two individuals, events, ideas, or pieces of information in a text.	**3.** Describe the connection between two individuals, events, ideas, or pieces of information in a text.	**3.** Describe the connection between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text.
Craft and Structure		
4. With prompting and support, ask and answer questions about unknown words in a text.	**4.** Ask and answer questions to help determine or clarify the meaning of words and phrases in a text.	**4.** Determine the meaning of words and phrases in a text relevant to a *grade 2 topic or subject area*.
5. Identify the front cover, back cover, and title page of a book.	**5.** Know and use various text features (e.g., headings, tables of contents, glossaries, electronic menus, icons) to locate key facts or information in a text.	**5.** Know and use various text features (e.g., captions, bold print, subheadings, glossaries, indexes, electronic menus, icons) to locate key facts or information in a text quickly and efficiently.
6. Name the author and illustrator of a text and define the role of each in presenting the ideas or information in a text.	**6.** Distinguish between information provided by pictures or other illustrations and information provided by the words in a text.	**6.** Identify the main purpose of a text, including what the author wants to answer, explain, or describe.
Integration of Knowledge and Ideas		
7. With prompting and support, describe the connection between pictures or other illustrations and the overall text in which they appear.	**7.** Use pictures, illustrations, and details in a text to describe its key ideas.	**7.** Explain how specific images and other illustrations contribute to and clarify a text (e.g., show how something works).
8. With prompting and support, identify the reasons an author gives to support points in a text.	**8.** Identify the reasons an author gives to support points in a text.	**8.** Describe how reasons support specific points the author makes in a text.
9. With prompting and support, identify basic similarities in and differences between two texts on the same topic (e.g., in illustrations, descriptions, or procedures).	**9.** Identify basic similarities in and differences between two texts on the same topic (e.g., in illustrations, descriptions, or procedures).	**9.** Compare and contrast the most important points presented by two texts on the same topic.
Range of Reading and Level of Text Complexity		
10. Actively engage in group reading activities with purpose and understanding.	**10.** With prompting and support, read appropriately complex informational texts for grade 1.	**10.** By the end of year, read and comprehend informational texts, including historical, scientific and technical texts, in the grades 2–3 text complexity band proficiently, with scaffolding as needed at the high end of the range

Reading Standards for Informational Text K–5

[RI]

Grade 3 students:	Grade 4 students:	Grade 5 students:
Key Ideas and Details		
1. Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.	**1.** Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text.	**1.** Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text.
2. Determine the main idea of a text; recount the key details and explain how they support the main idea.	**2.** Determine the main idea of a text and explain how it is supported by key details; summarize the text.	**2.** Determine two or more main ideas of a text and explain how they are supported by key details; summarize the text.
3. Describe the relationship between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text, using language that pertains to time, sequence, and cause/effect.	**3.** Explain events, procedures, ideas, or concepts in a historical, scientific, or technical text, including what happened and why, based on specific information in the text.	**3.** Explain the relationships or interactions between two or more individuals, events, ideas, or concepts in a historical, scientific, or technical text based on specific information in the text.
Craft and Structure		
4. Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a *grade 3 topic or subject area*.	**4.** Determine the meaning of general academic and domain-specific words or phrases in a text relevant to a *grade 4 topic or subject area*.	**4.** Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a *grade 5 topic or subject area*.
5. Use text features and search tools (e.g., key words, sidebars, hyperlinks) to locate information relevant to a given topic quickly and efficiently.	**5.** Describe the overall structure of events, ideas, concepts, or information (e.g., chronology, comparison, cause/effect) in a text or part of a text.	**6.** Compare and contrast the organizational structure of events, ideas, concepts, or information (e.g., chronology, comparison, cause/effect, problem/solution) in two or more texts.
6. Distinguish their own point of view from that of the author of a text.	**6.** Compare and contrast a firsthand and secondhand account of the same event or topic; describe the differences in focus and the information provided.	**7.** Analyze multiple accounts of the same event or topic, noting important similarities and differences in the point of view they represent.
Integration of Knowledge and Ideas		
7. Use information gained from illustrations, other visual elements (e.g., maps, photographs), and the words in a text to demonstrate understanding of the text (e.g., where, when, why, and how key events occur).	**7.** Interpret factual information presented graphically or visually (e.g., in charts, graphs, diagrams, time lines, animations, or interactive elements on Web pages) and explain how the information contributes to understanding the text in which they appear.	**7.** Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently.
8. Describe the logical connection between particular sentences and paragraphs in a text (e.g., comparison, cause/effect, first/second/third in a sequence).	**8.** Explain how an author uses reasons and evidence to support particular points in a text.	**8.** Explain how an author uses reasons and evidence to support particular points in a text, identifying which reasons and evidence supports which point(s).
9. Compare and contrast the most important points and key details presented in two texts on the same topic.	**9.** Integrate information from two texts on the same topic in order to write or speak about the subject knowledgeably.	**9.** Integrate information from several texts on the same topic in order to write or speak about the subject knowledgeably.

Grade 3 students:	Grade 4 students:	Grade 5 students:
Range of Reading and Level of Text Complexity		
10. By the end of the year, read and comprehend informational texts, including historical, scientific, and technical texts, in the grades 2–3 text complexity band independently and proficiently.	**10.** By the end of year, read and comprehend informational texts, including historical, scientific, and technical texts, in the grades 4–5 text complexity band proficiently, with scaffolding as necessary at the high end of the range.	**10.** By the end of the year, read and comprehend informational text, including historical, scientific, and technical texts, in the grades 4–5 text complexity band level independently and proficiently.

Reading Standards: Foundational Skills (K–5) [RF]

These standards are directed toward fostering students' understanding and working knowledge of concepts of print, the alphabetic principle, and other basic conventions of the English writing system. These Foundational Skills are not an end in and of themselves; rather, they are necessary and important components of an effective, comprehensive reading program designed to develop proficient readers with the capacity to comprehend texts across a range of types and disciplines. Instruction should be differentiated: Good readers will need much less practice with these concepts than struggling readers. The point is to teach students what they need to learn and not what they already know—to discern when particular children or activities warrant more or less attention.

**** In Kindergarten children are expected to demonstrate increasing awareness and competence in the areas that follow.***

Kindergartners:	Grade 1 students:
Print Concepts	
1. Demonstrate understanding of the organization and basic features of print. a. Follow words from left to right, top to bottom, and page-by-page. b. Recognize that spoken words are represented in written language by specific sequences of letters. c. Understand that words are separated by spaces in print. d. Recognize and name all upper- and lowercase letters of the alphabet.	**1.** Demonstrate understanding of the organization and basic features of print. a. Recognize the distinguishing features of a sentence (e.g., first word, capitalization, ending punctuation).
Phonological Awareness	
2. Demonstrate understanding of spoken words, syllables, and sounds (phonemes). a. Recognize and produce rhyming words. b. Count, pronounce, blend, and segment syllables in spoken words. c. Blend and segment onsets and rimes of single-syllable spoken words. d. Isolate and pronounce the initial, medial vowel, and final sounds (phonemes) in three-phoneme (CVC) words.[1] (This does not include CVCs ending with /l/, /r/, or /x/.) e. Add or substitute individual sounds (phonemes) in simple, one-syllable words to make new words.	**2.** Demonstrate understanding of spoken words, syllables, and sounds (phonemes). a. Distinguish long from short vowel sounds in spoken single-syllable words . b. Orally produce single-syllable words by blending sounds (phonemes), including consonant blends. c. Isolate and pronounce initial, medial vowel, and final sounds (phonemes) in spoken single-syllable words. d. Segment spoken single-syllable words into their complete sequence of individual sounds (phonemes).

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

Reading Standards: Foundational Skills (K–5) [RF]

**** In Kindergarten children are expected to demonstrate increasing awareness and competence in the areas that follow.***

Kindergartners:*	Grade 1 students:	Grade 2 students:
Phonics and Word Recognition		
3. Know and apply grade-level phonics and word analysis skills in decoding words. a. Demonstrate basic knowledge of letter-sound correspondences by producing the primary or most frequent sound for each consonant. b. Associate the long and short sounds with the common spellings (graphemes) for the five major vowels. c. Read common high-frequency words by sight. (e.g., *the*, *of*, *to*, *you*, *she*, *my*, *is*, *are*, *do*, *does*). d. Distinguish between similarly spelled words by identifying the sounds of the letters that differ.	**3.** Know and apply grade-level phonics and word analysis skills in decoding words. a. Know the spelling-sound correspondences for common consonant digraphs.(two letters that represent one sound). b. Decode regularly spelled one-syllable words. c. Know final -*e* and common vowel team conventions for representing long vowel sounds. d. Use knowledge that every syllable must have a vowel sound to determine the number of syllables in a printed word. e. Decode two-syllable words following basic patterns by breaking the words into syllables. f. Read words with inflectional endings. g. Recognize and read grade-appropriate irregularly spelled words.	**3.** Know and apply grade-level phonics and word analysis skills in decoding words. a. Distinguish long and short vowels when reading regularly spelled one-syllable words. b. Know spelling-sound correspondences for additional common vowel teams. c. Decode regularly spelled two-syllable words with long vowels. d. Decode words with common prefixes and suffixes. e. Identify words with inconsistent but common spelling-sound correspondences. f. Recognize and read grade-appropriate irregularly spelled words.
4. Read emergent-reader texts with purpose and understanding.	**4.** Read with sufficient accuracy and fluency to support comprehension. a. Read on-level text with purpose and understanding. b. Read on-level text orally with accuracy, appropriate rate, and expression. c. Use context to confirm or self-correct word recognition and understanding, rereading as necessary.	**4.** Read with sufficient accuracy and fluency to support comprehension. a. Read on-level text with purpose and understanding. b. Read on-level text orally with accuracy, appropriate rate, and expression. c. Use context to confirm or self-correct word recognition and understanding, rereading as necessary.

Grade 3 students:	Grade 4 students:	Grade 5 students:
Phonics and Word Recognition		
3. Know and apply grade-level phonics and word analysis skills in decoding words. a. Identify and know the meaning of the most common prefixes and derivational suffixes. b. Decode words with common Latin suffixes. c. Decode multisyllable words. d. Read grade-appropriate irregularly spelled words.	**3.** Know and apply grade-level phonics and word analysis skills in decoding words. a. Use combined knowledge of all letter-sound correspondences, syllabication patterns, and morphology (e.g., roots and affixes) to read accurately unfamiliar multi-syllabic words in context and out of context.	**3.** Know and apply grade-level phonics and word analysis skills in decoding words. a. Use combined knowledge of all letter-sound correspondences, syllabication patterns, and morphology (e.g., roots and affixes) to read accurately unfamiliar multi-syllabic words in context and out of context.
Fluency		
4. Read with sufficient accuracy and fluency to support comprehension. a. Read on-level text with purpose and understanding. b. Read on-level prose and poetry orally with accuracy, appropriate rate, and expression. c. Use context to confirm or self-correct word recognition and understanding, rereading as necessary.	**4.** Read with sufficient accuracy and fluency to support comprehension. a. Read on-level text with purpose and understanding. b. Read on-level prose and poetry orally with accuracy, appropriate rate, and expression. c. Use context to confirm or self-correct word recognition and understanding, rereading as necessary.	**4.** Read with sufficient accuracy and fluency to support comprehension. a. Read on-level text with purpose and understanding. b. Read on-level prose and poetry orally with accuracy, appropriate rate, and expression. c. Use context to confirm or self-correct word recognition and understanding, rereading as necessary.

College and Career Readiness Anchor Standards for Writing

The K–5 standards on the following pages define what students should understand and be able to do by the end of each grade. They relate to their College and Career Readiness (CCR) counterparts by number. The CCR and grade-specific standards are necessary complements—the former providing broad standards, the latter providing additional specificity—that together define the skills and understandings that all students must demonstrate.

Text Types and Purposes[1]

1. Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.
2. Write informative/explanatory texts to examine and convey complex ideas and information clearly and accurately through the effective selection, organization, and analysis of content.
3. Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured event sequences.

Production and Distribution of Writing

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

Research to Build and Present Knowledge

7. Conduct short as well as more sustained research projects based on focused questions, demonstrating understanding of the subject under investigation.
8. Gather relevant information from multiple print and digital sources, assess the credibility and accuracy of each source, and integrate the information while avoiding plagiarism.
9. Draw evidence from literary or informational texts to support analysis, reflection, and research.

Range of Writing

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

[1]These broad types of writing include many subgenres. See Appendix A for definitions of key writing types.
[2]See standards 1–3 in Language, pages 26–31, for specific editing expectations.

Note on range and content of student writing

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

Writing Standards K–5

[W]

The following standards for K–5 offer a focus for instruction each year to help ensure that students gain adequate mastery of a range of skills and applications. Each year in their writing, students should demonstrate increasing sophistication in all aspects of language use, from vocabulary and syntax to the development and organization of ideas, and they should address increasingly demanding content and sources. Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades. The expected growth in student writing ability is reflected both in the standards themselves and in the collection of annotated student writing samples in Appendix C.

Kindergartners:	Grade 1 students:	Grade 2 students:
Text Types and Purposes		
1. Use a combination of drawing, dictating, and writing to compose opinion pieces in which they tell a reader the topic or the name of the book they are writing about and state an opinion or preference about the topic or book (e.g., *My favorite book is . . .*).	**1.** Write opinion pieces in which they introduce the topic or name the book they are writing about, state an opinion, supply a reason for the opinion, and provide some sense of closure.	**1.** Write opinion pieces in which they introduce the topic or book they are writing about, state an opinion, supply reasons that support the opinion, use linking words (e.g., *because*, *and*, *also*) to connect opinion and reasons, and provide a concluding statement or section.
2. Use a combination of drawing, dictating, and writing to compose informative/explanatory texts in which they name what they are writing about and supply some information about the topic.	**2.** Write informative/explanatory texts in which they name a topic, supply some facts about the topic, and provide some sense of closure.	**2.** Write informative/explanatory texts in which they introduce a topic, use facts and definitions to develop points, and provide a concluding statement or section.
3. Use a combination of drawing, dictating, and writing to narrate a single event or several loosely linked events, tell about the events in the order in which they occurred, and provide a reaction to what happened.	**3.** Write narratives in which they recount two or more appropriately sequenced events, include some details regarding what happened, use temporal words to signal event order, and provide some sense of closure.	**3.** Write narratives in which they recount a well-elaborated event or short sequence of events, include details to describe actions, thoughts, and feelings, use temporal words to signal event order, and provide a sense of closure.
Production and Distribution of Writing		
4. (Begins in grade 3)	**4.** (Begins in grade 3)	**4.** (Begins in grade 3)
5. With guidance and support from adults, respond to questions and suggestions from peers and add details to strengthen writing as needed.	**5.** With guidance and support from adults, focus on a topic, respond to questions and suggestions from peers, and add details to strengthen writing as needed.	**5.** With guidance and support from adults and peers, focus on a topic and strengthen writing as needed by revising and editing.
6. With guidance and support from adults, explore a variety of digital tools to produce and publish writing, including in collaboration with peers.	**6.** With guidance and support from adults, use a variety of digital tools to produce and publish writing, including in collaboration with peers.	**6.** With guidance and support from adults, use a variety of digital tools to produce and publish writing, including in collaboration with peers.
Research to Build and Present Knowledge		
7. Participate in shared research and writing projects (e.g., explore a number of books by a favorite author and express opinions about them).	**7.** Participate in shared research and writing projects (e.g., explore a number of "how-to" books on a given topic and use them to write a sequence of instructions).	**7.** Participate in shared research and writing projects (e.g., read a number of books on a single topic to produce a report; record science observations).
8. With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question.	**8.** With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question.	**8.** Recall information from experiences or gather information from provided sources to answer a question.
9. (Begins in grade 4)	**9.** (Begins in grade 4)	**9.** (Begins in grade 4)
Range of Writing		
10. (Begins in grade 3)	**10.** (Begins in grade 3)	**10.** (Begins in grade 3)

Grade 3 students:	Grade 4 students:	Grade 5 students:
Text Types and Purposes		
1. Write opinion pieces on familiar topics or texts, supporting a point of view with reasons. a. Introduce the topic or book they are writing about, state an opinion, and create an organizational structure that lists reasons. b. Provide reasons that support the opinion. c. Use linking words and phrases (e.g., *because*, *therefore*, *since*, *for example*) to connect opinion and reasons. d. Provide a concluding statement or section.	**1.** Write opinion pieces on topics or texts, supporting a point of view with reasons and information. a. Introduce a topic or text clearly, state an opinion, and create an organizational structure in which related ideas are grouped to support the writer's purpose. b. Provide reasons that are supported by facts and details. c. Link opinion and reasons using words and phrases (e.g., *for instance*, *in order to*, *in addition*). d. Provide a concluding statement or section related to the opinion presented.	**1.** Write opinion pieces on topics or texts, supporting a point of view with reasons and information. a. Introduce a topic or text clearly, state an opinion, and create an organizational structure in which ideas are logically grouped to support the writer's purpose. b. Provide logically ordered reasons that are supported by facts and details. c. Link opinion and reasons using words, phrases, and clauses (e.g., *consequently*, *specifically*). d. Provide a concluding statement or section related to the opinion presented.
2. Write informative/explanatory texts to examine a topic and convey ideas and information clearly. a. Introduce a topic and group related information together; include illustrations when useful to aiding comprehension. b. Develop the topic with facts, definitions, and details. c. Use linking words and phrases (e.g., *also*, *another*, *and*, *more*, *but*) to connect ideas within categories of information. d. Provide a concluding statement or section.	**2.** Write informative/explanatory texts to examine a topic and convey ideas and information clearly. a. Introduce a topic clearly and group related information in paragraphs and sections; include formatting (e.g., headings), illustrations, and multimedia when useful to aiding comprehension. b. Develop the topic with facts, definitions, concrete details, quotations, or other information and examples related to the topic. c. Link ideas within categories of information using words and phrases (e.g., *another*, *for example*, *also*, *because*). d. Use precise language and domain-specific vocabulary to inform about or explain the topic. e. Provide a concluding statement or section related to the information or explanation presented.	**2.** Write informative/explanatory texts to examine a topic and convey ideas and information clearly. a. Introduce a topic clearly, provide a general observation and focus, and group related information logically; include formatting (e.g., headings), illustrations, and multimedia when useful to aiding comprehension. b. Develop the topic with facts, definitions, concrete details, quotations, or other information and examples related to the topic. c. Link ideas within and across categories of information using words, phrases, and clauses (e.g., *in contrast*, *especially*). d. Use precise language and domain-specific vocabulary to inform about or explain the topic. e. Provide a concluding statement or section related to the information or explanation presented.
3. Write narratives to develop real or imagined experiences or events using effective technique, descriptive details, and clear event sequences. a. Establish a situation and introduce a narrator and/or characters; organize an event sequence that unfolds naturally. b. Use dialogue and descriptions of actions, thoughts, and feelings to develop experiences and events or show the response of characters to situations. c. Use temporal words and phrases to signal event order. d. Provide a sense of closure.	**3.** Write narratives to develop real or imagined experiences or events using effective technique, descriptive details, and clear event sequences. a. Orient the reader by establishing a situation and introducing a narrator and/or characters; organize an event sequence that unfolds naturally. b. Use dialogue and description to develop experiences and events or show the responses of characters to situations. c. Use a variety of transitional words and phrases to manage the sequence of events. d. Use concrete words and phrases and sensory details to convey experiences and events precisely. e. Provide a conclusion that follows from the narrated experiences or events.	**3.** Write narratives to develop real or imagined experiences or events using effective technique, descriptive details, and clear event sequences. a. Orient the reader by establishing a situation and introducing a narrator and/or characters; organize an event sequence that unfolds naturally. b. Use narrative techniques, such as dialogue, description, and pacing, to develop experiences and events or show the responses of characters to situations. c. Use a variety of transitional words, phrases, and clauses to manage the sequence of events. d. Use concrete words and phrases and sensory details to convey experiences and events precisely. e. Provide a conclusion that follows from the narrated experiences or events.

Grade 3 students:	Grade 4 students:	Grade 5 students:
Production and Distribution of Writing		
4. With guidance and support from adults, produce writing in which the development and organization are appropriate to task and purpose. (Grade-specific expectations for writing types are defined in standards 1–3 above.)	**4.** Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3 above.)	**4.** Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3 above.)
5. With guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, and editing.	**5.** With guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, and editing.	**5.** With guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach.
6. With guidance and support from adults, use technology to produce and publish writing (using keyboarding skills) as well as to interact and collaborate with others.	**6.** With some guidance and support from adults, use technology, including the Internet, to produce and publish writing (using the keyboard) as well as to interact and collaborate with others.	**6.** With some guidance and support from adults, use technology, including the Internet, to produce and publish a minimum of two pages of writing (using the keyboard) as well as to interact and collaborate with others.
Research to Build Knowledge		
7. Conduct short research projects that build knowledge about a topic.	**7.** Conduct short research projects that build knowledge through investigation of different aspects of a topic.	**7.** Conduct short research projects that use several sources to build knowledge through investigation of different aspects of a topic.
8. Recall information from experiences or gather information from print and digital sources; take brief notes on sources and sort evidence into provided categories.	**8.** Recall relevant information from experiences or gather relevant information from print and digital sources; take notes and categorize information, and provide a list of sources.	**8.** Recall relevant information from experiences or gather relevant information from print and digital sources; summarize or paraphrase information in notes and finished work, and provide a list of sources.
9. (Begins in grade 4)	**9.** Draw evidence from literary or informational texts to support analysis, reflection, and research. a. Apply *grade 4 Reading standards* to literature (e.g., "Describe in depth a character, setting, or event in a story or drama, drawing on specific details in the text"). b. Apply *grade 4 Reading standards* to informational texts (e.g., "Explain how an author uses reasons and evidence to support particular points in a text").	**9.** Draw evidence from literary or informational texts to support analysis, reflection, and research. a. Apply *grade 5 Reading standards* to literature (e.g., "Compare and contrast two or more characters, settings, or events in a story or a drama, drawing on specific details in the text"). b. Apply *grade 5 Reading standards* to informational texts (e.g., "Explain how an author uses reasons and evidence to support particular points in a text, identifying which reasons and evidence supports which point[s]").
Range of Writing		
10. Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.	**10.** Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.	**10.** Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

College and Career Readiness Anchor Standards for Speaking and Listening

The K–5 standards on the following pages define what students should understand and be able to do by the end of each grade. They relate to their College and Career Readiness (CCR) counterparts by number. The CCR and grade-specific standards are necessary complements—the former providing broad standards, the latter providing additional specificity—that together define the skills and understandings that all students must demonstrate.

Comprehension and Collaboration

1. Prepare for and participate effectively in a range of conversations and collaborations, building on others' ideas and expressing their own clearly and persuasively.
2. Integrate and evaluate content from multiple graphical, visual, oral, or multimodal sources.
3. Evaluate a speaker's point of view, reasoning, and use of evidence and rhetoric.

Presentation of Knowledge and Ideas

4. Present information, findings, and supporting evidence such that listeners can follow the line of reasoning and the organization, development, and style are appropriate to task, purpose, and audience.
5. Make strategic use of digital media and visual displays of data to express information and enhance understanding of presentations.
6. Adapt speech to a variety of contexts and communicative tasks, demonstrating command of formal English when indicated or appropriate.

Note on range and content of student speaking and listening

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

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

Speaking and Listening Standards K–5

[SL]

The following standards for K–5 offer a focus for instruction each year to help ensure that students gain adequate mastery of a range of skills and applications. Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades.

Kindergartners:	Grade 1 students:	Grade 2 students:
Comprehension and Collaboration		
1. Participate in collaborative conversations about *kindergarten topics and texts* with peers and adults in small and larger groups. a. Follow agreed-upon rules for discussions (e.g., listening to others and taking turns speaking about the topics and texts under discussion). b. Continue a conversation through multiple exchanges.	**1.** Participate in collaborative conversations about *grade 1 topics and texts* with peers and adults in small and larger groups. a. Follow agreed-upon rules for discussions (e.g., listening to others with care, speaking one at a time about the topics and texts under discussion). b. Build on others' talk in conversations by responding to the comments of others through multiple exchanges. c. Ask questions to clear up any confusion about the topics and texts under discussion.	**1.** Participate in collaborative conversations about *grade 2 topics and texts* with peers and adults in small and larger groups. a. Follow agreed-upon rules for discussions (e.g., gaining the floor in respectful ways, listening to others with care, speaking one at a time about the topics and texts under discussion). b. Build on others' talk in conversations by linking their comments to the remarks of others. c. Ask for clarification and further explanation as needed about the topics and texts under discussion.
2. Confirm understanding of written texts read aloud or information presented orally or through media by asking and answering questions about key details.	**2.** Demonstrate understanding of written texts read aloud or information presented orally or through media by asking and answering questions about key details and restating key elements.	**2.** Recount or describe key ideas or details from written texts read aloud or information presented orally or through media.
3. Ask and answer questions in order to seek help, get information, or clarify something that is not understood.	**3.** Ask and answer questions about what a speaker says in order to gather additional information or clarify something that is not understood.	**3.** Ask and answer questions about what a speaker says in order to clarify comprehension, gather additional information, or deepen understanding of a topic or issue.
Presentation of Knowledge and Ideas		
4. Describe familiar people, places, things, and events and, with prompting and support, provide additional detail.	**4.** Describe people, places, things, and events with relevant details, expressing ideas and feelings clearly.	**4.** Tell a story or recount an experience with appropriate facts and relevant, descriptive details, speaking audibly in coherent sentences.
5. Add drawings or other visual displays to descriptions as desired to provide additional detail.	**5.** Add drawings or other visual displays to descriptions when appropriate to clarify ideas, thoughts, and feelings.	**5.** Create audio recordings of stories or poems; add drawings or other visual displays to stories or recounts of experiences when appropriate to clarify ideas, thoughts, and feelings.
6. Speak audibly and express thoughts, feelings, and ideas clearly.	**6.** Produce complete sentences when appropriate to task and situation. (See standards 1–3 in Language, pages 26–31, for specific expectations.)	**6.** Produce complete sentences when appropriate to task and situation in order to provide requested detail or clarification. (See standards 1–3 in Language, pages 26–31, for specific expectations.)

Grade 3 students:	Grade 4 students:	Grade 5 students:
Comprehension and Collaboration		
1. Engage effectively in a range of collaborative discussions (one-on-one and in groups) on *grade 3 topics and texts*, building on others' ideas and expressing their own clearly. a. Follow agreed-upon rules for discussions (e.g., gaining the floor in respectful ways, listening to others with care, speaking one at a time about the topics and texts under discussion). b. Ask questions to check understanding of information presented, stay on topic, and link their comments to the remarks of others. c. Explain their own ideas and understanding in light of the discussion.	**1.** Engage effectively in range of collaborative discussions (one-on-one and in groups) on *grade 4 topics and texts*, building on others' ideas and expressing their own clearly. a. Come to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussions. b. Follow agreed-upon rules for discussions and carry out assigned roles. c. Pose and respond to specific questions to clarify or follow up on information, and make comments that contribute to the discussion and link to the remarks of others. d. Review the key ideas expressed and explain their own ideas and understanding in light of the discussion.	**1.** Engage effectively in a range of collaborative discussions (one-on-one and in groups) on *grade 5 topics and texts*, building on others' ideas and expressing their own clearly. a. Come to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion. b. Follow agreed-upon rules for discussions and carry out assigned roles. c. Pose and respond to specific questions by making comments that contribute to the discussion and elaborate on the remarks of others. d. Review the key ideas expressed and draw conclusions in light of information and knowledge gained from the discussions.
2. Identify the main ideas and supporting details of written texts read aloud or information presented graphically, orally, visually, or multimodally.	**2.** Paraphrase portions of written texts read aloud or information presented graphically, orally, visually, or multimodally.	**2.** Summarize written texts read aloud or information presented graphically, orally, visually, or multimodally.
3. Ask and answer questions about information from a speaker's, offering appropriate elaboration and detail.	**3.** Identify the reasons and evidence a speaker provides to support particular points.	**3.** Summarize the points a speaker makes and explain how each claim is supported by reasons and evidence.
Presentation of Knowledge and Ideas		
4. Report on a topic or text, tell a story, or recount an experience with appropriate facts and relevant, descriptive details, speaking clearly at an understandable pace.	**4.** Report on a topic or text, tell a story, or recount an experience in an organized manner, using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.	**4.** Report on a topic or text or present an opinion, sequencing ideas logically and using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.
5. Create engaging audio recordings of stories or poems that demonstrate fluid reading at an understandable pace; add visual displays when appropriate to emphasize or enhance certain facts or details.	**5.** Add audio recordings and visual displays to presentations when appropriate to enhance the development of main ideas or themes.	**5.** Include multimedia components (e.g., graphics, sound) and visual displays in presentations when appropriate to enhance the development of main ideas or themes.
6. Speak in complete sentences when appropriate to task and situation in order to provide requested detail or clarification. (See standards 1–3 in Language, pages 26–31, for specific expectations.)	**6.** Differentiate between contexts that call for formal English (e.g., presenting ideas) and situations where informal discourse is appropriate (e.g., small-group discussion); use formal English when appropriate to task and situation. (See standards 1–3 in Language, pages 26–31, for specific expectations.)	**6.** Adapt speech to a variety of contexts and tasks, using formal English when appropriate to task and situation. (See standards 1–3 in Language, pages 26–31, for specific expectations.)

College and Career Readiness Anchor Standards for Language

The K–5 standards on the following pages define what students should understand and be able to do by the end of each grade. They relate to their College and Career Readiness (CCR) counterparts by number. The CCR and grade-specific standards are necessary complements—the former providing broad standards, the latter providing additional specificity—that together define the skills and understandings that all students must demonstrate.

Conventions

1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
2. Demonstrate command of the conventions of capitalization, punctuation, and spelling when writing.

Effective Language Use

3. Use language to enhance meaning, convey style, and achieve particular effects when writing or speaking.

Vocabulary Acquisition and Use

4. Determine or clarify the meaning of unknown and multiple-meaning words and phrases by using context clues, analyzing meaningful word parts, and consulting general and specialized reference materials, as appropriate.
5. Demonstrate understanding of word relationships and nuances in word meanings.
6. Acquire and use accurately a range of general academic and domain-specific vocabulary sufficient for reading, writing, speaking, and listening at the college and career readiness level.

Note on range and content of student language use

To build a foundation for college and career readiness in language, students must gain control over many conventions of grammar, usage, and mechanics as well as learn ways to use language to enhance meaning. They must also be able to determine or clarify the meaning of grade-appropriate words encountered through listening, reading, and media use, come to appreciate that words have nonliteral meanings, shadings of meaning, and relationships to other words, and expand their vocabulary in the course of studying content. The inclusion of Language standards in their own strand should not be taken as an indication that skills related to conventions, effective language use, and vocabulary are unimportant to reading, writing, speaking, and listening; indeed, they are inseparable from such contexts.

Language Standards K–5

[L]

The following standards for grades K–5 offer a focus for instruction each year to help ensure that students gain adequate mastery of a range of skills and applications. Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades. Beginning in grade 3, skills and understandings that are particularly likely to require continued attention in higher grades as they are applied to increasingly sophisticated writing and speaking are marked with an asterisk (*). See the table on page 31 for a complete list and Appendix A for an example of how these skills develop in sophistication.

Kindergartners:	Grade 1 students:	Grade 2 students:
Conventions		
1. Observe conventions of grammar and usage when writing or speaking. a. Print many upper- and lowercase letters. b. Use frequently occurring nouns and verbs. c. Form regular plural nouns orally by adding /s/ or /es/ (e.g., *dog, dogs*; *wish, wishes*). d. Understand and use question words (interrogatives) (e.g., *who, what, where, when, why, how*). e. Use the most frequently occurring prepositions (e.g., *to, from, in, out, on, off, for, of, by, with*). f. Produce and expand complete sentences in shared language activities.	**1.** Observe conventions of grammar and usage when writing or speaking. a. Print all upper- and lowercase letters. b. Use common, proper, and possessive nouns. c. Use singular and plural nouns with matching verbs in basic sentences (e.g., *He hops*; *We hop*). d. Use personal, possessive, and indefinite pronouns (e.g., *I, me, my*; *they, them, their, anyone, everything*). e. Use verbs to convey a sense of past, present, and future (e.g., *Yesterday I walked home*; *Today I walk home*; *Tomorrow I will walk home*). f. Use frequently occurring adjectives. g. Use frequently occurring conjunctions (e.g., *and, but, or, so, because*). g. Use determiners (e.g., articles, demonstratives). h. Use frequently occurring prepositions (e.g., *during, beyond, toward*). i. Produce and expand complete simple and compound declarative, interrogative, imperative, and exclamatory sentences in response to questions and prompts.	**1.** Observe conventions of grammar and usage when writing or speaking. a. Use collective nouns (e.g., *group*). b. Form and use frequently occurring irregular plural nouns (e.g., *feet, children, teeth, mice, fish*). c. Use reflexive pronouns (e.g., *myself, ourselves*). d. Form and use the past tense of frequently occurring irregular verbs (e.g., *sat, hid, told*). e. Use adjectives and adverbs, and choose between them depending on what is to be modified. f. Produce, expand, and rearrange complete simple and compound sentences (e.g., *The boy watched the movie*; *The little boy watched the movie*; *The action movie was watched by the little boy*).
2. Observe conventions of capitalization, punctuation, and spelling when writing. a. Capitalize the first word in a sentence and the pronoun *I*. b. Recognize and name end punctuation. c. Write a letter or letters for most consonant and short-vowel sounds (phonemes). d. Spell simple words phonetically, drawing on knowledge of sound-letter relationships.	**2.** Observe conventions of capitalization, punctuation, and spelling when writing. a. Capitalize dates and names of people. b. Use end punctuation for sentences. c. Use commas in dates and to separate single words in a series. d. Use conventional spelling for words with common spelling patterns and for frequently occurring irregular words. e. Spell untaught words phonetically, drawing on phonemic awareness and spelling conventions.	**2.** Observe conventions of capitalization, punctuation, and spelling when writing. a. Capitalize holidays, product names, and geographic names. b. Use commas in greetings and closings of letters. c. Use an apostrophe to form contractions and frequently occurring possessives. d. Generalize learned spelling patterns when writing words (e.g., *cage* → *badge*; *boy* → *boil*). e. Consult reference materials, including beginning dictionaries, as needed to check and correct spellings.
Effective Language Use		
(Begins in grade 3)	**3.** (Begins in grade 3)	**3.** (Begins in grade 3)

Kindergartners:	Grade 1 students:	Grade 2 students:
Vocabulary Acquisition and Use		
4. Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on *kindergarten reading and content*. a. Identify new meanings for familiar words and apply them accurately (e.g., knowing *duck* as a bird and learning the verb *to duck*). b. Use the most frequently occurring inflections and affixes (e.g., *-ed*, *-s*, *re-*, *un-*, *pre-*, *-ful*, *-less*) as a clue to the meaning of an unknown word.	**4.** Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on *grade 1 reading and content*, choosing flexibly from an array of strategies. a. Use sentence-level context as a clue to the meaning of a word or phrase. b. Use frequently occurring affixes as a clue to the meaning of a word. c. Identify frequently occurring root words (e.g., *look*) and their inflectional forms (e.g., *looks*, *looked*, *looking*).	**4.** Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on *grade 2 reading and content*, choosing flexibly from an array of strategies. a. Use sentence-level context as a clue to the meaning of a word or phrase. b. Determine the meaning of the new word formed when a known prefix is added to a known word (e.g., *happy/unhappy*, *tell/retell*). c. Use a known root word as a clue to the meaning of an unknown word with the same root (e.g., *addition*, *additional*). d. Use knowledge of the meaning of individual words to predict the meaning of compound words (e.g., *birdhouse*, *lighthouse*, *housefly*; *bookshelf*, *notebook*, *bookmark*). e. Use glossaries and beginning dictionaries, both print and digital, to determine or clarify the meaning of words and phrases.
5. With guidance and support from adults, explore word relationships and nuances in word meanings. a. Sort common objects into categories (e.g., shapes, foods) to gain a sense of the concepts the categories represent. b. Demonstrate understanding of frequently occurring verbs and adjectives by relating them to their opposites (antonyms). c. Identify real-life connections between words and their use (e.g., note places at school that are *colorful*). d. Distinguish shades of meaning among verbs describing the same general action (e.g., *walk*, *march*, *strut*, *prance*) by acting out the meanings.	**5.** With guidance and support from adults, demonstrate understanding of word relationships and nuances in word meanings. a. Sort words into categories (e.g., colors, clothing) to gain a sense of the concepts the categories represent. b. 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). c. Identify real-life connections between words and their use (e.g., note places at home that are *cozy*). d. Distinguish shades of meaning among verbs differing in manner (e.g., *look*, *peek*, *glance*, *stare*, *glare*, *scowl*) and adjectives differing in intensity (e.g., *large*, *gigantic*) by defining or choosing them or by acting out the meanings.	**5.** Demonstrate understanding of word relationships and nuances in word meanings. a. Identify real-life connections between words and their use (e.g., describe foods that *are spicy* or *juicy*). b. Distinguish shades of meaning among closely related verbs (e.g., *toss*, *throw*, *hurl*) and closely related adjectives (e.g., *thin*, *slender*, *skinny*, *scrawny*).
6. Use words and phrases acquired through conversations, reading and being read to, and responding to texts.	**6.** Use words and phrases acquired through conversations, reading and being read to, and responding to texts, including using frequently occurring conjunctions to signal simple relationships (e.g., *I named my hamster Nibblet because she nibbles too much because she likes that*).	**6.** Use words and phrases acquired through conversations, reading and being read to, and responding to texts, including using adjectives and adverbs to describe (e.g., *When other kids are happy that makes me happy*).

Conventions

Grade 3 students:

1. Observe conventions of grammar and usage when writing or speaking.
   a. Explain the function of nouns, pronouns, verbs, adjectives, and adverbs in general and their functions in particular sentences.
   b. Form and use regular and irregular plural nouns.
   c. Use abstract nouns (e.g., *childhood*).
   d. Form and use regular and irregular verbs.
   e. Form and use the simple (e.g., *I walked*; *I walk*; *I will walk*) verb tenses.
   f. Ensure subject-verb and pronoun-antecedent agreement.*
   g. Form and use comparative and superlative adjectives and adverbs, and choose between them depending on what is to be modified.
   h. Use coordinating and subordinating conjunctions.
   i. Produce simple, compound, and complex sentences.

2. Observe conventions of capitalization, punctuation, and spelling when writing.
   a. Capitalize important words in titles.
   b. Use commas in addresses.
   c. Use commas and quotation marks in dialogue.
   d. Form and use possessives.
   e. Use conventional spelling for high-frequency and other studied words and for adding suffixes to base words (e.g., *sitting*, *smiled*, *cries*, *happiness*).
   f. Use spelling patterns and generalizations (e.g., word families, position-based spellings, syllable patterns, ending rules, meaningful word parts) in writing words.
   g. Consult reference materials, including beginning dictionaries, as needed to check and correct spellings.

Grade 4 students:

1. Observe conventions of grammar and usage when writing or speaking.
   a. Use relative pronouns (*who*, *whose*, *whom*, *which*, *that*) and relative adverbs (*where*, *when*, *why*).
   b. Form and use the progressive (e.g., *I was walking*; *I am walking*; *I will be walking*) verb aspects.
   c. Use modal auxiliaries (e.g., *can*, *may*, *must*) to convey various conditions.
   d. Order adjectives within sentences according to conventional patterns (e.g., *a small red bag* rather than *a red small bag*).
   e. Form and use prepositional phrases.
   f. Produce complete sentences, recognizing and correcting rhetorically poor fragments and run-ons.*
   g. Correctly use frequently confused words (e.g., *to*, *too*, *two*; *there*, *their*).*

2. Observe conventions of capitalization, punctuation, and spelling when writing.
   a. Use correct capitalization.
   b. Use commas and quotation marks to mark direct speech and quotations from a text.
   c. Use a comma before a coordinating conjunction in a compound sentence.
   d. Spell grade-appropriate words correctly, consulting references as needed.

Grade 5 students:

1. Observe conventions of grammar and usage when writing or speaking.
   a. Explain the function of conjunctions, prepositions, and interjections in general and their function in particular sentences.
   b. Form and use the perfect (e.g., *I had walked*; *I have walked*; *I will have walked*) verb aspects.
   c. Use verb tense and aspect to convey various times, sequences, states, and conditions.
   d. Recognize and correct inappropriate shifts in verb tense and aspect.*
   e. Use correlative conjunctions.

2. Observe conventions of capitalization, punctuation, and spelling when writing.
   a. Use punctuation to separate items in a series.*
   b. Use a comma to separate an introductory element from the rest of the sentence.
   c. Use a comma to set off the words *yes* and *no* (e.g., *Yes, thank you*), to set off a tag question from the rest of the sentence (e.g., *It's true, isn't it?*), and to indicate direct address (e.g., *Is that you, Steve?*).
   d. Use underlining, quotation marks, or italics to indicate titles of works.
   e. Spell grade-appropriate words correctly, consulting references as needed.

Effective Language Use

Grade 3 students:

3. Use language to achieve particular effects when writing or speaking.
   a. Choose words and phrases for effect.*

Grade 4 students:

3. Use language to enhance meaning and achieve particular effects when writing or speaking.
   a. Choose words and phrases to convey ideas precisely.*
   b. Use punctuation for effect.*

Grade 5 students:

3. Use language to enhance meaning, convey style, and achieve particular effects when writing or speaking.
   a. Expand, combine, and reduce sentences for meaning, reader/listener interest, and style.

Grade 3 students:	Grade 4 students:	Grade 5 students:
Vocabulary Acquisition and Use		
4. Determine or clarify the meaning of unknown and multiple-meaning word and phrases based on *grade 3 reading and content*, choosing flexibly from a range of strategies. a. Use sentence-level context as a clue to the meaning of a word or phrase. b. Determine the meaning of the new word formed when a known affix is added to a known word (e.g., *agreeable/disagreeable*, *comfortable/uncomfortable*, *care/careless*, *heat/preheat*). c. Use a known root word as a clue to the meaning of an unknown word with the same root (e.g., *company*, *companion*). d. Use glossaries or beginning dictionaries, both print and digital, to determine or clarify the precise meaning of key words and phrases.	**4.** Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on *grade 4 reading and content*, choosing flexibly from a range of strategies. a. Use context (e.g., definitions, examples, or restatements in text) as a clue to the meaning of a word or phrase. b. Use common, grade-appropriate Greek and Latin affixes and roots as clues to the meaning of a word (e.g., *telegraph*, *photograph*, *autograph*). c. Consult reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation and determine or clarify the precise meaning of key words and phrases.	**4.** Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on *grade 5 reading and content*, choosing flexibly from a range of strategies. a. Use context (e.g., cause/effect relationships and comparisons in text) as a clue to the meaning of a word or phrase. b. Use common, grade-appropriate Greek and Latin affixes and roots as clues to the meaning of a word (e.g., *photograph*, *photosynthesis*). c. Consult reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation and determine or clarify the precise meaning of key words and phrases.
5. Demonstrate understanding of word relationships and nuances in word meanings. a. Distinguish the literal and nonliteral meanings of words and phrases in context (e.g., *take steps*). b. Identify real-life connections between words and their use (e.g., describe people who are *friendly* or *helpful*). c. Distinguish shades of meaning among related words that describe states of mind or degrees of certainty (e.g., *knew*, *believed*, *suspected*, *heard*, *wondered*).	**5.** Demonstrate understanding of figurative language, word relationships, and nuances in word meanings. a. Explain the meaning of simple similes and metaphors (e.g., *as pretty as a picture*) in context. b. Recognize and explain the meaning of common idioms, adages, and proverbs. c. Demonstrate understanding of words by relating them to their opposites (antonyms) and to words with similar but not identical meanings (synonyms).	**5.** Demonstrate understanding of figurative language, word relationships, and nuances in word meanings. a. Interpret figurative language, including similes and metaphors, in context. b. Recognize and explain the meaning of common idioms, adages, and proverbs. c. Use the relationship between particular words (e.g., synonyms, antonyms, homographs) to better understand each of the words.
6. Acquire and use accurately grade-appropriate conversational, general academic, and domain-specific vocabulary, including words and phrases that signal spatial and temporal relationships (e.g., *After dinner that night we went looking for them*).	**6.** Acquire and use accurately grade-appropriate general academic and domain-specific vocabulary, including words and phrases that signal precise actions, emotions, or states of being (e.g., *quizzed*, *whined*, *stammered*) and words and phrases basic to a particular topic (e.g., *wildlife*, *conservation*, and *endangered* when discussing animal preservation).	**6.** Acquire and use accurately grade-appropriate general academic and domain-specific vocabulary, including words and phrases that signal contrast, addition, and other logical relationships (e.g., *however*, *although*, *nevertheless*, *similarly*, *moreover*, *in addition*).

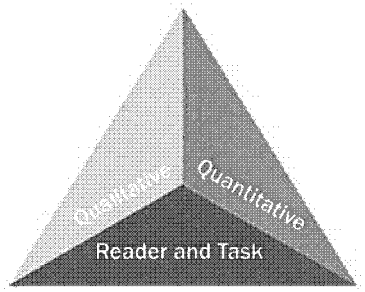
Language Progressive Skills, by Grade

The following skills, marked with an asterisk (*) in Language standards 1–3, are particularly likely to require continued attention in higher grades as they are applied to increasingly sophisticated writing and speaking.

Skill	3	4	5	6	7	8	9–10	11–12
Ensure subject-verb and pronoun-antecedent agreement.								
Choose words and phrases for effect.								
Produce complete sentences, recognizing and correcting rhetorically poor fragments and run-ons.								
Correctly use frequently confused words (e.g., *to/too/two; there/their*).								
Choose words and phrases to convey ideas precisely.								
Use punctuation for effect.								
Recognize and correct inappropriate shifts in verb tense and aspect.								
Use punctuation to separate items in a series.								
Recognize and correct inappropriate shifts in pronoun number and person.								
Recognize and correct vague pronouns (i.e., ones with unclear or ambiguous antecedents).								
Recognize variations from standard English in their own and others' writing and speaking, and identify and use strategies to improve expression in conventional language.								
Use punctuation (commas, parentheses, dashes) to set off nonrestrictive/parenthetical elements.								
Vary sentence patterns for meaning, reader/listener interest, and style.								
Maintain consistency in style and tone.								
Place phrases and clauses within a sentence, recognizing and correcting misplaced and dangling modifiers.								
Choose language that expresses ideas precisely and concisely, eliminating wordiness and redundancy.								
Recognize and correct inappropriate shifts in verb voice and mood.								
Use parallel structure.								

Standard 10: Range, Quality, and Complexity of Student Reading K–5

Measuring Text Complexity: Three Factors



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

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

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

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

Range of Text Types for K–5

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

Literature			Informational Text
Stories	**Dramas**	**Poetry**	**Literary Nonfiction and Historical, Scientific, and Technical Texts**
Includes children's adventure stories, folktales, legends, fables, fantasy, realistic fiction, and myth	Includes staged dialogue and brief familiar scenes	Includes nursery rhymes and the subgenres of the narrative poem, limerick, and free verse poem	Includes biographies and autobiographies; books about history, social studies, science, and the arts; technical texts, including directions, forms, and information displayed in graphs, charts, or maps; and digital sources on a range of topics

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

* Read-aloud
** Read-along

	Literature: Stories, Drama, Poetry	Informational Texts: Literary Nonfiction and Historical, Scientific, and Technical Texts
K[1]	▪ *Over in the Meadow* by John Langstaff (traditional) (c1800)* ▪ *A Boy, a Dog, and a Frog* by Mercer Mayer (1967) ▪ *Pancakes for Breakfast* by Tomie DePaola (1978) ▪ *A Story A Story* by Gail E. Haley (1970)* ▪ *Kitten's First Full Moon* by Kevin Henkes (2004)*	▪ *My Five Senses* by Aliki (1962)* ▪ *Truck* by Donald Crews (1980) ▪ *I Read Signs* by Tana Hoban (1987) ▪ *What Do You Do With a Tail Like This?* by Steve Jenkins and Robin Page (2003)* ▪ *Amazing Whales!* by Sarah L. Thomson (2005)*
1	▪ "Mix a Pancake" by Christina G. Rossetti (1893)** ▪ *Mr. Popper's Penguins* by Richard Atwater (1938)* ▪ *Little Bear* by Else Holmelund Minarik, illustrated by Maurice Sendak (1957)** ▪ *Frog and Toad Together* by Arnold Lobel (1971)** ▪ *Hi! Fly Guy* by Tedd Arnold (2006)	▪ *A Tree Is a Plant* by Clyde Robert Bulla, illustrated by Stacey Schuett (1960)** ▪ *My Five Senses* by Aliki (1962)** ▪ *Follow the Water from Brook to Ocean* by Arthur Dorros (1991)** ▪ *From Seed to Pumpkin* by Wendy Pfeffer, illustrated by James Graham Hale (2004)* ▪ *How People Learned to Fly* by Fran Hodgkins and True Kelley (2007)*
2–3	▪ "Who Has Seen the Wind?" by Christina G. Rossetti (1893) ▪ *Charlotte's Web* by E. B. White (1952)* ▪ *Sarah, Plain and Tall* by Patricia MacLachlan (1985) ▪ *Tops and Bottoms* by Janet Stevens (1995) ▪ *Poppleton in Winter* by Cynthia Rylant, illustrated by Mark Teague (2001)	▪ *A Medieval Feast* by Aliki (1983) ▪ *From Seed to Plant* by Gail Gibbons (1991) ▪ *The Story of Ruby Bridges* by Robert Coles (1995)* ▪ *A Drop of Water: A Book of Science and Wonder* by Walter Wick (1997) ▪ *Moonshot: The Flight of Apollo 11* by Brian Floca (2009)
4–5	▪ *Alice's Adventures in Wonderland* by Lewis Carroll (1865) ▪ "Casey at the Bat" by Ernest Lawrence Thayer (1888) ▪ *The Black Stallion* by Walter Farley (1941) ▪ "Zlateh the Goat" by Isaac Bashevis Singer (1984) ▪ *Bud, Not Buddy* by Christopher Paul Curtis (1999) ▪ *The Birchbark House* by Louise Erdrich (1999) ▪ *Where the Mountain Meets the Moon* by Grace Lin (2009)	▪ *Discovering Mars* by Melvin Berger (1992) ▪ *Hurricanes: Earth's Mightiest Storms* by Patricia Lauber (1996) ▪ *A History of US* by Joy Hakim (2005) ▪ *Horses* by Seymour Simon (2006) ▪ *Quest for the Tree Kangaroo: An Expedition to the Cloud Forest of New Guinea* by Sy Montgomery (2006)

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

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

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

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

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

Exemplar Texts on a Topic Across Grades	K	1	2–3	4–5
The Human Body Students can begin learning about the human body starting in kindergarten and then review and extend their learning during each subsequent grade.	The five senses and associated body parts ▪ *My Five Senses* by Aliki (1989) ▪ *Hearing* by Maria Rius (1985) ▪ *Sight* by Maria Rius (1985) ▪ *Smell* by Maria Rius (1985) ▪ *Taste* by Maria Rius (1985) ▪ *Touch* by Maria Rius (1985) Taking care of your body: Overview (hygiene, diet, exercise, rest) ▪ *My Amazing Body: A First Look at Health & Fitness* by Pat Thomas (2001) ▪ *Get Up and Go!* by Nancy Carlson (2008) ▪ *Go Wash Up* by Doering Tourville (2008) ▪ *Sleep* by Paul Showers (1997) ▪ *Fuel the Body* by Doering Tourville (2008)	Introduction to the systems of the human body and associated body parts ▪ *Under Your Skin: Your Amazing Body* by Mick Manning (2007) ▪ *Me and My Amazing Body* by Joan Sweeney (1999) ▪ *The Human Body* by Gallimard Jeunesse (2007) ▪ *The Busy Body Book* by Lizzy Rockwell (2008) ▪ *First Encyclopedia of the Human Body* by Fiona Chandler (2004) Taking care of your body: Germs, diseases, and preventing illness ▪ *Germs Make Me Sick* by Marilyn Berger (1995) ▪ *Tiny Life on Your Body* by Christine Taylor-Butler (2005) ▪ *Germ Stories* by Arthur Kornberg (2007) ▪ *All About Scabs* by GenichiroYagu (1998)	Digestive and excretory systems ▪ *What Happens to a Hamburger* by Paul Showers (1985) ▪ *The Digestive System* by Christine Taylor-Butler (2008) ▪ *The Digestive System* by Rebecca L. Johnson (2006) ▪ *The Digestive System* by Kristin Petrie (2007) Taking care of your body: healthy eating and nutrition ▪ *Good Enough to Eat* by Lizzy Rockwell (1999) ▪ *Showdown at the Food Pyramid* by Rex Barron (2004) Muscular, skeletal, and nervous systems ▪ *The Mighty Muscular and Skeletal Systems* Crabtree Publishing (2009) ▪ *Muscles* by Seymour Simon (1998) ▪ *Bones* by Seymour Simon (1998) ▪ *The Astounding Nervous System* Crabtree Publishing (2009) ▪ *The Nervous System* by Joelle Riley (2004)	Circulatory system ▪ *The Heart* by Seymour Simon (2006) ▪ *The Heart and Circulation* by Carol Ballard (2005) ▪ *The Circulatory System* by Kristin Petrie (2007) ▪ *The Amazing Circulatory System* by John Burstein (2009) Respiratory system ▪ *The Lungs* by Seymour Simon (2007) ▪ *The Respiratory System* by Susan Glass (2004) ▪ *The Respiratory System* by Kristin Petrie (2007) ▪ *The Remarkable Respiratory System* by John Burstein (2009) Endocrine system ▪ *The Endocrine System* by Rebecca Olien (2006) ▪ *The Exciting Endocrine System* by John Burstein (2009)

Standards for English Language Arts

6–12

College and Career Readiness Anchor Standards for Reading

The grades 6–12 standards on the following pages define what students should understand and be able to do by the end of each grade. They relate to their College and Career Readiness (CCR) counterparts by number. The CCR and grade-specific standards are necessary complements—the former providing broad standards, the latter providing additional specificity—that together define the skills and understandings that all students must demonstrate.

Key Ideas and Details

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

Craft and Structure

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

Integration of Knowledge and Ideas

7. Integrate and evaluate content presented graphically, visually, orally, and multimodally as well as in words within and across print and digital sources.*
8. Delineate and evaluate the argument and specific claims in a text, including the validity of the reasoning as well as the relevance and sufficiency of the evidence.
9. Analyze how two or more texts address similar themes or topics in order to build knowledge or to compare the approaches the authors take.

Range of Reading and Level of Text Complexity

10. Read and comprehend complex literary and informational texts independently and proficiently.

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

Note on range and content of student reading

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

Reading Standards for Literature 6–12

[RL]

The following standards offer a focus for instruction each year and help ensure that students gain adequate exposure to a range of texts and tasks. Rigor is also infused through the requirement that students read increasingly complex texts through the grades. Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades.

Grade 6 students:	Grade 7 students:	Grade 8 students:
Key Ideas and Details		
1. Cite textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.	**1.** Cite several pieces of textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.	**1.** Cite the textual evidence that most strongly supports an analysis of what the text says explicitly as well as inferences drawn from the text.
2. Determine a theme or central idea of a text and analyze its development over the course of the text; summarize the text.	**2.** Determine a theme or central idea of a text and analyze its development over the course of the text, including its relationship to the characters, setting, and plot; summarize the text.	**2.** Determine a theme or central idea of a text and analyze its development over the course of the text, including how it is conveyed through particular details; provide an accurate summary of the text distinct from personal opinions or judgments.
3. Describe how a particular story's or drama's plot unfolds in a series of episodes as well as how the characters respond or change as the plot moves toward a resolution.	**3.** Analyze how particular elements of a story or drama interact (e.g., how setting shapes the characters or plot).	**3.** Analyze how particular lines of dialogue or incidents in a story or drama propel the action, reveal aspects of a character, or provoke a decision.
Craft and Structure		
4. Determine the meaning of words and phrases as they are used in a text, including figures of speech and the connotations (associations) of particular words and phrases; analyze the impact of a specific word choice on meaning and tone.	**4.** Determine the meaning of words and phrases as they are used in a text, including figurative and connotative meanings; analyze the impact of rhymes and other repetitions of sounds (e.g., alliteration) on a specific verse or stanza of a poem or section of a story or drama.	**4.** Determine the meaning of words and phrases as they are used in a text, including analogies or allusions to other texts; analyze the impact of specific word choices on meaning and tone.
5. Analyze how a particular sentence, chapter, scene, or stanza fits into the overall structure of a text and contributes to the development of the theme, setting, or plot.	**5.** Analyze how a drama's or poem's form or structure (e.g. sonnet, soliloquy) contributes to its meaning.	**5.** Compare and contrast the structure of two or more texts and analyze how the differing structure of each text contributes to its meaning and style.
6. Explain how an author establishes and develops the point of view of the narrator or speaker in a text.	**6.** Analyze how an author establishes and contrasts the points of view of different characters or narrators in a text.	**6.** Explain how differences in the point of view of characters and the audience or reader (e.g., created through the use of dramatic irony) creates such effects as suspense or humor.
Integration of Knowledge and Ideas		
7. Compare and contrast the experience of reading a story, poem, or dram to listening to or viewing an audio, video, or live version of the text, including contrasting what they "see" and "hear" when reading the text to what they perceive when they listen or watch.	**7.** Compare and contrast a story, poem, or drama to its audio, filmed, staged, or multimedia version, analyzing the effects of techniques unique to each medium (e.g., lighting, sound, color, camera focus and angles).	**7.** Analyze the extent to which a filmed or live production of a story or drama stays faithful to or departs from the text or script, evaluating the choices made by the director or actors.
8. (Not applicable to literature)	**8.** (Not applicable to literature)	**8.** (Not applicable to literature)

Grade 6 students:	Grade 7 students:	Grade 8 students:
Integration of Knowledge and Ideas		
9. Compare and contrast texts in different forms or genres (e.g., stories and poems; historical novels and fantasy stories) in terms of their approaches to similar themes and topics.	**9.** Compare and contrast a fictional portrayal of a time, place, or character and a historical account of the same period as a means of understanding how authors of fiction use or alter history.	**9.** Analyze how a modern work of fiction draws on themes, patterns of events, or character types from myths, traditional stories, or religious works such as the Bible, including describing how the material is rendered new.
Range of Reading and Level of Text Complexity		
10. By the end of the year, read and comprehend literature, including stories, dramas, and poems, in the grades 6–8 text complexity band proficiently, with scaffolding as needed at the high end of the range.	**10.** By the end of the year, read and comprehend literature, including stories, dramas, and poems, in the grades 6–8 text complexity band proficiently, with scaffolding as necessary at the high end of the range.	**10.** By the end of the year, read and comprehend literature, including stories, dramas, and poems, in the grades 6–8 text complexity band independently and proficiently.

Grades 9–10 students:	Grades 11–12 students:
Key Ideas and Details	
1. Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.	**1.** Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text, including determining where the text leaves matters uncertain.
2. Determine a theme or central idea of a text and analyze in detail its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text.	**2.** Determine two or more themes or central ideas of a text and analyze their development over the course of the text, including how they interact and build on one another to produce a complex account; provide an objective summary of the text.
3. Analyze how complex characters (e.g., those with multiple or conflicting motivations) develop over the course of a text, interact with other characters, and advance the plot or develop the theme.	**3.** Evaluate various explanations for characters' actions or for events and determine which explanation best accords with textual evidence, acknowledging where the text leaves matters uncertain.
Craft and Structure	
4. Determine the meaning of words and phrases as they are used in the text and analyze the cumulative impact of several word choices on meaning and tone (e.g., how the language evokes a sense of time and place; how it sets a formal or informal tone).	**4.** Determine the meaning of words and phrases as they are used in the text and analyze the impact of specific word choices on meaning and tone, including words with multiple meanings or language that is particularly fresh, engaging, or beautiful. (Include Shakespeare as well as other authors.)
5. Analyze how an author's choices concerning how to structure a text, order events within it (e.g., parallel plots), and manipulate time (e.g., pacing, flashbacks) create such effects as mystery, tension, or surprise.	**5.** Analyze how an author's choices concerning how to structure specific parts of a text (e.g., the choice at what point to begin or end a story, the choice to provide a comedic or tragic resolution) contribute to its overall structure and meaning as well as its aesthetic impact.
6. Analyze a case in which grasping point of view requires distinguishing what is directly stated from what is implied (e.g., through the use of satire, sarcasm, irony, or understatement).	**6.** Analyze differences and similarities in points of view or cultural experience as reflected in various works from different countries, drawing on a wide reading of world literature.
Integration of Knowledge and Ideas	
7. Analyze the representation of a subject or a key scene in two different artistic mediums, including what is emphasized or absent in each treatment (e.g., Auden's "Musée des Beaux Arts" and Breughel's *Landscape with the Fall of Icarus*).	**7.** Analyze multiple interpretations of a story or drama (e.g., recorded or live production of a play or novel), evaluating how each version interprets the source text. (Include at least one play by Shakespeare as well as one play by an American dramatist.)
8. (Not applicable to literature)	**8.** (Not applicable to literature)
9. Demonstrate knowledge of eighteenth-, nineteenth- and early-twentieth-century foundational works of American literature, drawing on how two or more texts from the same period treat similar themes or topics.	**9.** Analyze how an author draws on and transforms source material in a specific work (e.g., how Shakespeare draws on Ovid or the Bible or how a later author draws on a play by Shakespeare) in order to evaluate how the texts treat similar themes or topics.
Range of Reading and Level of Text Complexity	
10. By the end of grade 9, read and comprehend literature, including stories, dramas, and poems, in the grades 9–10 text complexity band proficiently, with scaffolding as needed at the high end of the range. By the end of grade 10, read and comprehend literature, including stories, dramas, and poems, in the grades 9–10 text complexity band independently and proficiently.	**10.** By the end of grade 11, read and comprehend literature, including stories, dramas, and poems, in the grades 11–CCR text complexity band proficiently, with scaffolding as needed at the high end of the range. By the end of grade 12, read and comprehend literature, including stories, dramas, and poems, in the grades 11–CCR text complexity band independently and proficiently.

Reading Standards for Informational Text 6–12

[RI]

Grade 6 students:	Grade 7 students:	Grade 8 students:
Key Ideas and Details		
1. Cite textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.	**1.** Cite several pieces of textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.	**1.** Cite the textual evidence that most strongly supports an analysis of what the text says explicitly as well as inferences drawn from the text.
2. Determine a central idea of a text and analyze its development over the course of the text; summarize the text.	**2.** Determine two or more central ideas in a text and analyze their development over the course of the text and their relationship to one another; summarize the text.	**2.** Determine a central idea of a text and analyze its development over the course of the text, including how it is conveyed through particular details; provide an accurate summary of the text distinct from personal opinions or judgments.
3. Analyze in detail how a key individual, event, or idea is introduced, illustrated, and elaborated in a text (e.g., through examples or anecdotes).	**3.** Analyze the interactions between individuals, events, and ideas in a text (e.g., how ideas influence individuals or events, or how individuals influence ideas or events).	**3.** Analyze how a text makes connections among and distinctions between key individuals, ideas, or events (e.g., through comparisons, analogies, or categories).
Craft and Structure		
4. Determine the meaning of words and phrases as they are used in a text, including figurative and connotative meanings; analyze the impact of a specific word choice on meaning and tone.	**4.** Determine the meaning of words and phrases as they are used in a text, including figurative and connotative meanings; analyze the impact of a specific word choice on meaning and tone.	**4.** Determine the meaning of words and phrases as they are used in a text, including analogies or allusions to other texts; analyze the impact of specific word choices on meaning and tone.
5. Analyze how a particular sentence, paragraph, chapter, or section fits into the overall structure of a text and contributes to the development of the ideas.	**5.** Analyze the structure an author uses to organize a text, including how the major sections contribute to the whole and to the development of the ideas.	**5.** Analyze in detail the structure of a specific paragraph in a text, including the role of particular sentences in developing and refining a key concept.
6. Determine an author's point of view or purpose in a text and explain how it is conveyed in the text.	**6.** Determine an author's point of view or purpose in a text and analyze how the author distinguishes his or her point of view from that of others.	**6.** Determine an author's point of view or purpose in a text and analyze how the author acknowledges and responds to conflicting evidence or viewpoints.
Integration of Knowledge and Ideas		
7. Integrate information presented in different formats (e.g., print or digital text, video, multimedia) to develop a coherent understanding of a topic or issue.	**7.** Compare and contrast the experience of reading a text to experiencing an audio, video, or multimedia version of it, analyzing the text's portrayal in each medium (e.g., how the delivery of a speech affects the impact of the words).	**7.** Evaluate the advantages and disadvantages of using different mediums (e.g., print or digital text, video, multimedia) to present a particular topic or idea.
8. Delineate and evaluate the argument and specific claims in a text, distinguishing claims that are supported by reasons and evidence from claims that are not.	**8.** Delineate and evaluate the argument and specific claims in a text, assessing whether the reasoning is sound and the evidence is sufficient to support the claims.	**8.** Delineate and evaluate the argument and specific claims in a text, assessing whether the reasoning is sound and the evidence is relevant and sufficient and identifying when irrelevant evidence is introduced.
9. Compare and contrast one author's presentation of events with that of another (e.g., a memoir written by and a biography on the same person).	**9.** Analyze how two or more authors writing about the same topic shape their presentations of key information by emphasizing different evidence or advancing different interpretations of facts.	**9.** Analyze a case in which two or more texts provide conflicting information on the same topic and identify where the texts disagree on matters of fact or interpretation.

Grade 6 students:	Grade 7 students:	Grade 8 students:
Range of Reading and Level of Text Complexity		
10. By the end of the year, read and comprehend literary nonfiction in the grades 6–8 text complexity band proficiently, with scaffolding as needed at the high end of the range.	**10.** By the end of the year, read and comprehend literary nonfiction in the grades 6–8 text complexity band proficiently, with scaffolding as needed at the high end of the range.	**10.** By the end of the year, read and comprehend literary nonfiction in the grades 6–8 text complexity band independently and proficiently.

Grades 9–10 students:	Grades 11–12 students:
Key Ideas and Details	
1. Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.	**1.** Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text, including determining where the text leaves matters uncertain.
2. Determine a central idea of a text and analyze its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text.	**2.** Determine two or more central ideas of a text and analyze their development over the course of the text, including how they interact and build on one another to provide a complex analysis; provide an objective summary of the text.
3. Analyze how the author unfolds an analysis or series of ideas or events, including the order in which the points are made, how they are introduced and developed, and the connections that are drawn between them.	**3.** Analyze a complex set of ideas or sequence of events and explain how specific individuals, ideas, or events interact and develop over the course of the text.
Craft and Structure	
4. Determine the meaning of words and phrases as they are used in a text and analyze the cumulative impact of several word choices on meaning and tone (e.g., how the language of a court opinion differs from that of a newspaper).	**4.** Determine the meaning of words and phrases as they are used in a text and analyze how an author uses and refines the meaning of a key term or terms over the course of a text (e.g., how Madison defines *faction* in *Federalist* No. 10).
5. Analyze in detail how an author's ideas or claims are developed and refined by particular sentences, paragraphs, or larger portions of a text (e.g., a section or chapter).	**5.** Analyze and evaluate the effectiveness of the structure an author uses in his or her exposition or argument, including whether the structure makes points clear, convincing, and engaging.
6. Analyze documents of historical and literary significance, including seminal U.S. documents (e.g., the Declaration of Independence, the Preamble to the Constitution, the Bill of Rights), for their premises and purposes.	**6.** Analyze how various authors express different points of view on similar events or issues, assessing the authors' assumptions, use of evidence, and reasoning, including analyzing seminal U.S. documents (e.g., *The Federalist*, landmark U.S. Supreme Court majority opinions and dissents).
Integration of Knowledge and Ideas	
7. Evaluate the accounts of a subject in different mediums (e.g., a person's life story told in print or digital text, film, or multimedia), analyzing each version for which details are emphasized and how the account unfolds.	**7.** Integrate and evaluate multiple sources of information presented in different formats (e.g., print or digital text, video, multimedia) in order to address a question or solve a problem, resolving conflicting information when possible.
8. Delineate and evaluate the argument and claims in a text, assessing the relevance and sufficiency of the evidence and the validity of the reasoning and identifying false statements and fallacious reasoning.	**8.** Delineate and evaluate the argument and claims in a text, assessing the relevance and sufficiency of the evidence and the validity of the reasoning, identifying and evaluating stated and unstated premises and assumptions.
9. Analyze a case in which authors disagree with or otherwise respond to one another's ideas or accounts of events, evaluating the strength of each author's evidence, reasoning, and interpretation.	**9.** Synthesize information, explanations, and arguments from a range of sources to provide a coherent account of events or ideas, resolving conflicting information when possible.
Range of Reading and Level of Text Complexity	
10. By the end of grade 9, read and comprehend literary nonfiction in the grades 9–10 text complexity band proficiently, with scaffolding as needed at the high end of the range. By the end of grade 10, read and comprehend literary nonfiction in the grades 9–10 text complexity band independently and proficiently.	**10.** By the end of grade 11, read and comprehend literary nonfiction in the grades 11–CCR text complexity band proficiently, with scaffolding as needed at the high end of the range. By the end of grade 12, read and comprehend literary nonfiction in the grades 11–CCR text complexity band independently and proficiently.

College and Career Readiness Anchor Standards for Writing

The grades 6–12 standards on the following pages define what students should understand and be able to do by the end of each grade. They relate to their College and Career Readiness (CCR) counterparts by number. The CCR and grade-specific standards are necessary complements—the former providing broad standards, the latter providing additional specificity—that together define the skills and understandings that all students must demonstrate.

Text Types and Purposes[1]

1. Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.
2. Write informative/explanatory texts to examine and convey complex ideas and information clearly and accurately through the effective selection, organization, and analysis of content.
3. Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured event sequences.

Production and Distribution of Writing

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

Research to Build and Present Knowledge

7. Conduct short as well as more sustained research projects based on focused questions, demonstrating understanding of the subject under investigation.
8. Gather relevant information from multiple print and digital sources, assess the credibility and accuracy of each source, and integrate the information while avoiding plagiarism.
9. Draw evidence from literary or informational texts to support analysis, reflection, and research.

Range of Writing

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

[1]These broad types of writing include many subgenres. See Appendix A for definitions of key writing types.
[2]See standards 1–3 in Language, pages 53–57, for specific editing expectations.

Note on range and content of student writing

For students, writing is a key means of asserting and defending claims, showing what they know about a subject, and conveying what they have experienced, imagined, thought, and felt. To be college- and career-ready writers, students must take task, purpose, and audience into careful consideration, choosing words, information, structures, and formats deliberately. They need to know how to combine elements of different kinds of writing—for example, to use narrative strategies within argument and explanation within narrative—to produce complex and nuanced writing. They need to be able to use technology strategically when creating, refining, and collaborating on writing. They have to become adept at gathering information, evaluating sources, and citing material accurately, reporting findings from their research and analysis of sources in a clear and cogent manner. They must have the flexibility, concentration, and fluency to produce high-quality first-draft text under a tight deadline as well as the capacity to revisit and make improvements to a piece of writing over multiple drafts when circumstances encourage or require it.

Writing Standards 6–12

[W]

The following standards for grades 6–12 offer a focus for instruction each year to help ensure that students gain adequate mastery of a range of skills and applications. Each year in their writing, students should demonstrate increasing sophistication in all aspects of language use, from vocabulary and syntax to the development and organization of ideas, and they should address increasingly demanding content and sources. Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades. The expected growth in student writing ability is reflected both in the standards themselves and in the collection of annotated student writing samples in Appendix C.

Grade 6 students:	Grade 7 students:	Grade 8 students:
Text Types and Purposes		
1. Write arguments to support claims with clear reasons and relevant evidence. a. Introduce claim(s) and organize the reasons and evidence clearly. b. Support claim(s) with clear reasons and relevant evidence, demonstrating an understanding of the topic or text. c. Use words, phrases, and clauses to clarify the relationships among claim(s) and reasons. d. Establish and maintain a formal style. e. Provide a concluding statement or section that follows from the argument presented.	**1.** Write arguments to support claims with clear reasons and relevant evidence. a. Introduce claim(s), acknowledge alternate or opposing claims, and organize the reasons and evidence logically. b. Support claim(s) with logical reasoning and relevant evidence, demonstrating an understanding of the topic or text. c. Use words, phrases, and clauses to create cohesion and clarify the relationships among claim(s), reasons, and evidence. d. Establish and maintain a formal style. e. Provide a concluding statement or section that follows from and supports the argument presented.	**1.** Write arguments to support claims with clear reasons and relevant evidence. a. Introduce claim(s), acknowledge and distinguish the claim(s) from alternate or opposing claims, and organize the reasons and evidence logically. b. Support claim(s) with logical reasoning and relevant evidence, using credible sources and demonstrating an understanding of the topic or text. c. Use words, phrases, and clauses to create cohesion and clarify the relationships among claim(s), counterclaims, reasons, and evidence. d. Establish and maintain a formal style. e. Provide a concluding statement or section that follows from and supports the argument presented.
2. Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content. a. Introduce a topic; organize ideas, concepts, and information, using strategies such as definition, classification, comparison/contrast, and cause/effect; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension. b. Develop the topic with relevant facts, definitions, concrete details, quotations, or other information and examples. c. Use appropriate transitions to clarify the relationships among ideas and concepts. d. Use precise language and domain-specific vocabulary to inform about or explain the topic. e. Establish and maintain a formal style. f. Provide a concluding statement or section that follows from the information or explanation presented.	**2.** Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content. a. Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information, using strategies such as definition, classification, comparison/contrast, and cause/effect; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension. b. Develop the topic with relevant facts, definitions, concrete details, quotations, or other information and examples. c. Use appropriate transitions to create cohesion and clarify the relationships among ideas and concepts. d. Use precise language and domain-specific vocabulary to inform about or explain the topic. e. Establish and maintain a formal style. f. Provide a concluding statement or section that follows from and supports the information or explanation presented.	**2.** Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content. a. Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information into broader categories; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension. b. Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples. c. Use appropriate and varied transitions to create cohesion and clarify the relationships among ideas and concepts. d. Use precise language and domain-specific vocabulary to inform about or explain the topic. e. Establish and maintain a formal style. f. Provide a concluding statement or section that follows from and supports the information or explanation presented.

Grade 6 students:	Grade 7 students:	Grade 8 students:
Text Types and Purposes (continued)		
3. Write narratives to develop real or imagined experiences or events using effective technique, relevant descriptive details, and well-structured event sequences. a. Engage and orient the reader by establishing a context and introducing a narrator and/or characters; organize an event sequence that unfolds naturally and logically. b. Use narrative techniques, such as dialogue, pacing, and description, to develop experiences, events, and/or characters. c. Use a variety of transition words, phrases, and clauses to convey sequence and signal shifts from one time frame or setting to another. d. Use precise words and phrases, relevant descriptive details, and sensory language to convey experiences and events. e. Provide a conclusion that follows from the narrated experiences or events.	**3.** Write narratives to develop real or imagined experiences or events using effective technique, relevant descriptive details, and well-structured event sequences. a. Engage and orient the reader by establishing a context and point of view and introducing a narrator and/or characters; organize an event sequence that unfolds naturally and logically. b. Use narrative techniques, such as dialogue, pacing, and description, to develop experiences, events, and/or characters. c. Use a variety of transition words, phrases, and clauses to convey sequence and signal shifts from one time frame or setting to another. d. Use precise words and phrases, relevant descriptive details, and sensory language to capture the action and convey experiences and events. e. Provide a conclusion that follows from and reflects on the narrated experiences or events.	**3.** Write narratives to develop real or imagined experiences or events using effective technique, relevant descriptive details, and well-structured event sequences. a. Engage and orient the reader by establishing a context and point of view and introducing a narrator and/or characters; organize an event sequence that unfolds naturally and logically. b. Use narrative techniques, such as dialogue, pacing, description, and reflection, to develop experiences, events, and/or characters. c. Use a variety of transition words, phrases, and clauses to convey sequence, signal shifts from one time frame or setting to another, and show the relationships among experiences and events. d. Use precise words and phrases, relevant descriptive details, and sensory language to capture the action and convey experiences and events. e. Provide a conclusion that follows from and reflects on the narrated experiences or events.
Production and Distribution of Writing		
4. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3 above.)	**4.** Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3 above.)	**4.** Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3 above.)
5. With some guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach.	**5.** With some guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on how well purpose and audience have been addressed.	**5.** With some guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on how well purpose and audience have been addressed.
6. Use technology, including the Internet, to produce and publish a minimum of three pages of writing as well as to interact and collaborate with others.	**6.** Use technology, including the Internet, to produce and publish a minimum of four pages of writing as well as to interact and collaborate with others.	**6.** Use technology, including the Internet, to produce and publish a minimum of five pages of writing as well as to interact and collaborate with others.

Grade 6 students:	Grade 7 students:	Grade 8 students:
Research to Build and Present Knowledge		
7. Conduct short research projects to answer a question, drawing on several sources and refocusing the inquiry when appropriate.	**7.** Conduct short research projects to answer a question, drawing on several sources and generating additional related, focused questions for further research and investigation.	**7.** Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.
8. Gather relevant information from multiple print and digital sources; assess the credibility of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and providing basic bibliographic information for sources.	**8.** Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.	**8.** Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.
9. Draw evidence from literary or informational texts to support analysis, reflection, and research. a. Apply *grade 6 Reading standards* to literature (e.g., "Compare and contrast texts in different forms or genres (e.g., stories and poems; historical novels and fantasy stories) in terms of their approaches to similar themes and topics."). b. Apply *grade 6 Reading standards* to literary nonfiction (e.g., "Delineate and evaluate the argument and specific claims in a text, distinguishing claims that are supported by reasons and evidence from claims that are not").	**9.** Draw evidence from literary or informational texts to support analysis, reflection, and research. a. Apply *grade 7 Reading standards* to literature (e.g., "Compare and contrast a fictional portrayal of a time, place, or character and a historical account of the same period as a means of understanding how authors of fiction use or alter history]). b. Apply *grade 7 Reading standards* to literary nonfiction (e.g., "Delineate and evaluate the argument and specific claims in a text, assessing whether the reasoning is sound and the evidence is sufficient to support the claims").	**9.** Draw evidence from literary or informational texts to support analysis, reflection, and research. a. Apply *grade 8 Reading standards* to literature (e.g., "Analyze how a modern work of fiction draws on themes, patterns of events, or character types from myths, traditional stories, or religious works such as the Bible, including describing how the material is rendered new"). b. Apply *grade 8 Reading standards* to literary nonfiction (e.g., "Delineate and evaluate the argument and specific claims in a text, assessing whether the reasoning is sound and the evidence is relevant and sufficient and identifying when irrelevant evidence is introduced").
Range of Writing		
10. Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.	**10.** Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.	**10.** Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

Grades 9–10 students:

Text Types and Purposes

1. Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.
   a. Introduce precise claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that establishes clear relationships among claim(s), counterclaims, reasons, and evidence.
   b. Develop claim(s) and counterclaims fairly, supplying evidence for each while pointing out the strengths and limitations of both in a manner that anticipates the audience's knowledge level and concerns.
   c. Use words, phrases, and clauses to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims.
   d. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.
   e. Provide a concluding statement or section that follows from and supports the argument presented.

2. Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.
   a. Introduce a topic; organize complex ideas, concepts, and information to make important connections and distinctions; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.
   b. Develop the topic with well-chosen, relevant, and sufficient facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic.
   c. Use appropriate and varied transitions to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts.
   d. Use precise language and domain-specific vocabulary to manage the complexity of the topic.
   e. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.
   f. Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).

Grades 11–12 students:

1. Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.
   a. Introduce precise, knowledgeable claim(s), establish the significance of the claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that logically sequences claim(s), counterclaims, reasons, and evidence.
   b. Develop claim(s) and counterclaims fairly and thoroughly, supplying the most relevant evidence for each while pointing out the strengths and limitations of both in a manner that anticipates the audience's knowledge level, concerns, values, and possible biases.
   c. Use words, phrases, and clauses as well as varied syntax to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims.
   d. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.
   e. Provide a concluding statement or section that follows from and supports the argument presented.

2. Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.
   a. Introduce a topic; organize complex ideas, concepts, and information so that each new element builds on that which precedes it to create a unified whole; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.
   b. Develop the topic thoroughly by selecting the most significant and relevant facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic.
   c. Use appropriate and varied transitions and syntax to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts.
   d. Use precise language, domain-specific vocabulary, and techniques such as metaphor, simile, and analogy to manage the complexity of the topic.
   e. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.
   f. Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).

Grades 9–10 students:	Grades 11–12 students:
Text Types and Purposes (continued)	
3. Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured event sequences. a. Engage and orient the reader by setting out a problem, situation, or observation, establishing one or multiple point(s) of view, and introducing a narrator and/or characters; create a smooth progression of experiences or events. b. Use narrative techniques, such as dialogue, pacing, description, reflection, and multiple plot lines, to develop experiences, events, and/or characters. c. Use a variety of techniques to sequence events so that they build on one another to create a coherent whole. d. Use precise words and phrases, telling details, and sensory language to convey a vivid picture of the experiences, events, setting, and/or characters. e. Provide a conclusion that follows from and reflects on what is experienced, observed, or resolved over the course of the narrative.	**3.** Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured event sequences. a. Engage and orient the reader by setting out a problem, situation, or observation and its significance, establishing one or multiple point(s) of view, and introducing a narrator and/or characters; create a smooth progression of experiences or events. b. Use narrative techniques, such as dialogue, pacing, description, reflection, and multiple plot lines, to develop experiences, events, and/or characters. c. Use a variety of techniques to sequence events so that they build on one another to create a coherent whole and build toward a particular tone and outcome (e.g., a sense of mystery, suspense, growth, or resolution). d. Use precise words and phrases, telling details, and sensory language to convey a vivid picture of the experiences, events, setting, and/or characters. e. Provide a conclusion that follows from and reflects on what is experienced, observed, or resolved over the course of the narrative.
Production and Distribution of Writing	
4. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3 above.)	**4.** Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3 above.)
5. Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.	**5.** Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.
6. Use technology, including the Internet, to produce, publish, and update individual or shared writing products, taking advantage of technology's capacity to link to other information and to display information flexibly and dynamically.	**6.** Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information.
Research to Build and Present Knowledge	
7. Conduct short as well as more sustained research projects to answer a question (including a self-generate question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.	**7.** Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.
8. Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the usefulness of each source in answering the research question; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation.	**8.** Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.

Grades 9–10 students:	Grades 11–12 students:
Research to Build and Present Knowledge (continued)	
9. Draw evidence from literary or informational texts to support analysis, reflection, and research. a. Apply *grades 9–10 Reading standards* to literature (e.g., "Demonstrate knowledge of eighteenth-, nineteenth- and early-twentieth-century foundational works of American literature, drawing on how two or more texts from the same period treat similar themes or topics"). b. Apply *grades 9–10 Reading standards* to literary nonfiction (e.g., "Delineate and evaluate the argument and claims in a text, assessing the relevance and sufficiency of the evidence and the validity of the reasoning and identifying false statements and fallacious reasoning").	**9.** Draw evidence form literary or informational texts to support analysis, reflection, and research. a. Apply *grades 11–12 Reading standards* to literature (e.g., "Analyze how an author draws on and transforms source material in a specific work (e.g., how Shakespeare draws on Ovid or the Bible or how a later author draws on a play by Shakespeare) in order to evaluate how the texts treat similar themes or topics"). b. Apply *grades 11–12 Reading standards* to literary nonfiction (e.g., "Delineate and evaluate the argument and claims in a text, assessing the relevance and sufficiency of the evidence and the validity of the reasoning, identifying and evaluating stated and unstated premises and assumptions").
Range of Writing	
10. Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.	**10.** Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.

College and Career Readiness Anchor Standards for Speaking and Listening

The grades 6–12 standards on the following pages define what students should understand and be able to do by the end of each grade. They relate to their College and Career Readiness (CCR) counterparts by number. The CCR and grade-specific standards are necessary complements—the former providing broad standards, the latter providing additional specificity—that together define the skills and understandings that all students must demonstrate.

Comprehension and Collaboration

1. Prepare for and participate effectively in a range of conversations and collaborations, building on others' ideas and expressing their own clearly and persuasively.
2. Integrate and evaluate content from multiple graphical, visual, oral, or multimodal sources.
3. Evaluate a speaker's point of view, reasoning, and use of evidence and rhetoric.

Presentation of Knowledge and Ideas

4. Present information, findings, and supporting evidence such that listeners can follow the line of reasoning and the organization, development, and style are appropriate to task, purpose, and audience.
5. Make strategic use of digital media and visual displays of data to express information and enhance understanding of presentations.
6. Adapt speech to a variety of contexts and communicative tasks, demonstrating command of formal English when indicated or appropriate.

Note on range and content of student speaking and listening

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

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

Speaking and Listening Standards 6–12

[SL]

The following standards for grades 6–12 offer a focus for instruction in each year to help ensure that students gain adequate mastery of a range of skills and applications. Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades.

Grade 6 students:	Grade 7 students:	Grade 8 students:
Comprehension and Collaboration		
1. Engage effectively in a range of collaborative discussions (one-on-one and in groups) on *grade 6 topics, texts, and issues*, building on others' ideas and expressing their own clearly. a. Come to discussions prepared, having read or studied required material; explicitly draw on that preparation by referring to evidence on the topic, text, or issue to probe and reflect on ideas under discussion. b. With guidance and support from adults, work with peers to set rules for collegial discussions, clear goals and deadlines, and individual roles as needed. c. Pose and respond to specific questions with elaboration and detail by making comments that contribute to the topic, text, or issue under discussion. d. Review the key ideas expressed and demonstrate understanding of multiple perspectives through reflection and paraphrasing.	**1.** Engage effectively in a range of collaborative discussions (one-on-one and in groups) on *grade 7 topics, texts, and issues*, building on others' ideas and expressing their own clearly. a. Come to discussions prepared, having read or researched material under study; explicitly draw on that preparation by referring to evidence on the topic, text, or issue to probe and reflect on ideas under discussion. b. Work with peers to set rules for collegial discussions, clear goals and deadlines, and individual roles as needed. c. Pose questions that elicit elaboration and respond to others' questions and comments with relevant observations and ideas that bring the discussion back on topic as needed. d. Acknowledge new information expressed by others and, when warranted, modify their own views and understanding.	**1.** Engage effectively in a range of collaborative discussions (one-on-one and in groups) on *grade 8 topics, texts, and issues*, building on others' ideas and expressing their own clearly. a. Come to discussions prepared, having read or researched material under study; explicitly draw on that preparation by referring to evidence on the topic, text, or issue to probe and reflect on ideas under discussion. b. Work with peers to set rules for collegial discussions, clear goals and deadlines, and individual roles as needed. c. Pose questions that connect the ideas of several speakers and elicit elaboration, and respond to others' questions and comments with relevant evidence, observations, and ideas. d. Acknowledge new information expressed by others, and, when warranted, qualify or justify their own views and understanding in light of the evidence presented.
2. Interpret information presented in graphical, oral, visual or multimodal formats and explain how it contributes to a topic, text, or issue under study.	**2.** Analyze the main ideas and supporting details presented in graphical, oral, visual, or multimodal formats and explain how the ideas clarify a topic, text, or issue under study.	**2.** Determine the purpose of information in graphical, oral, visual, or multimodal formats and evaluate the motives (e.g., social, commercial, political) behind its presentation.
3. Delineate a speaker's argument and specific claims, distinguishing claims that are supported by reasons and evidence from claims that are not.	**3.** Delineate a speaker's argument and specific claims, evaluating the soundness of the reasoning and the relevance of the evidence.	**3.** Delineate a speaker's argument and specific claims, evaluating the validity of the reasoning and sufficiency of the evidence.
Presentation of Knowledge and Ideas		
4. Present claims and findings, sequencing ideas logically and using pertinent descriptions, facts, and details to accentuate main ideas or themes; use appropriate eye contact, adequate volume, and clear pronunciation.	**4.** Present claims and findings, emphasizing salient points in a focused, coherent manner with pertinent descriptions, facts, details, and examples; use appropriate eye contact, adequate volume, and clear pronunciation.	**4.** Present claims and findings, emphasizing salient points in a focused, coherent manner with relevant evidence, sound reasoning, and well-chosen details; use appropriate eye contact, adequate volume, and clear pronunciation.
5. Include multimedia components (e.g., graphics, images, music, sound) and visual displays in presentations to clarify information.	**5.** Include multimedia components and visual displays in presentations to clarify claims and findings and emphasize salient points.	**5.** Integrate multimedia and visual displays into presentations to clarify information, strengthen claims and evidence, and add interest.
6. Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate. (See standards 1–3 in Language, pages 53–57, for specific expectations.)	**6.** Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate. (See standards 1–3 in Language, pages 53–57, for specific expectations.)	**6.** Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate. (See standards 1–3 in Language, pages 53–57, for specific expectations.)

Grades 9–10 students:	Grades 11–12 students:
Comprehension and Collaboration	
1. Initiate and participate effectively in a range of collaborative discussions (one-on-one and in groups) on *grades 9–10 topics, texts, and issues*, building on others' ideas and expressing their own clearly and persuasively. a. Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well-reasoned exchange of ideas. b. Work with peers to set rules for collegial discussions and decision-making (e.g., informal consensus, taking votes on key issues, presentation of alternate views), clear goals and deadlines, and individual roles as needed. c. Propel conversations by posing and responding to questions that relate the current discussion to broader themes or larger ideas; actively incorporate others into the discussion; and clarify, verify, or challenge ideas and conclusions. d. Respond thoughtfully to diverse perspectives, summarize points of agreement and disagreement, and, when warranted, qualify or justify their own views and understanding and make new connections in light of the evidence and reasoning presented.	**1.** Initiate and participate effectively in a range of collaborative discussions (one-on-one and in groups) on *grades 11–12 topics, texts, and issues*, building on others' ideas and expressing their own clearly and persuasively. a. Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well-reasoned exchange of ideas. b. Work with peers to promote civil, democratic discussions and decision-making, set clear goals and deadlines, and establish individual roles as needed. c. Propel conversations by posing and responding to questions that probe reasoning and evidence; ensure a hearing for a full range of positions on a topic or issue; clarify, verify, or challenge ideas and conclusions; and promote divergent and creative perspectives. d. Respond thoughtfully to diverse perspectives; synthesize comments, claims, and evidence made on all sides of an issue; resolve contradictions when possible; and determine what additional information or research is required to deepen the investigation or complete the task.
2. Synthesize information from multiple graphical, visual, or multimodal sources with other information presented orally, noting any discrepancies among the data.	**2.** Integrate information from multiple graphical, oral, visual, or multimodal sources in order to make informed decisions and solve problems, evaluating the credibility and accuracy of each source and resolving conflicting information when possible.
3. Evaluate a speaker's point of view, reasoning, and use of evidence and rhetoric, identifying any fallacious reasoning or exaggerated or distorted evidence.	**3.** Evaluate a speaker's point of view, reasoning, and use of evidence and rhetoric, assessing the stance, premises, links among ideas, word choice, points of emphasis, and tone used.
Presentation of Knowledge and Ideas	
4. Present information, findings, and supporting evidence clearly, concisely, and logically such that listeners can follow the line of reasoning and the organization, development, substance, and style are appropriate to purpose, audience, and task.	**4.** Present information, findings, and supporting evidence, conveying a clear and distinct perspective, such that listeners can follow the line of reasoning, alternative or opposing perspectives are addressed, and the organization, development, substance, and style are appropriate to purpose, audience, and a range or formal and informal tasks.
5. Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.	**5.** Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.
6. Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate. (See standards 1–3 in Language, pages 53–57, for specific expectations.)	**6.** Adapt speech to a variety of contexts and tasks, demonstrating a command of formal English when indicated or appropriate. (See standards 1–3 in Language, pages 53–57, for specific expectations.)

College and Career Readiness Anchor Standards for Language

The grades 6–12 standards on the following pages define what students should understand and be able to do by the end of each grade. They relate to their College and Career Readiness (CCR) counterparts by number. The CCR and grade-specific standards are necessary complements—the former providing broad standards, the latter providing additional specificity—that together define the skills and understandings that all students must demonstrate.

Conventions

1. Demonstrate command of the conventions of standard English grammar and usage.
2. Demonstrate command of the conventions of capitalization, punctuation, and spelling.

Effective Language Use

3. Use language to enhance meaning, convey style, and achieve particular effects when writing and speaking.

Vocabulary Acquisition and Use

4. Determine or clarify the meaning of unknown and multiple-meaning words and phrases by using context clues, analyzing meaningful word parts, and consulting general and specialized reference materials, as appropriate.
5. Demonstrate understanding of word relationships and nuances in word meanings.
6. Acquire and use accurately a range of general academic and domain-specific vocabulary sufficient for reading, writing, speaking, and listening at the college and career readiness level.

Note on range and content of student language use

To be college and career ready in language, students must have firm control over the conventions of grammar, usage, and mechanics. At the same time, they must come to appreciate that language is as at least as much a matter of craft as of rules and be able to use words, syntax, and punctuation to achieve particular rhetorical effects. They must also have extensive vocabularies, built through reading and study, enabling them to comprehend complex texts and engage in purposeful writing about and conversations around content. They need to become skilled in determining or clarifying the meaning of words and phrases they encounter, choosing flexibly from an array of strategies to aid them. They must learn to see an individual word as part of a network of other words—words, for example, that have similar denotations but different connotations. The inclusion of Language standards in their own strand should not be taken as an indication that skills related to conventions, effective language use, and vocabulary are unimportant to reading, writing, speaking, and listening; indeed, they are inseparable from such contexts.

Language Standards 6–12

[L]

The following standards for grades 6–12 offer a focus for instruction each year to help ensure that students gain adequate mastery of a range of skills and applications. Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades. Beginning in grade 3, skills and understandings that are particularly likely to require continued attention in higher grades as they are applied to increasingly sophisticated writing and speaking are marked with an asterisk (*). See the table on page 57 for a complete listing and Appendix A for an example of how these skills develop in sophistication.

Grade 6 students:	Grade 7 students:	Grade 8 students:
Conventions		
1. Observe conventions of grammar and usage when writing or speaking. a. Ensure that pronouns are in the proper case (subjective, objective, possessive). b. Use intensive pronouns (e.g., *myself, ourselves*). c. Recognize and correct inappropriate shifts in pronoun number and person.* d. Recognize and correct vague pronouns (i.e., ones with unclear or ambiguous antecedents).* e. Recognize variations from standard English in their own and others' writing and speaking, and identify and use strategies to improve expression in conventional language.*	**1.** Observe conventions of grammar and usage when writing or speaking. a. Explain the function of phrases and clauses in general and their function in specific sentences. b. Choose among simple, compound, complex, and compound-complex sentences to signal differing relationships among ideas. c. Place phrases and clauses within a sentence, recognizing and correcting misplaced and dangling modifiers.*	**1.** Observe conventions of grammar and usage when writing or speaking. a. Explain the function of verbals (gerunds, participles, infinitives) in general and their function in particular sentences. b. Form and use verbs in the active and passive voice. c. Form and use verbs in the indicative, imperative, interrogative, conditional, and subjunctive mood. d. Recognize and correct inappropriate shifts in verb voice and mood.*
2. Observe conventions of capitalization, punctuation, and spelling when writing. a. Use punctuation (commas, parentheses, dashes) to set off nonrestrictive/parenthetical elements.* b. Spell correctly.	**2.** Observe conventions of capitalization, punctuation, and spelling when writing. a. Use a comma to separate coordinate adjectives (e.g., *It was a fascinating, enjoyable movie* but not *He wore an old[,] green shirt*). b. Spell correctly.	**2.** Observe conventions of capitalization, punctuation, and spelling when writing. a. Use punctuation (comma, ellipsis, dash) to indicate a pause or break. b. Use an ellipsis to indicate an omission. c. Spell correctly.
Effective Language Use		
3. Use language to enhance meaning, convey style, and achieve particular effects when writing or speaking. a. Vary sentence patterns for meaning, reader/listener interest, and style.* b. Maintain consistency in style and tone.*	**3.** Use language to enhance meaning, convey style, and achieve particular effects when writing or speaking. a. Choose language that expresses ideas precisely and concisely, recognizing and eliminating wordiness and redundancy.*	**3.** Use language to enhance meaning, convey style, and achieve particular effects when writing or speaking. a. Use verbs in the active and passive voice and in the conditional and subjunctive mood to achieve particular effects (e.g., emphasizing the actor or the action; expressing uncertainty or describing a state contrary to fact).

Grade 6 students:	Grade 7 students:	Grade 8 students:
Vocabulary Acquisition and Use		
4. Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on *grade 6 reading and content*, choosing flexibly from a range of strategies. a. Use context (e.g., the overall meaning of a sentence or paragraph; a word's position or function in a sentence) as a clue to the meaning of a word or phrase. b. Use common, grade-appropriate Greek or Latin affixes and roots as clues to the meaning of a word (e.g., *audience*, *auditory*, *audible*). c. Consult reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning or its part of speech. d. Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).	**4.** Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on *grade 7 reading and content*, choosing flexibly from a range of strategies. a. Use context (e.g., the overall meaning of a sentence or paragraph; a word's position or function in a sentence) as a clue to the meaning of a word or phrase. b. Use common, grade-appropriate Greek or Latin affixes and roots as clues to the meaning of a word (e.g., *belligerent*, *bellicose*, *rebel*). c. Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning or its part of speech. d. Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).	**4.** Determine or clarify the meaning of unknown and multiple-meaning words or phrases based on *grade 8 reading and content*, choosing flexibly from a range of strategies. a. Use context (e.g., the overall meaning of a sentence or paragraph; a word's position or function in a sentence) as a clue to the meaning of a word or phrase. b. Use common, grade-appropriate Greek or Latin affixes and roots as clues to the meaning of a word (e.g., *precede*, *recede*, *secede*). c. Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning or its part of speech. d. Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).
5. Demonstrate understanding of figurative language, word relationships, and nuances in word meanings. a. Interpret figures of speech (e.g., personification) in context. b. Use the relationship between particular words (e.g., cause/effect, part/whole, item/category) to better understand each of the words. c. Distinguish among the connotations (associations) of words with similar denotations (definitions) (e.g., *stingy*, *scrimping*, *economical*, *unwasteful*, *thrifty*).	**5.** Demonstrate understanding of figurative language, word relationships, and nuances in word meanings. a. Interpret figures of speech (e.g., literary, biblical, and mythological allusions) in context. b. Use the relationship between particular words (e.g., synonym/antonym, analogy) to better understand each of the words. c. Distinguish among the connotations (associations) of words with similar denotations (definitions) (e.g., *refined*, *respectful*, *polite*, *diplomatic*, *condescending*).	**5.** Demonstrate understanding of figurative language, word relationships, and nuances in word meanings. a. Interpret figures of speech (e.g. verbal irony, puns) in context. b. Use the relationship between particular words to better understand each of the words. c. Distinguish among the connotations (associations) of words with similar denotations (definitions) (e.g., *bullheaded*, *willful*, *firm*, *persistent*, *resolute*).
6. Acquire and use accurately grade-appropriate general academic and domain-specific vocabulary.	**6.** Acquire and use accurately grade-appropriate general academic and domain-specific vocabulary.	**6.** Acquire and use accurately grade-appropriate general academic and domain-specific vocabulary.

Grades 9–10 students:	Grades 11–12 students:
Conventions	
1. Observe conventions of grammar and usage when writing or speaking. a. Use parallel structure.* b. Use various types of phrases (noun, verb, adjectival, adverbial, participial, prepositional, absolute) and clauses (independent, dependent; noun, relative, adverbial) to add variety and interest to writing or presentations.	**1.** Observe conventions of grammar and usage when writing or speaking. a. Apply the understanding that usage is a matter of convention, can change over time, and is sometimes contested. b. Resolve issues of complex or contested usage, consulting references (e.g., *Merriam-Webster's Dictionary of English Usage*, *Garner's Modern American English*) as needed.
2. Observe conventions of capitalization, punctuation, and spelling when writing. a. Use a semicolon (and perhaps a conjunctive adverb) to link two or more closely related independent clauses. b. Use a colon to introduce a list or quotation. c. Spell correctly.	**2.** Observe conventions of capitalization, punctuation, and spelling when writing. a. Observe hyphenation conventions. b. Spell correctly.
Effective Language Use	
3. Use language to enhance meaning, convey style, and achieve particular effects when writing or speaking. a. Write and edit work so that it conforms to the guidelines in a style manual (e.g., *MLA Handbook*, Turabian's *Manual for Writers*) appropriate for the discipline and writing type.	**3.** Use language to enhance meaning, convey style, and achieve particular effects when writing or speaking. a. Vary syntax for effect, consulting references (e.g., Tufte's *Artful Sentences*) for guidance as needed; apply an understanding of syntax to the study of complex texts when reading.
Vocabulary Acquisition and Use	
4. Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on *grades 9–10 reading and content*, choosing flexibly from a range of strategies. a. Use context (e.g., the overall meaning of a sentence, paragraph, or text; a word's position or function in a sentence) as a clue to the meaning of a word or phrase. b. Identify and correctly use patterns of word changes that indicate different meanings or parts of speech (e.g., *analyze, analysis, analytical*; *advocate, advocacy*). c. Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning, its part of speech, or its etymology. d. Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).	**4.** Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on *grades 11–12 reading and content*, choosing flexibly from a range of strategies. a. Use context (e.g., the overall meaning of a sentence, paragraph, or text; a word's position or function in a sentence) as a clue to the meaning of a word or phrase. b. Identify and correctly use patterns of word changes that indicate different meanings or parts of speech (e.g., *conceive, conception, conceivable*). c. Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning, its part of speech, its etymology, or its standard usage. d. Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).
5. Demonstrate understanding of figurative language, word relationships, and nuances in word meanings. a. Interpret figures of speech (e.g., satire, sarcasm) in context and analyze their role in the text. b. Analyze nuances in the meaning of words with similar denotations.	**5.** Demonstrate understanding of figurative language, word relationships, and nuances in word meanings. a. Interpret figures of speech (e.g., hyperbole, paradox) in context and analyze their role in the text. b. Analyze nuances in the meaning of words with similar denotations.
6. Acquire and use accurately general academic and domain-specific vocabulary sufficient for reading, writing, speaking, and listening at the college and career readiness level.	**6.** Acquire and use accurately general academic and domain-specific vocabulary sufficient for reading, writing, speaking, and listening at the college and career readiness level.

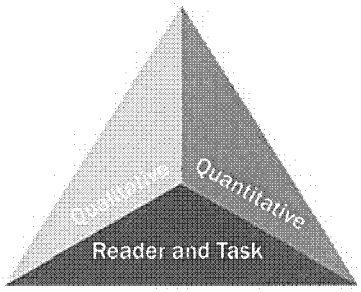
Language Progressive Skills, by Grade

The following skills, marked with an asterisk (*) in Language standards 1–3, are particularly likely to require continued attention in higher grades as they are applied to increasingly sophisticated writing and speaking.

Skill	3	4	5	6	7	8	9–10	11–12
Ensure subject-verb and pronoun-antecedent agreement.								
Choose words and phrases for effect.								
Produce complete sentences, recognizing and correcting rhetorically poor fragments and run-ons.								
Correctly use frequently confused words (e.g., *to/too/two; there/their*).								
Choose words and phrases to convey ideas precisely.								
Use punctuation for effect.								
Recognize and correct inappropriate shifts in verb tense and aspect.								
Use punctuation to separate items in a series.								
Recognize and correct inappropriate shifts in pronoun number and person.								
Recognize and correct vague pronouns (i.e., ones with unclear or ambiguous antecedents).								
Recognize variations from standard English in their own and others' writing and speaking, and identify and use strategies to improve expression in conventional language.								
Use punctuation (commas, parentheses, dashes) to set off nonrestrictive/parenthetical elements.								
Vary sentence patterns for meaning, reader/listener interest, and style.								
Maintain consistency in style and tone.								
Place phrases and clauses within a sentence, recognizing and correcting misplaced and dangling modifiers.								
Choose language that expresses ideas precisely and concisely, eliminating wordiness and redundancy.								
Recognize and correct inappropriate shifts in verb voice and mood.								
Use parallel structure.								

Standard 10: Range, Quality, and Complexity of Student Reading 6–12

Measuring Text Complexity: Three Factors



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

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

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

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

Range of Text Types for 6–12

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

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

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

	Literature: Stories, Dramas, Poetry	Informational Texts: Literary Nonfiction
6–8	▪ *Little Women* by Louisa May Alcott (1869) ▪ *The Adventures of Tom Sawyer* by Mark Twain (1876) ▪ "The Road Not Taken" by Robert Frost (1915) ▪ *The Dark Is Rising* by Susan Cooper (1973) ▪ *Dragonwings* by Laurence Yep (1975) ▪ *Roll of Thunder, Hear My Cry* by Mildred Taylor (1976)	▪ "Letter on Thomas Jefferson" by John Adams (1776) ▪ *Narrative of the Life of Frederick Douglass, an American Slave* by Frederick Douglass (1845) ▪ *Harriet Tubman: Conductor on the Underground Railroad* by Ann Petry (1955) ▪ *Travels with Charley: In Search of America* by John Steinbeck (1962) ▪ *The Great Fire* by Jim Murphy (1995) ▪ *This Land Was Made for You and Me: The Life and Songs of Woody Guthrie* by Elizabeth Partridge (2002)
9–10	▪ *The Tragedy of Romeo and Juliet* by William Shakespeare (1592) ▪ "Ozymandias" by Percy Bysshe Shelley (1817) ▪ "The Raven" by Edgar Allen Poe (1845) ▪ "The Gift of the Magi" by O. Henry (1906) ▪ *The Grapes of Wrath* by John Steinbeck (1939) ▪ *Fahrenheit 451* by Ray Bradbury (1953) ▪ *The Killer Angels* by Michael Shaara (1975)	▪ "Speech to the Second Virginia Convention" by Patrick Henry (1775) ▪ The Declaration of Independence by Thomas Jefferson (1776) ▪ "Second Inaugural Address" by Abraham Lincoln (1865) ▪ "State of the Union Address" by Franklin Delano Roosevelt (1941) ▪ *Cod: A Biography of the Fish That Changed the World* by Mark Kurlansky (1997) ▪ *The Race to Save Lord God Bird* by Phillip Hoose (2004)
11–CCR	▪ "Ode on a Grecian Urn" by John Keats (1820) ▪ *Jane Eyre* by Charlotte Brontë (1848) ▪ "Because I Could Not Stop for Death" by Emily Dickinson (1890) ▪ *The Great Gatsby* by F. Scott Fitzgerald (1925) ▪ *Their Eyes Were Watching God* by Zora Neale Hurston (1937) ▪ *A Raisin in the Sun* by Lorraine Hansberry (1959) ▪ *The Namesake* by Jhumpa Lahiri (2003)	▪ *The Crisis* by Thomas Paine (1776) ▪ *Walden* by Henry David Thoreau (1854) ▪ "Society and Solitude" by Ralph Waldo Emerson (1857) ▪ "Gettysburg Address" by Abraham Lincoln (1863) ▪ "Letter from Birmingham Jail" by Martin Luther King, Jr. (1964) ▪ *Google Hacks: Tips & Tools for Smarter Searching* by Tara Calishain and Rael Dornfest (2004) ▪ *America's Constitution: A Biography* by Akhil Reed Amar (2005)

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

Standards for Literacy in History/Social Studies, Science, and Technical Subjects

6–12

College and Career Readiness Anchor Standards for Reading

The grades 6–12 standards on the following pages define what students should understand and be able to do by the end of each grade. They relate to their College and Career Readiness (CCR) counterparts by number. The CCR and grade-specific standards are necessary complements—the former providing broad standards, the latter providing additional specificity—that together define the skills and understandings that all students must demonstrate.

Key Ideas and Details

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

Craft and Structure

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

Integration of Knowledge and Ideas

7. Integrate and evaluate content presented graphically, visually, orally, and multimodally as well as in words within and across print and digital sources.*
8. Delineate and evaluate the argument and specific claims in a text, including the validity of the reasoning as well as the relevance and sufficiency of the evidence.
9. Analyze how two or more texts address similar themes or topics in order to build knowledge or to compare the approaches the authors take.

Range Reading and Level of Text Complexity

10. Read and comprehend complex literary and informational texts independently and proficiently.

*Please see "Research to Build and Present Knowledge" in Writing for additional standards relevant to gathering, assessing, and applying information from print and digital sources.

Note on range and content of student reading

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

Reading Standards for Literacy in History/Social Studies 6–12 [RH]

The standards below begin at grade 6; standards for K–5 reading in history/social studies, science, and technical subjects are integrated into the K–5 Reading standards.

Grades 6–8 students:	Grades 9–10 students:	Grades 11–12 students:
Key Ideas and Details		
1. Cite specific textual evidence to support analysis of primary and secondary sources.	**1.** Cite specific textual evidence to support analysis of primary and secondary sources, attending to such features as the date and origin of the information.	**1.** Cite specific textual evidence to support analysis of primary and secondary sources, connecting insights gained from specific details to an understanding of the text as a whole.
2. Determine the central ideas or information of a primary or secondary source; provide an accurate summary of the source distinct from prior knowledge or opinions.	**2.** Determine the central ideas or information of a primary or secondary source; provide an accurate summary of how key events or ideas develop over the course of the text.	**2.** Determine the central ideas or information of a primary or secondary source; provide an accurate summary that makes clear the relationships among the key details and ideas.
3. Identify key steps in a text's description of a process related to history/social studies (e.g., how a bill becomes law, how interest rates are raised or lowered).	**3.** Analyze in detail a series of events described in a text; determine whether earlier events caused later ones or simply preceded them.	**3.** Evaluate various explanations for actions or events and determine which explanation best accords with textual evidence, acknowledging where the text leaves matters uncertain.
Craft and Structure		
4. Determine the meaning of words and phrases as they are used in a text, including vocabulary specific to domains related to history/social studies.	**4.** Determine the meaning of words and phrases as they are used in a text, including vocabulary describing political, social, or economic aspects of history/social science.	**4.** Determine the meaning of words and phrases as they are used in a text, including analyzing how an author uses and refines the meaning of a key term over the course of a text (e.g., how Madison defines *faction* in *Federalist* No. 10).
5. Describe how a text presents information (e.g., sequentially, comparatively, causally).	**5.** Analyze how a text uses structure to emphasize key points or advance a point of view.	**5.** Analyze in detail how a complex primary source is structured, including how key sentences, paragraphs, and larger portions of the text contribute to the whole.
6. Identify aspects of a text that reveal an author's point of view or purpose (e.g., loaded language, inclusion or avoidance of particular facts).	**6.** Compare the point of view of two or more authors by comparing how they treat the same or similar history/social science topics, including which details they include and emphasize in their respective accounts.	**6.** Evaluate authors' differing points of view on the same historical event or issue by assessing the authors' claims, reasoning, and evidence.
Integration of Knowledge and Ideas		
7. Integrate visual information (e.g., pictures, videos, maps) with other information within or across print or digital texts.	**7.** Integrate quantitative or technical information (e.g., charts, research data) with other information within or across print or digital texts.	**7.** Integrate and evaluate multiple sources of information presented in different formats (e.g., print or digital text, video, multimedia) in order to address a question, resolving conflicting information when possible.
8. Distinguish among fact, opinion, and reasoned judgment in a text.	**8.** Assess the extent to which the evidence in a text supports the author's claims.	**8.** Evaluate an author's premises, claims, and evidence by corroborating or challenging them with other sources of information.
9. Analyze the relationship between a primary and secondary source on the same topic.	**9.** Compare and contrast treatments of the same topic in several primary and secondary sources.	**9.** Integrate information from diverse sources, both primary and secondary, into a coherent understanding of an idea or event, noting discrepancies among sources.
Range of Reading and Level of Text Complexity		
10. By the end of grade 8, read and comprehend history/social studies texts in the grades 6–8 text complexity band independently and proficiently.	**10.** By the end of grade 10, read and comprehend history/social studies texts in the grades 9–10 text complexity band independently and proficiently.	**10.** By the end of grade 12, read and comprehend history/social studies texts in the grades 11–12 text complexity band independently and proficiently.

Reading Standards for Literacy in Science and Technical Subjects 6–12

[RST]

Grades 6–8 students:	Grades 9–10 students:	Grades 11–12 students:
Key Ideas and Details		
1. Cite specific textual evidence to support analysis of science and technical texts.	**1.** Cite specific textual evidence to support analysis of science and technical texts, attending to the precise details of explanations or descriptions.	**1.** Cite specific textual evidence to support analysis of science and technical texts, attending to important distinctions the author makes and to any gaps or inconsistencies in the account.
2. Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.	**2.** Determine the central ideas or conclusions of a text; trace the text's explanation or depiction of a complex process, phenomenon, or concept; provide an accurate summary of the text.	**2.** Determine the central ideas or conclusions of a text; summarize complex concepts, processes, or information presented in a text by paraphrasing them in simpler but still accurate terms.
3. Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.	**3.** Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks attending to special cases or exceptions defined in the text.	**3.** Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.
Craft and Structure		
4. Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to *grades 6–8 texts and topics*.	**4.** Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to *grades 9–10 texts and topics*.	**4.** Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to *grades 11–12 texts and topics*.
5. Analyze the structure an author uses to organize a text, including how the major sections contribute to the whole and to an understanding of the topic.	**5.** Analyze the structure of the relationships among concepts in a text, including relationships among key terms pertaining to important ideas and processes (e.g., *force, friction, reaction force, energy*).	**5.** Analyze how the text structures information or ideas into categories or hierarchies, demonstrating understanding of the information or ideas.
6. Analyze the author's purpose in providing an explanation, describing a procedure, or discussing an experiment in a text.	**6.** Analyze the author's purpose in providing an explanation, describing a procedure, or discussing an experiment in a text, defining the question the author seeks to address.	**6.** Analyze the author's purpose in providing an explanation, describing a procedure, or discussing an experiment in a text, identifying important issues that remain unresolved or uncertain.
Integration of Knowledge and Ideas		
7. Integrate quantitative or technical information provided by the words in a text with a version of that information expressed graphically (e.g., in a flowchart, diagram, model, graph, or table).	**7.** Demonstrate understanding of quantitative or technical information by translating information provided by the words in a text into graphical form (e.g., a table or chart) or translating information expressed graphically or mathematically (e.g., in an equation) into words.	**7.** Integrate and evaluate multiple sources of information presented in different formats (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem, resolving conflicting information when possible.
8. Distinguish among facts, reasoned judgment based on research findings, and speculation in a text.	**8.** Assess the extent to which the evidence in a text supports a claim or a recommendation for solving a scientific or technical problem.	**8.** Evaluate the hypotheses, data, and conclusions in a science or technical text, verifying data and corroborating or challenging conclusions when possible by using other sources of information.
9. Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.	**9.** Compare and contrast findings presented in a text to those from other sources (including their own experiments), noting when the findings support or contradict previous explanations or accounts.	**9.** Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.
Range and Level of Text Complexity		
10. By the end of grade 8, read and comprehend	**10.** By the end of grade 10, read and comprehend	**10.** By the end of grade 12, read and comprehend

science/technical texts in the grades 6–8 text complexity band independently and proficiently.

science/technical texts in the grades 9–10 text complexity band independently and proficiently.

science/technical texts in the grades 11–12 text complexity band independently and proficiently.

College and Career Readiness Anchor Standards for Writing

The grades 6–12 standards on the following pages define what students should understand and be able to do by the end of each grade. They relate to their College and Career Readiness (CCR) counterparts by number. The CCR and grade-specific standards are necessary complements—the former providing broad standards, the latter providing additional specificity—that together define the skills and understandings that all students must demonstrate.

Text Types and Purposes[1]

1. Write arguments to support claims in an analysis of substantive topics or texts using valid reasoning and relevant and sufficient evidence.
2. Write informative/explanatory texts to examine and convey complex ideas and information clearly and accurately through the effective selection, organization, and analysis of content.
3. Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details and well-structured event sequences.

Production and Distribution of Writing

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

Research to Build and Present Knowledge

7. Conduct short as well as more sustained research projects based on focused questions, demonstrating understanding of the subject under investigation.
8. Gather relevant information from multiple print and digital sources, assess the credibility and accuracy of each source, and integrate the information while avoiding plagiarism.
9. Draw evidence from literary or informational texts to support analysis, reflection, and research.

Range of Writing

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

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

Note on range and content of student writing

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

Writing Standards for Literacy in History/Social Studies, Science, and Technical Subjects 6–12 [WHST]

The standards below begin at grade 6; standards for K–5 writing in history/social studies, science, and technical subjects are integrated into the K–5 Writing standards.

Grades 6–8 students:	Grades 9–10 students:	Grades 11–12 students:
Text Types and Purposes		
2. Write arguments focused on *discipline-specific content*. a. Introduce claim(s) about a topic or issue, acknowledge and distinguish the claim(s) from alternate or opposing claims, and organize the reasons and evidence logically. b. Support claim(s) with logical reasoning and relevant, accurate data and evidence that demonstrate an understanding of the topic or text, using credible sources. f. Use words, phrases, and clauses to create cohesion and clarify the relationships among claim(s), counterclaims, reasons, and evidence. g. Establish and maintain a formal style. c. Provide a concluding statement or section that follows from and supports the argument presented.	**1.** Write arguments focused on *discipline-specific content*. f. Introduce precise claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that establishes clear relationships among the claim(s), counterclaims, reasons, and evidence. g. Develop claim(s) and counterclaims fairly, supplying data and evidence for each while pointing out the strengths and limitations of both claim(s) and counterclaims in a discipline-appropriate form and in a manner that anticipates the audience's knowledge level and concerns. h. Use words, phrases, and clauses to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims. i. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing. j. Provide a concluding statement or section that follows from or supports the argument presented.	**1.** Write arguments focused on *discipline-specific content*. f. Introduce precise, knowledgeable claim(s), establish the significance of the claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that logically sequences the claim(s), counterclaims, reasons, and evidence. g. Develop claim(s) and counterclaims fairly and thoroughly, supplying the most relevant data and evidence for each while pointing out the strengths and limitations of both claim(s) and counterclaims in a discipline-appropriate form that anticipates the audience's knowledge level, concerns, values, and possible biases. h. Use words, phrases, and clauses as well as varied syntax to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims. i. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing. j. Provide a concluding statement or section that follows from or supports the argument presented.

Grades 6–8 students:	Grades 9–10 students:	Grades 11–12 students:
Text Types and Purposes (continued)		
4. Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes. g. Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information into broader categories as appropriate to achieving purpose; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension. h. Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples. i. Use appropriate and varied transitions to create cohesion and clarify the relationships among ideas and concepts. j. Use precise language and domain-specific vocabulary to inform about or explain the topic. k. Establish and maintain a formal style and objective tone. l. Provide a concluding statement or section that follows from and supports the information or explanation presented.	**3.** Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes. g. Introduce a topic and organize ideas, concepts, and information to make important connections and distinctions; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension. h. Develop the topic with well-chosen, relevant, and sufficient facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic. i. Use varied transitions and sentence structures to link the major sections of the text, create cohesion, and clarify the relationships among ideas and concepts. j. Use precise language and domain-specific vocabulary to manage the complexity of the topic and convey a style appropriate to the discipline and context as well as to the expertise of likely readers. k. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing. l. Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).	**3.** Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes. a. Introduce a topic and organize complex ideas, concepts, and information so that each new element builds on that which precedes it to create a unified whole; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension. b. Develop the topic thoroughly by selecting the most significant and relevant facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic. c. Use varied transitions and sentence structures to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts. d. Use precise language, domain-specific vocabulary and techniques such as metaphor, simile, and analogy to manage the complexity of the topic; convey a knowledgeable stance in a style that responds to the discipline and context as well as to the expertise of likely readers. e. Provide a concluding statement or section that follows from and supports the information or explanation provided (e.g., articulating implications or the significance of the topic).
3. Students' narrative skills continue to grow in these grades. The Standards require that students be able to incorporate narrative elements effectively into arguments and informative/explanatory texts. In history, students must be able to incorporate narrative accounts into their analyses of individuals or events of historical import. In science, students must be able to write precise enough descriptions of the step-by-step procedures they use in their investigations that others can replicate them and (possibly) reach the same results.	**3.** Students' narrative skills continue to grow in these grades. The Standards require that students be able to incorporate narrative elements effectively into arguments and informative/explanatory texts. In history, students must be able to incorporate narrative accounts into their analyses of individuals or events of historical import. In science, students must be able to write precise enough descriptions of the step-by-step procedures they use in their investigations that others can replicate them and (possibly) reach the same results.	**3.** Students' narrative skills continue to grow in these grades. The Standards require that students be able to incorporate narrative elements effectively into arguments and informative/explanatory texts. In history, students must be able to incorporate narrative accounts into their analyses of individuals or events of historical import. In science, students must be able to write precise enough descriptions of the step-by-step procedures they use in their investigations that others can replicate them and (possibly) reach the same results.

Writing Standards for Literacy in History/Social Studies, Science, and Technical Subjects 6–12 [WHST]

Grades 6–8 students:	Grades 9–10 students:	Grades 11–12 students:
Production and Distribution of Writing		
4. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.	**4.** Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.	**4.** Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
5. With some guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on how well purpose and audience have been addressed.	**5.** Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.	**5.** Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.
6. Use technology, including the Internet, to produce and publish a minimum of five pages of writing as well as to interact and collaborate with others.	**6.** Use technology, including the Internet, to produce, publish, and update individual or shared writing products, taking advantage of technology's capacity to link to other information and to display information flexibly and dynamically.	**6.** Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information.
Research to Build and Present Knowledge		
7. Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.	**7.** Conduct short as well as more sustained research projects to answer a question (including a self-generate question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.	**7.** Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.
8. Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.	**8.** Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the usefulness of each source in answering the research question; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation.	**8.** Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.
10. Draw evidence from informational texts to support analysis reflection, and research.	**9.** Draw evidence from informational texts to support analysis, reflection, and research.	**9.** Draw evidence from informational texts to support analysis, reflection, and research.
Range of Writing		
10. Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.	**10.** Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.	**10.** Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

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Introduction
Toward greater focus and coherence

Mathematics experiences in early childhood settings should concentrate on (1) number (which includes whole number, operations, and relations) and (2) geometry, spatial relations, and measurement, with more mathematics learning time devoted to number than to other topics. [M]athematical process goals should be integrated in these content areas.

National Research Council, 2009

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

Ginsburg, Leinwand and Decker, 2009

Because the mathematics concepts in [U.S.] textbooks are often weak, the presentation becomes more mechanical than is ideal. We looked at both traditional and non-traditional textbooks used in the US and found this conceptual weakness in both.

Ginsburg et al., 2005

There are many ways to organize curricula. The challenge, now rarely met, is to avoid those that distort mathematics and turn off students.

Steen, 2007

For over a decade, research studies of mathematics education in high-performing countries have pointed to the conclusion that the mathematics curriculum in the United States must become substantially more focused and coherent in order to improve mathematics achievement in this country. To deliver on the promise of common standards, the standards must address the problem of a curriculum that is 'a mile wide and an inch deep.' These Standards are a substantial answer to that challenge.

It is important to recognize that "fewer standards" are no substitute for *focused* standards. Achieving "fewer standards" would be easy to do by resorting to broad, general statements. Instead, these Standards aim for clarity and specificity.

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

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

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

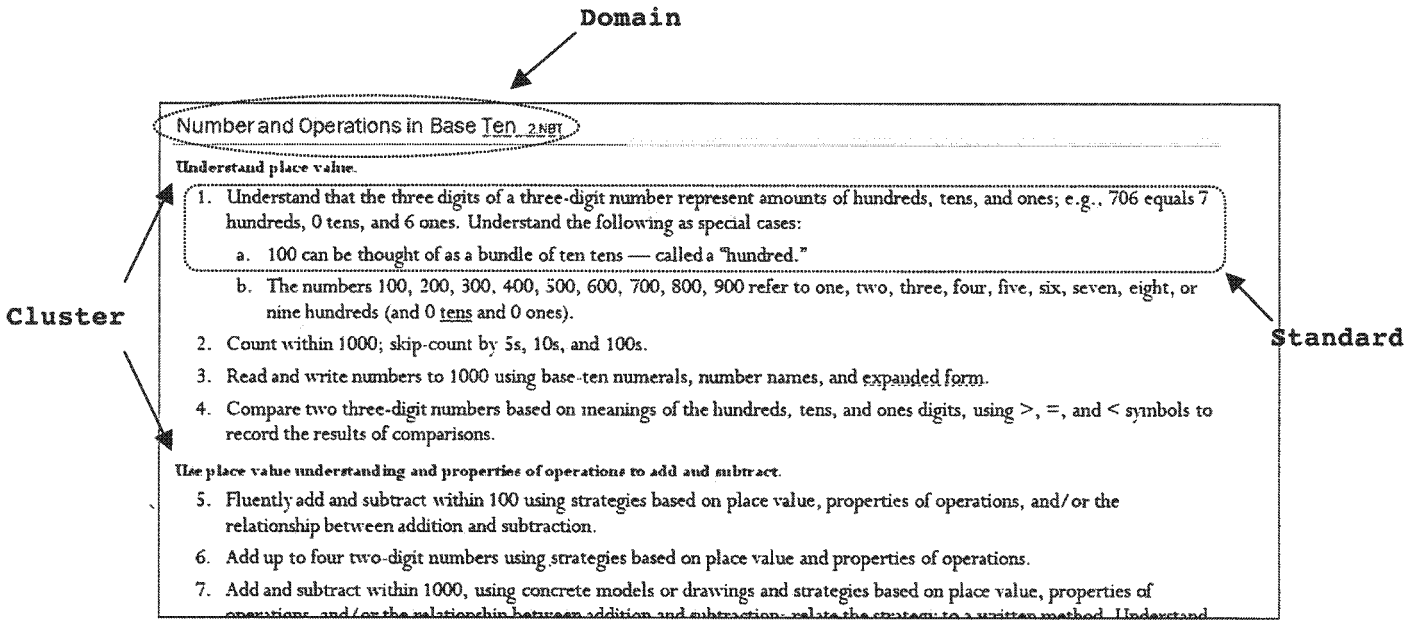
In addition, the 'sequence of topics and performances' that is outlined in a body of mathematics standards must also respect what is known about how students learn. As Confrey (2007) points out, developing "sequenced obstacles and challenges for students...absent the insights about meaning that derive from careful study of learning, would be unfortunate and unwise." In recognition of this, the development of these Standards began with research-based learning progressions detailing what is known today about how students' mathematical knowledge, skill, and understanding develop over time.

Understanding mathematics

These Standards define what students should understand and be able to do in their study of mathematics. Asking a student to understand something means asking a teacher to assess whether the student has understood it. But what does mathematical understanding look like? One hallmark of mathematical understanding is the ability to justify, in a way appropriate to the student's mathematical maturity, *why* a particular mathematical statement is true or where a mathematical rule comes from. There is a world of difference between a student who can summon a mnemonic device to expand a product such as $(a + b)(x + y)$ and a student who can explain where the mnemonic comes from. The student who can explain the rule understands the mathematics, and may have a better chance to succeed at a less familiar task such as expanding $(a + b + c)(x + y)$. Mathematical understanding and procedural skill are equally important, and both are assessable using mathematical tasks of sufficient richness.

The Standards begin on the next page with eight Standards for Mathematical Practice.

How to read the grade level standards



Standards define what students should understand and be able to do. **Clusters** summarize groups of related standards. Note that standards from different clusters may sometimes be closely related, because mathematics is a connected subject. **Domains** are larger groups of related standards. Standards from different domains may sometimes be closely related.

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

Mathematics | Standards for Mathematical Practice

The Standards for Mathematical Practice describe varieties of expertise that mathematics educators at all levels should seek to develop in their students. These practices rest on important "processes and proficiencies" with longstanding importance in mathematics education: the NCTM process standards of problem solving, reasoning and proof, communication, representation, and connections; and the strands of mathematical proficiency specified in the National Research Council's report *Adding It Up*: adaptive reasoning, strategic competence, conceptual understanding (comprehension of mathematical concepts, operations and relations), procedural fluency (skill in carrying out procedures flexibly, accurately, efficiently and appropriately), and productive disposition (habitual inclination to see mathematics as sensible, useful, and worthwhile, coupled with a belief in diligence and one's own efficacy).

1 Make sense of problems and persevere in solving them.

Mathematically proficient students start by explaining to themselves the meaning of a problem and looking for entry points to its solution. They analyze givens, constraints, relationships, and goals. They make conjectures about the form and meaning of the solution and plan a solution pathway rather than simply jumping into a solution attempt. They consider analogous problems, and try special cases and simpler forms of the original problem in order to gain insight into its solution. They monitor and evaluate their progress and change course if necessary. Older students might, depending on the context of the problem, transform algebraic expressions or change the viewing window on their graphing calculator to get the information they need. Mathematically proficient students can explain correspondences between equations, verbal descriptions, tables, and graphs or draw diagrams of important features and relationships, graph data, and search for regularity or trends. Younger students might rely on using concrete objects or pictures to help conceptualize and solve a problem. Mathematically proficient students check their answers to problems using a different method, and they continually ask themselves, "Does this make sense?" They can understand the approaches of others to solving complex problems and identify correspondences between different approaches. Key related processes: Problem solving. Key related proficiencies: Conceptual understanding, strategic competence, productive disposition.

2 Reason abstractly and quantitatively.

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

3 Construct viable arguments and critique the reasoning of others.

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

4 Model with mathematics.

Mathematically proficient students can apply the mathematics they know to solve problems arising in everyday life, society, and the workplace. In early grades, this might be as simple as writing an addition equation to describe a situation. In middle grades, a student might apply proportional reasoning to plan a school event or analyze a problem in the community. By high school, a student might use geometry to solve a design problem or use a function to describe how one quantity of interest depends on another. Mathematically proficient students who can apply what they know are comfortable making assumptions and approximations to simplify a complicated situation, realizing that these may need revision later. They are able to identify important quantities in a practical situation and map their relationships using such tools as diagrams, two-way tables, graphs, flowcharts and formulas. They can analyze those relationships mathematically to draw conclusions. They routinely interpret their mathematical results in the context of the situation and reflect on whether the results make sense, possibly improving the model if it has not served its purpose. Key related processes: Representation. Key related proficiencies: Adaptive reasoning.

5 Use appropriate tools strategically.

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

6 Attend to precision.

Mathematically proficient students try to communicate precisely to others. They try to use clear definitions in discussion with others and in their own reasoning. They state the meaning of the symbols they choose, including using the equal sign consistently and appropriately. They are careful about specifying units of measure, and labeling axes to clarify the correspondence with quantities in a problem. They calculate accurately and efficiently, express numerical answers with a degree of precision appropriate for the problem context. In the elementary grades, students give carefully formulated explanations to each other. By the time they reach high school they have learned to examine claims and make explicit use of definitions. Key related processes: Problem solving, Representation. Key related proficiencies: Procedural fluency.

7 Look for and make use of structure.

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

8 Look for and express regularity in repeated reasoning.

Mathematically proficient students notice if calculations are repeated, and look both for general methods and for shortcuts. Upper elementary students might notice when dividing 25 by 11 that they are repeating the same calculations over and over again, and conclude they have a repeating decimal. By paying attention to the calculation of slope as they repeatedly check whether points are on the line through (1, 2) with slope 3, middle school students might abstract the equation $(y - 2)/(x -$

1) = 3. Noticing the regularity in the way terms cancel when expanding $(x - 1)(x + 1)$, $(x - 1)(x^2 + x + 1)$, and $(x - 1)(x^3 + x^2 + x + 1)$ might lead them to the general formula for the sum of a geometric series. As they work to solve a problem, mathematically proficient students maintain oversight of the process, while attending to the details. They continually evaluate the reasonableness of their intermediate results. Key related processes: Problem solving, Reasoning and proof. Key related proficiencies: Adaptive reasoning.

Connecting the Standards for Mathematical Practice to the Standards for Mathematical Content

The Standards for Mathematical Practice describe ways in which developing student-practitioners of the discipline of mathematics increasingly ought to engage with the subject matter as they grow in mathematical maturity and expertise throughout the elementary, middle and high school years. Designers of curriculum, assessment, and professional development should all attend to the need to connect the mathematical practices to mathematical content in mathematics instruction.

The Standards for Mathematical Content are a balanced combination of procedure and understanding. Expectations that begin with the word "understand" are often especially good opportunities to connect the practices to the content. Students who lack understanding of a topic may rely on procedures too heavily. Without a flexible base from which to work, they may be less likely to consider analogous problems, represent problems coherently, justify conclusions, apply the mathematics to practical situations, use technology mindfully to work with the mathematics, explain the mathematics accurately to other students, step back for an overview, or deviate from a known procedure to find a shortcut. In short, a lack of understanding effectively prevents a student from engaging in the mathematical practices.

In this respect, those content standards which set an expectation of understanding are potential "points of intersection" between the Standards for Mathematical Content and the Standards for Mathematical Practice. These points of intersection are intended to be weighted toward central and generative concepts in the school mathematics curriculum that most merit the time, resources, innovative energies, and focus necessary to qualitatively improve curriculum, instruction, assessment, professional development, and student achievement in mathematics.

Mathematics | Kindergarten

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

(1) Students use numbers, including written numerals, to represent quantities and to solve quantitative problems, such as counting objects in a set; counting out a given number of objects; comparing sets or numerals; and modeling simple joining and separating situations with sets of objects, or eventually with equations such as $5 + 2 = 7$ and $7 - 2 = 5$. (Kindergarten students should see addition and subtraction equations, and student writing of equations in kindergarten is encouraged, but it is not required.) Students choose, combine, and apply effective strategies for answering quantitative questions, including quickly recognizing the cardinalities of small sets of objects, counting and producing sets of given sizes, counting the number of objects in combined sets, or counting the number of objects that remain in a set after some are taken away.

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

Grade Level Overview

Counting and Cardinality	• Know number names and the count sequence. • Count to tell the number of objects. • Compare numbers.
Operations and Algebraic Thinking	• Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.
Number and Operations in Base Ten	• Work with numbers 11-19 to gain foundations for place value.
Measurement and Data	• Describe and compare measurable attributes. • Classify objects and count the number of objects in each category
Geometry	1. Identify and describe shapes. 2. Analyze, compare, create, and compose shapes.

Mathematical Practices

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

Counting and Cardinality K.CC

Know number names and the count sequence.

1. Count to 100 by ones and by tens.
2. Count forward beginning from a given number within the known sequence (instead of having to begin at 1).
3. Write numbers from 0 to 20. Represent a number of objects with a written numeral 0-20 (with 0 representing a count of no objects).

Count to tell the number of objects.

4. Understand the relationship between numbers and quantities; connect counting to cardinality.
   a. When counting objects, say the number names in the standard order, pairing each object with one and only one number name and each number name with one and only one object.
   b. Understand that the last number name said tells the number of objects counted. The number of objects is the same regardless of their arrangement or the order in which they were counted.
   c. Understand that each successive number name refers to a quantity that is one larger.
5. Count to answer "how many?" questions about as many as 20 things arranged in a line, a rectangular array, or a circle; or as many as 10 things in a scattered configuration; given a number from 1-20, count out that many objects.

Compare numbers.

6. Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group, e.g., by using matching and counting strategies.[1]
7. Compare two numbers between 1 and 10 presented as written numerals.

Operations and Algebraic Thinking K.OA

Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.

1. Represent addition and subtraction with objects, fingers, mental images, drawings,[2] sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations.
2. Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem.
3. Decompose numbers less than or equal to 10 into pairs in more than one way, e.g., by using objects or drawings, and record each decomposition by a drawing or equation (e.g., 5 = 2 + 3 and 5 = 4 + 1).
4. For any number from 1 to 9, find the number that makes 10 when added to the given number, e.g., by using objects or drawings, and record the answer with a drawing or equation.
5. Fluently add and subtract within 5.

Number and Operations in Base Ten K.NBT

Work with numbers 11-19 to gain foundations for place value.

1. Compose and decompose numbers from 11 to 19 into ten ones and some further ones, e.g., by using objects or drawings, and record each composition or decomposition by a drawing or equation (such as 18 = 10 + 8); understand that these numbers are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones.

Measurement and Data K.MD

Describe and compare measurable attributes.

1. Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.
2. Directly compare two objects with a measurable attribute in common, to see which object has "more of"/"less of" the attribute, and describe the difference. *For example, directly compare the heights of two children and describe one child as taller/shorter.*

Classify objects and count the number of objects in each category.

3. Classify objects into given categories; count the numbers of objects in each category and sort the categories by count.[3]

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[1] Include groups with up to ten objects.
[2] Drawings need not show details, but should show the mathematics in the problem. (This applies wherever drawings are mentioned in the Standards.)

Geometry K.G

Identify and describe shapes (such as squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres).

1. Describe objects in the environment using names of shapes, and describe the relative positions of these objects using terms such as *above*, *below*, *beside*, *in front of*, *behind*, and *next to*.
2. Correctly name shapes regardless of their orientations or overall size.
3. Identify shapes as two-dimensional (lying in a plane, "flat") or three-dimensional ("solid").

Analyze, compare, create, and compose shapes.

4. Analyze and compare a variety of two- and three-dimensional shapes, in different sizes and orientations, using informal language to describe their similarities, differences, parts (e.g., number of sides and vertices/"corners") and other attributes (e.g., having sides of equal length).
5. Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes.
6. Compose simple shapes to form larger shapes.

[3] Limit category counts to be less than or equal to 10.

Mathematics | Grade 1

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

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

(2) Students develop, discuss, and use efficient, accurate, and generalizable methods to add within 100 and subtract multiples of 10. They compare whole numbers (at least to 100) to develop understanding of and solve problems involving their relative sizes. They think of whole numbers between 10 and 100 in terms of tens and ones (especially recognizing the numbers 11 to 19 as composed of a ten and some ones). Through activities that build number sense, they understand the order of the counting numbers and their relative magnitudes.

(3) Students develop an understanding of the meaning and processes of measurement, including underlying concepts such as iterating (the mental activity of building up the length of an object with equal-sized units) and the transitivity principle for indirect measurement.[4]

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

Grade Level Overview

Operations and Algebraic Thinking	• Represent and solve problems involving addition and subtraction. • Understand and apply properties of operations and the relationship between addition and subtraction. • Add and subtract within 20. • Work with addition and subtraction equations.	1. Make sense of problems and persevere in solving them. 2. Reason abstractly and quantitatively. 3. Construct viable arguments and critique the reasoning of others. 4. Model with mathematics. 5. Use appropriate tools strategically. 6. Attend to precision. 7. Look for and make use of structure. 8. Look for and express regularity in repeated reasoning.	Mathematical Practices
Number and Operations in Base Ten	• Extend the counting sequence. • Understand place value. • Use place value understanding and properties of operations to add and subtract.		
Measurement and Data	• Measure lengths indirectly and by iterating length units. • Tell and write time. • Represent and interpret data.		
Geometry	• Reason with shapes and their attributes.		

[4] Students should apply the principle of transitivity of measurement to make indirect comparisons, but they need not use this technical term.

Operations and Algebraic Thinking 1.OA

Represent and solve problems involving addition and subtraction.

1. Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.[5]
2. Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20, *e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.*

Understand and apply properties of operations and the relationship between addition and subtraction.

3. Apply properties of operations as strategies to add and subtract.[6] *Examples: If 8 + 3 = 11 is known, then 3 + 8 = 11 is also known. (Commutative property of addition.) To add 2 + 6 + 4, the second two numbers can be added to make a ten, so 2 + 6 + 4 = 2 + 10 = 12. (Associative property of addition.)*
4. Understand subtraction as an unknown-addend problem. *For example, subtract 10 – 8 by finding the number that makes 10 when added to 8.*

Add and subtract within 20.

5. Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).
6. Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making ten (e.g., 8 + 6 = 8 + 2 + 4 = 10 + 4 = 14); decomposing a number leading to a ten (e.g., 13 – 4 = 13 – 3 – 1 = 10 – 1 = 9); using the relationship between addition and subtraction (e.g., knowing that 8 + 4 = 12, one knows 12 – 8 = 4); and creating equivalent but easier or known sums (e.g., adding 6 + 7 by creating the known equivalent 6 + 6 + 1 = 12 + 1 = 13).

Work with addition and subtraction equations.

7. Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false. *For example, which of the following equations are true and which are false? 6 = 6, 7 = 8 – 1, 5 + 2 = 2 + 5, 4 + 1 = 5 + 2.*
8. Determine the unknown number in a whole-number addition or subtraction equation. *For example, determine the unknown number that makes the equation true in each of the equations 8 + ? = 11, 5 = □ – 3, 6 + 6 = □.*

Number and Operations in Base Ten 1.NBT

Extend the counting sequence.

1. Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.

Understand place value.

2. Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand the following as special cases:
   a. 10 can be thought of as a bundle of ten ones — called a "ten."
   b. The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones.
   c. The numbers 10, 20, 30, 40, 50, 60, 70, 80, 90 refer to one, two, three, four, five, six, seven, eight, or nine tens (and 0 ones).
3. Compare two two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols >, =, and <.

Use place value understanding and properties of operations to add and subtract.

4. Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten.
5. Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used.
6. Subtract multiples of 10 in the range 10-90 from multiples of 10 in the range 10-90 (positive or zero differences), using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.

[5] See Glossary, Table 1.
[6] Students need not use formal terms for these properties.

Measurement and Data 1.MD

Measure lengths indirectly and by iterating length units.

1. Order three objects by length; compare the lengths of two objects indirectly by using a third object.
2. Express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps. *Limit to contexts where the object being measured is spanned by a whole number of length units with no gaps or overlaps.*

Tell and write time.

3. Tell and write time in hours and half-hours using analog and digital clocks.

Represent and interpret data.

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

Geometry 1.G

Reason with shapes and their attributes.

1. Distinguish between defining attributes (e.g., triangles are closed and three-sided) versus non-defining attributes (e.g., color, orientation, overall size) for a wide variety of shapes; build and draw shapes to possess defining attributes.
2. Compose two-dimensional shapes (such as rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) or three-dimensional shapes (such as cubes, right rectangular prisms, right circular cones, and right circular cylinders) to create a composite shape, and compose new shapes from the composite shape.[7]
3. Partition circles and rectangles into two and four equal shares, describe the shares using the words *halves*, *fourths*, and *quarters*, and use the phrases *half of*, *fourth of*, and *quarter of*. Describe the whole as two of, or four of the shares. Understand for these examples that decomposing into more equal shares creates smaller shares.

[7] Students do not need to learn formal names such as "right rectangular prism."

Mathematics | Grade 2

In Grade 2, instructional time should focus on four critical areas: (1) extending understanding of base-ten notation; (2) building fluency with addition and subtraction; (3) using standard units of measure; and (4) describing and analyzing shapes.

(1) Students extend their understanding of the base-ten system. This includes ideas of counting in fives, tens, and multiples of hundreds, tens, and ones, as well as number relationships involving these units, including comparing. Students understand multi-digit numbers (up to 1000) written in base-ten notation, recognizing that the digits in each place represent amounts of thousands, hundreds, tens, or ones (e.g., 853 is 8 hundreds + 5 tens + 3 ones).

(2) Students use their understanding of addition to develop fluency with addition and subtraction within 100. They solve problems by applying their understanding of models for addition and subtraction, and they develop, discuss, and use efficient, accurate, and generalizable methods to compute sums and differences of whole numbers in base-ten notation, using their understanding of place value and the properties of operations. They select and accurately apply methods that are appropriate for the context and the numbers involved to mentally calculate sums and differences for numbers with only tens or only hundreds.

(3) Students recognize the need for standard units of measure (centimeter and inch) and they use rulers and other measurement tools with the understanding that linear measure involves an iteration of units. They recognize that the smaller the unit, the more iterations they need to cover a given length.

(4) Students describe and analyze shapes by examining their sides and angles. Students investigate, describe, and reason about decomposing and combining shapes to make other shapes. Through building, drawing, and analyzing two- and three-dimensional shapes, students develop a foundation for understanding area, volume, congruence, similarity, and symmetry in later grades.

Grade Level Overview

Operations and Algebraic Thinking	• Represent and solve problems involving addition and subtraction. • Add and subtract within 20. • Work with equal groups of objects to gain foundations for multiplication.	1. Make sense of problems and persevere in solving them. 2. Reason abstractly and quantitatively. 3. Construct viable arguments and critique the reasoning of others. 4. Model with mathematics. 5. Use appropriate tools strategically. 6. Attend to precision. 7. Look for and make use of structure. 8. Look for and express regularity in repeated reasoning.	Mathematical Practices
Number and Operations in Base Ten	• Understand place value. • Use place value understanding and properties of operations to add and subtract.		
Measurement and Data	• Measure and estimate lengths in standard units. • Relate addition and subtraction to length. • Work with time and money. • Represent and interpret data.		
Geometry	• Reason with shapes and their attributes.		

Operations and Algebraic Thinking 2.OA

Represent and solve problems involving addition and subtraction.

1. Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.[8]

Add and subtract within 20.

2. Fluently add and subtract within 20. By end of Grade 2, know from memory all sums of two one-digit numbers.

Work with equal groups of objects to gain foundations for multiplication.

3. Determine whether a group of objects (up to 20) has an odd or even number of members, e.g., by pairing objects or counting them by 2s; write an equation to express an even number as a sum of two equal addends.
4. Use addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns; write an equation to express the total as a sum of equal addends.

Number and Operations in Base Ten 2.NBT

Understand place value.

1. Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones; e.g., 706 equals 7 hundreds, 0 tens, and 6 ones. Understand the following as special cases:
   a. 100 can be thought of as a bundle of ten tens — called a "hundred."
   b. The numbers 100, 200, 300, 400, 500, 600, 700, 800, 900 refer to one, two, three, four, five, six, seven, eight, or nine hundreds (and 0 tens and 0 ones).
2. Count within 1000; skip-count by 5s, 10s, and 100s.
3. Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.
4. Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using >, =, and < symbols to record the results of comparisons.

Use place value understanding and properties of operations to add and subtract.

5. Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.
6. Add up to four two-digit numbers using strategies based on place value and properties of operations.
7. Add and subtract within 1000, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method. Understand that in adding or subtracting three-digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and ones; and sometimes it is necessary to compose or decompose tens or hundreds.
8. Mentally add 10 or 100 to a given number 100-900, and mentally subtract 10 or 100 from a given number 100-900.
9. Explain why addition and subtraction strategies work, using place value and the properties of operations.[9]

Measurement and Data 2.MD

Measure and estimate lengths in standard units.

1. Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.
2. Measure the length of an object twice, using length units of different lengths for the two measurements; describe how the two measurements relate to the size of the unit chosen.
3. Estimate lengths using units of inches, feet, centimeters, and meters.
4. Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit.

Relate addition and subtraction to length.

[8] See Glossary, Table 1.
[9] Explanations may be supported by drawings or objects.

5. Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units, e.g., by using drawings (such as drawings of rulers) and equations with a symbol for the unknown number to represent the problem.
6. Represent whole numbers as lengths from 0 on a number line diagram with equally spaced points corresponding to the numbers 0, 1, 2, ..., and represent whole-number sums and differences on a number line diagram.

Work with time and money.

7. Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.
8. Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using $ and ¢ symbols appropriately. *Example: If you have 2 dimes and 3 pennies, how many cents do you have?*

Represent and interpret data.

9. Generate measurement data by measuring lengths of several objects to the nearest whole unit, or by making repeated measurements of the same object. Show the measurements by making a line plot, where the horizontal scale is marked off in whole-number units.
10. Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems[10] using information presented in a bar graph.

Geometry 2.G

Reason with shapes and their attributes.

1. Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces.[11] Identify triangles, quadrilaterals, pentagons, hexagons, and cubes.
2. Partition a rectangle into rows and columns of same-size squares and count to find the total number of them.
3. Partition circles and rectangles into two, three, or four equal shares, describe the shares using the words *halves*, *thirds*, *half of*, *a third of*, etc., and describe the whole as two halves, three thirds, four fourths. Recognize that equal shares of identical wholes need not have the same shape.

[10] See Glossary, Table 1.
[11] Sizes are compared directly or visually, not compared by measuring.

Mathematics | Grade 3

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

(1) Students develop an understanding of the meanings of multiplication and division of whole numbers through activities and problems involving equal-sized groups, arrays, and area models; multiplication is finding an unknown product, and division is finding an unknown factor in these situations. For equal-sized group situations, division can require finding the unknown number of groups or the unknown group size. Students use properties of operations to calculate products of whole numbers, using increasingly sophisticated strategies based on these properties to solve multiplication and division problems involving single-digit factors. By comparing a variety of solution strategies, students learn the relationship between multiplication and division.

(2) Students develop an understanding of fractions, beginning with unit fractions. Students view fractions in general as being built out of unit fractions, and they use fractions along with visual fraction models to represent parts of a whole. Students understand that the size of a fractional part is relative to the size of the whole; for example, $1/2$ of the paint in a large bucket could be less paint than $1/3$ of the paint in a smaller bucket; but $1/3$ of a ribbon is longer than $1/5$ of the same ribbon because when the ribbon is divided into 3 equal parts, the parts are longer than when the ribbon is divided into 5 equal parts. Students are able to use fractions to represent numbers equal to, less than, and greater than one. They solve problems that involve comparing fractions by using visual fraction models and strategies based on noticing equal numerators or denominators.

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

(4) Students describe, analyze, and compare properties of two-dimensional shapes. They compare and classify shapes by their sides and angles, and connect these with definitions of shapes. Students also relate their fraction work to geometry by expressing the area of part of a shape as a unit fraction of the whole.

Grade Level Overview

Operations and Algebraic Thinking	• Represent and solve problems involving multiplication and division. • Understand properties of multiplication and the relationship between multiplication and division. • Multiply and divide within 100. • Solve problems involving the four operations, and identify and explain patterns in arithmetic.
Number and Operations in Base Ten	• Use place value understanding and properties of operations to perform multi-digit arithmetic.
Number and Operations—Fractions	• Develop understanding of fractions as numbers.
Measurement and Data	• Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects. • Represent and interpret data. • Geometric measurement: understand concepts of area and relate area to multiplication and to addition. • Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.
Geometry	• Reason with shapes and their attributes.

Mathematical Practices

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

Operations and Algebraic Thinking 3.OA

Represent and solve problems involving multiplication and division.

1. Interpret products of whole numbers, e.g., interpret 5 × 7 as the total number of objects in 5 groups of 7 objects each. *For example, , describe a context in which a total number of objects can be expressed as 5 × 7.*
2. Interpret whole-number quotients of whole numbers, e.g., interpret 56 ÷ 8 as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each. *For example, describe a context in which a number of shares or a number of groups can be expressed as* 56 ÷ 8.
3. Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.[12]
4. Determine the unknown whole number in a multiplication or division equation relating three whole numbers. *For example, determine the unknown number that makes the equation true in each of the equations* $8 \times ? = 48$, $5 = \square \div 3$, $6 \times 6 = ?$.

Understand properties of multiplication and the relationship between multiplication and division.

5. Apply properties of operations as strategies to multiply and divide.[13] *Examples: If* $6 \times 4 = 24$ *is known, then* $4 \times 6 = 24$ *is also known. (Commutative property of multiplication.)* $3 \times 5 \times 2$ *can be found by multiplying* $3 \times 5 = 15$ *then multiplying* $15 \times 2 = 30$, *or by multiplying* $5 \times 2 = 10$ *then multiplying* $3 \times 10 = 30$. *(Associative property of multiplication.) Knowing that* $8 \times 5 = 40$ *and* $8 \times 2 = 16$, *one can find* 8×7 *as* $8 \times (5 + 2) = (8 \times 5) + (8 \times 2) = 40 + 16 = 56$. *(Distributive property.)*
6. Understand division as an unknown-factor problem. *For example, divide* $32 \div 8$ *by finding the number that makes 32 when multiplied by 8.*

Multiply and divide within 100.

7. Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that 8 × 5 = 40, one knows 40 ÷ 5 = 8) or properties of operations. By end of Grade 3, know from memory all products of one-digit numbers.

Solve problems involving the four operations, and identify and explain patterns in arithmetic.

8. Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity; assess the reasonableness of answers using mental computation and estimation strategies including rounding.[14]
9. Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations. *For example, observe that 4 times a number is always even, and explain why 4 times a number can be decomposed into two equal addends.*

Number and Operations in Base Ten 3.NBT

Use place value understanding and properties of operations to perform multi-digit arithmetic.[15]

1. Use place value understanding to round whole numbers to the nearest 10 or 100.
2. Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.
3. Multiply one-digit whole numbers by multiples of 10 in the range 10-90 (e.g., 9 × 80, 5 × 60) using strategies based on place value and properties of operations.

Number and Operations—Fractions[16] 3.NF

Develop understanding of fractions as numbers.

1. Understand a fraction $1/b$ as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction a/b as the quantity formed by a parts of size $1/b$.
2. Understand a fraction as a number on the number line; represent fractions on a number line diagram.

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[12] See Glossary, Table 2.
[13] Students need not use formal terms for these properties.
[14] This standard is limited to problems posed with whole numbers and having whole-number answers; students should know how to perform operations in the conventional order when there are no parentheses to specify a particular order.
[15] A range of algorithms may be used.
[16] Grade 3 expectations in this domain are limited to fractions with denominators 2, 3, 4, 6, 8.

a. Represent a fraction $1/b$ on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into b equal parts. Recognize that each part has size $1/b$ and that the endpoint of the part based at 0 locates the number $1/b$ on the number line.

b. Represent a fraction a/b on a number line diagram by marking off a lengths $1/b$ from 0. Recognize that the resulting interval has size a/b and that its endpoint locates the number a/b on the number line.

3. Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size.

   a. Recognize and generate simple equivalent fractions (e.g., $1/2 = 2/4$, $4/6 = 2/3$); explain why the fractions are equivalent, e.g., by using a visual fraction model.

   b. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. *Examples: Express 3 in the form $3 = 3/1$; recognize that $6/1 = 6$; locate $4/4$ and 1 at the same point of a number line diagram.*

   c. Compare two fractions with the same numerator or the same denominator, by reasoning about their size; recognize that valid comparisons rely on the two fractions referring to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model.

Measurement and Data 3.MD

Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.

1. Tell and write time to the nearest minute and measure time intervals in minutes; solve word problems involving addition and subtraction of time intervals in minutes, e.g., by representing the problem on a number line diagram.
2. Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l).[17] Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem.[18]

Represent and interpret data.

3. Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step "how many more" and "how many less" problems using information presented in scaled bar graphs. *For example, draw a bar graph in which each square in the bar graph might represent 1 pet, 5 pets, or 10 pets.*
4. Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units—whole numbers, halves, or quarters.

Geometric measurement: understand concepts of area and relate area to multiplication and to addition.

5. Recognize area as an attribute of plane figures and understand concepts of area measurement.

   a. A square with side length 1 unit, called "a unit square," is said to have "one square unit" of area, and can be used to measure area.

   b. A plane figure which can be covered without gaps or overlaps by n unit squares is said to have an area of n square units.

6. Measure areas by counting unit squares, using square cm, square m, square in, square ft, and improvised units.
7. Relate area to the operations of multiplication and addition.

   a. Find the area of a rectangle with whole-number side lengths by tiling it, and show that the area is the same as would be found by multiplying the side lengths.

   b. Multiply side lengths to find areas of rectangles with whole-number side lengths in the context of solving real-world and mathematical problems; represent whole-number products as rectangular areas in mathematical reasoning.

   c. Use tiling to show in a concrete case that the area of a rectangle with whole-number side lengths a and $b + c$ is the sum of $a \times b$ and $a \times c$; use area models to represent the distributive property in mathematical reasoning.

   d. Recognize area as additive; find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real-world problems.

Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.

8. Solve real-world and mathematical problems involving perimeters of polygons, such as finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different area or with the same area and different perimeter.

Geometry 3.G

[17] Excludes compound units such as cm^3 and finding the geometric volume of a container.

[18] Excludes multiplicative comparison problems (problems involving notions of "times as much"; see Glossary, Table 2).

Reason with shapes and their attributes.

1. Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals); recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.
2. Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole. *For example, partition a shape into 4 parts with equal area, and describe the area of each part is 1/4 of the area of the shape.*

Mathematics | Grade 4

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

(1) Students generalize their understanding of place value to 1,000,000, understanding the relative sizes of numbers in each place. They use understandings of multiplication and division to develop fluency with multiplication and division of whole numbers. They apply their understanding of models for multiplication (equal-sized groups, arrays, area models), place value, and properties of operations, in particular the distributive property, as they develop, discuss, and use efficient, accurate, and generalizable methods to compute products of multi-digit whole numbers. Depending on the numbers and the context, they select and accurately apply appropriate methods to estimate or mentally calculate products. They develop fluency with efficient procedures for multiplying whole numbers; understand and explain why the procedures work based on place value and properties of operations; and use them to solve problems. Students apply their understanding of models for division, place value, properties of operations, and the relationship of division to multiplication as they develop, discuss, and use efficient, accurate, and generalizable procedures to find quotients involving multi-digit dividends. They select and accurately apply appropriate methods to estimate and mentally calculate quotients, and interpret remainders based upon the context.

(2) Students develop understanding of fraction equivalence and operations with fractions. They recognize that two different fractions can be equal (e.g., $15/9 = 5/3$), and they develop methods for generating and recognizing equivalent fractions. Students extend previous understandings about how fractions are built from unit fractions, composing fractions from unit fractions, decomposing fractions into unit fractions, and using the meaning of fractions and the meaning of multiplication to multiply a fraction by a whole number.

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

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

Grade Level Overview

Operations and Algebraic Thinking	• Use the four operations with whole numbers to solve problems. • Gain familiarity with factors and multiples. • Generate and analyze patterns.
Number and Operations in Base Ten	• Generalize place value understanding for multi-digit whole numbers. • Use place value understanding and properties of operations to perform multi-digit arithmetic.
Number and Operations—Fractions	• Extend understanding of fraction equivalence and ordering. • Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers. • Understand decimal notation for fractions, and compare decimal fractions.
Measurement and Data	• Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit. • Represent and interpret data. • Geometric measurement: understand concepts of angle and measure angles.
Geometry	• Draw and identify lines and angles, and classify shapes by properties of their lines and angles.

Mathematical Practices

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

Operations and Algebraic Thinking 4.OA

Use the four operations with whole numbers to solve problems.

1. Interpret a multiplication equation as a comparison, e.g., interpret $5 \times 7 = 35$ as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations.
2. Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.[19]
3. Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity; assess the reasonableness of answers using mental computation and estimation strategies including rounding.

Gain familiarity with factors and multiples.

4. Find the factor pairs for a whole number in the range 1-100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1-100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1-100 is prime or composite.

Generate and analyze patterns.

5. Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. *For example: Given the rule "Add 3" and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate in this way.*

Number and Operations in Base Ten[20] 4.NBT

Generalize place value understanding for multi-digit whole numbers.

1. Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right. *For example, recognize that 700 ÷ 70 = 10 by applying concepts of place value and division.*
2. Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits, using >, =, and < symbols to record the results of comparisons.
3. Use place value understanding to round multi-digit whole numbers to any place.

Use place value understanding and properties of operations to perform multi-digit arithmetic.[21]

4. Add and subtract multi-digit whole numbers accurately and efficiently using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.
5. Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.
6. Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

Number and Operations—Fractions[22] 4-NF

Extend understanding of fraction equivalence and ordering.

1. Explain why a fraction a/b is equivalent to a fraction $(n \times a)/(n \times b)$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size; use this principle to recognize and generate equivalent fractions.
2. Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as $1/2$; recognize that valid comparisons rely on the two fractions referring to the same whole. Record the results of comparisons with symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model.

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[19] See Glossary, Table 2.
[20] Grade 4 expectations in this domain are limited to whole numbers less than or equal to 1,000,000.
[21] A range of algorithms may be used.
[22] Grade 4 expectations in this domain are limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, 100.

Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers.

3. Understand a fraction a/b with $a > 1$ as a sum of fractions $1/b$.
   a. Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation (e.g., $3/8 = 1/8 + 1/8 + 1/8$ and $3/8 = 1/8 + 2/8$). Justify decompositions, e.g., by using a visual fraction model.
   b. Add and subtract mixed numbers with like denominators, e.g., by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction.
   c. Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem.
4. Apply and extend previous understandings of multiplication to multiply a fraction by a whole number.
   a. Understand a fraction a/b as a multiple of $1/b$. *For example, use a visual fraction model to represent $5/4$ as the product $5 \times (1/4)$, recording the conclusion by the equation $5/4 = 5 \times (1/4)$.*
   b. Understand a multiple of a/b as a multiple of $1/b$, and use this understanding to multiply a fraction by a whole number. *For example, use a visual fraction model to express $3 \times (2/5)$ as $6 \times (1/5)$, recognizing this product as $6/5$. (In general, $n \times (a/b) = (n \times a)/b$.)*
   c. Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem. *For example: If each person at a party will eat $3/8$ of a pound of roast beef, and there will be 5 people at the party, how many pounds of roast beef will be needed? Between what two whole numbers does your answer lie?*

Understand decimal notation for fractions, and compare decimal fractions.

5. Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100.[23] *For example, express $3/10$ as $30/100$ and add $3/10 + 4/100 = 34/100$.*
6. Interpret a two-digit decimal as a fraction and use decimal notation for parts of wholes; round decimals to the nearest whole number by reasoning about their size. *For example, rewrite 1.62 as $1\ 62/100$; describe a length as 1.62 meters; locate 1.62 on a number line diagram and round 1.62 to 2.*
7. Compare two decimals to hundredths by reasoning about their size; recognize that valid comparisons rely on the two decimals referring to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual model.

Measurement and Data 4.MD

Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.

1. Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; ℓ, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of smaller unit. Record measurement equivalents in a two-column table. *For example: Know that 1 ft is 12 times as long as 1 in; express the length of a 4 ft snake as 48 in; generate a conversion table for feet and inches listing the number pairs (1, 12), (2, 24), (3, 36), ...*
2. Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.
3. Apply the area and perimeter formulas for rectangles in real-world and mathematical problems. *For example, find the width of a rectangular room given the area of the flooring and the length, by viewing the area formula as a multiplication equation with an unknown factor.*

Represent and interpret data.

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

Geometric measurement: understand concepts of angle and measure angles.

5. Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement:

[23] Students who can generate equivalent fractions can develop strategies for adding fractions with unlike denominators in general. But addition and subtraction with unlike denominators in general is not a requirement at this grade.

a. An angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. An angle that turns through $1/360$ of a circle is called a "one-degree angle," and can be used to measure angles.

b. An angle that turns through *n* one-degree angles is said to have an angle measure of *n* degrees.

6. Measure angles in whole-number degrees using a protractor; sketch angles of specified measure.
7. Recognize angle measure as additive; when an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real-world and mathematical problems, e.g., by using an equation with a symbol for the unknown angle measure.

Geometry 4.G

Draw and identify lines and angles, and classify shapes by properties of their lines and angles.

1. Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines; identify these in two-dimensional figures.
2. Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of specified size. Recognize right triangles as a category, and identify right triangles.
3. Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts; identify line-symmetric figures and draw lines of symmetry.

Mathematics | Grade 5

In Grade 5, instructional time should focus on four critical areas: (1) developing fluency with addition and subtraction of fractions, and developing understanding of the multiplication of fractions and of division of fractions in limited cases (unit fractions divided by whole numbers and whole numbers divided by unit fractions); (2) developing fluency with whole number operations; (3) integrating decimal fractions into the place value system and developing understanding of operations with decimals to hundredths; and (4) developing understanding of volume.

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

(2) Students develop fluency with multi-digit addition, subtraction, and multiplication, and develop understanding of why division procedures work based on the meaning of base-ten numerals and properties of operations.

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

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

Grade Level Overview

Operations and Algebraic Thinking	• Write and interpret numerical expressions. • Analyze patterns and relationships.
Number and Operations in Base Ten	• Understand the place value system. • Perform operations with multi-digit whole numbers and with decimals to hundredths.
Number and Operations—Fractions	• Use equivalent fractions as a strategy to add and subtract fractions. • Apply and extend previous understandings of multiplication and division to multiply and divide fractions.
Measurement and Data	• Convert like measurement units within a given measurement system. • Represent and interpret data. • Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.
Geometry	• Graph points on the coordinate plane to solve real-world and mathematical problems. • Classify two-dimensional figures into categories based on their properties.

Mathematical Practices

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

Operations and Algebraic Thinking 5.OA

Write and interpret numerical expressions.

1. Interpret grouping symbols in numerical expressions and evaluate expressions with grouping symbols.
2. Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them. *For example, express the calculation "add 8 and 7, then multiply by 2" as $2 \times (8 + 7)$; recognize that $3 \times (18932 + 921)$ is three times as large as $18932 + 921$, without having to calculate the indicated sum or product.*

Analyze patterns and relationships.

3. Generate two numerical patterns using two given rules. Graph pairs of corresponding terms on a coordinate plane, and identify apparent relationships between corresponding terms. *For example, given the rule "Add 3" and the starting number 0, and given the rule "Add 6" and the starting number 0, generate terms in the resulting sequences, and observe that the terms in one sequence are twice the corresponding terms in the other sequence. Explain informally why this is so.*

Number and Operations in Base Ten 5.NBT

Understand the place value system.

1. Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and $1/10$ of what it represents in the place to its left.
2. Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use positive integer exponents to denote powers of 10.
3. Read, write, and compare decimals to thousandths.
   a. Read and write decimals to thousandths using base-ten numerals, number names, and expanded form, e.g., $347.392 = 3 \times 100 + 4 \times 10 + 7 \times 1 + 3 \times (1/10) + 9 \times (1/100) + 2 \times (1/1000)$.
   b. Compare two decimals to thousandths based on meanings of the digits, using >, =, and < symbols to record the results of comparisons.
4. Use place value understanding to round decimals to any place.

Perform operations with multi-digit whole numbers and with decimals to hundredths.

5. Fluently add, subtract, and multiply multi-digit whole numbers using the standard algorithm for each operation.
6. Find quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division; express the quotient as a fraction or mixed number. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.
7. Add, subtract, multiply, and divide decimals of one or two digits, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.

Number and Operations—Fractions 5.NF

Use equivalent fractions as a strategy to add and subtract fractions.

1. Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators. *For example, $2/3 + 5/4 = 8/12 + 15/12 = 23/12$. (In general, $a/b + c/d = (ad + bc)/bd$.)*
2. Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers. *For example, recognize an incorrect result $2/5 + 1/2 = 3/7$ by observing that $3/7 < 1/2$.*

Apply and extend previous understandings of multiplication and division to multiply and divide fractions.

3. Interpret a fraction as the result of dividing the numerator by the denominator ($a/b = a \div b$); solve word problems involving division of whole numbers leading to fractional answers, e.g., by using visual fraction models or equations to represent the problem. *For example, interpret $3/4$ as the result of dividing 3 by 4, noting that $3/4$ multiplied by 4 equals 3 and that when 3 wholes are shared equally among 4 people each person has a share of size $3/4$. If 9 people want to share a 50-pound sack of rice equally by weight, how many pounds of rice should each person get? Between what two whole numbers does your answer lie?*

4. Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.
   a. Interpret the product $(a/b) \times q$ as a parts of a partition of q into b equal parts; equivalently, as the result of a sequence of operations $a \times q \div b$. *For example, use a visual fraction model to show* $(2/3) \times 4 = 8/3$, *and create a story context for this equation; do the same with* $(2/3) \times (4/5) = 8/15$. *(In general,* $(a/b) \times (c/d) = ac/bd$.*)*
   b. Find the area of a rectangle with fractional side lengths by tiling it, and show that the area is the same as would be found by multiplying the side lengths; multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas.
5. Interpret multiplication as scaling (resizing), including by:
   a. Comparing the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication.
   b. Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number (recognizing multiplication by whole numbers greater than 1 as a familiar case); explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence $a/b = (n \times a)/(n \times b)$ to the effect of multiplying a/b by 1.
6. Solve real-world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.
7. Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions.[24]
   a. Interpret division of a unit fraction by a non-zero whole number, and compute such quotients. *For example, create a story context for* $(1/3) \div 4$ *and use a visual fraction model to show the quotient; use the relationship between multiplication and division to explain that* $(1/3) \div 4 = 1/12$ *because* $(1/12) \times 4 = 1/3$.
   b. Interpret division of a whole number by a unit fraction, and compute such quotients. *For example, create a story context for* $4 \div (1/5)$ *and use a visual fraction model to show the quotient; use the relationship between multiplication and division to explain that* $4 \div (1/5) = 20$ *because* $20 \times (1/5) = 4$.
   c. Solve real-world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, e.g., by using visual fraction models and equations to represent the problem. *For example, How much chocolate will each person get if 3 people share* $1/2$ *lb of chocolate equally? How many* $1/3$*-cup servings are in 2 cups of raisins?*

Measurement and Data 5.MD

Convert like measurement units within a given measurement system.

1. Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step real-world problems.

Represent and interpret data.

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

Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.

3. Recognize volume as an attribute of solid figures and understand concepts of volume measurement.
   a. A cube with side length 1 unit, called a "unit cube," is said to have "one cubic unit" of volume, and can be used to measure volume.
   b. A solid figure which can be packed without gaps or overlaps using n unit cubes is said to have a volume of n cubic units.
4. Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.
5. Relate volume to the operations of multiplication and addition and solve real-world and mathematical problems involving volume.
   a. Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. Represent three-fold whole-number products as volumes, e.g., to represent the associative property of multiplication.

[24] Students able to multiply fractions in general can develop strategies to divide fractions in general, by reasoning about the relationship between multiplication and division. But division of a fraction by a fraction is not a requirement at this grade.

b. Apply the formulas $V = \ell w h$ and $V = b h$ for rectangular prisms to find volumes of right rectangular prisms with whole-number edge lengths in the context of solving real-world and mathematical problems;

c. Recognize volume as additive; find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real-world problems.

Geometry 5.G

Graph points on the coordinate plane to solve real-world and mathematical problems.

1. Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond (e.g., x-axis and x-coordinate, y-axis and y-coordinate).
2. Represent real-world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.

Classify two-dimensional figures into categories based on their properties.

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

Mathematics | Grade 6

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

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

(2) Students use the meaning of fractions, the meanings of multiplication and division, and the relationship between multiplication and division to understand and explain why the procedures for dividing fractions make sense. Students are able to use these operations to solve problems.

(3) Students reason about relationships among shapes to determine area, surface area, and volume. They find areas of right triangles, other triangles, and special quadrilaterals by decomposing these shapes, rearranging or removing pieces, and relating the shapes to rectangles. Using these methods, students discuss, develop, and justify formulas for areas of triangles and parallelograms. Students find areas of polygons and surface areas of prisms and pyramids by decomposition into pieces whose area they can determine. They reason about right rectangular prisms with rational sides to extend the formula for its volume to rational side lengths. They prepare for work on scale drawings and constructions in Grade 8 by drawing polygons in the coordinate plane.

(4) Students understand the use of variables in mathematical expressions. They write expressions and equations that correspond to given situations, evaluate expressions, and use expressions and formulas to solve problems. Students understand that expressions in different forms can be equivalent, and they use the properties of operations to rewrite expressions in equivalent forms. Students know that the solutions of an equation are the values of the variables that make the equation true. Students use properties of operations and the idea of maintaining the equality of both sides of an equation to solve simple one-step equations. Students construct and analyze tables, such as tables of quantities that are in equivalent ratios, and they use equations (such as $3x = y$) to describe relationships between quantities.

Students in Grade 6 develop their ability to think statistically. Students recognize that a typical data distribution does not have a definite center, and so different ways to measure center yield different values. The median measures center in the sense that it is roughly the middle value. The mean measures center in the sense that it is the value that each data point would take on if the total of the data values were redistributed fairly, and also in the sense that it is a balance point. Students learn to describe and summarize distributions of data, identifying clusters, peaks, gaps, and symmetry, considering the context in which the data was collected.

Grade Level Overview

Ratios and Proportional Relationships	• Understand ratio concepts and use ratio reasoning to solve problems.	1. Make sense of problems and persevere in solving them.	Mathematical Practices
The Number System	• Apply and extend previous understandings of multiplication and division to divide fractions by fractions. • Apply and extend previous understandings of numbers to the system of rational numbers.	2. Reason abstractly and quantitatively. 3. Construct viable arguments and critique the reasoning of others.	
Expressions and Equations	• Apply and extend previous understandings of arithmetic to algebraic expressions. • Reason about and solve one-variable equations and inequalities. • Represent and analyze quantitative relationships between dependent and independent variables.	4. Model with mathematics. 5. Use appropriate tools strategically. 6. Attend to precision.	
Geometry	• Solve real-world and mathematical problems involving area, surface area, and volume.	7. Look for and make use of structure.	
Statistics and Probability	• Develop understanding of statistical variability. • Summarize and describe distributions.	8. Look for and express regularity in repeated reasoning.	

Ratios and Proportional Relationships 6.RP

Understand ratio concepts and use ratio reasoning to solve problems.

1. Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. *For example, "The ratio of wings to beaks in the bird house at the zoo was 2:1, because for every 2 wings there was 1 beak." "For every vote candidate A received, candidate C received nearly three votes."*
2. Understand the concept of a unit rate a/b associated with a ratio $a:b$ with $b \neq 0$, and use rate language in the context of a ratio relationship. *For example, "This recipe has a ratio of 3 cups of flour to 4 cups of sugar, so there is $3/4$ cup of flour for each cup of sugar." "We paid $75 for 15 paperbacks, which is a rate of $5 per paperback."*[1]
3. Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations.
   a. Make tables of equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios.
   b. Solve unit rate problems including unit pricing and constant speed. *For example, If it took 7 hours to mow 4 lawns, then at that rate, how many lawns could be mowed in 35 hours? At what rate were lawns being mowed?*
   c. Find a percentage of a quantity as a rate per 100 (e.g., 30% of a quantity means $30/100$ times the quantity); solve problems involving finding the whole given a part and the percentage.
   d. Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.

The Number System 6.NS

Apply and extend previous understandings of multiplication and division to divide fractions by fractions.

1. Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem. *For example, create a story context for $(2/3) \div (3/4)$ and use a visual fraction model to show the quotient; use the relationship between multiplication and division to explain that $(2/3) \div (3/4) = 8/9$ because $3/4$ of $8/9$ is $2/3$. (In general, $(a/b) \div (c/d) = ad/bc$.) How much chocolate will each person get if 3 people share $1/2$ lb of chocolate equally? How many $3/4$-cup servings are in $2/3$ of a cup of yogurt? How wide is a rectangular strip of land with length $3/4$ mi and area $1/2$ square mi?*
2. Fluently divide multi-digit numbers using the standard algorithm for each operation.

Apply and extend previous understandings of numbers to the system of rational numbers.

3. Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, debits/credits, positive/negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation.
4. Understand a rational number as a point on the number line. Extend number line diagrams and coordinate planes familiar from previous grades to represent negative numbers and their distance from 0.
   a. Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line; recognize that the opposite of the opposite of a number is the number itself, e.g., $-(-3) = 3$, and that 0 is its own opposite.
   b. Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane; recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes.
   c. Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane.
5. Understand the ordering of rational numbers.
   a. Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram. *For example, interpret $-3 > -7$ as a statement that -3 is located to the right of -7 on a number line oriented from left to right.*
   b. Write, interpret, and explain statements of order for rational numbers in real-world contexts. *For example, write $-3\ °C > -7\ °C$ to express the fact that $-3\ °C$ is warmer than $-7\ °C$.*
6. Understand absolute value and its relationship to the order of rational numbers.

[1] Expectations for unit rates in this grade are limited to non-complex fractions.

a. Understand the absolute value of a rational number as its distance from 0 on the number line; interpret absolute value as magnitude for a positive or negative quantity in a real-world situation. *For example, for an account balance of –30 dollars, write* $|-30| = 30$ *to describe the size of the debt in dollars.*

b. Distinguish comparisons of absolute value from statements of order. *For example, recognize that an account balance less than –30 dollars represents a debt greater than 30 dollars.*

7. Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane, including using coordinates and absolute value reasoning to find distances between points with the same first coordinate or the same second coordinate.

Expressions and Equations 6.EE

Apply and extend previous understandings of arithmetic to algebraic expressions.

1. Evaluate numerical expressions involving whole-number exponents.
2. Write, read, and evaluate expressions in which letters stand for numbers.
   a. Write expressions that record operations with numbers and with letters standing for numbers. *For example, express the calculation "Subtract y from 5" as* $5 - y$.
   b. Identify parts of an expression using mathematical language (sum, term, product, factor, quotient, coefficient); view one or more parts of an expression as a single entity. *For example, describe the expression* $2(8 + 7)$ *as a product of two factors; view* $(8 + 7)$ *as both a single entity and a sum of two terms.*
   c. Evaluate expressions by substituting values for their variables, including when using formulas in real-world problems. Perform arithmetic operations (including those involving whole-number exponents) in the conventional order when there are no parentheses to specify a particular order (Order of Operations). *For example, use the formulas* $V = s^3$ *and* $A = 6s^2$ *to find the volume and surface area of a cube with sides of length* $s = 1/2$.
3. Apply the properties of operations as strategies to generate equivalent expressions. *For example, apply the distributive property to the expression* $3(2 + x)$ *to produce the equivalent expression* $6 + 3x$*; apply properties of operations to* $y + y + y$ *to produce the equivalent expression* $3y$.
4. Identify when two expressions are equivalent (i.e., when the two expressions name the same number regardless of which value is substituted into them). *For example, the expressions* $y + y + y$ *and* $3y$ *are equivalent because they name the same number regardless of which number y stands for.*

Reason about and solve one-variable equations and inequalities.

5. Understand solving an equation or inequality as a process of answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true.
6. Use variables to stand for numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can be used in cases where a number is unknown, or where, for the purpose at hand, it can be any number in a specified set.
7. Solve real-world and mathematical problems by writing and solving equations of the form $x + p = q$ and $px = q$ for cases in which p, q and x are all nonnegative rational numbers.
8. Write a statement of inequality of the form $x > c$ or $x < c$ to represent a constraint or condition in a real-world or mathematical problem. Recognize that inequalities of the form $x > c$ or $x < c$ have infinitely many solutions; represent solutions of such inequalities graphically on a number line diagram.

Represent and analyze quantitative relationships between dependent and independent variables.

9. Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation. *For example, in a problem involving motion at constant speed, list and graph ordered pairs of distances and times, and write the equation* $d = 65t$ *to represent the relationship between distance and time.*

Geometry 6.G

Solve real-world and mathematical problems involving area, surface area, and volume.

1. Find area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real-world and mathematical problems.
2. Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the

prism. Apply the formulas $V = \ell\, w\, h$ and $V = b\, h$ to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.

3. Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems.
4. Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems.

Statistics and Probability 6.SP

Develop understanding of statistical variability.

1. Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers. *For example, "How old am I?" is not a statistical question, but "How old are the students in my school?" is a statistical question because one anticipates variability in students' ages.*
2. Understand that a set of data collected to answer a statistical question has a distribution which can be described by its overall shape, center and spread.
3. Recognize that a measure of center for a numerical data set summarizes all of its values using a single number, while a measure of variation describes how its values vary using a single number.

Summarize and describe distributions.

4. Display numerical data in plots on a number line, including dot plots, histograms, and box plots.
5. Summarize numerical data sets in relation to their context, such as by:
   a. Reporting the number of observations.
   b. Describing the nature of the attribute of investigation, including how it was measured and its units of measurement.
   c. Giving quantitative measures of center (median and/or mean) and variability (interquartile range and/or mean absolute deviation), as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data was gathered.
   d. Relating the choice of measures of center and variability to the shape of the data distribution and the context in which the data was gathered.

Mathematics | Grade 7

In Grade 7, instructional time should focus on four critical areas: (1) developing understanding of and applying proportional relationships; (2) developing understanding of operations with rational numbers and solving linear equations; (3) solving problems involving scale drawings and informal geometric constructions, and working with two- and three-dimensional shapes to solve problems involving area, surface area, and volume; and (4) drawing inferences about populations based on samples.

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

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

(3) Students continue their work with area from Grade 6, solving problems involving the area and circumference of a circle and surface area of three-dimensional objects. In preparation for work on congruence and similarity in Grade 8 they reason about relationships among two-dimensional figures using scale drawings and informal geometric constructions, and they gain familiarity with the relationships between angles formed by intersecting lines. Students work with three-dimensional figures, relating them to two-dimensional figures by taking slices. They solve real-world and mathematical problems involving area, surface area, and volume of two- and three-dimensional objects made up from triangles, quadrilaterals, polygons, cubes and right prisms.

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

Grade Level Overview

Ratios and Proportional Relationships	• Analyze proportional relationships and use them to solve real-world and mathematical problems.
The Number System	• Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.
Expressions and Equations	• Use properties of operations to generate equivalent expressions. • Solve real-life and mathematical problems using numerical and algebraic expressions and equations.
Geometry	• Draw, construct and describe geometrical figures and describe the relationships between them. • Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.
Statistics and Probability	• Use random sampling to draw inferences about a population • Draw informal comparative inferences about two populations. • Investigate chance processes and develop, use, and evaluate probability models.

Mathematical Practices

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

Ratios and Proportional Relationships 7.RP

Analyze proportional relationships and use them to solve real-world and mathematical problems.

1. Compute unit rates associated with ratios of nonnegative rational numbers, including ratios of lengths, areas and other quantities measured in like or different units. *For example, If a person walks $\frac{1}{2}$ mile in each $\frac{1}{4}$ hour, compute the unit rate as the complex fraction $\frac{1}{2} / \frac{1}{4}$ miles per hour, equivalently 2 miles per hour.*
2. Recognize and represent proportional relationships between covarying quantities.
   a. Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin.
   b. Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.
   c. Represent proportional relationships by equations. *For example, total cost, t, is proportional to the number, n, purchased at a constant price, p; this relationship can be expressed as $t = pn$.*
   d. Explain what a point (x, y) on the graph of a proportional relationship means in terms of the situation, with special attention to the points $(0, 0)$ and $(1, r)$ where r is the unit rate.
3. Use proportional relationships to solve multistep ratio and percent problems. *Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.*

The Number System 7.NS

Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.

1. Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram.
   a. Describe situations in which opposite quantities combine to make 0. *For example, a hydrogen atom has 0 charge because its two constituents are oppositely charged.*
   b. Understand $p + q$ as the number located a distance $|q|$ from p, in the positive or negative direction depending on whether q is positive or negative. Show that a number and its opposite have a sum of 0 (are additive inverses). Interpret sums of rational numbers by describing real-world contexts.
   c. Understand subtraction of rational numbers as adding the additive inverse, $p - q = p + (-q)$. Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world contexts.
   d. Apply properties of operations as strategies to add and subtract rational numbers.
2. Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers.
   a. Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as $(-1)(-1) = 1$ and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts.
   b. Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with non-zero divisor) is a rational number. If p/q is a rational number, then $-(p/q) = (-p)/q = p/(-q)$. Interpret products of rational numbers by describing real-world contexts.
   c. Apply properties of operations as strategies to multiply and divide rational numbers.
   d. Convert a rational number to a decimal using long division; know that the decimal form of a rational number terminates in 0s or eventually repeats.
3. Solve real-world and mathematical problems involving the four operations with rational numbers.[2]

Expressions and Equations 7.EE

Use properties of operations to generate equivalent expressions.

1. Know and apply the properties of integer exponents to generate equivalent numerical expressions. *For example, $3^2 \times 3^{-5} = 3^{-3} = 1/3^3 = 1/27$.*

[2] Computations with rational numbers extend the rules for manipulating fractions to complex fractions.

2. Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.
3. Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related. *For example, $a + 0.05a = 1.05a$ means that "increase by 5%" is the same as "multiply by 1.05."*

Solve real-life and mathematical problems using numerical and algebraic expressions and equations.

4. Use numbers expressed in the form of a single digit times a whole-number power of 10 to estimate very large or very small quantities, and to express how many times as much one is than the other. *For example, estimate the population of the United States as 3×10^8 and the population of the world as 7×10^9, and determine that the world population is more than 20 times larger.*
5. Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations as strategies for calculating with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies. *For example: If a woman making $25 an hour gets a 10% raise, she will make an additional $1/10$ of her salary an hour, or $2.50, for a new salary of $27.50. If you want to place a towel bar $9\ 3/4$ inches long in the center of a door that is $27\ 1/2$ inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be used as a check on the exact computation.*
6. Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities.
   a. Solve word problems leading to equations of the form $px + q = r$ and $p(x + q) = r$, where p, q, and r are specific rational numbers. Solve equations of these forms fluently. Compare the algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach. *For example, The perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width?*
   b. Solve word problems leading to inequalities of the form $px + q > r$ or $px + q < r$, where p, q, and r are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem. *For example, As a salesperson, you are paid $50 per week plus $3 per sale. This week you want your pay to be at least $100. Write an inequality for the number of sales you need to make, and describe the solutions.*

Geometry 7.G

Draw, construct, and describe geometrical figures and describe the relationships between them.

1. Solve problems involving scale drawings of geometric figures in the coordinate plane, such as computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.
2. Draw (freehand, with ruler and protractor, and with technology) geometric shapes from given conditions. Focus on constructing triangles from three measures of angles or sides, noticing when the triangle is uniquely defined, ambiguously defined or nonexistent.
3. Describe the two-dimensional figures that result from slicing three-dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids.

Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.

4. Know the formulas for the area and circumference of a circle and solve problems; give an informal derivation of the relationship between the circumference and area of a circle.
5. Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.
6. Solve real-world and mathematical problems involving area, volume and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.

Statistics and Probability 7.SP

Use random sampling to draw inferences about a population.

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

Draw informal comparative inferences about two populations

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

Investigate chance processes and develop, use, and evaluate probability models.

5. Understand that the probability of a chance event is a number between 0 and 1 expressing the likelihood of that event occurring. Larger numbers indicate greater likelihood. A probability near 0 indicates an unlikely event, a probability around ½ indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event.
6. Approximate the probability of a chance event by collecting data on the chance process that produces it and observing its long-run relative frequency, and predict the approximate relative frequency given the probability. *For example, when rolling a number cube 600 times, predict that a 3 or 6 would be rolled roughly 200 times, but probably not exactly 200 times.*
7. Develop a probability model and use it to find probabilities of events. Compare probabilities from a model to observed frequencies; if the agreement is not good, explain possible sources of the discrepancy.
   a. Develop a uniform probability model by assigning equal probability to all outcomes, and use the model to determine probabilities of events. *For example, if a student is selected at random from a class, find the probability that Jane will be selected and the probability that a girl will be selected.*
   b. Develop a possibly non-uniform probability model by observing frequencies in data generated from a chance process. *For example, find the approximate probability that a spinning penny will land heads up or that a tossed paper cup will land open-end down. Do the outcomes for the spinning penny appear to be equally likely based on the observed frequencies?*
8. Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation.
   a. Understand that, just as with simple events, the probability of a compound event is the fraction of outcomes in the sample space for which the compound event occurs.
   b. Represent sample spaces for compound events using methods such as organized lists, tables and tree diagrams. For an event described in everyday language (e.g., "rolling double sixes"), identify the outcomes for which the event occurs.
   c. Design and use a simulation to generate frequencies for compound events. *For example, use random digits as a simulation tool to approximate the answer to the question: if 40% of donors have type A blood, what is the probability that it will take at least 4 donors to find one with type A blood?*

Mathematics | Grade 8

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

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

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

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

(3) Students use ideas about distance and angles, how they behave under translations, rotations, reflections, and dilations, and ideas about congruence and similarity to describe and analyze two-dimensional figures and to solve problems. Students prove that the angles in a triangle add up to a straight line, and that various configurations of lines give rise to similar triangles because of the angles created when a transversal cuts parallel lines. Students understand the statement of the Pythagorean Theorem and its converse, and can explain why the Pythagorean Theorem is valid, for example, by decomposing a square in two different ways. They apply the Pythagorean Theorem to find distances between points on the coordinate plane, to find lengths, and to analyze polygons. Students complete their work on volume by solving problems involving cones, cylinders, and spheres.

Grade Level Overview

The Number System
- Know that there are numbers that are not rational, and approximate them by rational numbers.

Expressions and Equations
- Work with radicals and integer exponents.
- Understand the connections between proportional relationships, lines, and linear equations.
- Analyze and solve linear equations and pairs of simultaneous linear equations.

Functions
- Define, evaluate, and compare functions.
- Use functions to model relationships between quantities.

Geometry
- Understand congruence and similarity using physical models, transparencies, or geometry software.
- Understand and apply the Pythagorean Theorem.
- Solve real-world and mathematical problems involving volume of cylinders, cones and spheres.

Statistics and Probability
- Investigate patterns of association in bivariate data.

Mathematical Practices
1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

The Number System 8.NS

Know that there are numbers that are not rational, and approximate them by rational numbers.

1. Understand informally that every number has a decimal expansion; the rational numbers are those with decimal expansions that terminate in 0s or eventually repeat. Know that other numbers are called irrational.
2. Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of expressions (e.g., π^2). *For example, by truncating the decimal expansion of $\sqrt{2}$, show that $\sqrt{2}$ is between 1 and 2, then between 1.4 and 1.5, and explain how to continue on to get better approximations.*

Expressions and Equations 8.EE

Work with radicals and integer exponents.

1. Use square root and cube root symbols to represent solutions to equations of the form $x^2 = p$ and $x^3 = p$, where p is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that $\sqrt{2}$ is irrational.
2. Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities (e.g., use millimeters per year for seafloor spreading). Interpret scientific notation that has been generated by technology.

Understand the connections between proportional relationships, lines, and linear equations.

3. Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways. *For example, compare a distance-time graph to a distance-time equation to determine which of two moving objects has greater speed.*
4. Use similar triangles to explain why the slope m is the same between any two distinct points on a non-vertical line in the coordinate plane; derive the equation $y = mx$ for a line through the origin and the equation $y = mx + b$ for a line intercepting the vertical axis at b.

Analyze and solve linear equations and pairs of simultaneous linear equations.

5. Solve linear equations in one variable.
   a. Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show which of these possibilities is the case by successively transforming the given equation into simpler forms, until an equivalent equation of the form $x = a$, $a = a$, or $a = b$ results (where a and b are different numbers).
   b. Solve linear equations with rational number coefficients, including equations that require expanding expressions using the distributive property and collecting like terms.
6. Analyze and solve pairs of simultaneous linear equations.
   a. Understand that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs, because points of intersection satisfy both equations simultaneously.
   b. Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection. *For example, $3x + 2y = 5$ and $3x + 2y = 6$ have no solution because $3x + 2y$ cannot simultaneously be 5 and 6.*
   c. Solve real-world and mathematical problems leading to two linear equations in two variables. *For example, given coordinates for two pairs of points, determine whether the line through the first pair of points intersects the line through the second pair.*

Functions 8.F

Define, evaluate, and compare functions.

1. Understand that a function from one set (called the domain) to another set (called the range) is a rule that assigns to each element of the domain (an input) exactly one element of the range (the corresponding output). The graph of a function is the set of ordered pairs consisting of an input and the corresponding output.[3]
2. Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). *For example, given a linear function represented by a table of values and a linear function represented by an algebraic expression, determine which function has the greater rate of change.*

[3] Function notation is not required in Grade 8.

3. Interpret the equation $y = mx + b$ as defining a linear function, whose graph is a straight line; give examples of functions that are not linear. *For example, the function $A = s^2$ giving the area of a square as a function of its side length is not linear because its graph contains the points (1,1), (2,4) and (3,9), which are not on a straight line.*

Use functions to model relationships between quantities.

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

Geometry 8.G

Understand congruence and similarity using physical models, transparencies, or geometry software.

1. Verify experimentally the properties of rotations, reflections, and translations:
   a. Lines are taken to lines, and line segments to line segments of the same length.
   b. Angles are taken to angles of the same measure.
   c. Parallel lines are taken to parallel lines.
2. Understand that a plane figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them.
3. Describe the effect of dilations, translations, rotations and reflections on figures using coordinates.
4. Understand that a plane figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar figures, describe a sequence that exhibits the similarity between them.
5. Use informal arguments to establish facts about the angle sum and exterior angle of triangles, and about the angles created when parallel lines are cut by a transversal. *For example, arrange three copies of the same triangle so that the three angles appear to form a line, and give an argument in terms of transversals why this is so.*

Understand and apply the Pythagorean Theorem.

6. Explain a proof of the Pythagorean Theorem and its converse.
7. Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.
8. Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.

Solve real-world and mathematical problems involving volume of cylinders, cones and spheres.

9. Know the formulas for the volume of cones, cylinders and spheres and solve real-world and mathematical problems.

Statistics and Probability 8.SP

Investigate patterns of association in bivariate data.

1. Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association.
2. Know that straight lines are widely used to model relationships between two quantitative variables. For scatter plots that suggest a linear association, informally fit a straight line, and informally assess the model fit by judging the closeness of the data points to the line.
3. Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept. *For example, in a linear model for a biology experiment, interpret a slope of 1.5 cm/hr as meaning that an additional hour of sunlight each day is associated with an additional 1.5 cm in mature plant height.*
4. Understand that patterns of association can also be seen in bivariate categorical data by displaying frequencies and relative frequencies in a two-way table. Construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects. Use relative frequencies calculated for rows or columns to describe possible association between the two variables. *For example, collect data from students in your class on whether or not they have a curfew on school nights and whether or not they have assigned chores at home. Is there evidence that those who have a curfew also tend to have chores?*

Mathematics Standards for High School

Where is the College and Career Readiness line drawn?

The high school standards specify the mathematics that all students should study in order to be college and career ready. Additional mathematics that students should learn in order to take advanced courses such as calculus, advanced statistics, or discrete mathematics is indicated by (+), as in this example:

> (+) Represent complex numbers on the complex plane in rectangular and polar form (including real and imaginary numbers).

Standards with a (+) symbol are beyond the college and career readiness threshold, but may appear in courses intended for all students. Any standard without a (+) symbol is intended to be in the common mathematics curriculum for all college and career ready students.

How are the high school standards organized?

The high school standards are listed in conceptual categories:

- Number and Quantity
- Algebra
- Functions
- Modeling
- Geometry
- Statistics and Probability.

Conceptual categories portray a coherent view of core high school mathematics; a student's work with functions, for example, crosses a number of traditional course boundaries, potentially up through and including calculus.

Modeling standards

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

Mathematics | High School—Number and Quantity

Numbers and Number Systems. During the years from kindergarten to eighth grade, students must repeatedly extend their conception of number. At first, "number" means "counting number": 1, 2, 3.... Soon after that, 0 is used to represent "none" and the whole numbers are formed by the counting numbers together with zero. The next extension is fractions. At first, fractions are barely numbers and tied strongly to pictorial representations. Yet by the time students understand division of fractions, they have a strong concept of fractions as numbers and have connected them, via their decimal representations, with the base-ten system used to represent the whole numbers. During middle school, fractions are augmented by negative fractions to form the rational numbers. In Grade 8, students extend this system once more, augmenting the rational numbers with the irrational numbers to form the real numbers. In high school, students will be exposed to yet another extension of number, when the real numbers are augmented by the imaginary numbers to form the complex numbers.

This ascent through number systems makes it fair to ask: what does the word *number* mean that it can mean all of these things? One possible answer is that a number is something that can be used to do mathematics: calculate, solve equations, or represent measurements.

With each extension of number, the meanings of addition, subtraction, multiplication, and division are extended. In each new number system—integers, rational numbers, real numbers, and complex numbers—the four operations stay the same in two important ways: They have the commutative, associative, and distributive properties and their new meanings are consistent with their previous meanings. For example, multiplication by a whole number can be interpreted as repeated addition of the multiplicand in extensions of the whole numbers.

Extending the properties of whole-number exponents leads to new and productive notation. For example, properties of whole-number exponents suggest that $(5^{1/3})^3$ should be $5^{(1/3)\cdot 3} = 5^1 = 5$ and that $5^{1/3}$ should be the cube root of 5.

Calculators can provide ways for students to become better acquainted with these new number systems and their notation. They can be used to generate data for numerical experiments, to help understand the workings of matrix, vector, and complex number algebra, and to experiment with non-integer exponents.

Quantities. In their work in measurement up through Grade 8, students primarily measure commonly used attributes such as length, area, and volume. In high school, students encounter a wider variety of units in modeling, e.g., acceleration, currency conversions, derived quantities such as person-hours and heating degree days, social science rates such as per-capita income, and rates in everyday life such as points scored per game or batting averages. They also encounter novel situations in which they themselves must conceive the attributes of interest. For example, to find a good measure of overall highway safety, they might propose measures such as fatalities per year, fatalities per year per driver, or fatalities per vehicle-mile traveled. Such a conceptual process might be called quantification. Quantification is important for science, as when surface area suddenly "stands out" as an important variable in evaporation. Quantification is also important for companies, which must conceptualize relevant attributes and create or choose suitable measures for them.

Content Overview

The Real Number System Quantities The Complex Number System Vector and Matrix Quantities	• Extend the properties of exponents to rational exponents • Classify numbers as rational or irrational • Reason quantitatively and use units to solve problems • Perform arithmetic operations with complex numbers • Represent complex numbers and their operations on the complex plane • Use complex numbers in polynomial identities and equations • Represent and model with vector quantities • Perform operations on vectors • Perform operations on matrices and use matrices in applications		1. Make sense of problems and persevere in solving them. 2. Reason abstractly and quantitatively. 3. Construct viable arguments and critique the reasoning of others. 4. Model with mathematics. 5. Use appropriate tools strategically. 6. Attend to precision. 7. Look for and make use of structure. 8. Look for and express regularity in repeated reasoning.	Mathematical Practices

The Real Number System N-RN

Extend the properties of exponents to rational exponents

1. Explain how the definition of the meaning of rational exponents follows from extending the properties of integer exponents to those values, allowing for a notation for radicals in terms of rational exponents. *For example, we define* $5^{1/3}$ *to be the cube root of* 5 *because we want* $(5^{1/3})^3 = 5^{(1/3)3}$ *to hold, so* $(5^{1/3})^3$ *must equal* 5.
2. Rewrite expressions involving radicals and rational exponents using the properties of exponents.

Use properties of rational and irrational numbers

3. Explain why sums and products of rational numbers are rational, that the sum of a rational number and an irrational number is irrational, and that the product of a nonzero rational number and an irrational number is irrational.

Quantities* N-Q

Reason quantitatively and use units to solve problems

1. Compare measurements of two quantities of the same type (e.g., two lengths or two weights) expressed in different units to decide which quantity is larger.
2. Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.
3. Define appropriate quantities for the purpose of descriptive modeling.
4. Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.

The Complex Number System N-CN

Perform arithmetic operations with complex numbers

1. Know there is a complex number i such that $i^2 = -1$, and every complex number has the form $a + bi$ with a and b real.
2. Use the relation $i^2 = -1$ and the commutative, associative, and distributive properties to add, subtract, and multiply complex numbers.
3. (+) Find the conjugate of a complex number; use conjugates to find moduli and quotients of complex numbers.

Represent complex numbers and their operations on the complex plane

4. (+) Represent complex numbers on the complex plane in rectangular and polar form (including real and imaginary numbers), and explain why the rectangular and polar forms of a given complex number represent the same number.
5. (+) Represent addition, subtraction, multiplication, and conjugation of complex numbers geometrically on the complex plane; use properties of this representation for computation. *For example,* $(1 - \sqrt{3}i)^3 = 8$ *because* $(1 - \sqrt{3}i)$ *has modulus* 2 *and argument* 120°.
6. (+) Calculate the distance between numbers in the complex plane as the modulus of the difference, and the midpoint of a segment as the average of the numbers at its endpoints.

Use complex numbers in polynomial identities and equations

7. Solve quadratic equations with real coefficients that have complex solutions.
8. (+) Extend polynomial identities to the complex numbers. *For example, rewrite* $x^2 + 4$ *as* $(x + 2i)(x - 2i)$.
9. (+) Know the Fundamental Theorem of Algebra; show that it is true for quadratic polynomials.

(+) Vector and Matrix Quantities N-VM

Represent and model with vector quantities.

1. Understand that vector quantities have both magnitude and direction. Represent vector quantities by directed line segments, and use appropriate symbols for vectors and their magnitudes (e.g., $\mathbf{v}$, $|\mathbf{v}|$, $||\mathbf{v}||$, v).
2. Find the components of a vector by subtracting the coordinates of an initial point from the coordinates of a terminal point.
3. Solve problems involving velocity and other quantities that can be represented by vectors.*

Perform operations on vectors.

4. Add and subtract vectors.
   a. Add vectors end-to-end, component-wise, and by the parallelogram rule. Understand that the magnitude of a sum of two vectors is typically not the sum of the magnitudes.
   b. Given two vectors in magnitude and direction form, determine the magnitude and direction of their sum.
   c. Understand that vector subtraction $\mathbf{v} - \mathbf{w}$ is defined as $\mathbf{v} + (-\mathbf{w})$, where $-\mathbf{w}$ is the additive inverse of $\mathbf{w}$, with the same magnitude as $\mathbf{w}$ and pointing in the opposite direction. Represent vector subtraction graphically by connecting the tips in the appropriate order, and perform vector subtraction component-wise.
5. Multiply a vector $\mathbf{v}$ by a scalar.
   a. Represent scalar multiplication graphically by scaling vectors and possibly reversing their direction; perform scalar multiplication component-wise, e.g., as $c(v_x, v_y) = (cv_x, cv_y)$.
   b. Compute the magnitude of a scalar multiple $c\mathbf{v}$ using $||c\mathbf{v}|| = |c|v$.
   c. Understand that when $|c|v \neq 0$, the direction of $c\mathbf{v}$ is either along $\mathbf{v}$ (for $c > 0$) or against $\mathbf{v}$ (for $c < 0$).

Perform operations on matrices and use matrices in applications.*

6. Use matrices to represent and manipulate data, e.g., to represent payoffs or incidence relationships in a network.
7. Multiply matrices by scalars to produce new matrices, e.g., as when all of the payoffs in a game are doubled.
8. Add, subtract, and multiply matrices of appropriate dimensions.
9. Understand that, unlike multiplication of numbers, matrix multiplication for square matrices is not a commutative operation, but still satisfies the associative and distributive properties.
10. Understand that the zero and identity matrices play a role in matrix addition and multiplication similar to the role of 0 and 1 in the real numbers. The determinant of a square matrix is nonzero if and only if the matrix has a multiplicative inverse.
11. Multiply a vector (regarded as a matrix with one column) by a matrix of suitable dimensions to produce another vector. Understand a matrix as a transformation of vectors.
12. Understand a 2×2 matrix as a transformation of the plane, and interpret the absolute value of the determinant in terms of area.

Mathematics | High School—Algebra

Expressions. An expression is a record of a computation with numbers and symbols that represent numbers, arithmetic operations, exponentiation, and, at more advanced levels, the operation of evaluating a function. Conventions about the use of parentheses and the order of operations assure that each expression is unambiguous. Creating an expression that describes a computation involving a general quantity requires the ability to express the computation in general terms, abstracting from specific instances.

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

Algebraic manipulations are governed by the properties of operations and exponents, and the conventions of algebraic notation. At times, an expression is the result of applying operations to simpler expressions. For example, $p + 0.05p$ is the sum of the simpler expressions p and $0.05p$. Viewing an expression as the result of operation on simpler expressions can sometimes clarify its underlying structure.

A spreadsheet or a computer algebra system can be used to experiment with algebraic expressions, perform complicated algebraic manipulations, and understand how algebraic manipulations behave.

Equations and inequalities. An equation is a statement of equality between two expressions, often viewed as a question asking for which values of the variables the expressions on either side are in fact equal. These values are the solutions to the equation. An identity is true for all numbers; identities are often developed by rewriting an expression in an equivalent form.

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

An equation can often be solved by successively deducing from it one or more simpler equations. For example, one can add the same constant to both sides without changing the solutions, but squaring both sides might lead to extraneous solutions. Strategic competence in solving includes looking ahead for productive manipulations and anticipating the nature and number of solutions.

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

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

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

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

Content Overview

Seeing Structure in Expressions Arithmetic with Polynomials and Rational Functions Creating Equations Reasoning with Equations and Inequalities	• Interpret the structure of expressions • Write expressions in equivalent forms to solve problems • Perform arithmetic operations on polynomials • Understand the relationship between zeros and factors of polynomials • Use polynomial identities to solve problems • Rewrite and graph rational functions • Create equations that describe numbers or relationships • Understand solving equations as a process of reasoning and explain the reasoning • Solve equations and inequalities in one variable • Solve systems of equations • Represent and solve equations and inequalities graphically		1. Make sense of problems and persevere in solving them. 2. Reason abstractly and quantitatively. 3. Construct viable arguments and critique the reasoning of others. 4. Model with mathematics. 5. Use appropriate tools strategically. 6. Attend to precision. 7. Look for and make use of structure. 8. Look for and express regularity in repeated reasoning.	Mathematical Practices

Seeing Structure in Expressions A-SSE

Interpret the structure of expressions

1. Interpret expressions that represent a quantity in terms of its context.*
   a. Interpret parts of an expression, such as terms, factors, and coefficients.
   b. Interpret complicated expressions by viewing one or more of their parts as a single entity. *For example, interpret $P(1+r)^n$ as the product of P and a factor not depending on P.*
2. Use the structure of an expression to identify ways to rewrite it. *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 $(x^2 - y^2)(x^2 + y^2)$.*

Write expressions in equivalent forms to solve problems

3. Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression.*
   a. Factor a quadratic expression to reveal the zeros of the function it defines.
   b. Complete the square in a quadratic expression to reveal the maximum or minimum value of the function it defines.
   c. Use the properties of exponents to transform expressions for exponential functions. *For example the expression 1.15^t can be rewritten as $(1.15^{1/12})^{12t} \approx 1.012^{12t}$ to reveal the approximate equivalent monthly interest rate if the annual rate is 15%.*
4. Derive the formula for the sum of a finite geometric series (when the common ratio is not 1), and use the formula to solve problems. *For example, calculate mortgage payments.**

Arithmetic with Polynomials and Rational Expressions A-APR

Perform arithmetic operations on polynomials

1. Understand that polynomials form a system analogous to the integers, namely, they are closed under the operations of addition, subtraction, and multiplication; add, subtract, and multiply polynomials.

Understand the relationship between zeros and factors of polynomials

2. Understand the Remainder Theorem: For a polynomial $p(x)$ and a number a, the remainder on division by $x - a$ is $p(a)$, so $p(a) = 0$ if and only if $(x - a)$ is a factor of $p(x)$.
3. Identify zeros of polynomials when suitable factorizations are available, and use the zeros to construct a rough graph of the function defined by the polynomial.

Use polynomial identities to solve problems

4. Prove polynomial identities and use them to describe numerical relationships. *For example, the polynomial identity* $(x^2 + y^2)^2 = (x^2 - y^2)^2 + (2xy)^2$ *can be used to generate Pythagorean triples.*
5. (+) Understand that the Binomial Theorem gives the expansion of $(x + y)^n$ in powers of x and y for a positive integer n, where x and y are any numbers, with coefficients determined for example by Pascal's Triangle. The Binomial Theorem can be proved by mathematical induction or by a combinatorial argument.

Rewrite rational expressions

6. Rewrite simple rational expressions in different forms; write $a(x)/b(x)$ in the form $q(x) + r(x)/b(x)$, where $a(x)$, $b(x)$, $q(x)$, and $r(x)$ are polynomials with the degree of $r(x)$ less than the degree of $b(x)$, using inspection, long division, or, for the more complicated examples, a computer algebra system.
7. (+) Understand that rational expressions form a system analogous to the rational numbers, closed under addition, subtraction, multiplication, and division by a nonzero rational expression; add, subtract, multiply, and divide rational expressions.

Creating Equations* A-CED

Create equations that describe numbers or relationships

1. Create equations and inequalities in one variable and use them to solve problems. *Include equations arising from linear and quadratic functions, and simple rational and exponential functions.*
2. Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.
3. Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or non-viable options in a modeling context. *For example, represent inequalities describing nutritional and cost constraints on combinations of different foods.*
4. Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations. *For example, rearrange Ohm's law* $V = IR$ *to highlight resistance* R.

Reasoning with Equations and Inequalities A-REI

Understand solving equations as a process of reasoning and explain the reasoning

1. Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.
2. Solve simple rational and radical equations in one variable, and give examples showing how extraneous solutions may arise.

Solve equations and inequalities in one variable

3. Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters. Graph the solution set of an inequality on a number line.
4. Solve quadratic equations in one variable.
   a. Understand that the method of completing the square transforms any quadratic equation in x into an equation of the form $(x - p)^2 = q$ that has the same solutions. This leads to the quadratic formula.
   b. Solve by inspection (e.g., for $x^2 = 49$), taking square roots, completing the square, the quadratic formula and factoring, as appropriate to the initial form of the equation. Recognize when the quadratic formula gives complex solutions and write them as $a \pm bi$ for real numbers a and b.

Solve systems of equations

5. Understand that, given a system of two equations in two variables, replacing one equation by the sum of that equation and a multiple of the other produces a system with the same solutions.
6. Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables.
7. Solve a simple system consisting of a linear equation and a quadratic equation in two variables algebraically and graphically. *For example, find the points of intersection between the line* $y = -3x$ *and the circle* $x^2 + y^2 = 3$.
8. (+) Represent a system of linear equations as a single matrix equation in a vector variable.

9. (+) Find the inverse of a matrix if it exists and use it to solve systems of linear equations (using technology for matrices of dimension 3×3 or greater).

Represent and solve equations and inequalities graphically

10. Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a straight line).
11. Explain why the x-coordinates of the points where the graphs of the equations $y = f(x)$ and $y = g(x)$ intersect are the solutions of the equation $f(x) = g(x)$; find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where $f(x)$ and/or $g(x)$ are linear, polynomial, rational, absolute value, exponential, and logarithmic functions.*
12. Graph the solutions to a linear inequality in two variables as a half-plane (excluding the boundary in the case of a strict inequality), and graph the solution set to a system of linear inequalities in two variables as the intersection of the corresponding half-planes.

Mathematics | High School—Functions

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

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

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

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

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

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

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

Content Overview

Interpreting Functions Building Functions Linear, Quadratic, and Exponential Models Trigonometric Functions	• Understand the concept of a function and use function notation • Interpret functions that arise in applications in terms of the context • Analyze functions using different representations • Build a function that models a relationship between two quantities • Build new functions from existing functions • Construct and compare linear and exponential models and solve problems • Interpret expressions for functions in terms of the situation they model • Extend the domain of trigonometric functions using the unit circle • Model periodic phenomena with trigonometric functions • Prove and apply trigonometric identities		1. Make sense of problems and persevere in solving them. 2. Reason abstractly and quantitatively. 3. Construct viable arguments and critique the reasoning of others. 4. Model with mathematics. 5. Use appropriate tools strategically. 6. Attend to precision. 7. Look for and make use of structure. 8. Look for and express regularity in repeated reasoning.	Mathematical Practices

Interpreting Functions F-IF

Understand the concept of a function and use function notation

1. Understand that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range. If f is a function and x is an element of its domain, then $f(x)$ denotes the output of f corresponding to the input x. The graph of f is the graph of the equation $y = f(x)$.
2. Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context.
3. Understand that sequences are functions, sometimes defined recursively, whose domain is a subset of the integers. *For example, the Fibonacci sequence is defined recursively by* $f(0) = f(1) = 1, f(n+1) = f(n) + f(n-1)$ *for* $n \geq 1$.

Interpret functions that arise in applications in terms of the context

4. For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. *Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity.**
5. Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes. *For example, if the function h(n) gives the number of person-hours it takes to assemble n engines in a factory, then the positive integers would be an appropriate domain for the function.**
6. 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.*

Analyze functions using different representations

7. Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.*
   a. Graph linear and quadratic functions and show intercepts, maxima, and minima.
   b. Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions.
   c. Graph polynomial functions, identifying zeros when suitable factorizations are available, and showing end behavior.
   d. (+) Graph rational functions, identifying zeros and asymptotes when suitable factorizations are available, and showing end behavior.
   e. Graph exponential and logarithmic functions, showing intercepts and end behavior, and trigonometric functions, showing period, midline, and amplitude.
8. Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function.
   a. Use the process of factoring and completing the square in a quadratic function to show zeros, extreme values, and symmetry of the graph, and interpret these in terms of a context.
   b. Use the properties of exponents to interpret expressions for exponential functions. *For example, identify percent rate of change in functions such as* $y = (1.02)^t$, $y = (0.97)^t$, $y = (1.01)^{12t}$, $y = (1.2)^{t/10}$, *and classify them as representing exponential growth or decay.*
9. Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). *For example, given a graph of one quadratic function and an algebraic expression for another, say which has the larger maximum.*

Building Functions F-BF

Build a function that models a relationship between two quantities

1. Write a function that describes a relationship between two quantities.*
   a. Determine an explicit expression, a recursive process, or steps for calculation from a context.
   b. Combine standard function types using arithmetic operations. *For example, build a function that models the temperature of a cooling body by adding a constant function to a decaying exponential, and relate these functions to the model.*
   c. (+) Compose functions. *For example, if* $f(t)$ *is the height of a falling body after t seconds,* $f(t-12)$ *is the height of the same body dropped 12 seconds later.*
2. Write arithmetic and geometric sequences both recursively and with an explicit formula, use them to model situations, and translate between the two forms.*

Build new functions from existing functions

3. Identify the effect on the graph of replacing $f(x)$ by $f(x) + k$, $kf(x)$, $f(kx)$, and $f(x + k)$ for specific values of k (both positive and negative); find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology. *Include recognizing even and odd functions from their graphs and algebraic expressions for them.*
4. Find inverse functions.
   a. Solve an equation of the form $f(x) = c$ for a simple function f that has an inverse and write an expression for the inverse. *For example,* $f(x) = 2x^3$ *or* $f(x) = (x+1)/(x-1)$ *for* $x \neq 1$.
   b. (+) Verify by composition that one function is the inverse of another.
   c. (+) Read values of an inverse function from a graph or a table, given that the function has an inverse.
   d. (+) Produce an invertible function from a non-invertible function by restricting the domain.

Linear, Quadratic, and Exponential Models* F-LQE

Construct and compare linear, quadratic, and exponential models and solve problems

1. Distinguish between situations that can be modeled with linear functions and with exponential functions.
   a. Understand that linear functions grow by equal differences over equal intervals; exponential functions grow by equal factors over equal intervals.
   b. Recognize situations in which one quantity changes at a constant rate per unit interval relative to another.
   c. Recognize situations in which a quantity grows or decays by a constant percent rate per unit interval relative to another.
2. Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a description of a relationship, or two input-output pairs (include reading these from a table).

3. Observe using graphs and tables that a quantity increasing exponentially eventually exceeds a quantity increasing linearly, quadratically, or (more generally) as a polynomial function.
4. For exponential models, express as a logarithm the solution to $a\,b^{c} = d$ where a, c, and d are numbers and the base b is 2, 10, or e; evaluate the logarithm using technology.

Interpret expressions for functions in terms of the situation they model

5. Interpret the parameters in a linear, quadratic, or exponential function in terms of a context.

Trigonometric Functions F-TF

Extend the domain of trigonometric functions using the unit circle

1. Understand that the radian measure of an angle is the length of the arc on the unit circle subtended by the angle.
2. Explain how the unit circle in the coordinate plane enables the extension of trigonometric functions to all real numbers, interpreted as radian measures of angles traversed counterclockwise around the unit circle.
3. (+) Use special triangles to determine geometrically the values of sine, cosine, tangent for $\pi/3$, $\pi/4$ and $\pi/6$, and use the unit circle to express the values of sine, cosine, and tangent for $\pi - x$, $\pi + x$, and $2\pi - x$ in terms of their values for x, where x is any real number.
4. (+) Use the unit circle to explain symmetry (odd and even) and periodicity of trigonometric functions.

Model periodic phenomena with trigonometric functions

5. Choose trigonometric functions to model periodic phenomena with specified amplitude, frequency, and midline.*
6. (+) Understand that restricting a trigonometric function to a domain on which it is always increasing or always decreasing allows its inverse to be constructed.
7. (+) Use inverse functions to solve trigonometric equations that arise in modeling contexts; evaluate the solutions using technology, and interpret them in terms of the context.*

Prove and apply trigonometric identities

8. Prove the Pythagorean identity $\sin^2(\theta) + \cos^2(\theta) = 1$ and use it to calculate trigonometric ratios.
9. (+) Prove the addition and subtraction formulas for sine, cosine, and tangent and use them to solve problems.

Mathematics | High School—Modeling

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

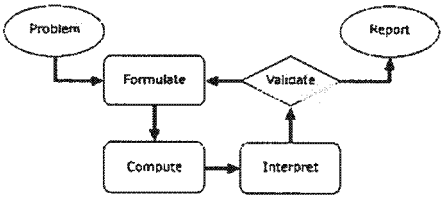
A model can be very simple, such as writing total cost as a product of unit price and number bought, or using a geometric shape to describe a physical object like a coin. Even such simple models involve making choices. It is up to us whether to model a coin as a three-dimensional cylinder, or whether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

Some examples of such situations might include:

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

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

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



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

In descriptive modeling, a model simply describes the phenomena or summarizes them in a compact form. Graphs of observations are a familiar descriptive model—for example, graphs of global temperature and atmospheric CO_2 over time.

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

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

Modeling Standards

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

Mathematics | High School—Geometry

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

Although there are many types of geometry, school mathematics is devoted primarily to plane Euclidean geometry, studied both synthetically (without coordinates) and analytically (with coordinates). Euclidean geometry is characterized most importantly by the Parallel Postulate, that through a point not on a given line there is exactly one parallel line. (Spherical geometry, in contrast, has no parallel lines.)

During high school, students begin to formalize their geometry experiences from elementary and middle school, using more precise definitions and developing careful proofs. Later in college some students develop Euclidean and other geometries carefully from a small set of axioms.

The concepts of congruence, similarity, and symmetry can be understood from the perspective of geometric transformation. Fundamental are the rigid motions: translations, rotations, reflections, and combinations of these, all of which are here assumed to preserve distance and angles (and therefore shapes generally). Reflections and rotations each explain a particular type of symmetry, and the symmetries of an object offer insight into its attributes—as when the reflective symmetry of an isosceles triangle assures that its base angles are congruent.

In the approach taken here, two geometric figures are defined to be congruent if there is a sequence of rigid motions that carries one onto the other. This is the principle of superposition. For triangles, congruence means the equality of all corresponding pairs of sides and all corresponding pairs of angles. During Grade 8, through experiences with geometric constructions and drawing triangles from given conditions, some students notice ways to specify enough measures in a triangle to ensure that all triangles drawn with those measures are congruent. Once these triangle congruence criteria (ASA, SAS, and SSS) are established using rigid motions, they can be used to prove theorems about triangles, quadrilaterals, and other geometric figures.

Similarity transformations (rigid motions followed by dilations) define similarity in the same way that rigid motions define congruence, and lead to the criterion for triangle similarity that two pairs of corresponding angles are congruent.

The definitions of sine, cosine, and tangent for acute angles are founded on right triangles and similarity, and, with the Pythagorean Theorem, are fundamental in many real-world and theoretical situations. The Pythagorean Theorem is generalized to non-right triangles by the Law of Cosines. Together, the Laws of Sines and Cosines embody the triangle congruence criteria for the cases where three pieces of information suffice 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.

Analytic geometry connects algebra and geometry, resulting in powerful methods of analysis and problem solving. Just as the number line associates numbers with locations in one dimension, a pair of perpendicular axes associates pairs of numbers with locations in two dimensions. This correspondence between numerical coordinates and geometric points allows methods from algebra to be applied to geometry and vice versa. The solution set of an equation becomes a geometric curve, making visualization a tool for doing and understanding algebra. Geometric shapes can be described by equations, making algebraic manipulation into a tool for geometric understanding, modeling, and proof. Geometric transformations of the graphs of equations correspond to algebraic changes in their equations.

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

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

Content Overview

Congruence	• Experiment with transformations in the plane • Understand congruence in terms of rigid motions • Prove geometric theorems • Make geometric constructions		1. Make sense of problems and persevere in solving them. 2. Reason abstractly and quantitatively. 3. Construct viable arguments and critique the reasoning of others. 4. Model with mathematics. 5. Use appropriate tools strategically. 6. Attend to precision. 7. Look for and make use of structure. 8. Look for and express regularity in repeated reasoning.	Mathematical Practices
Similarity, Right Triangles, and Trigonometry	• Understand similarity in terms of similarity transformations • Prove theorems involving similarity • Define trigonometric ratios and solve problems involving right triangles • Apply trigonometry to general triangles			
Circles	• Understand and apply theorems about circles • Find arc lengths and areas of sectors of circles			
Expressing Geometric Properties with Equations	• Translate between the geometric description and the equation for a conic section • Use coordinates to prove simple geometric theorems algebraically			
Geometric Measurement and Dimension	• Explain volume formulas and use them to solve problems • Visualize relationships between two-dimensional and three-dimensional objects			
Modeling with Geometry	• Apply geometric concepts in modeling situations			

Congruence G-CO

Experiment with transformations in the plane

1. Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.
2. Represent transformations in the plane using, e.g., transparencies and geometry software; describe transformations as functions that take points in the plane as inputs and give other points as outputs. Compare transformations that preserve distance and angle to those that do not (e.g., translation versus horizontal stretch).
3. Given a rectangle, parallelogram, trapezoid, or regular polygon, describe the rotations and reflections that carry it onto itself.
4. Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments.
5. Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another.

Understand congruence in terms of rigid motions

6. Use geometric descriptions of rigid motions to transform figures and to predict the effect of a given rigid motion on a given figure; given two figures, use the definition of congruence in terms of rigid motions to decide if they are congruent.
7. Use the definition of congruence in terms of rigid motions to show that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent.
8. Explain how the criteria for triangle congruence (ASA, SAS, and SSS) follow from the definition of congruence in terms of rigid motions.

Prove geometric theorems

9. Prove theorems about lines and angles. *Theorems include: vertical angles are congruent; when a transversal crosses parallel lines, alternate interior angles are congruent and corresponding angles are congruent; points on a perpendicular bisector of a line segment are exactly those equidistant from the segment's endpoints.*
10. Prove theorems about triangles. *Theorems include: measures of interior angles of a triangle sum to 180°; base angles of isosceles triangles are congruent; the segment joining midpoints of two sides of a triangle is parallel to the third side and half the length; the medians of a triangle meet at a point.*
11. Prove theorems about parallelograms. *Theorems include: opposite sides are congruent, opposite angles are congruent, the diagonals of a parallelogram bisect each other, and conversely, rectangles are parallelograms with congruent diagonals.*

Make geometric constructions

12. 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.*
13. Construct an equilateral triangle, a square, and a regular hexagon inscribed in a circle.

Similarity, Right Triangles, and Trigonometry G-SRT

Understand similarity in terms of similarity transformations

1. Verify experimentally the properties of dilations:
   a. A dilation takes a line not passing through the center of the dilation to a parallel line, and leaves a line passing through the center unchanged.
   b. The dilation of a line segment is longer or shorter in the ratio given by the scale factor.
2. Given two figures, use the definition of similarity in terms of similarity transformations to decide if they are similar; explain using similarity transformations the meaning of similarity for triangles as the equality of all corresponding pairs of angles and the proportionality of all corresponding pairs of sides.
3. Use the properties of similarity transformations to establish the AA criterion for two triangles to be similar.

Prove theorems involving similarity

4. Prove theorems about triangles using similarity transformations. *Theorems include: a line parallel to one side of a triangle divides the other two proportionally, and conversely; the Pythagorean Theorem proved using triangle similarity.*
5. Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.

Define trigonometric ratios and solve problems involving right triangles

6. Understand that by similarity, side ratios in right triangles are properties of the angles in the triangle, leading to definitions of trigonometric ratios for acute angles.
7. Explain and use the relationship between the sine and cosine of complementary angles.
8. Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems.*

(+) Apply trigonometry to general triangles

9. Derive the formula $A = \frac{1}{2} ab \sin(C)$ for the area of a triangle by drawing an auxiliary line from a vertex perpendicular to the opposite side.
10. Prove the Laws of Sines and Cosines and use them to solve problems.
11. Understand and apply 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).

Circles G-C

Understand and apply theorems about circles

1. Prove that all circles are similar.

2. Identify and describe relationships among inscribed 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.*
3. Construct the inscribed and circumscribed circles of a triangle, and prove properties of angles for a quadrilateral inscribed in a circle.
4. (+) Construct a tangent line from a point outside a given circle to the circle.

Find arc lengths and areas of sectors of circles

5. Derive using similarity the fact that the length of the arc intercepted by an angle is proportional to the radius, and define the radian measure of the angle as the constant of proportionality; derive the formula for the area of a sector.

Expressing Geometric Properties with Equations G-GPE

Translate between the geometric description and the equation for a conic section

1. Derive the equation of a circle of given center and radius using the Pythagorean Theorem; complete the square to find the center and radius of a circle given by an equation.
2. Derive the equation of a parabola given a focus and directrix.
3. (+) Derive the equations of ellipses and hyperbolas given two foci for the ellipse, and two directrices of a hyperbola.

Use coordinates to prove simple geometric theorems algebraically

4. Use coordinates to prove simple geometric theorems algebraically. *For example, prove or disprove that a figure defined by four given points in the coordinate plane is a rectangle; prove or disprove that the point (1, $\sqrt{3}$) lies on the circle centered at the origin and containing the point (0, 2).*
5. Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems (e.g., find the equation of a line parallel or perpendicular to a given line that passes through a given point).
6. Find the point on a directed line segment between two given points that partitions the segment in a given ratio.
7. Use coordinates to compute perimeters of polygons and areas of triangles and rectangles, e.g., using the distance formula.*

Geometric Measurement and Dimension G-GMD

Explain volume formulas and use them to solve problems

1. Give an informal argument for the formulas for the circumference of a circle, area of a circle, volume of a cylinder, pyramid, and cone. *Use dissection arguments, Cavalieri's principle, and informal limit arguments.*
2. (+) Give an informal argument using Cavalieri's principle for the formulas for the volume of a sphere and other solid figures.
3. Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.*

Visualize relationships between two-dimensional and three-dimensional objects

4. Identify the shapes of two-dimensional cross-sections of three-dimensional objects, and identify three-dimensional objects generated by rotations of two-dimensional objects.

Modeling with Geometry G-MG

Apply geometric concepts in modeling situations

1. Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).*
2. Apply concepts of density based on area and volume in modeling situations (e.g., persons per square mile, BTUs per cubic foot).*
3. Apply geometric methods to solve design problems (e.g., designing an object or structure to satisfy physical constraints or minimize cost; working with typographic grid systems based on ratios).*

Mathematics | High School—Statistics and Probability*

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

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

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

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

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

Connections to Functions and Modeling. Functions may be used to describe data; if the data suggest a linear relationship, the relationship can be modeled with a regression line, and its strength and direction can be expressed through a correlation coefficient.

Content Overview

Interpreting Categorical and Quantitative Data	• Summarize, represent, and interpret data on a single count or measurement variable • Summarize, represent, and interpret data on two categorical and quantitative variables • Interpret linear models		1. Make sense of problems and persevere in solving them. 2. Reason abstractly and quantitatively. 3. Construct viable arguments and critique the reasoning of others. 4. Model with mathematics. 5. Use appropriate tools strategically. 6. Attend to precision. 7. Look for and make use of structure. 8. Look for and express regularity in repeated reasoning.	Mathematical Practices
Making Inferences and Justifying Conclusions	• Understand and evaluate random processes underlying statistical experiments • Make inferences and justify conclusions from sample surveys, experiments and observational studies			
Conditional Probability and the Rules of Probability	• Use the concepts of independence and conditional probability to interpret data • Use the rules of probability to compute probabilities of compound events in a uniform probability model			
Using Probability to Make Decisions	• Calculate expected values and use them to solve problems • Use probability to evaluate outcomes of decisions			

Interpreting Categorical and Quantitative Data S-ID

Summarize, represent, and interpret data on a single count or measurement variable

1. Represent data with plots on the real number line (dot plots, histograms, and box plots).
2. Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets.
3. Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers).
4. Use the mean and standard deviation of a data set to fit it to a normal distribution and to estimate population percentages. Recognize that there are data sets for which such a procedure is not appropriate. Use calculators, spreadsheets, and tables to estimate areas under the normal curve.

Summarize, represent, and interpret data on two categorical and quantitative variables

5. Summarize categorical data for two categories in two-way frequency tables. Interpret relative frequencies in the context of the data (including joint, marginal, and conditional relative frequencies). Recognize possible associations and trends in the data.
6. Represent data on two quantitative variables on a scatter plot, and describe how the variables are related.
   a. Fit a function to the data; use functions fitted to data to solve problems in the context of the data. *Use given functions or choose a function suggested by the context. Emphasize linear and exponential models.*
   b. Informally assess the fit of a function by plotting and analyzing residuals.
   c. Fit a linear function for scatter plots that suggest a linear association.

Interpret linear models

7. Interpret the slope (rate of change) and the intercept (constant term) of a linear model in the context of the data.

8. Compute (using technology) and interpret the correlation coefficient of a linear fit.
9. Distinguish between correlation and causation.

Making Inferences and Justifying Conclusions S-IC

Understand and evaluate random processes underlying statistical experiments

1. Understand that statistics allows inferences to be made about population parameters based on a random sample from that population.
2. Decide if a specified model is consistent with results from a given data-generating process, e.g., using simulation. *For example, a model says a spinning coin falls heads up with probability 0.5. Would a result of 5 tails in a row cause you to question the model?*

Make inferences and justify conclusions from sample surveys, experiments, and observational studies

3. Recognize the purposes of and differences among sample surveys, experiments, and observational studies; explain how randomization relates to each.
4. Use data from a sample survey to estimate a population mean or proportion; develop a margin of error through the use of simulation models for random sampling.
5. Use data from a randomized experiment to compare two treatments; use simulations to decide if differences between parameters are significant.
6. Evaluate reports based on data.

Conditional Probability and the Rules of Probability S-CP

Understand independence and conditional probability and use them to interpret data

1. Describe events as subsets of a sample space (the set of outcomes) using characteristics (or categories) of the outcomes, or as unions, intersections, or complements of other events ("or," "and," "not").
2. Understand that two events A and B are independent if the probability of A and B occurring together is the product of their probabilities, and use this characterization to determine if they are independent.
3. Understand the conditional probability of A given B as P(A and B)/P(B), and interpret independence of A and B as saying that the conditional probability of A given B is the same as the probability of A, and the conditional probability of B given A is the same as the probability of B.
4. Construct and interpret two-way frequency tables of data when two categories are associated with each object being classified. Use the two-way table as a sample space to decide if events are independent and to approximate conditional probabilities. *For example, collect data from a random sample of students in your school on their favorite subject among math, science, and English. Estimate the probability that a randomly selected student from your school will favor science given that the student is in tenth grade. Do the same for other subjects and compare the results.*
5. Recognize and explain the concepts of conditional probability and independence in everyday language and everyday situations. *For example, compare the chance of having lung cancer if you are a smoker with the chance of being a smoker if you have lung cancer.*

Use the rules of probability to compute probabilities of compound events in a uniform probability model

6. Find the conditional probability of A given B as the fraction of B's outcomes that also belong to A, and interpret the answer in terms of the model.
7. Apply the Addition Rule, P(A or B) = P(A) + P(B) – P(A and B), and interpret the answer in terms of the model.
8. (+) Apply the general Multiplication Rule in a uniform probability model, P(A and B) = P(A)P(B | A) = P(B)P(A | B), and interpret the answer in terms of the model.
9. (+) Use permutations and combinations to compute probabilities of compound events and solve problems.

(+) Using Probability to Make Decisions S-MD

Calculate expected values and use them to solve problems

1. Define a random variable for a quantity of interest by assigning a numerical value to each event in a sample space; graph the corresponding probability distribution using the same graphical displays as for data distributions.
2. Calculate the expected value of a random variable; interpret it as the mean of the probability distribution.
3. Develop a probability distribution for a random variable defined for a sample space in which theoretical probabilities can be calculated; find the expected value. *For example, find the theoretical probability distribution for the number of correct answers obtained by guessing on all five questions of a multiple-choice test where each question has four choices, and find the expected grade under various grading schemes.*
4. Develop a probability distribution for a random variable defined for a sample space in which probabilities are assigned empirically; find the expected value. *For example, find a current data distribution on the number of TV sets per household in the*

United States, and calculate the expected number of sets per household. How many TV sets would you expect to find in 100 randomly selected households?

Use probability to evaluate outcomes of decisions

5. Weigh the possible outcomes of a decision by assigning probabilities to payoff values and finding expected values.
   a. Find the expected payoff for a game of chance. *For example, find the expected winnings from a state lottery ticket or a game at a fast-food restaurant.*
   b. Evaluate and compare strategies on the basis of expected values. *For example, compare a high-deductible versus a low-deductible automobile insurance policy using various, but reasonable, chances of having a minor or a major accident.*
6. Use probabilities to make fair decisions (e.g., drawing by lots, using a random number generator).
7. Analyze decisions and strategies using probability concepts (e.g., product testing, medical testing, pulling a hockey goalie at the end of a game).

Postscript: A Note on High School Courses

The high school standards in this document do not specify how content should be organized into a sequence of high school courses.

However, it is expected that model course sequences based on these standards will become available in both a traditional sequence (Algebra 1, Geometry, and Algebra 2) as well as an integrated sequence (Integrated 1, Integrated 2, Integrated 3).

Glossary

Addition and subtraction within 5, 10, 20, 100, or 1000. Addition or subtraction of two whole numbers with whole number answers, and with sum or minuend in the range 0-5, 0-10, 0-20, or 0-100, respectively. Example: $8 + 2 = 10$ is an addition within 10, $14 - 5 = 9$ is a subtraction within 20, and $55 - 18 = 37$ is a subtraction within 100.

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

Associative property of addition. See Table 3 in this Glossary.

Associative property of multiplication. See Table 3 in this Glossary.

Bivariate data. Pairs of linked numerical observations. Example: a list of heights and weights for each player on a football team.

Box plot. A method of visually displaying a distribution of data values by using the median, quartiles, and extremes of the data set. A box shows the middle 50% of the data.[1]

Commutative property. See Table 3 in this Glossary.

Complex fraction. A fraction A/B where A and/or B are fractions (B nonzero).

Computation algorithm. A set of predefined steps applicable to a class of problems that gives the correct result in every case when the steps are carried out correctly. See also: *computation strategy*.

Computation strategy. Purposeful manipulations that may be chosen for specific problems, may not have a fixed order, and may be aimed at converting one problem into another. See also: *computation algorithm*.

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

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

Dot plot. *See line plot.*

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.

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

Expected value. For a random variable, the weighted average of its possible values, with weights given by their respective probabilities.

First quartile. For a data set with median M, the first quartile is the median of the data values less than M. Example: For the data set $\{1, 3, 6, 7, 10, 12, 14, 15, 22, 120\}$, the first quartile is 6.[2] *See also* median, third quartile, interquartile range.

Fraction. A number expressible in the form a/b where a is a whole number and b is a positive whole number. (The word *fraction* in these standards always refers to a nonnegative number.) *See also* rational number.

Identity property of 0. See Table 3 in this Glossary.

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

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

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

Line plot. A method of visually displaying a distribution of data values where each data value is shown as a dot or mark above a number line. Also known as a dot plot.[3]

Mean. A measure of center in a set of numerical data, computed by adding the values in a list and then dividing by the number of values in the list.[4] Example: For the data set $\{1, 3, 6, 7, 10, 12, 14, 15, 22, 120\}$, the mean is 21.

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

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[1] Adapted from Wisconsin Department of Public Instruction, http://dpi.wi.gov/standards/mathglos.html, accessed March 2, 2010.

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

[3] Adapted from Wisconsin Department of Public Instruction, *op. cit.*

[4] To be more precise, this defines the *arithmetic mean*.

Median. A measure of center in a set of numerical data. The median of a list of values is the value appearing at the center of a sorted version of the list—or the mean of the two central values, if the list contains an even number of values. Example: For the data set {2, 3, 6, 7, 10, 12, 14, 15, 22, 90}, the median is 11.
Midline. In the graph of a trigonometric function, the horizontal line half-way between its maximum and minimum values.
Multiplication and division within 100. Multiplication or division of two whole numbers with whole number answers, and with product or dividend in the range 0-100. Example: $72 \div 8 = 9$.
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 $3/4 \times 4/3 = 4/3 \times 3/4 = 1$.
Number line diagram. A diagram of the number line used to represent numbers and support reasoning about them. In a number line diagram for measurement quantities, the interval from 0 to 1 on the diagram represents the unit of measure for the quantity.
Percent rate of change. A rate of change expressed as a percent. Example: if a population grows from 50 to 55 in a year, it grows by $5/50 = 10\%$ per year.
Probability distribution. The set of possible values of a random variable with a probability assigned to each.
Properties of operations. See Table 3 in this Glossary.
Properties of equality. See Table 4 in this Glossary.
Properties of inequality. See Table 5 in this Glossary.
Properties of operations. See Table 3 in this Glossary.
Probability. A number between 0 and 1 used to quantify likelihood for processes that have uncertain outcomes (such as tossing a coin, selecting a person at random from a group of people, tossing a ball at a target, testing for a medical condition).
Probability model. A probability model is used to assign probabilities to outcomes of a chance process by examining the nature of the process. The set of all outcomes is called the sample space, and their probabilities sum to 1. See also *uniform probability model*.
Random variable. An assignment of a numerical value to each outcome in a sample space.
Rational expression. A quotient of two polynomials with non-zero denomiator.
Rational number. A number expressible in the form a/b or $-a/b$ for some fraction a/b. The rational numbers include the integers.
Rectilinear figure. A polygon all angles of which are right angles.
Rigid motion. A transformation of points in space consisting of a sequence of one or more translations, reflections, and/or rotations. Rigid motions are here assumed to preserve distances and angle measures.
Repeating decimal. The decimal form of a rational number. See *terminating decimal*.
Sample space. In a probability model for a random process, a list of the individual outcomes that are to be considered.
Scatter plot. A graph in the coordinate plane representing a set of bivariate data. For example, the heights and weights of a group of people could be displayed on a scatter plot.[5]
Similarity transformation. A rigid motion followed by a dilation.
Tape diagram. A drawing that looks like a segment of tape, used to illustrate number relationships. Also known as a strip diagram, bar model, fraction strip, or length model.
Terminating decimal. A decimal is called terminating if its repeating digit is 0.
Third quartile. For a data set with median M, the third quartile is the median of the data values greater than M. Example: For the data set {2, 3, 6, 7, 10, 12, 14, 15, 22, 120}, the third quartile is 15. *See also* median, first quartile, interquartile range.
Transitivity principle for indirect measurement. If the length of object A is greater than the length of object B, and the length of object B is greater than the length of object C, then the length of object A is greater than the length of object C. This principle applies to measurement of other quantities as well.
Uniform probability model. A probability model which assigns equal probability to all outcomes. See also *probability model*.
Vector. A quantity with magnitude and direction in the plane or in space, defined by an ordered pair or triple of real numbers.
Visual fraction model. A tape diagram, number line diagram, or area model.
Whole numbers. The numbers 0, 1, 2, 3, ...

[5] Adapted from Wisconsin Department of Public Instruction, *op. cit.*

TABLE 1. Common addition and subtraction situations.[6]

	Result Unknown	Change Unknown	Start Unknown
Add to	Two bunnies sat on the grass. Three more bunnies hopped there. How many bunnies are on the grass now? $2 + 3 = ?$	Two bunnies were sitting on the grass. Some more bunnies hopped there. Then there were five bunnies. How many bunnies hopped over to the first two? $2 + ? = 5$	Some bunnies were sitting on the grass. Three more bunnies hopped there. Then there were five bunnies. How many bunnies were on the grass before? $? + 3 = 5$
Take from	Five apples were on the table. I ate two apples. How many apples are on the table now? $5 - 2 = ?$	Five apples were on the table. I ate some apples. Then there were three apples. How many apples did I eat? $5 - ? = 3$	Some apples were on the table. I ate two apples. Then there were three apples. How many apples were on the table before? $? - 2 = 3$

	Total Unknown	Addend Unknown	Both Addends Unknown[7]
Put Together/ Take Apart[8]	Three red apples and two green apples are on the table. How many apples are on the table? $3 + 2 = ?$	Five apples are on the table. Three are red and the rest are green. How many apples are green? $3 + ? = 5,\ 5 - 3 = ?$	Grandma has five flowers. How many can she put in her red vase and how many in her blue vase? $5 = 0 + 5,\ 5 = 5 + 0$ $5 = 1 + 4,\ 5 = 4 + 1$ $5 = 2 + 3,\ 5 = 3 + 2$

	Difference Unknown	Bigger Unknown	Smaller Unknown
Compare[9]	("How many more?" version): Lucy has two apples. Julie has five apples. How many more apples does Julie have than Lucy? ("How many fewer?" version): Lucy has two apples. Julie has five apples. How many fewer apples does Lucy have than Julie? $2 + ? = 5,\ 5 - 2 = ?$	(Version with "more"): Julie has three more apples than Lucy. Lucy has two apples. How many apples does Julie have? (Version with "fewer"): Lucy has 3 fewer apples than Julie. Lucy has two apples. How many apples does Julie have? $2 + 3 = ?,\ 3 + 2 = ?$	(Version with "more"): Julie has three more apples than Lucy. Julie has five apples. How many apples does Lucy have? (Version with "fewer"): Lucy has 3 fewer apples than Julie. Julie has five apples. How many apples does Lucy have? $5 - 3 = ?,\ ? + 3 = 5$

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

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

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

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

TABLE 2. Common multiplication and division situations.[10]

	Unknown Product	**Group Size Unknown** ("How many in each group?" Division)	**Number of Groups Unknown** ("How many groups?" Division)
	$3 \times 6 = ?$	$3 \times ? = 18$ and $18 \div 3 = ?$	$? \times 6 = 18$ and $18 \div 6 = ?$
Equal Groups	There are 3 bags with 6 plums in each bag. How many plums are there in all? *Measurement example.* You need 3 lengths of string, each 6 inches long. How much string will you need altogether?	If 18 plums are shared equally into 3 bags, then how many plums will be in each bag? *Measurement example.* You have 18 inches of string, which you will cut into 3 equal pieces. How long will each piece of string be?	If 18 plums are to be packed 6 to a bag, then how many bags are needed? *Measurement example.* You have 18 inches of string, which you will cut into pieces that are 6 inches long. How many pieces of string will you have?
Arrays,[11] Area[12]	There are 3 rows of apples with 6 apples in each row. How many apples are there? *Area example.* What is the area of a 3 cm by 6 cm rectangle?	If 18 apples are arranged into 3 equal rows, how many apples will be in each row? *Area example.* A rectangle has area 18 square centimeters. If one side is 3 cm long, how long is a side next to it?	If 18 apples are arranged into equal rows of 6 apples, how many rows will there be? *Area example.* A rectangle has area 18 square centimeters. If one side is 6 cm long, how long is a side next to it?
Compare	A blue hat costs $6. A red hat costs 3 times as much as the blue hat. How much does the red hat cost? *Measurement example.* A rubber band is 6 cm long. How long will the rubber band be when it is stretched to be 3 times as long?	A red hat costs $18 and that is 3 times as much as a blue hat costs. How much does a blue hat cost? *Measurement example.* A rubber band is stretched to be 18 cm long and that is 3 times as long as it was at first. How long was the rubber band at first?	A red hat costs $18 and a blue hat costs $6. How many times as much does the red hat cost as the blue hat? *Measurement example.* A rubber band was 6 cm long at first. Now it is stretched to be 18 cm long. How many times as long is the rubber band now as it was at first?
General	$a \times b = ?$	$a \times ? = p$ and $p \div a = ?$	$? \times b = p$ and $p \div b = ?$

[10] The first examples in each cell are examples of discrete things. These are easier for students and should be given before the measurement examples.
[11] The language in the array examples shows the easiest form of array problems. A harder form is to use the terms rows and columns: The apples in the grocery window are in 3 rows and 6 columns. How many apples are in there? Both forms are valuable.
[12] Area involves arrays of squares that have been pushed together so that there are no gaps or overlaps, so array problems include these especially important measurement situations.

TABLE 3. The properties of operations. Here a, b and c stand for arbitrary numbers in a given number system. The properties of operations apply to the rational number system, the real number system, and the complex number system.

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

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

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

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

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

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Evidence for Individual Math Standards

What follows is a sample of sources consulted in the drafting of the core math standards. Citations are organized by the standard to which they pertain. For example, all sources with specific relevance to standard #2 (Number) are listed below that standard. Each citation contains a link to the section of the source document that is relevant to the core math standard to which it corresponds. For more information on sources and how they were used in the drafting of the math standards, please refer to the "College and Career Readiness Standards for Mathematics."

1. Mathematical Practice

2. Number

National Reports

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- **Singapore** - Topic 1 Numbers and Algebra
- Program for International Student Assessment (PISA), (2006) - Quantity Overarching Idea (p. 89-92)
- Trends in International Mathematics and Science Study (TIMSS), (2007) - Number

Evidence for Individual Math Standards

- International Baccalaureate, Mathematics Standard Level, (2006) - Prior Knowledge (Number and Algebra)
- EdExcel, General Certificate of Secondary Education, Mathematics, (2009) - Number and Algebra

Illustrative Alignment with State and Other Standards

- **California** - State Standards - Algebra I
- **Florida** - State Standards – Algebra
- **Georgia** - State Standards - Number and Operations (throughout)
- **Massachusetts** - State Standards - Number Sense and Operations
- **Minnesota** - State Standards - Algebra Strand

3. Quantity

National Reports

- *NAEP Math Framework 2009* – Measurement Strand (p. 13-14 description, standards follow. Strand called "Geometry and Measurement" in grade 12)
- AMATYC, *Crossroads* - Standard C-3: Geometry
- NCTM, *Focal Points* - Number and Operations and Measurement Focal Points
- NCTM *Principles and Standards* - Measurement Standard

College Readiness

- ACT *College Readiness Standards* - Numbers: Concepts & Properties; Measurement
- Conley, D.T. (2008). *Knowledge and Skills for University Success* - General Foundation Skills (Natural Science Standards) (p.44)
- *Ready or Not: Creating a High School Diploma That Counts.* American Diploma Project, (2004) - Number sense and Numerical Operations

Illustrative International Benchmarks

- **Alberta** - General Outcomes - Number Strand
- **China** - Numbers and Algebra ; Space and Figures Strands
- **England** - Geometry and Measures Strand
- **Hong Kong** - Measures, Shape and Space Dimension
- **Singapore** - Topic 1 Numbers and Algebra; Topic 2 Geometry and Measurement
- Program for International Student Assessment (PISA), (2006) - Quantity Overarching Idea
- Trends in International Mathematics and Science Study (TIMSS), (2007) - Number
- International Baccalaureate, Mathematics Standard Level, (2006) - Prior Knowledge (Number and Algebra), pgs. 2-3
- EdExcel, General Certificate of Secondary Education, Mathematics, (2009) - Shape, space and measures

Illustrative Alignment with State and Other Standards

- **California** - State Standards - Throughout Measurement and Geometry strand in K-7 (e.g. p. 32)
- **Florida** - State Standards – Algebra; Financial Literacy
- **Massachusetts** - State Standards - Measurement

Evidence for Individual Math Standards

- **Minnesota** - State Standards - Geometry and Measurement Strand

4. Expressions

National Reports

- *NAEP Math Framework 2009* – Number Properties and Operations Strand (p. 7-8 description, standards follow); Algebra Strand (p. 30-31 description, standards follow)
- AMATYC, *Crossroads* - Standard C-2: Symbolism and Algebra
- NCTM, *Focal Points* - Number and Operations and Algebra Focal Points
- NCTM *Principles and Standards* - Number and Operations Standard; Algebra Standard

College Readiness

- ACT *College Readiness Standards* - Expressions, Equations & Inequalities
- *Advanced Placement Calculus*, Statistics and Computer Science Course Descriptions - Calculus Prerequisite (p.6); Statistics Prerequisite (p.6); Computer Science Prerequisite (p.7)
- Conley, D.T. (2008). *Knowledge and Skills for University Success* - Computation Strand (p.31-32); Algebra Strand (p32-34)
- *College Board Standards for College Success*: Mathematics and Statistics. College Board, (2006) - Algebra I Standards (p.v); Algebra II Standards (p.vii)
- *Ready or Not: Creating a High School Diploma That Counts.* American Diploma Project, (2004) - Algebra Strand

Illustrative International Benchmarks

- **Alberta** - General Outcomes - Patterns and Relations Strand
- **Belgium** - 2 Number theory and algebra Strand
- **China** - Numbers and Algebra strand
- **Chinese Taipei** - 3. Polynomials, pgs. 32-33
- **England** - Number and Algebra
- **Finland** - MAB1 Expressions and equations
- **Hong Kong** - Number and Algebra Dimension
- **India** - Algebra Unit, Grade 10
- **Ireland** – Leaving Certificate - Algebra
- **Japan** - Math I course p. 59
- **Korea** - Strand B Variables and Expressions
- **Singapore** - Topic 1 Numbers and Algebra
- Trends in International Mathematics and Science Study (TIMSS), (2007) - Algebra
- International Baccalaureate, Mathematics Standard Level, (2006) - Prior Knowledge (Number and Algebra)
- EdExcel, General Certificate of Secondary Education, Mathematics, (2009) - Number and Algebra

Illustrative Alignment with State and Other Standards

- **California** - State Standards - Algebra I; Algebra II
- **Florida** - State Standards – Algebra
- **Georgia** - State Standards –Mathematics 3, Algebra
- **Massachusetts** - State Standards - Patterns, Relations and Algebra
- **Minnesota** - State Standards - Algebra Strand

Evidence for Individual Math Standards

5. Equations

National Reports

- *NAEP Math Framework 2009* – Number Properties and Operations Strand (p. 7-8 description, standards follow); Algebra Strand (p. 30-31 description, standards follow)
- AMATYC, *Crossroads* - Standard C-2: Symbolism and Algebra
- NCTM, *Focal Points* - Number and Operations and Algebra Focal Points
- NCTM *Principles and Standards* - Number and Operations Standard; Algebra Standard

College Readiness

- ACT *College Readiness Standards* - Expressions, Equations & Inequalities
- *Advanced Placement Calculus*, Statistics and Computer Science Course Descriptions - Calculus Prerequisite (p.6); Statistics Prerequisite (p.6); Computer Science Prerequisite (p.7)
- Conley, D.T. (2008). *Knowledge and Skills for University Success* - Computation Strand (p.31-32); Algebra Strand (p32-34)
- *College Board Standards for College Success*: Mathematics and Statistics. College Board, (2006) - Algebra I Standards (p.v); Algebra II Standards (p.vii)
- *Ready or Not: Creating a High School Diploma That Counts.* American Diploma Project, (2004) - Algebra Strand

Illustrative International Benchmarks

- **Alberta** - General Outcomes – Patterns and Relations Strand
- **Belgium** - 2 Number theory and algebra Strand
- **China** - Numbers and Algebra strand
- **Chinese Taipei** - 3. Polynomials, pgs. 32-33
- **England** - Number and Algebra
- **Finland** - MAB1 Expressions and equations
- **Hong Kong** - Number and Algebra Dimension
- **India** - Algebra Unit
- **Ireland** – Leaving Certificate - Algebra
- **Japan** – Math I course; Math II course
- **Korea** - Strand B Variables and Expressions
- **Singapore** - Topic 1 Numbers and Algebra
- Program for International Student Assessment (PISA), (2006) - Change and Relationships Overarching Idea (p. 86-89)
- Trends in International Mathematics and Science Study (TIMSS), (2007) - Algebra
- International Baccalaureate, Mathematics Standard Level, (2006) - Functions and Equations, pgs. 4-5; Prior Knowledge (Number and Algebra), pgs. 2-3
- EdExcel, General Certificate of Secondary Education, Mathematics, (2009) - Number and Algebra

Illustrative Alignment with State and Other Standards

- **California** - State Standards - Algebra I; Algebra II
- **Florida** - State Standards – Algebra
- **Georgia** - State Standards – Mathematics 3, Algebra
- **Massachusetts** - State Standards - Patterns, Relations and Algebra
- **Minnesota** - State Standards - Algebra Strand

Evidence for Individual Math Standards

6. Functions

National Reports

- NAEP *Math Framework 2009* – Number Properties and Operations Strand (p. 7-8 description, standards follow); Algebra Strand (p. 30-31 description, standards follow)
- AMATYC, *Crossroads* - Standard C-4: Function
- NCTM, *Focal Points* - Algebra Focal Points
- NCTM *Principles and Standards* - Algebra Standard

College Readiness

- ACT *College Readiness Standards* – Functions
- *Advanced Placement Calculus*, Statistics and Computer Science Course Descriptions - Calculus Prerequisite (p.6); Statistics Prerequisite (p.6); Computer Science Prerequisite (p.7)
- Conley, D.T. (2008). *Knowledge and Skills for University Success* - Algebra Strand (p32-34)
- *College Board Standards for College Success*: Mathematics and Statistics. College Board, (2006) - Algebra II Standards (p.vii)
- *Ready or Not: Creating a High School Diploma That Counts.* American Diploma Project, (2004) - Algebra Strand

Illustrative International Benchmarks

- **Alberta** - General Outcomes - Patterns and Relations Strand
- **Belgium** - 3 Real functions
- **China** - Numbers and Algebra strand
- **Chinese Taipei** - 4. Exponent and logarithm; 5. The basic concept of trigonometric functions, pgs. 33-34
- **England** - Number and Algebra
- **Finland** - MAB3 Mathematical Models 1; MAB4 Mathematical analysis; MAB6 Mathematical Models II
- **Hong Kong** - Number and Algebra Dimension
- **India** - Sets and Function, Grade 11
- **Ireland** – Leaving Certficate, Functions and Calculus
- **Japan** - Math I course; Math II course
- **Korea** - Strand D Functions
- **Singapore** - Topic 1 Numbers and Algebra
- Program for International Student Assessment (PISA), (2006) - Change and Relationships Overarching Idea
- Trends in International Mathematics and Science Study (TIMSS), (2007) - Algebra
- International Baccalaureate, Mathematics Standard Level, (2006) - Functions and Equations, pgs. 4-5
- EdExcel, General Certificate of Secondary Education, Mathematics, (2009) - Number and Algebra

Illustrative Alignment with State and Other Standards

- **California** - State Standards - Algebra II
- **Florida** - State Standards – Algebra
- **Georgia** - State Standards – Mathematics 3, Algebra
- **Massachusetts** - State Standards - Patterns, Relations and Algebra
- **Minnesota** - State Standards - Algebra Strand

Evidence for Individual Math Standards

7. Modeling

National Reports

- NAEP *Math Framework 2009* - Algebra Strand (p. 30-31 description, standards follow)
- AMATYC, *Crossroads* - Standard C-4: Function
- NCTM, *Focal Points* - Algebra Focal Points
- NCTM Principles and Standards - Algebra Standard

College Readiness

- ACT *College Readiness Standards* - Expressions, Equations & Inequalities
- *Advanced Placement Calculus,* Calculus Course Descriptions - Calculus Prerequisite (p.6)
- Conley, D.T. (2008). *Knowledge and Skills for University Success* - Algebra Strand (p32-34)
- *College Board Standards for College Success*: Mathematics and Statistics. College Board, (2006) - Algebra II (p.vii)
- *Ready or Not: Creating a High School Diploma That Counts.* American Diploma Project, (2004) - Algebra Strand

Illustrative International Benchmarks

- **Alberta** - General Outcomes - Patterns and Relations Strand
- **China** - Numbers and Algebra Strand
- **England** - Number and Algebra
- **Finland** - MAB3 Mathematical Models 1; MAB6 Mathematical Models II
- **India** - Mathematical Modeling
- **Singapore** - Topic 1 Numbers and Algebra
- Program for International Student Assessment (PISA), (2006) - Change and Relationships Overarching Idea (p. 86-89)
- Trends in International Mathematics and Science Study (TIMSS), (2007) - Algebra
- EdExcel, General Certificate of Secondary Education, Mathematics, (2009) - Number and Algebra

Illustrative Alignment with State and Other Standards

- **California** - State Standards - Algebra I
- **Florida** - State Standards - Algebra
- **Georgia** - State Standards - Mathematics 3, Algebra
- **Massachusetts** - State Standards - Patterns, Relations and Algebra
- **Minnesota** - State Standards - Algebra Strand

8. Shape

National Reports

- *NAEP Math Framework 2009* – Geometry Strand (p. 17-19 description, standards follow. Strand called "Geometry and Measurement" in grade 12)
- AMATYC, *Crossroads* - Standard C-3: Geometry
- NCTM, *Focal Points* - Geometry and Measurement Focal Points
- NCTM *Principles and Standards* - Geometry Standard

Evidence for Individual Math Standards

College Readiness

- ACT *College Readiness Standards* - Properties of Plane Figures: Measurement
- *Advanced Placement Calculus,* Calculus Course Descriptions - Calculus Prerequisite (p.6)
- Conley, D.T. (2008). *Knowledge and Skills for University Success* - Geometry (p.34-35)
- *College Board Standards for College Success:* Mathematics and Statistics. College Board, (2006) - Geometry Standards (p. vi)
- *Ready or Not: Creating a High School Diploma That Counts.* American Diploma Project, (2004) - Geometry Strand

Illustrative International Benchmarks

- **Alberta** - General Outcomes - Shape and Space Strand
- **Belgium** - 4 Geometry
- **China** - Mathematics 2; Space and Figures Strand
- **Chinese Taipei** – 6. Characters and application of trigonometric (sic). pg. 34; 2. Straight line and plane of space; 4. Conic section. pgs. 35-36
- **England** - Geometry and Measures Strand
- **Finland** - MAB2 Geometry
- **Hong Kong** - Measures. Shape and Space Dimension
- **India** - Geometry Unit
- **Ireland** - Geometry
- **Japan** - Math II Course; Math A Course
- **Korea** - Strand C Geometry
- **Singapore** - Topic 2 Geometry and Measurement (starting on page 7)
- Program for International Student Assessment (PISA), (2006) - Space and Shape Overarching Idea (p.83-86)
- Trends in International Mathematics and Science Study (TIMSS), (2007) - Geometry
- International Baccalaureate, Mathematics Standard Level, (2006) - Prior Knowledge (Geometry). pgs. 3
- EdExcel, General Certificate of Secondary Education, Mathematics, (2009) - Shape, space and measures

Illustrative Alignment with State and Other Standards

- **California** - State Standards – Geometry
- **Florida** - State Standards – Geometry
- **Georgia** - State Standards -Mathematics 2. Geometry
- **Massachusetts** - State Standards - Geometry
- **Minnesota** - State Standards - Geometry and Measurement Strand

9. Coordinates

National Reports

- *NAEP Math Framework 2009* – Geometry Strand (p. 17-19 description. standards follow. Strand called "Geometry and Measurement" in grade 12)
- AMATYC, *Crossroads* - Standard C-3: Geometry
- NCTM, *Focal Points* - Geometry and Measurement Focal Points
- NCTM *Principles and Standards* - Geometry Standard

Evidence for Individual Math Standards

College Readiness

- ACT *College Readiness Standards* - Graphical Representations
- *Advanced Placement Calculus,* Calculus Course Descriptions - Calculus Prerequisite (p.6)
- Conley, D.T. (2008). *Knowledge and Skills for University Success* - Geometry (p.34-35)
- College Board Standards for College Success: Mathematics and Statistics. College Board, (2006) - Algebra I Standards (p.v); Algebra II Standards (p.vii)
- Ready or Not: Creating a High School Diploma That Counts. American Diploma Project, (2004) - Geometry Strand

Illustrative International Benchmarks

- **Alberta** - General Outcomes - Shape and Space Strand
- **Belgium** - 4 Geometry
- **China** - Mathematics 2; Space and Figures Strand
- **Chinese Taipei** – First Year, 1, Numbers and Coordinate system, pgs. 31-32; Second Year, 1, Vector, pg. 35
- **England** - Geometry and Measures Strand : Number and Algebra
- **Finland** - MAB2 Geometry
- **Hong Kong** - Measures, Shape and Space Dimension
- **India** - Geometry and Mensuration Units
- **Ireland** - Coordinate Geometry
- **Japan** – Math II Course; Math B Course
- **Korea** - Strand C Geometry
- **Singapore** - Topic 2 Geometry and Measurement
- Program for International Student Assessment (PISA), (2006) - Space and Shape Overarching Idea; Change and Relationships Overarching Idea
- Trends in International Mathematics and Science Study (TIMSS), (2007) - Algebra; Geometry
- International Baccalaureate, Mathematics Standard Level, (2006) - Prior Knowledge (Number and Algebra, and Geometry), pgs. 2-3
- EdExcel, General Certificate of Secondary Education, Mathematics, (2009) - Number and Algebra; Geometry

Illustrative Alignment with State and Other Standards

- **California** - State Standards - Algebra I; Geometry
- **Florida** - State Standards – Algebra
- **Georgia** - State Standards - Geometry
- **Massachusetts** - State Standards - Geometry
- **Minnesota** - State Standards - Geometry and Measurement Strand

10. Probability

National Reports

- *NAEP Math Framework 2009* – Data Analysis, Statistics and Probability Strand (p. 24-25 description, standards follow)
- AMATYC, *Crossroads* - Standard C-5: Discrete Mathematics, Standard C-6: Probability and Statistics
- NCTM *Principles and Standards* - Data Analysis & Probability Standard

Evidence for Individual Math Standards

College Readiness

- ACT College Readiness Standards - Probability, Statistics & Data Analysis [link to ACT_CollegeReadinessStandards_p10-17.pdf]
- Conley, D.T. (2008). *Knowledge and Skills for University Success* - Research & Analysis (Social Science Standards), section B (p.64)
- *College Board Standards for College Success*: Mathematics and Statistics. College Board, (2006) - Geometry Standards (p. vi); Algebra II Standards (p. vii)
- *Ready or Not: Creating a High School Diploma That Counts.* American Diploma Project, (2004) - Data Interpretation, Statistics and Probability Strand

Illustrative International Benchmarks

- **Alberta** - General Outcomes - Statistics and Probability Strand
- **Belgium** - 5 Statistics
- **China** - Mathematics 3; Statistics and Probability Strand
- **Chinese Taipei** – Second Year, 5 Permutation and Combination, p. 37
- **England** - Statistics Strand
- **Finland** - MAB5 Statistics and Probability
- **Hong Kong** - Data Handling Dimension
- **India** - Statistics and Probability Unit, Grade 11
- **Ireland** Discrete Mathematics and Counting
- **Japan** - Math A Course; Math C Course
- **Korea** - Strand E Probability and Statistics
- **Singapore** - Topic 3 Statistics and Probability
- Program for International Student Assessment (PISA), (2006) - Uncertainty Overarching Idea
- Trends in International Mathematics and Science Study (TIMSS), (2007) - Data and Chance
- International Baccalaureate, Mathematics Standard Level, (2006) - Statistics and Probability, pgs. 6-8
- EdExcel, General Certificate of Secondary Education, Mathematics, (2009) - Handling Data

Illustrative Alignment with State and Other Standards

- **California** - State Standards - Algebra II; Probability and Statistics
- **Florida** - State Standards – Probability
- **Georgia** - State Standards – Mathematics 3, Data Analysis and Probability
- **Massachusetts** - State Standards - Data Analysis, Statistics, and Probability
- **Minnesota** - State Standards - Data Analysis & Probability

11. Statistics

National Reports

- NAEP *Math Framework 2009* – Data Analysis, Statistics and Probability Strand (p. 24-25 description, standards follow)
- AMATYC, *Crossroads* - Standard C-6: Probability and Statistics
- NCTM, *Focal Points* - Data Analysis Focal Points
- NCTM Principles and Standards - Data Analysis & Probability Standard

Evidence for Individual Math Standards

College Readiness

- ACT *College Readiness Standards* - Probability, Statistics & Data Analysis
- Conley, D.T. (2008). *Knowledge and Skills for University Success* - Statistics (p.37)
- *College Board Standards for College Success*: Mathematics and Statistics. College Board, (2006) - Middle School Math Standards (p.iii); Algebra I Standards (p.v); Precalculus Standards (p.viii)
- *Ready or Not: Creating a High School Diploma That Counts.* American Diploma Project, (2004) - Data Interpretation, Statistics and Probability Strand

Illustrative International Benchmarks

- **Alberta** - General Outcomes - Statistics and Probability Strand
- **Belgium** - 5 Statistics
- **China** - Mathematics 3; Statistics and Probability Strand
- **Chinese Taipei** – Second Year, 6 Probability and Statistic, pg. 37-38
- **England** - Statistics Strand
- **Finland** - MAB5 Statistics and Probability
- **Hong Kong** - Data Handling Dimension
- **India** - Statistics and Probability Unit, Grade 11
- **Ireland** - Discrete Mathematics and Counting (p.27 and 28)
- **Japan** - Math B Course; Math C Course
- **Korea** - Strand E Probability and Statistics
- **Singapore** - Topic 3 Statistics and Probability
- Program for International Student Assessment (PISA), (2006) - Uncertainty Overarching Idea
- Trends in International Mathematics and Science Study (TIMSS), (2007) - Data and Chance
- International Baccalaureate, Mathematics Standard Level, (2006) - Statistics and Probability, pgs. 6-8
- EdExcel, General Certificate of Secondary Education, Mathematics, (2009) - Handling Data

Illustrative Alignment with State and Other Standards

- **California** - State Standards - Probability and Statistics
- **Florida** - State Standards – Statistics
- **Georgia** - State Standards - Mathematics 3, Data Analysis and Probability
- **Massachusetts** - State Standards - Data Analysis, Statistics, and Probability
- **Minnesota** - State Standards - Data Analysis & Probability

Core Proficiencies in the ADP Benchmarks

American high school graduates must possess the knowledge, skills and cross disciplinary proficiencies necessary to succeed in an increasingly competitive, complex and ever-evolving world. Whether graduates immediately enter college, the workplace or both, they must not only have mastered core content, they must also be adept problem solvers and critical thinkers who can contribute and apply their knowledge in novel contexts and unforeseen situations. From working in a team to solve a problem to conducting research and making a presentation to selecting a mortgage or the right health care plan, all high school graduates must be well-informed thinkers and decision makers in order to flourish in the 21st century.

In 2004, Achieve, the Education Trust, and the Thomas B. Fordham Foundation released the American Diploma Project (ADP) Benchmarks. Based on extensive research with employers and postsecondary faculty, the benchmarks identified what knowledge and skills high school graduates must possess in English and mathematics to be successful. While organized by traditional subject areas, cross-disciplinary proficiencies are infused throughout the ADP benchmarks. The proficiencies are embedded in —rather than separate from—the benchmarks because critical thinkers and problem solvers need both content knowledge and the ability to apply that knowledge to challenges in the classroom, the workplace and in the community.

There are four cross disciplinary proficiencies—**Research and Evidence Gathering, Critical Thinking and Decision Making, Communications and Teamwork** and **Media and Technology**—embedded in the ADP benchmarks.

English Benchmarks

The American Diploma Project (ADP) college and workplace readiness benchmarks for English are organized into eight strands:

A. <u>Language</u>
Writers and speakers are taken seriously when their vocabulary is sophisticated and their sentences are free of grammatical errors. Without fail, employers and college faculty cite correct grammar, usage, punctuation, capitalization and spelling as absolutely essential to success in classrooms and workplaces beyond high school. Whether presenting a marketing concept to a team of colleagues or clients or presenting an interpretation of a secondary source in a college seminar, students and employees need facility with these fundamental skills for the successful exchange of ideas and information.

The high school graduate can:
A1. Demonstrate control of standard English through the correct use of grammar, punctuation, capitalization and spelling. (Associated Workplace Tasks: #2, 3, 4, 5 and 6) (Associated Postsecondary Assignments: #4, 5 and 6)
A2. Use general and specialized dictionaries, thesauruses and glossaries (print and electronic) to determine the definition, pronunciation, etymology, spelling and usage of words. (Associated Postsecondary Assignment: #4)
A3. Use roots, affixes and cognates to determine the meaning of unfamiliar words.
A4. Use context to determine the meaning of unfamiliar words.
A5. Identify the meaning of common idioms, as well as literary, classical and biblical allusions; use them in oral and written communication.
A6. Recognize nuances in the meanings of words; choose words precisely to enhance communication. (Associated Workplace Tasks: #2, 3, 4, 5 and 6) (Associated Postsecondary Assignments: #4, 5 and 6)
A7. Comprehend and communicate quantitative, technical and mathematical information. (Associated Workplace Tasks: #1 and 2) (Associated Postsecondary Assignments: #2 and 3)

B. Communication
Employers and college professors cite strong communication skills as being so essential to success that they insist schools should emphasize them, simultaneously with the transmittal of other academic knowledge. Success in credit-bearing college coursework depends heavily on effective communication about the concepts and detailed information contained within readings, lectures and class discussions. Success in the workplace, whatever the profession, is dependent on one's ability to listen attentively to colleagues or customers and to express ideas clearly and persuasively.

The high school graduate can:
B1. Give and follow spoken instructions to perform specific tasks, to answer questions or to solve problems. (Associated Workplace Tasks: #1 and 2)
B2. Summarize information presented orally by others.
B3. Paraphrase information presented orally by others.
B4. Identify the thesis of a speech and determine the essential elements that elaborate it.
B5. Analyze the ways in which the style and structure of a speech support or confound its meaning or purpose.
B6. Make oral presentations that:

- exhibit a logical structure appropriate to the audience, context and purpose;
- group related ideas and maintain a consistent focus;
- include smooth transitions;
- support judgments with sound evidence and well-chosen details;
- make skillful use of rhetorical devices;
- provide a coherent conclusion; and
- employ proper eye contact, speaking rate, volume, enunciation, inflection and gestures to communicate ideas effectively.

See Workplace Task #3: Actuary

B7. Participate productively in self-directed work teams for a particular purpose (for example, to interpret literature, write or critique a proposal, solve a problem, make a decision), including:

- posing relevant questions;
- listening with civility to the ideas of others;
- extracting essential information from others' input;
- building on the ideas of others and contributing relevant information or ideas in group discussions;
- consulting texts as a source of ideas;
- gaining the floor in respectful ways;
- defining individuals' roles and responsibilities and setting clear goals;
- acknowledging the ideas and contributions of individuals in the group;
- understanding the purpose of the team project and the ground rules for decision-making;
- maintaining independence of judgment, offering dissent courteously, ensuring a hearing for the range of positions on an issue and avoiding premature consensus;
- tolerating ambiguity and a lack of consensus; and
- selecting leader/spokesperson when necessary.

See Postsecondary Assignment #4: Introductory English Survey Course

C. Writing

Strong writing skills are an increasingly important commodity. High-growth, highly skilled jobs demand that employees can communicate essential information effectively via e-mail, write proposals to obtain new business, communicate key instructions to colleagues or convey policies to customers. Poor writing may easily affect a company's bottom line and even precipitate legal action. The discipline used to create, reshape and polish pieces of high-quality writing prepares students for occasions when they must write quickly and clearly on demand, whether in the workplace or in college classrooms.

The high school graduate can:

C1. Plan writing by taking notes, writing informal outlines and researching.

- See Workplace Task #4: Wafer Fabrication Technician and Manufacturing Technician
- See Workplace Task #5: Events Manager
- See Workplace Task #6: Loan Officer
- See Postsecondary Assignments #4: Wafer Fabrication Technician and Manufacturing Technician
- See Postsecondary Assignments #5: Wafer Fabrication Technician and Manufacturing Technician
- See Postsecondary Assignments #6: Wafer Fabrication Technician and Manufacturing Technician

C2. Select and use formal, informal, literary or technical language appropriate for the purpose, audience and context of the communication.

- See Workplace Task #4: Wafer Fabrication Technician and Manufacturing Technician
- See Workplace Task #5: Events Manager
- See Workplace Task #6: Loan Officer
- See Postsecondary Assignments #4: Wafer Fabrication Technician and Manufacturing Technician
- See Postsecondary Assignments #5: Wafer Fabrication Technician and Manufacturing Technician
- See Postsecondary Assignments #6: Wafer Fabrication Technician and Manufacturing Technician

C3. Organize ideas in writing with a thesis statement in the introduction, well-constructed paragraphs, a conclusion and transition sentences that connect paragraphs into a coherent whole.

- See Workplace Task #4: Wafer Fabrication Technician and Manufacturing Technician
- See Workplace Task #5: Events Manager
- See Workplace Task #6: Loan Officer
- See Postsecondary Assignments #4: Wafer Fabrication Technician and Manufacturing Technician
- See Postsecondary Assignments #5: Wafer Fabrication Technician and Manufacturing Technician
- See Postsecondary Assignments #6: Wafer Fabrication Technician and Manufacturing Technician

C4. Drawing on readers' comments on working drafts, revise documents to develop or support ideas more clearly, address potential objections, ensure effective transitions between paragraphs and correct errors in logic.

- See Workplace Task #4: Wafer Fabrication Technician and Manufacturing Technician
- See Workplace Task #5: Events Manager
- See Workplace Task #6: Loan Officer
- See Postsecondary Assignments #4: Wafer Fabrication Technician and Manufacturing Technician
- See Postsecondary Assignments #5: Wafer Fabrication Technician and Manufacturing Technician
- See Postsecondary Assignments #6: Wafer Fabrication Technician and Manufacturing Technician

C5. Edit both one's own and others' work for grammar, style and tone appropriate to audience, purpose and context.

- See Workplace Task #4: Wafer Fabrication Technician and Manufacturing Technician
- See Workplace Task #5: Events Manager
- See Workplace Task #6: Loan Officer
- See Postsecondary Assignments #4: Wafer Fabrication Technician and Manufacturing Technician

- See Postsecondary Assignments #5: Wafer Fabrication Technician and Manufacturing Technician
- See Postsecondary Assignments #6: Wafer Fabrication Technician and Manufacturing Technician

C6. Cite print or electronic sources properly when paraphrasing or summarizing information, quoting, or using graphics.

C7. Determine how, when and whether to employ technologies (such as computer software, photographs and video) in lieu of, or in addition to, written communication.

C8. Present written material using basic software programs (such as Word, Excel and PowerPoint) and graphics (such as charts, ratios and tables) to present information and ideas best understood visually.

C9. Write an academic essay (for example, a summary, an explanation, a description, a literary analysis essay) that:

- develops a thesis;
- creates an organizing structure appropriate to purpose, audience and context; includes relevant information and excludes extraneous information;
- makes valid inferences;
- supports judgments with relevant and substantial evidence and well-chosen details; and
- provides a coherent conclusion.

For more information:

- See Postsecondary Assignments #4: Wafer Fabrication Technician and Manufacturing Technician
- See Postsecondary Assignments #5: Wafer Fabrication Technician and Manufacturing Technician
- See Postsecondary Assignments #6: Wafer Fabrication Technician and Manufacturing Technician

C10. Produce work-related texts (for example, memos, e-mails, correspondence, project plans, work orders, proposals, bios) that:

- address audience needs, stated purpose and context;
- translate technical language into non-technical English;
- include relevant information and exclude extraneous information;
- use appropriate strategies, such as providing facts and details, describing or analyzing the subject, explaining benefits or limitations, comparing or contrasting, and providing a scenario to illustrate;
- anticipate potential problems, mistakes and misunderstandings that might arise for the reader;
- create predictable structures through the use of headings, white space and graphics, as appropriate; and
- adopt a customary format, including proper salutation, closing and signature, when appropriate.

For more information:

- See Workplace Task #4: Wafer Fabrication Technician and Manufacturing Technician
- See Workplace Task #5: Events Manager
- See Workplace Task #6: Loan Officer

D. Research

Research requires the ability to frame, analyze and solve problems, while building on the ideas and contributions of others. Credit-bearing coursework in colleges and universities will require students to identify areas for research, narrow those topics and adjust research methodology as necessary. College students will be asked to consider various interpretations of both primary and secondary resources as they develop and defend their own conclusions. Similarly, in the workplace, employers depend heavily on the ability of employees to evaluate the credibility of existing research to establish, reject or refine products and services.

The high school graduate can:
D1. Define and narrow a problem or research topic.
(Associated Workplace Tasks: #4 and 6)
D2. Gather relevant information from a variety of print and electronic sources, as well as from direct observation, interviews and surveys.
(Associated Workplace Tasks: #3, 4, 5 and 6)
(Associated Postsecondary Assignment: #4)
D3. Make distinctions about the credibility, reliability, consistency, strengths and limitations of resources, including information gathered from Web sites.
(Associated Workplace Task: #5)
D4. Report findings within prescribed time and/or length requirements, as appropriate.
(Associated Workplace Tasks: #4, 5 and 6)
D5. Write an extended research essay (approximately six to 10 pages), building on primary and secondary sources, that:

- marshals evidence in support of a clear thesis statement and related claims;
- paraphrases and summarizes with accuracy and fidelity the range of arguments and evidence supporting or refuting the thesis, as appropriate; and
- cites sources correctly and documents quotations, paraphrases and other information using a standard format.

(Associated Workplace Task: #4)

E. Logic

Employers and college professors cite the ability to reason — to think critically, logically and dispassionately — as an absolutely necessary skill for success. High school graduates today are increasingly expected to judge the credibility of sources, evaluate arguments, and understand and convey complex information in the college classroom, in the workplace and as they exercise their rights as citizens. The ability to reason allows for the systematic development of ideas, the ability to make sound choices, and the ability to make and understand persuasive arguments.

The high school graduate can:
E1. Distinguish among facts and opinions, evidence and inferences.
(Associated Postsecondary Assignment: #5)

E2. Identify false premises in an argument.
(Associated Postsecondary Assignment: #5)
E3. Describe the structure of a given argument; identify its claims and evidence; and evaluate connections among evidence, inferences and claims. (Associated Postsecondary Assignment: #5)
E4. Evaluate the range and quality of evidence used to support or oppose an argument.
(Associated Workplace Task: #6)
E5. Recognize common logical fallacies, such as the appeal to pity (argumentum ad misericordiam), the personal attack (argumentum ad hominem), the appeal to common opinion (argumentum ad populum) and the false dilemma (assuming only two options when there are more options available); understand why these fallacies do not prove the point being argued.
E6. Analyze written or oral communications for false assumptions, errors, loaded terms, caricature, sarcasm, leading questions and faulty reasoning.
E7. Understand the distinction between a deductive argument (where, if the premises are all true and the argument's form is valid, the conclusion is inescapably true) and inductive reasoning (in which the conclusion provides the best or most probable explanation of the truth of the premises, but is not necessarily true).
(Associated Workplace Task: #4)
E8. Analyze two or more texts addressing the same topic to determine how authors reach similar or different conclusions.
E9. Construct arguments (both orally and in writing) that:

- develop a thesis that demonstrates clear and knowledgeable judgment;
- structure ideas in a sustained and logical fashion;
- use a range of strategies to elaborate and persuade, such as descriptions, anecdotes, case studies, analogies and illustrations;
- clarify and defend positions with precise and relevant evidence, including facts, expert opinions, quotations and/or expressions of commonly accepted beliefs and logical reasoning;
- anticipate and address the reader's concerns and counterclaims; and
- provide clear and effective conclusions.

(Associated Postsecondary Assignments: #5 and 6)

F. <u>Informational Text</u>

Literacy in the workplace today, as well as in postsecondary classrooms, requires that students read and interpret a wide range of reference materials: periodicals, memoranda and other documents that may contain technical information. College students and employees need to know how to find, comprehend, interpret and judge the quality of information and evidence presented in such texts. They also need to be able to report their own evaluations, interpretations and judgments in ways that will either advance scholarship in an area of postsecondary study or contribute to workplace productivity.

The high school graduate can:
F1. Follow instructions in informational or technical texts to perform specific tasks, answer questions or solve problems.

F2. Identify the main ideas of informational text and determine the essential elements that elaborate them.
F3. Summarize informational and technical texts and explain the visual components that support them.
(Associated Workplace Tasks: #3 and 6)
F4. Distinguish between a summary and a critique.
F5. Interpret and use information in maps, charts, graphs, time lines, tables and diagrams.
(Associated Workplace Tasks: #3 and 4)
(Associated Postsecondary Assignments: #2 and 3)
F6. Identify interrelationships between and among ideas and concepts within a text, such as cause-and-effect relationships.
F7. Synthesize information from multiple informational and technical sources.
(Associated Workplace Tasks: #4, 5 and 6)
F8. Draw conclusions based on evidence from informational and technical texts.
F9. Analyze the ways in which a text's organizational structure supports or confounds its meaning or purpose.
(Associated Workplace Tasks: #5 and 6)
F10. Recognize the use or abuse of ambiguity, contradiction, paradox, irony, incongruities, overstatement and understatement in text and explain their effect on the reader.
F11. Evaluate informational and technical texts for their clarity, simplicity and coherence and for the appropriateness of their graphics and visual appeal.

G. Media

Media vehicles such as television, radio, film, Web sites and videos are prominent modes of communication. They use sound and moving images to convey information, entertain and persuade in ways that are distinct from the printed word alone. Students, employees — all citizens — need to analyze information coming from a wide variety of media to develop reasonable positions on matters of public policy and personal interest and recognize potential bias at use in new and mixed media markets.

The high school graduate can:
G1. Evaluate the aural, visual and written images and other special effects used in television, radio, film and the Internet for their ability to inform, persuade and entertain (for example, anecdote, expert witness, vivid detail, tearful testimony and humor).
G2. Examine the intersections and conflicts between the visual (such as media images, painting, film and graphic arts) and the verbal.
(Associated Postsecondary Assignment: #4)
G3. Recognize how visual and sound techniques or design (such as special effects, camera angles and music) carry or influence messages in various media.
(Associated Postsecondary Assignment: #4)
G4. Apply and adapt the principles of written composition to create coherent media productions using effective images, text, graphics, music and/or sound effects — if possible — and present a distinctive point of view on a topic (for example, PowerPoint presentations, videos).

H. Literature

Among the benefits of reading literature and carefully analyzing significant works from both English and other languages is the appreciation of our common humanity. Regular practice in analyzing literature also improves the quality of student writing. Practice in providing evidence from literary works to support an interpretation fosters the skill of reading any text closely and teaches students to think, speak and write logically and coherently. In addition, employers report that employees who have considered the moral dilemmas encountered by literary characters are better able to tolerate ambiguity and nurture problem-solving skills in the workplace. Postsecondary faculty from a wide variety of disciplines note that the skills required by thorough literary analysis are applicable in a range of other humanities, science and social science disciplines.

The high school graduate can:

H1. Demonstrate knowledge of 18th and 19th century foundational works of American literature.
(Associated Postsecondary Assignment: #6)

H2. Analyze foundational U.S. documents for their historical and literary significance (for example, The Declaration of Independence, the Preamble to the U.S. Constitution, Abraham Lincoln's "Gettysburg Address," Martin Luther King's "Letter from Birmingham Jail").

H3. Interpret significant works from various forms of literature: poetry, novel, biography, short story, essay and dramatic literature; use understanding of genre characteristics to make deeper and subtler interpretations of the meaning of the text.
(Associated Postsecondary Assignments: #5 and 6)

H4. Analyze the setting, plot, theme, characterization and narration of classic and contemporary short stories and novels.
(Associated Postsecondary Assignment: #6)

H5. Demonstrate knowledge of metrics, rhyme scheme, rhythm, alliteration and other conventions of verse in poetry.
(Associated Postsecondary Assignments: #4 and 6)

H6. Identify how elements of dramatic literature (for example, dramatic irony, soliloquy, stage direction and dialogue) articulate a playwright's vision.

H7. Analyze works of literature for what they suggest about the historical period in which they were written.
(Associated Postsecondary Assignment: #5)

H8. Analyze the moral dilemmas in works of literature, as revealed by characters' motivation and behavior.

H9. Identify and explain the themes found in a single literary work; analyze the ways in which similar themes and ideas are developed in more than one literary work.

Mathematics Benchmarks

The American Diploma Project (ADP) college and workplace readiness benchmarks for mathematics are organized into four strands.

I. <u>Number Sense and Numerical Operations</u>
Number sense is the cornerstone for mathematics in everyday life. Comparing prices, deciding whether to buy or lease a car, balancing a checkbook, deciding where to invest savings and understanding much of what appears in a daily newspaper all require understanding of and facility with quantified information. Working with numbers requires an understanding of the relationships between numbers, the magnitude of numbers and when to use which operation, as well as the ability to make reasonable estimations and mental computations.

Because major areas of study at postsecondary institutions have different prerequisites, certain mathematics benchmarks are marked with an asterisk (*). These asterisked benchmarks represent content that is recommended for all students, but is required for those students who plan to take calculus in college, a requisite for mathematics and many mathematics-intensive majors. The high school graduate can:
I1. Compute fluently and accurately with rational numbers without a calculator:
I1.1. Add, subtract, multiply and divide integers, fractions and decimals.
(Associated Workplace Tasks: #1, 2, 3 and 6)
(Associated Postsecondary Assignments: #1 and 2)
Example:

$$3\tfrac{3}{4} \div 1.2 = 15/4 \div 6/5 = 15/4 \text{ x } 5/6 = 75/24 = 25/8 = 3\tfrac{1}{8} = 3.125$$

Example:
Estimate the total of a column of 10 to 15 numbers (typically, dollars and cents) and then add them manually (e.g., by grouping 10s).
I1.2. Calculate and apply ratios, proportions, rates and percentages to solve problems.
(Associated Workplace Tasks: #1, 2, 3 and 6)
(Associated Postsecondary Assignment: #2)
Example:
In the last four quarters, the returns reported for your mutual fund were, in succession, +2.33%, -1.75%, +3.02%, -2.54%. What was your return for the year?
I1.3. Use the correct order of operations to evaluate arithmetic expressions, including those containing parentheses.
I1.4. Explain and apply basic number theory concepts such as prime number, factor, divisibility, least common multiple and greatest common divisor.
I1.5. Multiply and divide numbers expressed in scientific notation.
(Associated Postsecondary Assignment: #2)
Example: Multiply 3.6×10^3 by 4.5×10^4 to obtain 16.2×10^7, adjust to conform first to the standard form for scientific notation to obtain 1.62×10^8, and round to the appropriate number of significant digits as determined by the original equation to obtain 1.6×10^8.
I2. Recognize and apply magnitude (absolute value) and ordering of real numbers:

I2.1. Locate the position of a number on the number line, know that its distance from the origin is its absolute value and know that the distance between two numbers on the number line is the absolute value of their difference.
I2.2. Determine the relative position on the number line of numbers and the relative magnitude of numbers expressed in fractional form, in decimal form, as roots or in scientific notation.
Example:
Determine which of the two fractions -3/5 and -4/7 is larger and which has greater magnitude without using a calculator.
Example:
Order the following numbers from least to greatest without using a calculator:
$\sqrt{12}$, 3, $\sqrt[3]{18}$, 2, $\sqrt{15}$, 4
Example: Example: Approximate how much larger 6×10^4 is than 3×10^{-5} and check that approximation by dividing 6×10^4 by 3×10^{-5} to obtain $\left(6\times 10^4\right)\div\left(3\times 10^{-5}\right) = 2\times 10^9$ to see that 6×10^4 is two billion times as large as 3×10^{-5}.
I3. Understand that to solve certain problems and equations, number systems need to be extended from whole numbers to the set of all integers (positive, negative and zero), from integers to rational numbers, from rational numbers to real numbers (rational and irrational numbers) and from real numbers to complex numbers; define and give examples of each of these types of numbers.
(Associated Workplace Task: #3)
(Associated Postsecondary Assignments: #1 and 2)
Note: Negative integers are required to measure quantities such as temperatures below zero, rational numbers are required to measure quantities that are not integers such as the length of each piece of a 5-foot wire cut into two equal pieces, irrational numbers are required to measure quantities such as the length of the diagonal of a unit square, and complex numbers are required to solve equations such as .
I4. Understand the capabilities and the limitations of calculators and computers in solving problems:
I4.1. Use calculators appropriately and make estimations without a calculator regularly to detect potential errors.
(Associated Workplace Task: #2)
I4.2. Use graphing calculators and computer spreadsheets.
(Associated Workplace Tasks: #3 and 6)
(Associated Postsecondary Assignment: #2)

J. <u>Algebra</u>
Mathematicians regularly identify sources of change, distinguish patterns in that change and seek multiple representations - verbal, symbolic, numeric and graphic - to express what transpires. Algebra provides a means of operating with these concepts at an abstract level and extending specific examples to broad generalizations. Predicting savings based on a rate of interest, projecting business revenues and knowing how costs will increase as

the square footage of a building increases are all possible once a pattern has been identified.

Because major areas of study at postsecondary institutions have different prerequisites, certain mathematics benchmarks are marked with an asterisk (*). These asterisked benchmarks represent content that is recommended for all students, but is required for those students who plan to take calculus in college, a requisite for mathematics and many mathematics-intensive majors. The high school graduate can:

J1. Perform basic operations on algebraic expressions fluently and accurately:

J1.1. Understand the properties of integer exponents and roots and apply these properties to simplify algebraic expressions.

Example:

Simplify the expression $\left(\frac{a}{b}\right)^m \cdot c^{2m}$ to obtain either $\frac{(ac^2)^m}{b^m}$ or $\left(\frac{ac^2}{b}\right)^m$.

J1.2.

* Understand the properties of rational exponents and apply these properties to simplify algebraic expressions.

Example:

Explain why $\sqrt[3]{x^2} \cdot \sqrt{x} = x^{\frac{2}{3}} \cdot x^{\frac{1}{2}} = x^{\frac{7}{6}} = \sqrt[6]{x^7} = x\sqrt[6]{x}$ for any non-negative number x.

J1.3. Add, subtract and multiply polynomials; divide a polynomial by a low-degree polynomial.

Example: Divide $x^3 - 8$ by $x - 2$ to obtain $x^2 + 2x + 4$;

divide $x^4 - 5x^3 - 2x$ by x^2 to obtain $x^2 - 5x - \frac{2}{x}$.

Example: Divide $x^3 - x^2 + x - 2$ by $x^2 + 1$ to obtain $x - 1 + \frac{-1}{x^2+1}$ and understand that also means that $(x^2 + 1)(x - 1) - 1 = x^3 - x^2 + x - 2$.

J1.4. Factor polynomials by removing the greatest common factor; factor quadratic polynomials.

Example:

Remove the greatest common factor $3x^3y$ from $12x^3y^2 + 9x^4y + 6x^5y^3$ to obtain the factorization $3x^3y(4y + 3x + 2x^2y^2)$.

Example:

Factor $x^2 - 36$, $4x^2 + 12xy + 9y^2$ and $x^2 - 5x - 6$ to obtain $(x + 6)(x - 6)$, $(2x + 3y)^2$ and $(x - 6)(x + 1)$ respectively.

J1.5. Add, subtract, multiply, divide and simplify rational expressions.

(Associated Workplace Task: #1)

(Associated Postsecondary Assignments: #1 and 2)

Example:

Express $\frac{1}{x} + \frac{1}{y}$ as a single fraction to obtain $\frac{x+y}{xy}$.

Example:

Simplify to obtain $\frac{a^2-b^2}{2b}\cdot\frac{6ab}{a+b}$ to obtain *3a (a – b)*.

J1.6. Evaluate polynomial and rational expressions and expressions containing radicals and absolute values at specified values of their variables.

J1.7. * Derive and use the formulas for the general term and summation of finite arithmetic and geometric series; find the sum of an infinite geometric series whose common ratio, r, is in the interval (–1, 1).

Example:

Derive the formula for the sum S of the first N terms of a geometric series whose first term is 1 and common ratio is *r* to obtain $S = 1 + r + r^2 + r^3 + \ldots + r^{N-1} = \frac{1-r^N}{1-r}$.

Example:

Determine the 126th term of the arithmetic sequence whose third term is 5 and seventh term is 29.

J2. Understand functions, their representations and their properties:

J2.1. Recognize whether a relationship given in symbolic or graphical form is a function.

J2.2. * Determine the domain of a function represented in either symbolic or graphical form.

Example:

Determine that the domain of the function $f(x) = \sqrt{x-2}$ can be written in interval form as and the domain of the function $g(x) = \frac{1}{x^2-9}$ contains all real numbers except 3 and -3.

J2.3. Understand functional notation and evaluate a function at a specified point in its domain.

(Associated Postsecondary Assignment: #1)

J2.4. * Combine functions by composition, as well as by addition, subtraction, multiplication and division.

J2.5. * Identify whether a function has an inverse and when functions are inverses of each other; explain why the graph of a function and its inverse are reflections of one another over the line $y = x$.

J2.6. * Know that the inverse of an exponential function is a logarithm, prove basic properties of a logarithm using properties of its inverse and apply those properties to solve problems.

J3. Apply basic algebraic operations to solve equations and inequalities:

J3.1. Solve linear equations and inequalities in one variable including those involving the absolute value of a linear function.

Example:

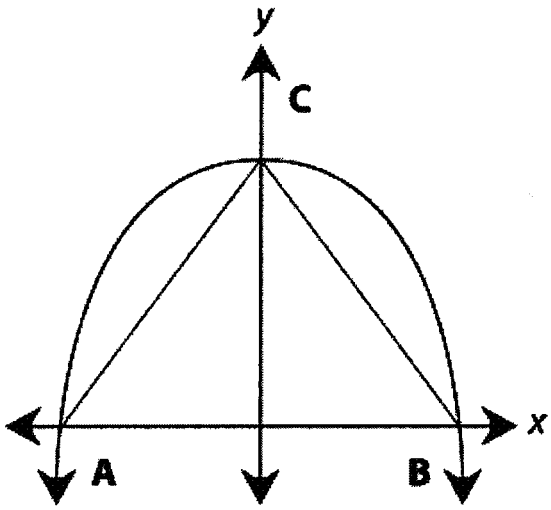
The length L of a spring in centimeters is given by $L = \frac{4}{7}F + 9$, where F is the applied force in dynes. What force F will produce a spring length of 14 centimeters?

Example: A pipe is to be cut to a length of 5 meters accurate to within a tenth of a centimeter. Recognize that an acceptable length (in meters) of the pipe satisfies the inequality $|x-5| \le 0.001$.

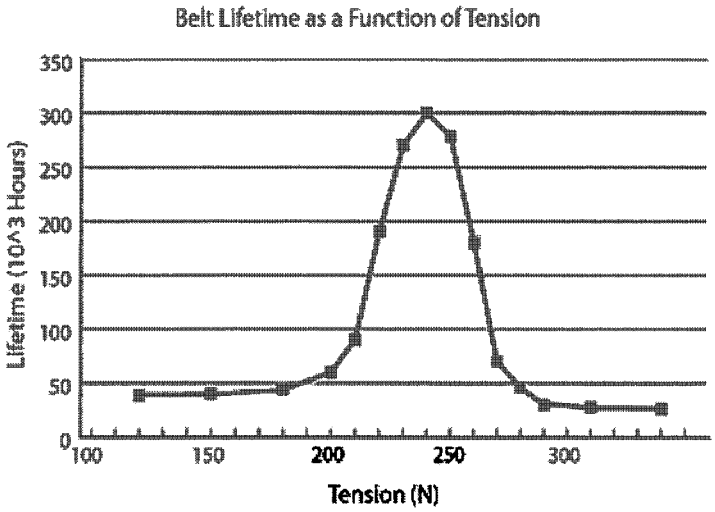
J3.2. Solve an equation involving several variables for one variable in terms of the others.

(Associated Postsecondary Assignment: #2)

Example:
If C represents the temperature in degrees Celsius and F represents the temperature in degrees Fahrenheit, then $C = \frac{5}{9}(F - 32)$. Solve this equation for F to obtain $F = \frac{9}{5}C + 32$.
Example:
Newton's law of gravitation says that the force F exerted by a body of mass m on a body of mass M is $F = \frac{GmM}{r^2}$, where G is the gravitational constant and r is the distance between the bodies. Solve this equation for r to obtain $r = \sqrt{\frac{GmM}{F}}$.
J3.3. Solve systems of two linear equations in two variables.
J3.4. * Solve systems of three linear equations in three variables.
(Associated Postsecondary Assignment: #1)
J3.5. Solve quadratic equations in one variable.
(Associated Postsecondary Assignment: #1)
Example:
Solve $x^2 - x - 6 = 0$ by recognizing that $x^2 - x - 6 = (x - 3)(x + 2)$ can be factored to obtain the two solutions and $x = 3$ and $x = -2$.
Example:
Solve $x^2 + 4x + 2 = 0$ by using the quadratic formula or by completing the square.
J4. Graph a variety of equations and inequalities in two variables, demonstrate understanding of the relationships between the algebraic properties of an equation and the geometric properties of its graph, and interpret a graph:
J4.1. Graph a linear equation and demonstrate that it has a constant rate of change.
(Associated Postsecondary Assignment: #1)
J4.2. Understand the relationship between the coefficients of a linear equation and the slope and x- and y-intercepts of its graph.
(Associated Postsecondary Assignment: #3)
J4.3. Understand the relationship between a solution of a system of two linear equations in two variables and the graphs of the corresponding lines.
J4.4. Graph the solution set of a linear inequality and identify whether the solution set is an open or a closed half-plane; graph the solution set of a system of two or three linear inequalities.
Example:
Graph the solution set of the system of linear inequalities: $2x + y \le 4$
$x \ge 1$.
J4.5. Graph a quadratic function and understand the relationship between its real zeros and the x-intercepts of its graph.
(Associated Postsecondary Assignment: #1)
Example:
The parabola shown below has equation $y = -x^2 + 2$ and passes through the points A, B and C. What is the area of the triangle ABC, rounded to two decimal places?



J4.6. * Graph ellipses and hyperbolas whose axes are parallel to the x and y axes and demonstrate understanding of the relationship between their standard algebraic form and their graphical characteristics.
J.4.7. Graph exponential functions and identify their key characteristics.
Example: Graph the exponential function $y(x) = 2^x$. Recognize that $y(x+1)$ is twice as large as $y(x)$ since $y(x+1) = 2^{x+1} = 2 \bullet 2^x = 2 \bullet y(x)$.
Example: How much money must be invested at 6% annual interest if you want to have $40,000 in 20 years?
J4.8. Read information and draw conclusions from graphs; identify properties of a graph that provide useful information about the original problem. (Associated Postsecondary Assignment: #3)
Example:
The lifetime of the timing belt in your car depends on the tensioning of the belt. The manufacturer specifies 240 N as the proper tension, but the mechanic working on your car can be off by as much as 10%. Use the following graph to estimate the reduction in the life of the belt that can occur with this error in tensioning.



J5. Solve problems by converting the verbal information given into an appropriate mathematical model involving equations or systems of equations; apply appropriate mathematical techniques to analyze these mathematical models; and interpret the solution obtained in written form using appropriate units of measurement:

J5.1. Recognize and solve problems that can be modeled using a linear equation in one variable, such as time/rate/distance problems, percentage increase or decrease problems, and ratio and proportion problems.
(Associated Workplace Tasks: #1 and 2)
(Associated Postsecondary Assignment: #2)

J5.2. Recognize and solve problems that can be modeled using a system of two equations in two variables, such as mixture problems.
(Associated Postsecondary Assignment: #2)
Example:
A chemist has available two solutions of acid. The first solution contains 12% acid, and the second solution contains 20% acid. He wants to mix the two solutions to obtain a 500-milliliter mixture containing 15% acid. How many milliliters of each solution should he mix?

J5.3. Recognize and solve problems that can be modeled using a quadratic equation, such as the motion of an object under the force of gravity.
(Associated Postsecondary Assignment: #1)
Example:
A stone is dropped off a cliff 660 feet above ground. When will the stone hit the ground if its height in feet at time seconds after it is dropped is given by $h(t) = 660 - 16 * t^2$?

J5.4. Recognize and solve problems that can be modeled using an exponential function, such as compound interest problems.

J5.5. * Recognize and solve problems that can be modeled using an exponential function but whose solution requires facility with logarithms, such as exponential growth and decay problems.
(Associated Postsecondary Assignments: #1 and 2)

Example: How long will it take the balance in your savings account to double if you earn 1.5% compounded annually?
J5.6. Recognize and solve problems that can be modeled using a finite geometric series, such as home mortgage problems and other compound interest problems.
(Associated Workplace Task: #3)
(Associated Postsecondary Assignment: #1)
Example:
How much money will you have in a retirement fund if you deposit $1,000 each year for 20 years and the interest rate remains constant at 4%?
J6. * Understand the binomial theorem and its connections to combinatorics, Pascal's triangle and probability.

K. <u>Geometry</u>
Geometry is the study of points, lines, planes and other geometric figures, resulting in a logical system that offers students a way to formulate and test hypotheses and to justify arguments in formal and informal ways. Geometry also provides students with an understanding of the structure of space and spatial relations, such as resolving the best way to fit an oversized object through a door and comparing the amount of a product contained in packages of different shapes. Geometric measurement is the basis by which we quantify the world. Through measurement, students develop respect for precision and accuracy. They also learn to spot potential and actual errors in those measurements and learn how those errors may be compounded in computations.

Because major areas of study at postsecondary institutions have different prerequisites, certain mathematics benchmarks are marked with an asterisk (*). These asterisked benchmarks represent content that is recommended for all students, but is required for those students who plan to take calculus in college, a requisite for mathematics and many mathematics-intensive majors. The high school graduate can:
K1. Understand the different roles played by axioms, definitions and theorems in the logical structure of mathematics, especially in geometry:
K1.1. Identify, explain the necessity of and give examples of definitions, axioms and theorems.
K1.2. State and prove key basic theorems in geometry such as the Pythagorean theorem, the sum of the angles of a triangle is 180 degrees, and the line joining the midpoints of two sides of a triangle is parallel to the third side and half its length.
K1.3. Recognize that there are geometries, other than Euclidean geometry, in which the parallel postulate is not true.
Example:
On a globe the lines of longitude intersect at both the North and South Poles creating a closed figure with only two sides; this is an example of a situation that cannot occur in Euclidean geometry but does occur in spherical geometry.
K2. Identify and apply the definitions related to lines and angles and use them to prove theorems in (Euclidean) geometry, solve problems, and perform basic geometric constructions using a straight edge and compass:

K2.1. Identify and apply properties of and theorems about parallel lines and use them to prove theorems such as two lines parallel to a third are parallel to each other and to perform constructions such as a line parallel to a given line through a point not on the line.
K2.2. Identify and apply properties of and theorems about perpendicular lines and use them to prove theorems such as the perpendicular bisectors of line segments are the set of all points equidistant from the two end points and to perform constructions such as the perpendicular bisector of a line segment.
K2.3. Identify and apply properties of and theorems about angles and use them to prove theorems such as two lines are parallel exactly when the alternate interior angles they make with a transversal are equal and to perform constructions such as the bisector of an angle.
K3. Know the basic theorems about congruent and similar triangles and use them to prove additional theorems and solve problems.
Example:
When you set a projector 12 feet from the screen, the image on the screen measures 8 feet across. What will the width of the image be if you move the projector 3 feet further from the screen?
K4. Know the definitions and basic properties of a circle and use them to prove basic theorems and solve problems.
(Associated Postsecondary Assignment: #1)
Example:
A line tangent line to a circle is perpendicular to the line segment from the center of the circle to the point of tangency.
K5. Apply the Pythagorean theorem, its converse and properties of special right triangles to solve problems.
(Associated Postsecondary Assignment: #1)
Example:
Given the lengths of two sides of a right triangle, find the length of the third side.
Example:
Given a triangle with side lengths of 12 and 13 inches, identify the triangle as acute, right, obtuse or not a triangle at all for various lengths of the third side such as 4, 5, 6, 18 or 26 inches. Justify your answers.
Example:
Determine the lengths of the sides of the special right triangle with angles 30, 60 and 90 degrees and the special right triangle with angles 45, 45 and 90 degrees if the length of the smallest side in each case is 1 meter.
K6. Use rigid motions (compositions of reflections, translations and rotations) to determine whether two geometric figures are congruent and to create and analyze geometric designs.
Example:
Prove the side-angle-side criterion for showing that two triangles are congruent.
Example:
Analyze tessellations of the plane.
K7. Know about the similarity of figures and use the scale factor to solve problems.
Example:

Read and extract information from scale drawings; compute lengths and areas from scale drawings.

K8. Know that geometric measurements (length, area, perimeter, volume) depend on the choice of a unit and that measurements made on physical objects are approximations; calculate the measurements of common plane and solid geometric figures:

K8.1. Understand that numerical values associated with measurements of physical quantities must be assigned units of measurement or dimensions; apply such units correctly in expressions, equations and problem solutions that involve measurements; and convert a measurement using one unit of measurement to another unit of measurement.
(Associated Workplace Tasks: #1 and 2)
(Associated Postsecondary Assignment: #2)

Example:
Convert feet per second to miles per hour, and use dimensional analysis to verify that the calculation yields the appropriate measurement unit

$$1\frac{\text{ft}}{\text{sec}} = 1\frac{\text{ft}}{\text{sec}} \times 3600\frac{\text{sec}}{\text{hr}} \times \frac{1}{5280}\frac{\text{mi}}{\text{ft}} = \frac{30}{44}\frac{\text{mi}}{\text{hr}}.$$

Example:
Confirm that the distance traveled in 45 minutes at the rate of 2.4 meters per second is 6.48 kilometers.

$$d = rt = 2.4\frac{\text{m}}{\text{sec}} \times \frac{1}{1000}\frac{\text{km}}{\text{m}} \times 45\text{min} \times 60\frac{\text{sec}}{\text{min}} = 6.48\text{km}$$

Example:
Convert speed of 150 meters per second to miles per hour.

$$150\frac{\text{meters}}{\text{second}} = \frac{150\text{ meters}}{1\text{ second}} \times \frac{3600\text{ seconds}}{1\text{ hour}} \times \frac{1\text{ mile}}{1610\text{ meters}} \approx 335\frac{\text{miles}}{\text{hour}}$$

K8.2. Determine the perimeter of a polygon and the circumference of a circle; the area of a rectangle, a circle, a triangle and a polygon with more than four sides by decomposing it into triangles; the surface area of a prism, a pyramid, a cone and a sphere; and the volume of a rectangular box, a prism, a pyramid, a cone and a sphere.
(Associated Workplace Task: #1)
(Associated Postsecondary Assignment: #1)

Example:
How much material is removed when you drill a hole with a diameter of 2 cm through a block of metal that is 3 cm thick?

K8.3. Know that the effect of a scale factor k on length, area and volume is to multiply each by k, k^2 and k^3, respectively.

Example:
Know that a 16" (diameter) pizza has four times as much pizza as an 8" (diameter) pizza.

K9. Visualize solids and surfaces in three-dimensional space when given two-dimensional representations (e.g., nets, multiple views) and create two-dimensional representations for the surfaces of three-dimensional objects.

K10. Represent geometric objects and figures algebraically using coordinates; use algebra to solve geometric problems:
(Associated Postsecondary Assignment: #1)

K10.1. Express the intuitive concept of the "slant" of a line in terms of the precise concept of slope, use the coordinates of two points on a line to define its slope, and use slope to express the parallelism and perpendicularity of lines.
K10.2. Describe a line by a linear equation.
Example:
Find an equation for the line containing the points (32, 0) and (212, 100). If the first coordinate of a point on this line is 98.6, what is the second coordinate? Identify the point on this line where the two coordinates are the same.
K10.3. Find the distance between two points using their coordinates and the Pythagorean theorem.
K10.4. * Find an equation of a circle given its center and radius and, given an equation of a circle, find its center and radius.
(Associated Postsecondary Assignment: #1)
Example:
The circle with radius 5 and center at (1, 0) has equation $(x - 1)^2 + y^2 = 25$.
Example:
Transform the quadratic equation $x^2 + 2x + y^2 - 4y = 4$ into the form $(x + 1)^2 + (y - 2)^2 = 9$ by completing the square; realize that the graph of the equation is a circle with center at (–1, 2) and with radius 3.
K11. Understand basic right-triangle trigonometry and apply it to solve problems:
K11.1. Understand how similarity of right triangles allows the trigonometric functions sine, cosine and tangent to be defined as ratios of sides and be able to use these functions to solve problems.
(Associated Postsecondary Assignment: #1)
K11.2. Apply the trigonometric functions sine, cosine and tangent to solve for an unknown length of a side of a right triangle, given one of the acute angles and the length of another side.
Example:
Safety regulations require that the angle between a ladder and the wall should be between 25 and 30 degrees. What is the range of safe placements (distance from the wall) for the bottom of a 12-foot ladder? Where should the base of a 20-foot ladder be placed to satisfy the same safety regulation?
K11.3. Use the standard formula for the area of a triangle, $A = \frac{1}{2}bh$, to explain the area formula, $A = \frac{1}{2}ab\sin C$ where a and b are the lengths of two sides of a triangle and C is the measure of the included angle formed by these two sides, and use it to find the area of a triangle when given the lengths of two of its sides and the included angle.
K12. * Know how the trigonometric functions can be extended to periodic functions on the real line, derive basic formulas involving these functions, and use these functions and formulas to solve problems:
K12.1. * Know that the trigonometric functions sine and cosine, and thus all trigonometric functions, can be extended to periodic functions on the real line by defining them as functions on the unit circle, that radian measure of an angle between 0 and 360 degrees is the arc length of the unit circle subtended by that central angle, and that by similarity, the arc length s of a circle of radius r subtended by a central angle of measure t radians is $s = rt$.

K12.2. * Know and use the basic identities, such as $sin^2(x) + cos^2(x) = 1$ and $\cos\left(\frac{\pi}{2} - x\right) = \sin(x)$ and formulas for sine and cosine, such as addition and double angle formulas.
Example:
Use the identity $sin^2(x) + cos^2(x) = 1$ to determine the sine of an angle when its cosine is known. Example: Use the addition formula to find the amplitude, period and phase shift of a $cos(wt) + b\ sin(wt)$ by expressing it as $c\ sin\ (wt + d)$ for some constants c and d.
K12.3. * Graph sine, cosine and tangent as well as their reciprocals, secant, cosecant and cotangent; identify key characteristics.
K12.4. * Know and use the law of cosines and the law of sines to find missing sides and angles of a triangle.

L. <u>Data Interpretation, Statistics and Probability</u>
Statistical data from opinion polls and market research are integral to informing business decisions and governmental policies. Many jobs require workers who are able to analyze, interpret and describe data quickly and to create visual representations of data - charts, graphs, diagrams - to help get a point across succinctly and accurately. When students learn to make predictions and develop and evaluate inferences from data, they are able to answer such questions as "Will a college degree improve my earnings?" or "Which kinds of college degrees will give me access to the most opportunities and the highest pay?" The ability to apply basic concepts of probability also is connected to the ability to interpret data.

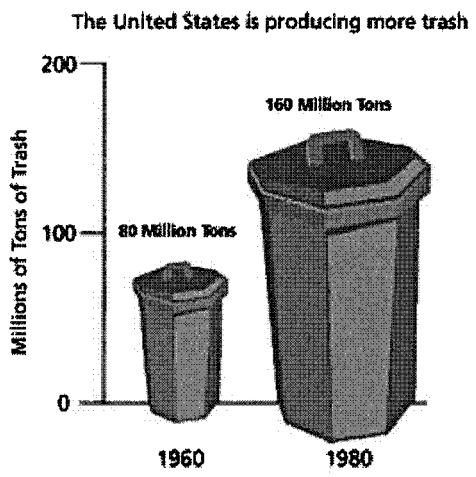
Because major areas of study at postsecondary institutions have different prerequisites, certain mathematics benchmarks are marked with an asterisk (*). These asterisked benchmarks represent content that is recommended for all students, but is required for those students who plan to take calculus in college, a requisite for mathematics and many mathematics-intensive majors. The high school graduate can:
L1. Explain and apply quantitative information:
L1.1. Organize and display data using appropriate methods (including spreadsheets) to detect patterns and departures from patterns.
(Associated Workplace Task: #4)
L1.2. Read and interpret tables, charts and graphs.
(Associated Workplace Tasks: #3 and 4)
L1.3. Compute and explain summary statistics for distributions of data including measures of center (mean, median) and spread (range, percentiles, variance, standard deviation).
L1.4. Compare data sets using graphs and summary statistics.
Example:
Create a box plot of a school's test scores for 1995 and for 2000 and ask what changes occurred in the five years.
L1.5. Create scatter plots, analyze patterns and describe relationships in paired data.

L1.6. Know the characteristics of the Gaussian normal distribution (bell-shaped curve).
Example:
If a set of data is approximately normally distributed, know that approximately 95% of the data in the set are within two standard deviations of the mean and that approximately 99% of the data in the set are within three standard deviations of the mean.

L2. Explain and critique alternative ways of presenting and using information:

L2.1. Evaluate reports based on data published in the media by considering the source of the data, the design of the study, and the way the data are analyzed and displayed.

L2.2. Identify and explain misleading uses of data.
Example:
Explain why the following graphic misrepresents the data it is intended to illustrate.



L2.3. Recognize when arguments based on data confuse correlation with causation.
Example:
Researchers have noticed that the number of golf courses and the number of divorces in the United States are strongly correlated and both have been increasing over the last several decades. Can you conclude that the increasing number of golf courses is causing the number of divorces to increase? Explain your answer.

L3. Explain the use of data and statistical thinking to draw inferences, make predictions and justify conclusions:

L3.1. Explain the impact of sampling methods, bias and the phrasing of questions asked during data collection and the conclusions that can rightfully be made.

L3.2. Design simple experiments or investigations to collect data to answer questions of interest.
(Associated Workplace Task: #4)

L3.3. Explain the differences between randomized experiments and observational studies.
(Associated Workplace Task: #4)

L3.4. Construct a scatter plot of a set of paired data and if it demonstrates a linear trend, use a graphing calculator to find the regression line that best fits this data; recognize that the correlation coefficient measures goodness of fit and explain when it is appropriate to use the regression line to make predictions.

Example:
The following table gives the winning speeds (in miles per hour) at the Indianapolis 500 race for 20 years. Explain why it is not appropriate to use the linear regression equation for these data to estimate what the winning time was in 1920 or to predict the winning speed in 1990. *Source: The World Almanac*

year	1961	1962	1963	1964	1965
speed (mph)	139.1	140.3	143.1	147.4	151.4

year	1966	1967	1968	1969	1970
speed (mph)	144.3	151.2	152.9	156.9	155.7

year	1971	1972	1973	1974	1975
speed (mph)	157.7	163.5	159.0	158.6	149.2

year	1976	1977	1978	1979	1980
speed (mph)	148.7	161.3	161.4	158.9	142.9

L4. Explain and apply probability concepts and calculate simple probabilities:
L4.1. Explain how probability quantifies the likelihood that an event occurs in terms of numbers.
(Associated Workplace Task: #3)
L4.2. Explain how the relative frequency of a specified outcome of an event can be used to estimate the probability of the outcome.
Example:
Typically, 35 out of every 100 teenagers in a certain community have received a traffic ticket. Of those teenagers who have received a ticket, 55% were charged with speeding. What is the probability that a teenager chosen at random will have received a speeding ticket?
L4.3. Explain how the law of large numbers can be applied in simple examples.
Example:
Toss a fair coin 10 times, record the number of heads and apply the data to estimate the probability of getting heads on a single toss of the coin. Toss the coin 20 more times, add the results to the previous data and apply the 30 tosses to estimate the probability of getting a heads. Toss the coin 30 more times and make another estimate of the probability of getting a heads. What can you observe about the probability as the number of tosses increases?
L4.4. Apply probability concepts such as conditional probability and independent events to calculate simple probabilities.

Example:
A fair coin is tossed three times, and three heads are obtained. Understand that the probability of obtaining a head on the fourth toss is 1/2 because this event is independent of outcomes of the three previous tosses.
Example:
If two marbles are drawn randomly one after the other without replacement from a bag containing 4 red and 6 blue marbles, the probability that both marbles drawn are red is 4/10 x 3/9 = 2/15 because the probability of drawing a red marble on the second draw depends, or is conditional upon, the color of the first marble drawn.
L4.5. Apply probability concepts to practical situations to make informed decisions. (Associated Workplace Tasks: #3 and 4)
Example:
A company has 6 telephone lines coming into its business. Efficiency experts performed a study for a week and determined that the following table could give the number of lines in use at any one time. Determine the probability that at most four lines were in use at one time during the week.

# of lines in use	0	1	2	3	4	5	6
percent of time	0.15	0.10	0.20	0.25	0.15	0.11	0.04

A Note about Mathematical Reasoning
The study of mathematics is an exercise in reasoning. Beyond acquiring procedural mathematical skills with their clear methods and boundaries, students need to master the more subjective skills of reading, interpreting, representing and "mathematicizing" a problem. As college students and employees, high school graduates will need to use mathematics in contexts quite different from the high school classroom. They will need to make judgments about what problem needs to be solved and, therefore, about which operations and procedures to apply. Woven throughout the four domains of mathematics — Number Sense and Numerical Operations; Algebra; Geometry; and Data Interpretation, Statistics and Probability — are the following mathematical reasoning skills:

- Using inductive and deductive reasoning to arrive at valid conclusions.
- Using multiple representations to represent problems and solutions.
- Understanding the role of definitions, proofs and counter-examples in mathematical reasoning; constructing simple proofs.
- Using the special symbols of mathematics correctly and precisely.
- Recognizing when an estimate or approximation is more appropriate than an exact answer.

- Distinguishing relevant from irrelevant information, identifying missing information, and either finding what is needed or making appropriate estimates.
- Recognizing and using the process of mathematical modeling when mathematical structures are embedded in other contexts.
- When solving problems, thinking about strategy, testing ideas, trying different approaches, checking for errors and reasonableness of solutions, and devising ways to verify results.
- Shifting regularly between the specific and the general, using examples to understand general ideas, and extending specific results to more general cases to gain insight.

American Diploma Project – Research and Methodology for Benchmarks
Source: "Research and Methodology" at http://www.achieve.org/Research

The American Diploma Project (ADP) and partner organization staff spent nearly two years gathering empirical evidence to codify the knowledge and skills — in both English and mathematics — that all high school graduates actually need to do credit-bearing coursework at state colleges and universities or to embark successfully on career-track positions in high-growth, highly skilled "good" jobs.
Working with two- and four-year postsecondary English and mathematics faculty; with a wide array of humanities, sciences and social sciences faculty; and with front-line managers in those high-growth, highly skilled occupations (within and beyond ADP partner states of Indiana, Kentucky, Massachusetts, Nevada and Texas), we identified the "must-have" competencies in English and mathematics for success in all of these arenas.

Step One: Defining Workplace Expectations
Commissioned by ADP, Educational Testing Service (ETS) researchers Anthony P. Carnevale and Donna M. Desrochers used data from the Bureau of Labor Statistics and the U.S. Department of Education's National Educational Longitudinal Survey (NELS) to determine which jobs are "good" jobs — ones that pay enough to support a family well above the poverty level, provide benefits and offer clear pathways for career advancement.

The researchers then identified which courses people in these jobs took in high school and what their grades were. Building on the study data, two panels of curricular experts helped ADP delineate the content that comprises those courses to develop a set of preliminary workplace expectations for English and mathematics.
For results of the 2002 study, download a PDF of Connecting Education Standards and Employment: Course-taking Patterns of Young Workers.

Step Two: Securing Input from Employers on Preliminary Workplace Expectations
ADP preliminary workplace expectations were circulated among actual front-line managers in a variety of industries such as health care, gaming, high-tech manufacturing, information technology, law, television, shipping and transportation, retail, and financial services.

It's important to note that rather than asking employers to discuss desirable employee traits in the abstract, ADP made a deliberate effort to establish or refute potential connections between what students learn in high school and what knowledge and skills are necessary to be successful in the workplace.

The employers confirmed the importance of the content of the preliminary benchmarks. They also verified the ETS finding that a majority of the best jobs do in fact require some education beyond high school.

ADP then refined the preliminary set of workplace expectations to reflect the feedback from those employer interviews, while defining preliminary postsecondary expectations as well.

Step Three: Defining Postsecondary Expectations for Credit-Bearing Coursework
First, staff from The Education Trust assembled English and mathematics faculty members from K–12 systems and from two- and four-year colleges and universities in each of the ADP partner states (Indiana, Kentucky, Massachusetts, Nevada and Texas). The faculty members examined the content of partner state high school graduation tests; national college admissions and placement tests (SAT, ACT, COMPASS, Accuplacer); a sampling of postsecondary placement tests; and the GED to codify what the de facto standards are for students by evaluating the content of the various assessments they are asked to take.

Then, ADP examined the alignment between partner state high school standards for English and mathematics and their assessments.

Next, ADP asked faculty members from two- and four-year colleges, representing a broad range of content areas, to define the English and mathematics content and skills necessary for success in freshman, credit-bearing courses and to identify gaps between the content and skills they identified and the state high school standards and assessments. For results of the study on partner states' postsecondary expectations, see available PDF files for:

- Indiana ELA
- Indiana Math
- Kentucky ELA
- Kentucky Math
- Massachusetts ELA
- Massachusetts Math
- Nevada ELA
- Nevada Math
- Texas ELA
- Texas Math

For a report on the status of 2008 high school graduation requirements in the 50 states and the District of Columbia, see survey of high school graduation requirements.

Step Four: Synthesizing the Preliminary Workplace and Postsecondary Expectations
ADP took these two sets of preliminary expectations, one workplace and one postsecondary, and combined them into a draft set of ADP college and workplace readiness benchmarks. The new draft expectations were then circulated again among postsecondary faculty and employers for further assurance that this set of combined expectations represents the convergence of "college-ready" and "workplace-ready" skills.

Step Five: Convening Content Area Expert/Employer Panels

ADP convened panels of business representatives and content area experts to advise us as we revised the draft benchmarks. The panels considered, for example, which benchmarks would represent the best intersection of employer and postsecondary demands, thereby comprising the knowledge and skills that will best prepare all students for success in either arena.

Step Six: Gathering Tasks and Assignments from Employers and Postsecondary Faculty

Finally, ADP collected sample workplace tasks and postsecondary assignments from high-performance employers and postsecondary faculty. The benchmarks and sample tasks and assignments should be considered together because they illustrate how the academic content knowledge and skills that need to be learned in high school may be applied in a variety of postsecondary environments.

ADP recommendations can be implemented within the framework of current state and federal law. Standards Reform, Federal Law, and the American Diploma Project: A Framework for Making Legally Sound Decisions addresses the issues surrounding the purpose, validity, administration and potential use of state graduation assessments for various purposes such as college admission, college placement or hiring, as well as the issue of students' opportunity to learn. It analyzes legal issues to reveal how federal laws and legal principles may be implicated by the implementation of ADP goals, to provide a legal framework for states to analyze ADP-related efforts, and to recommend ways to minimize legal risk. It also recommends ways in which states might anticipate legal requirements.

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PREFACE

The 2009 *Alabama Course of Study: Mathematics* provides the framework for the K-12 mathematics program in Alabama's public schools. Content standards and related content included in bullets in this document are minimum and required (*Code of Alabama,* 1975, §16-35-4). They are fundamental and specific but not exhaustive. In developing local curriculum, school systems may include additional content standards to reflect local philosophies and add implementation guidelines, resources and activities which, by design, are not contained in this document.

The 2008-2009 Mathematics State Course of Study Committee made extensive use of the *Principles and Standards for School Mathematics*, a publication of the National Council of Teachers of Mathematics (NCTM). In addition, Committee members read articles in professional journals and other publications, including the National Assessment of Educational Progress (NAEP) standards and Achieve, Inc.'s benchmarks for mathematics; reviewed curriculum documents from other states; listened to and read statements from interested individuals and groups throughout the state; used each member's academic and experiential knowledge; and discussed issues among themselves and with colleagues. Finally, the Committee developed what they believe to be the best possible mathematics curriculum for Alabama's K-12 students.

Legal Code Regarding 4 x 4 Curriculum

§16-6B-2. Core curriculum.

Every Alabama student must be given instruction in grades kindergarten through twelve to prepare him or her to enter the world of work and/or to complete course work at the postsecondary level. In addition to a comprehensive core curriculum of academics each local board of education shall offer a program of vocational/technical education.

(a) The following words and phrases used in this section shall, in the absence of a clear implication otherwise, be given the following respective interpretations:

(1) "Required courses" means courses which are required to be taken by every student enrolled in public schools in the State of Alabama.

(2) "Elective courses" means courses which are neither mandatory nor required to be taken by any student enrolled in public schools in the State of Alabama.

(b) The Legislature finds that students must become more literate in the basic skills needed to earn a living or to continue their education. The Legislature further finds that the English language is a common bond that holds our society together. It is necessary that the State Board of Education adopt curriculum policies to ensure that Alabama students have a command of the spoken and written English language. The Legislature further finds that in Alabama schools, students earning a standard high school diploma are only required to earn two credits of mathematics after they enter the ninth grade prior to graduation. The Legislature further finds that special attention must be given to the Alabama courses of study. The State Board of Education shall establish a rigorous and meaningful core curriculum including but not limited to the following courses for grades nine through twelve in public schools to be phased in beginning with students entering ninth grade in the 1996-97 scholastic year:

(1) Four years (equivalent of four credit units) of English;

(2) Four years (equivalent of four credit units) of mathematics, including but not limited to material designed to ensure that no high school student fails to learn basic mathematical skills and computer literacy;

(3) Four years (equivalent of four credit units) of science; and

(4) Four years (equivalent of four credit units) of social studies with an emphasis on history, music history, fine arts history, geography, economics and political science. History courses shall include material on the history of the United States and the Constitution of the United States. The Legislature further requires that the curriculum content of American history shall include the teaching of important historical documents including the Constitution of the United States, The Declaration of Independence, The Emancipation Proclamation, The Federalist Papers, and other such documents important to the history and heritage of the United States.

(c) It is the intent of the Legislature that credit for required basic core academic courses may be earned in conjunction with vocational courses and/or programs. It is the intent of the Legislature that local boards of education offer and schedule students into vocational programs.

(d) It is the intent of the Legislature that, in addition to the required courses, elective courses including but not limited to foreign languages, fine arts, physical education, wellness education, vocational and technical preparation, be available to all students as determined by the local board of education. Nothing in this chapter shall be construed to diminish the current requirements of the State Board of Education with respect to health and physical education instruction in grades K-12 or to reduce the effect of Section 16-40-1 regarding health and physical education.

(e) The State Board of Education shall adopt necessary policies, procedures, rules, regulations and standards to require that:

(1) The required courses set forth in this section must be taken by every student enrolled in grades nine through twelve of public schools to be phased in beginning with students entering the ninth grade in the 1996-97 scholastic year. The State Superintendent of Education after a hearing in which he or she determines there exists just cause may grant a one-time delay of one year for a school system from implementation of any one of the required courses.

(2) The required courses set forth in this section must be successfully passed by a student enrolled in grades nine through twelve of public schools prior to such student's graduation or receipt of a diploma, phased in beginning with students entering the ninth grade in the 1996-97 scholastic year; provided, however, students identified as eligible for special education services as provided by federal and state law shall be required to meet the provisions set forth in the individual education plan prescribed to meet their individual needs as required by law. The State Board of Education shall continue to set graduation requirements; however, such graduation requirements shall not provide less in the way of requirements in the areas of English, math, science, and social studies as provided in this chapter.

(3) In addition to the required courses a number of elective courses must be successfully passed by a student enrolled in grades nine through twelve of public schools prior to such student's graduation or receipt of a diploma, phased in beginning with students entering the ninth grade in the 1996-97 scholastic year. The State Board of Education shall determine the number and classification of units of credit required for high school graduation.

(f) The State Board of Education, on the recommendation of the State Superintendent of Education, shall prescribe the minimum contents of courses of study for all public elementary and high schools in the state. In every elementary school there shall be taught at least reading including phonics, spelling, handwriting, arithmetic, oral and written English, geography, history of the United States and Alabama, elementary science, hygiene and sanitation, physical education, the arts, including musical and visual arts, environmental protection, and such other studies as may be prescribed by the local board of education. Moreover, the State Board of Education shall require the following courses for grades one through eight in all public schools to be phased in beginning with students entering grades one through eight in the 1995-96 scholastic year: English, social studies, mathematics and science shall be taught each year in grades one through eight. English shall include, but not be limited to, material designed to develop language arts, such as reading, writing, speaking and listening

skills. Social studies shall emphasize geography and history of the United States and Alabama.

(g) The State Board of Education shall adopt necessary policies, procedures, rules, regulations and/or standards to required college and university departments of education to review their existing educational programs for all prospective teachers in order to ensure that they are properly prepared to teach the courses required by law.

(h) The State Board of Education and all local boards shall develop and implement within ninety (90) days of July 7, 1995, a comprehensive character education program for all grades to consist of not less than ten minutes instruction per day focusing upon the students' development of the following character traits: courage, patriotism, citizenship, honesty, fairness, respect for others, kindness, cooperation, self-respect, self-control, courtesy, compassion, tolerance, diligence, generosity, punctuality, cleanliness, cheerfulness, school pride, respect of the environment, patience, creativity, sportsmanship, loyalty, and perseverance. Each plan of instruction shall include the Pledge of Allegiance to the American flag.

(i) The State Board of Education shall adopt necessary policies, procedures, rules, regulations, and/or standards to ensure quality vocational/technical education programs. (Acts 1995, no. 95-313, p. 620, §2.)

Cross references. — As to inclusion of boating safety in the driver education curricula, see §33-5-81. As to elective course credit for participation in YMCA Youth and Government programs, see §16-1-31.

Collateral references. — 79 CJS, Schools & School Districts §485.

68 Am Jur 2nd, Schools §§283 et seq.

Tort liability of public schools and institutions of higher learning for educational malpractice 1 ALR4th 1139.

Legal Codes Regarding Standards Adoption Process

§16-35-4. Minimum course content; maximum number of courses.
The State Board of Education, on the recommendations of the State Superintendent of Education, shall prescribe the minimum contents of courses of study for all public, elementary and high schools in the state, and shall fix the maximum number of courses which are compulsory in each grade of the elementary schools.

§16-35-1. Composition; appointment, qualifications and terms of members.
The State Board of Education shall appoint a courses of study committee as set forth below for the purposes and functions as hereinafter provided. The State Courses of Study Committee shall consist of 28 members to be selected as follows:

(1) One elementary teacher (grades K through six) and one secondary teacher (grades seven through 12) from each of the seven congressional districts who are teaching in the course of study areas to be revised during their terms of office;

(2) Four members from the state at-large actively engaged in a supervisory or administrative capacity in the field of education and who are knowledgeable or who have had previous teaching experience in the course of study areas to be revised during their term of office;

(3) Three members who are employees of State institutions of higher learning and who are specialists in the course of study areas to be revised during their terms of office; and

(4) Seven additional members appointed by the Governor, one from each of the seven congressional districts, each of whom shall be either a business or professional representative not employed in the field of education. The Governor's appointees shall have expertise and be actually involved in the course of study field under consideration and shall be confirmed by the Senate.

Additional standards for membership on the Courses of Study Committee may be established by the State Board of Education other than those prescribed herein above. Said standards shall be sent to every local board of education and every county and city superintendent.

Local boards of education, through their superintendents, shall nominate persons to serve on these committees. Local boards shall furnish credentials of each person recommended, including a summary of each person's qualifications for membership on the committee. All nominations along with said credentials shall be forwarded to the State Superintendent of Education. The State Board of Education, upon the recommendations of the State Superintendent of Education, shall appoint all members of the State Courses of Study Committee from the nominees made by the local boards of education. The Governor's appointments need not be nominated by a local board of education, nor recommended by the State Superintendent of Education, nor approved by the State Board of Education.

The term of office of the members of said committee shall be for a period of one year, beginning on the first day of May 1984; provided, however, that the terms of office for the Governor's initial appointees shall begin immediately upon their initial appointment. The members shall hold office until their successors are appointed. (Acts 1965, 1st Ex. Sess., No. 221, p. 288, § 1; Acts 1984, No. 84-235, p. 356; Acts 1991, No. 91-323, p. 602, § 5.)

§ 16-35-2. Oath and compensation of members

Before transacting any business, each member of the Committee on Courses of Study and its secretary shall take an oath before someone authorized to administer oaths to discharge faithfully the duties imposed upon him or her as a member or as secretary of said Committee on Courses of Study, and that he or she has no interest as an author, an associate author, a publisher, a representative of authors or publishers, and that he or she is in no way connected with the distribution of books, or pecuniarily interested directly or indirectly in the business or profits of any person, firm or corporation anywhere engaged in manufacturing, publishing or selling school books.

Members of the Committee on Courses of Study shall be paid a per diem at the rate provided by state law during the time they are in session; provided, that the committee shall not remain in session at any one time for a longer period than 30 days and in addition shall receive travel expenses at the rate provided by state law for mileage from their homes to the place of meeting and return, the per diem and mileage to be paid from the appropriations made to the State Department of Education. (Acts 1959, No. 581, p. 1458, § 2; Acts 1995, No. 95- 314, § 29.)

The 1995 amendment, effective July 7, 1995, and to be implemented with the beginning of the 1995-96 fiscal year, substituted "appropriations made to the State Department of Education" for "appropriation made for the purchase of free textbooks" at the end of the second paragraph; and made nonsubstantive changes.

§ 16-35-3. Duties generally.

The Courses of Study Committee shall conduct continuing studies and evaluations of the courses taught in the public elementary and secondary schools of the state. It shall prepare the contents of the courses of study for each grade of the elementary and secondary schools and revise the same from time to time. In evaluating the course of study, consideration shall be given to the required basic content, texts used and available, the educational objective of the course, changing scientific, technological and cultural developments, as well as established facts of American history, tradition and patriotism. The committee shall from time to time, but not less than once in each two years, prepare a report of its recommendations with respect to the compulsory minimum content of courses of study and of recommended revisions of courses, materials, subject content and treatment in specific courses and subject areas. The Report shall be submitted to the State Superintendent of Education and to the members of the State Textbook Committee

for separate written recommendations to the State Board of Education for such action as may be considered advisable. (Acts 1965, 1st Ex. Sess., No. 221, p. 288, § 2.)

Cited in Smith V. Board of Sch. Comm'rs, 655 F. Supp. 939 (S.D. Ala. 1987).

§ 16-35-4. Minimum course content; maximum number of courses.
The State Board of Education, on the recommendations of the State Superintendent of Education, shall prescribe the minimum contents of courses of study for all public, elementary and high schools in the state, and shall fix the maximum number of courses which are compulsory in each grade of the elementary schools. (School Code 1927, § 426; Code 1940, T. 52, § 403.)

Collateral references.—79 C.J.S., Schools & School Districts, § 485

§ 16-6B-2(f). Core curriculum.
(f) The State Board of Education, on the recommendation of the State Superintendent of Education, shall prescribe the minimum contents of courses of study for all public elementary and high schools in the state. In every elementary school there shall be taught at least reading including phonics, spelling, handwriting, arithmetic, oral and written English, geography, history of the United States and Alabama, elementary science, hygiene and sanitation, physical education, the arts, including musical and visual arts, environmental protection, and such other studies as may be prescribed by the local board of education. Moreover, the State Board of Education shall require the following courses for grades one through eight in all public schools to be phased in beginning with students entering grades one through eight in the 1995-96 scholastic year: English, social studies, mathematics and science shall be taught each year in grades one through eight. English shall include, but not be limited to, material designed to develop language arts, such as reading, writing, speaking and listening skills. Social studies shall emphasize geography and history of the United States and Alabama.

§ 16-35-5. Studies required to be taught in elementary school.
In every elementary school in the state there shall be taught reading, spelling and writing, arithmetic, oral and written English, geography, history of the United States and Alabama, elementary science, health education, physical education and such other studies as may be prescribed by the State Board of Education. (School Code 1927, § 431; Code 1940, T. 52, § 408.)

Cited in Smith v. Board of Sch. Comm'rs, 655 F. Supp. 939 (S.D. Ala. 1987).
Collateral references.—Releasing public school pupils from attendance for purposes of attending religious education classes. 2 ALR2d 1371.
Sectarianism in schools. 141 ALR 1144; 5 ALR2d 866.
Bible distribution or reading in public schools. 45 ALR2d 742.

Common Core Review and Adoption Schedule

May 27, 2010	Provide overview of the Common Core Standards to the State Board
June 24, 2010	Present Draft of Common Core Standards to the State Board
July – August	Committee Review and Recommendations
August 26, 2010	Present Committee Recommendations to the State Board
Sept – Oct	Public Review of Draft Standards
October 28, 2010	Present Public Review and Final Recommendations to the State Board
November 18, 2010	Common Core Standards presented to State Board for Approval
December 9, 2010	if needed

Courses of Study Development Process

Research	• The State Department of Education (SDE) subject-area specialists prepare research for each future Committee and Task Force.
Committee Appointment	• The State Board of Education appoints 21 locally nominated educators. • The Governor appoints 7 business and professional members (one from each congressional district).
Initial Public and Professional Input	• Opportunity is provided for public and professional input for one month at the beginning of the development process. Local superintendents and college and university deans of education and arts and sciences are notified by letter. Public notices are placed in the state's major newspapers and on the Alabama Department of Education Web site, advertising the period of public input.
Writing and Revision	• The Committee and Task Force and SDE staff discuss issues and decide upon a course of action. • The Committee and Task Force, with assistance from SDE specialists, prepare a draft of course of study standards that define what students should know and be able to do at the end of each grade level or course. • A period of professional and public review is held during the middle of the development process—allowing teachers, administrators, and the general public an opportunity to make comments about each draft course of study document. The drafts are available for review at textbook reviewing sites across the state and on the Alabama Department of Education Web site (www.alsde.edu). • Content specialists (outside readers) review each draft of course of study standards for content accuracy and appropriateness, providing comments for the Committee and Task Force. • An administrative reviewer of each draft evaluates its place in the total K-12 program. • Each Committee and Task Force considers all input and makes appropriate changes.
Adoption	• Each document is submitted by the State Superintendent of Education to the State Board of Education (SBE) for consideration of approval. • Each document is available for public review at textbook reviewing sites across the state and on the Alabama Department of Education Web site during the time the SBE considers the document for adoption. • Public input is received at the SBE meeting when each document is considered for approval.
Implementation	• The State Textbook Committee uses the course of study document to select textbooks for the state textbook list. • Copies of the course of study are provided for all teachers, principals, and supervisors in local school systems who have responsibilities associated with the subject area. • Subject-area teachers participate in workshops to become familiar with the course of study standards before implementation in the local school system. • Local school systems and local school curriculum committees use the documents to revise local curricula. • Local textbook committees use the course of study content standards and local curriculum material as guides to select textbooks for the local school/school system. • Schools of education at public and private colleges and universities receive copies of the course of study to use in the preparation of preservice teachers. • State assessments are developed using course of study content standards.

Course of Study Development Timeline

March - April	• Organizational Meeting • Public and Professional Input Month (Period of Public and Professional Input Publicized on Web site, in major state newspapers, and by letters to LEA superintendents and college and university deans; Committees/Task Force receive suggestions about the content of the courses of study)
May - July	• Draft of Content Standards • Draft of Conceptual Framework • Draft of Course/Area-Cluster Narratives • Draft of General Introduction
August - October	• Draft of Position Statements • Draft of Course/Area Narratives • Draft of Conceptual Framework Narrative • Public/Professional Review (Documents available in local school systems, colleges and universities, at textbook reviewing sites, and at www.alsde.edu, the Alabama Department of Education Web site)
November - December	• Draft of Bibliography and Appendix Items • Receipt and Review of Public Comments • Administrative Review • Content Experts' Review • Standards Revision/Document Preparation
January	• Submission of Course of Study Document to State Board of Education • Public/Professional Review (Documents available in local school systems, colleges and universities, at textbook reviewing sites, and at www.alsde.edu, the Alabama Department of Education Web site)
February	• Consideration for Approval/Adoption by State Board of Education • Opportunity for Public Comments

§ 16-6B-1. Student achievement.

(a) The Legislature finds that the people of Alabama desire two basic things from their public schools:

(1) High achievement for students.

(2) A safe and orderly environment in which to learn.

(b) The Legislature encourages the State Board of Education to assist local boards of education in the development of a strong disciplinary policy and directs the State Board of Education to develop a program to closely monitor student achievement.

(1) The State Board of Education shall require implementation of an assessment program for the public schools of Alabama. The assessment program may include nationally normed tests or criterion referenced tests, or both. These tests may be used to assist in the assessment of student achievement. The State Board of Education may also require the use of other tests and assessments as the board may deem necessary.

(2) In grades 11 and 12, the State Board of Education shall implement an assessment and remediation program to monitor and promote the academic achievement of students in those grades and prepare them for successfully completing the graduation examination.

(c) There is no legislative intent to interfere with the provisions of Section 16-3-18.3, and it is the intent of the Legislature that the development of the total assessment program for student performance, exclusive of the requirements of student performance herein, shall be the function of the State Board of Education. The State Board of Education is instructed to develop courses of study to provide Alabama students with the content and information to enter the workforce, to compete nationally and internationally with other students, and to successfully compete at the postsecondary level. This shall include the content necessary to successfully achieve on nationally normed tests and any other tests that may be required by the State Board of Education.

BOARD OF DIRECTORS

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State of Tennessee

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January 15, 2010

Dr. Joe Morton
State Superintendent of Education
Alabama Department of Education
50 North Ripley Street
P.O. Box 302101
Montgomery, AL 36104

Dear Superintendent Morton:

Achieve is pleased to confirm Alabama's participation in an assessment partnership committed to pursuing the development and implementation of summative assessments that are aligned to the common core standards, that can be used within states as part of statewide assessment systems, and that will enable comparability of results across a maximum number of states.

We have received your formal request to join the other states in this partnership and acknowledge your acceptance of the attached Statement of Principles which will guide our collective work.

Alabama's participation in this partnership is critical to its success. We look forward to continuing our important work together in the coming months.

Sincerely,

Michael Cohen
President

States Committed to Assessment Partnership
(As of 10:00 am EST on January 15, 2010)

1. Alabama
2. Arizona
3. Arkansas
4. California
5. Delaware
6. District of Columbia
7. Florida
8. Georgia
9. Hawaii
10. Illinois
11. Indiana
12. Kentucky
13. Louisiana
14. Maryland
15. Massachusetts
16. Michigan
17. Minnesota
18. New Hampshire
19. New Mexico
20. North Carolina
21. Ohio
22. Oklahoma
23. Pennsylvania
24. Rhode Island
25. Tennessee
26. Utah
27. Wisconsin

1775 Eye Street NW, Suite 410, Washington, D.C. 20006 Phone (202) 419-1540 Fax (202) 828-0911
www.achieve.org

Comparing Student Performance on Common College- and Career-Ready Standards
Statement of Principles

Our state is committed to an education system that prepares all of our students for success in college, careers, and life in the 21st century. We believe in setting *high* expectations for our students and schools that are firmly grounded in what it takes to be successful. We believe in setting *common* expectations across states, and are committed to working with like-minded states to adopt common standards and assessment systems anchored in college and career readiness.

Our state supports common assessments that meet the following principles:

- Aligned to the common core standards
- Anchored in college and career readiness
- Allow for comparison of student results across a maximum number of states
- Enable to the maximum extent possible benchmarking performance against NAEP and international standards
- Cover grades 3 through 8 and high school, including college/career ready measures at the end of high school
- Address three overarching goals: measuring student proficiency, ensuring accountability, and improving teaching and learning
- Enable measurement of student achievement and growth
- Are summative in nature but designed in a manner consistent with more comprehensive assessment systems that also include interim and formative assessments
- Provide valid and reliable measures of student knowledge, understanding of, and ability to apply crucial concepts through the use of a variety of item types and formats
- Leverage technology and economies of scale in order to minimize costs and create assessments that accurately measure student performance
- Provide for timely release of results to better inform practice and support decision-making
- Include the assessment of students identified with disabilities and English language learners and to the extent feasible, use universal design principles

We understand that Achieve will work with other national partners to build on the work of the common core standards and convene states to pursue a common assessment strategy that meets these principles. We are prepared to work with Achieve and its partners in as large a consortium of states as possible to explore the development and implementation of summative assessments that are aligned to the common core standards, that can be used within states as part of statewide assessment systems, and that will enable comparability of results across states. We understand that in pursuing this effort, Achieve and its partners will work closely with other consortia that have been formed to explore areas of common ground and determine whether and how efforts could be combined to achieve comparability of results.

PARTNERSHIP FOR ASSESSMENT OF READINESS FOR COLLEGE AND CAREERS

PARTICIPATING STATES

MAY 25, 2010

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1. Alabama
2. Arizona
3. Arkansas
4. California
5. Colorado
6. Delaware
7. District of Columbia
8. Florida
9. Georgia
10. Hawaii
11. Illinois
12. Indiana
13. Kentucky
14. Louisiana
15. Maryland
16. Massachusetts
17. Mississippi
18. New Hampshire
19. New Jersey
20. New York
21. North Dakota
22. Ohio
23. Oklahoma
24. Pennsylvania
25. Rhode Island
26. South Carolina
27. Tennessee

THE SMARTER BALANCED ASSESSMENT CONSORTIUM

The "Smarter Balanced Assessment Consortium" was formed from a merger of three Consortia that emerged in January 2010 in response to the Race to the Top competition: the Balanced Assessment, MOSAIC, and SMARTER Consortiums, comprising a total of 45 states.

The Consortium's priorities for a new generation assessment system are rooted in a concern for the valid, reliable, and fair assessment of the deep disciplinary understanding and higher-order thinking skills that are increasingly demanded by a knowledge-based economy. These priorities are also rooted in a belief that assessment must support ongoing improvements in instruction and learning, and must be useful for all members of the educational enterprise: students, parents, teachers, school administrators, members of the public, and policymakers.

The Consortium recognizes the need for a system of formative and summative assessments, organized around Common Core standards, that support high-quality learning and the demands of accountability, and that balance concerns for innovative assessment with the need for a fiscally sustainable system that is feasible to implement. The efforts of the Consortium will be organized to accomplish these goals.

Priorities for Assessment

As described below, the Consortium members have agreed to a set of principles that are consistent with those used by educational systems of high-achieving nations and states. These include the following:

1) **Assessments are grounded in a thoughtfully integrated learning system** of standards, curriculum, assessment, instruction, and teacher development. Teachers and other instructional experts are involved in the process of developing formative and summative assessments grounded in the learning standards. These guide professional learning about curriculum, teaching, and assessment. Instructional supports are provided to enable thoughtful teaching. Thus, assessments are provided to schools as part of a well-aligned system that guides and supports a coherent approach to students' and teachers' learning.

2) **Assessments include evidence of actual student performance** on challenging tasks that evaluate standards of 21st Century learning. The assessments will be strategically used to evaluate a broad array of skills and competencies and inform progress toward and acquisition of readiness for higher education and multiple work domains. They emphasize deep knowledge of core concepts within and across the disciplines, problem solving, analysis, synthesis, and critical thinking.

3) **Teachers are integrally involved in the design, development and scoring of assessment items and tasks.** Teachers will participate in the alignment and unpacking of the Common Core Standards and the identification of the standards in the local curriculum. The Consortium will involve teachers in formative and summative assessment development and support moderation of scoring processes to ensure consistency and to enable teachers to deeply understand the standards and to develop stronger curriculum, instruction, and classroom assessment. Assessment literate teachers 1) who have gotten "inside" the Common Core standards, 2) who have taught to the standards, 3) who have learned how to appropriately measure the standards, and 4) who have learned strategies to intervene if students have not measured the standards, will be teachers whose students are learning. Teachers' roles include the construction and review of items/tasks, the definition of scoring guides, selection of student work exemplars, and scoring.

4) **Technology is designed to support assessment and learning systems.** Technology is used to enhance these assessments in a number of ways, by: delivering the assessments; enabling adaptive technologies to better measure student abilities across the full spectrum of student performance and evaluate growth in learning; supporting on-line simulation tasks that test higher-order abilities, allowing

students to search for information or manipulate variables and tracking information about the students' problem-solving processes; and, in some cases, scoring the results or delivering the responses to trained scorers / teachers to access from an electronic platform. Such a platform can support training and calibration of scorers and moderation of scores, as well as the efficient aggregation of results in ways that support reporting and research about the responses.

5) Assessments are structured to continuously **improve teaching and learning**.
Assessment *as*, *of*, and *for* learning is designed to develop understanding of what learning standards are, what high-quality work looks like, and what is needed for student learning. It is also designed to foster instruction that supports transferable knowledge and skills. These outcomes are enabled by several features of the assessment system:

- The use of school-based, curriculum-embedded assessments provides teachers with models of good curriculum and assessment practice, enhances curriculum equity within and across schools, and allows teachers to see and evaluate student learning in ways that can feed back into instructional and curriculum decisions.

- Close examination of student work and moderated teacher scoring are sources of ongoing professional development that improve teaching.

- Developing both on-demand and curriculum-embedded assessments around learning progressions allows teachers to see where students are on multiple dimensions of learning and to strategically support their progress.

Goals for the Assessment System

The *SMARTER BALANCED* Consortium intends to build a system of assessment upon the Common Core Standards in English language arts and mathematics with the intent that all students across this consortium of states will know their progress toward college and career readiness. These states believe that the connection between the student, the teacher, and the curriculum, instruction and assessment is the foundation for success for the Common Core Standards, and that working together collaboratively to accomplish these tasks is critical.

The consortium is committed to the development of a system that is state led and will provide:

- **Common summative tests in English language arts and Mathematics** that assess student progress and mastery of core concepts and critical transferable skills using a range of formats: selected-response and constructed-response items, and performance tasks, designed together to assess the full range of standards.

- **Formative assessment tools and supports**, that are shaped around curriculum guidance which includes learning progressions, and that link evidence of student competencies to the summative system.

- Focused **professional development** around curriculum and lesson development as well as scoring and examination of student work

- **Reporting systems** that provide first-hand evidence of student performances, as well as aggregated scores by dimensions of learning, student characteristics, classrooms, schools, and districts.

- A governance structure that ensures a strong voice for state administrators, policy makers, school practitioners, and technical advisors to ensure an optimum balance of assessment quality, efficiency, costs, and time.

Principles

This system and its development will incorporate:

- A variety of item types to measure the full range of Common Core Standards, including those that address higher-order cognitive skills and abilities;
- A plan to scale up over time to incorporate curriculum-embedded performance and complex computer based simulations;
- Online adaptive solutions for summative and interim assessments to provide assessments that meet the needs of all students;
- Support for structured transitions from paper/pencil to online adaptive assessments, with a backup paper version available for those states who need it when the assessment initially scales up;
- A systematic solution to informed decision-making by including formative strategies, benchmark/interim assessments, and summative assessments;
- High quality curriculum and instructional supports for teachers;
- Inclusion of teachers in design, development and implementation of the system;
- Adherence to professional standards for assessment;
- Principles of universal design in the design and development process for **all** students; and
- Optional components that states can use based on their needs.

Design Agreements

The Consortium will develop a common summative assessment that will provide comparable results across all of the participating states. This comparability will be achieved by applying psychometrically sound scaling and equating procedures to items and a modest number of performance tasks of limited scope (e.g. no more than a few days to complete) that will be used in common across consortium states. Consortium states will use commonly determined performance standards that are internationally benchmarked.

In addition, some states will work on pushing the edge of the envelope with respect to more ambitious performance assessments – which may be used in common by one or more sub-consortia of states – and, in the same way, others will undertake more ambitious work with respect to computer adaptive testing and simulations. This design allows the Consortium to create at one time, a new summative assessment used by a large number of states within the five-year horizon of the federal grant, and to create even more leading-edge assessment components used by sub-consortia of states who decide to offer augmented assessments. Common use of these augmented assessments across subsets of states would result in comparable results for those components across those states, without disrupting the existence of a leaner, common summative assessment across all the states in the Consortium.

Current understandings about the nature of the assessment items, tasks, and strategies are noted below:

Objective machine-scored items

- Movement toward more analytic types of selected-response and constructed-response items that are easily scored, including computer simulations.

Open-Ended Constructed response

Artificial intelligence (AI) scored items.

- Work to establish efficient means of developing items and reliable scoring processes for complex responses scored by computer.
- Build and maintain the confidence teachers have in the system by incorporating a systematic read-behind by teachers.

Human scored constructed response

- Develop training and moderated scoring processes for teacher scoring of items that cannot be scored by AI and for additional scoring of AI items.
- A strategic mix of teacher and machine scoring should be created to take advantage of efficiencies and reduce burden, while also ensuring teacher participation and learning.

Curriculum-embedded performance assessments

- The common summative assessment would incorporate performance events of modest scope (1-5 days) to evaluate the standards more fully.
- Some states will form a workgroup to go further with rich performance tasks that can make advances in performance assessments on behalf of the consortium
- These more ambitious performance assessments could be included for individual state accountability systems (and for comparisons across a subset of states, if desired) until a greater proportion of states has capacity for implementation.

Advanced Computer based simulations

- Some states will form a workgroup to make advances in computer based simulations on behalf of the consortium
- These simulations could be included in individual state accountability systems until a greater proportion of states have capacity for implementation.

SMARTER Balanced Assessment Consortium
Governance Structure
Proposal process only
This structure will be replaced by a long term governance structure when the proposal is accepted
Guiding Principle: State led and governed Consortium committed to a balanced and integrated assessment system

Member States
The group of Member States is comprised of the chief/designee from each state in the consortium. The Member States will contribute to policy and logistical discussions and decisions that are necessary to create a compelling grant proposal.

Weekly conference calls will review issues and seek consensus for major decisions. Decisions/issues/concerns will be proposed and then consensus building will be achieved through E-mails and using the SMARTER / BALANCED website. This website will regularly post major issues, decisions and documents. Member States will have the responsibility to check the website each day for new information, issues, pending decisions etc. The website will be maintained and monitored by the Project Manager. The website will easily highlight any new information that has been posted. Decision/issues will have a clear timeline for completed decisions.

Consensus will be the goal of all deliberations. Major decisions that do not reach consensus will go to a simple majority vote. Each state will have one vote and equal authority/participation. If there is only a one to three vote difference, the issue will be re-examined to seek greater consensus. The Steering Committee will prepare additional information as to the pros and cons of the issue to assist states in developing consensus around the issue. When the issue comes for the second vote, the simple majority vote will be final.

A Commitment Document will be E-mailed to all states requiring the signature of the State Chief that must be returned to Tony Alpert. States will participate in all decisions made after the signed document is received. The commitment document will include a commitment to support any decisions made prior to the Consortium receipt of the document.

The Member States will approve and/or make final decisions in the following key areas:

1. Steering Committee Members
2. Policy Coordinator

3. Statement of Common Purpose
4. Different levels of state participation
5. Theory of Action
6. Specific design elements
7. Final proposal

Governing State

A Governing State is a state that:

1. Is a member of only one consortium applying for a grant in the competition category
2. Has an active role in policy decision-making for the consortium
3. Is committed to using the assessment system or program developed by the consortium

States must indicate on their Commitment Document if they want to be a Governing State.

Steering Committee

The Steering Committee is comprised of one representative from each of 12 – 15 states in the consortium. Committee members may be a chief or his/her designee, or a representative from higher education. Committee members will be selected so as to represent each region of the United States as well as small and large states. Committee members must have assessment expertise as evidenced by previous experience in either design or implementation of state assessment systems. Selection will be made to provide a balance of representation from both policy and implementation roles. The Steering Committee will serve as the liaison between the Working Group and the Member and Governing States.

States interested in participating on the Steering Committee must so indicate on their Commitment Document. No later than April 20th, the current Coordinating Committee of Seven States (Oregon, Washington, Idaho, Utah, Nebraska, Wisconsin, Missouri, Maine, and West Virginia) will collaborate with all of the states to propose which states will be on the Steering Committee. This Steering Committee Proposal will be sent to the Member States for their approval. The Steering Committee members must commit to devoting substantial time (approximately 10 hours per week) to the development of the grant proposal. Steering Committee responsibilities will include the following:

- Determine the broad picture of what the assessment system will look like.
- Direct the work of the Proposal Design Team as necessary to create a compelling grant proposal
- Receive regular reports from the Project Manager
- Determine the issues to be presented to the Member States
- Oversee the expenditure of funds during the proposal process

- Develop a plan to transition from the proposal governance to implementation governance
- Determine the Fiscal Agent for the Implementation

Proposal Design Team

The Proposal Design Team is comprised of state assessment directors/designee and selected technical advisors who will ensure the assessment design represented in the proposal is strategic, efficient, comprehensive and consistent with best practices. The Project Manager will provide leadership to the Proposal Design Team. A high priority for this group continues to be the focus on a state led consortium with the state voice having the highest priority. Participation on the Proposal Design Team will require a significant amount of time (20 hours each week) during the proposal period. The Proposal Design Team will:

- Determine the topics of the final working groups
- Determine the membership of each group.
- Direct and participate in the work of the Work Groups.

The Steering Committee in consultation with the Project Manager will determine the participants on the Proposal Design Team. *Individuals interested in participating on the Proposal Design Team should so indicate on the Commitment Document*

Work Groups

The Workgroups are comprised of chiefs/assessment directors/assessment staff/technical advisors. Participation on a workgroup will require varying amounts of time depending on the task. *Individuals interested in participating on a Workgroup should so indicate on the Commitment Document indicating their preferred subgroup.*

- Item Specifications/Item Quality Control, Writing/constructed response scoring/validity
- Psychometrics, Reliability, Achievement Standards Setting, Reporting
- Universal Design, Test Administration, Accommodations, Special Populations
- Technical Specifications/ Requirements
- Communications and Documentation
- External validation, Research and Innovations
- Professional Development and Capacity Building (IT and Human)
- Formative and Benchmark Assessments
- Performance-Based, Curriculum-Embedded Assessments
- High School and Higher Education

Level of State Participation

During the next 10 weeks as the consortium develops the proposal, states may choose between various levels of participation. All participating states will be member states and then may show interest in any single or combination of the following:

1. Governing State
2. Steering Committee
3. Proposal Design Team
4. Work Group(s)

During the next three months the Steering Committee will determine the different levels of participation options available to states for assessment implementation.

Individual Roles

Project Manager

Provides leadership to the Proposal Design Team, regularly reports to the Steering Committee, Is responsible to maintain the website and keep it updated for use as the communication tool for documents and issues.

Grant Writer

Works with the Proposal Design Team in writing the grant.

Policy Coordinator

Provides bridge for Governors, Chiefs and interested organizations such as NEA, AFT, NASBE, NASSP, etc.

Technical Advice and Consultation

Will be secured for the Work Groups, the Project Design Team, and a review of the final proposal. Technical advisors may be compensated.

Consortium TAC

A TAC for the proposal process will be secured. States will be encouraged to involve their state TACS in reviewing the work of the proposal process and the final proposal.

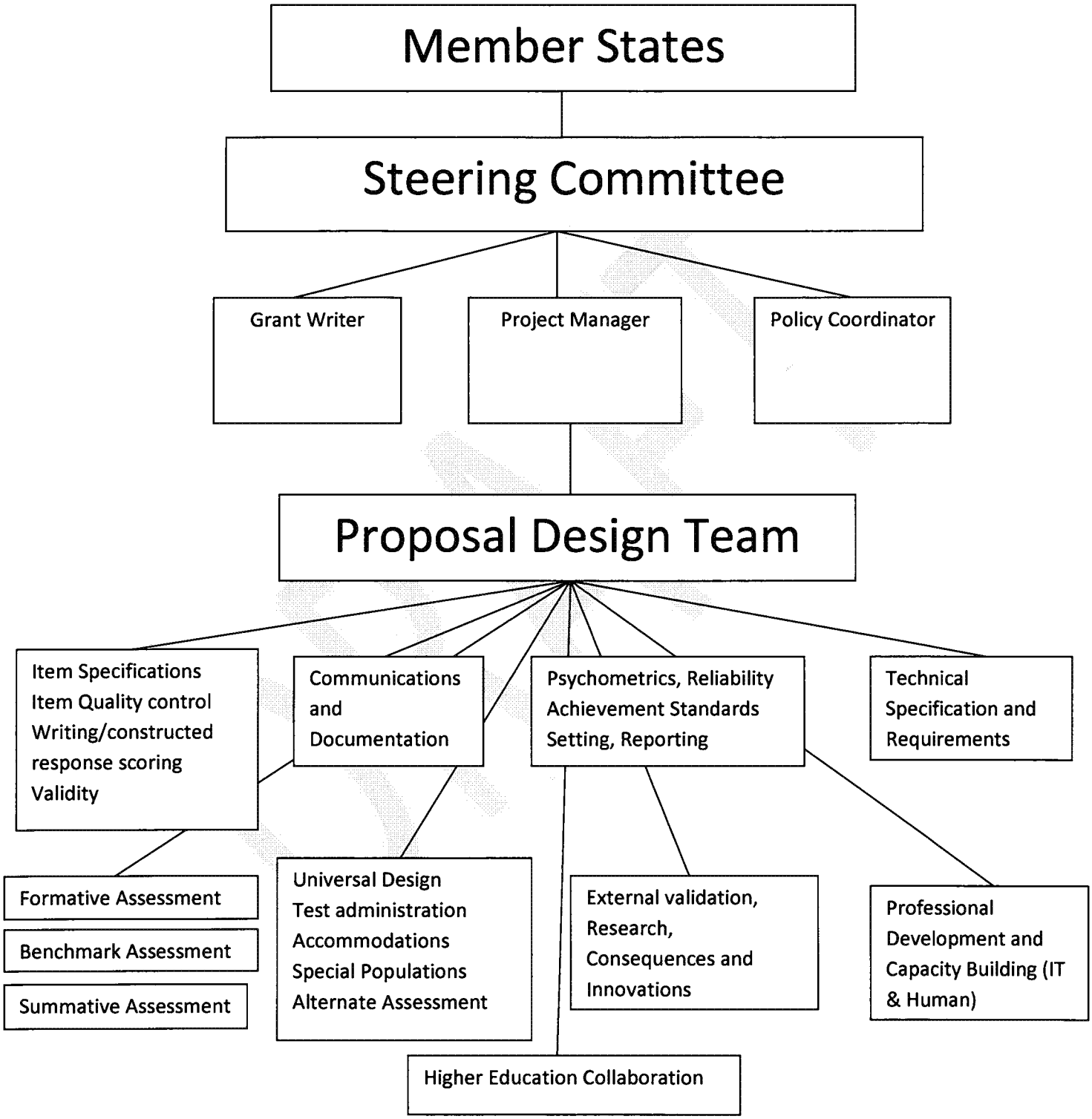
Advisory Groups

The consortium will create as needed various groups to advise the Steering Committee and the member states. Initial groups will include:

- Institutions of Higher Education
- Technical Advisory Committee
- Policy Advisory Committee

Note: Due to the short timelines for completing the consortium proposal, the current Coordinating Committee of Seven States (Oregon, Washington, Idaho, Utah, Nebraska, Wisconsin & Missouri) will select the Project Manager and Grant Writer.

DRAFT


Member States
Steering Committee
Grant Writer
Project Manager
Policy Coordinator
Proposal Design Team
Item Specifications
Item Quality control
Writing/constructed response scoring
Validity
Communications and Documentation
Psychometrics, Reliability
Achievement Standards Setting, Reporting
Technical Specification and Requirements
Formative Assessment
Benchmark Assessment
Summative Assessment
Universal Design
Test administration
Accommodations
Special Populations
Alternate Assessment
External validation, Research, Consequences and Innovations
Professional Development and Capacity Building (IT & Human)
Higher Education Collaboration

Smarter Balance Assessment Consortium
Document of Commitment

Please sign and return by April 15, 2010 to
Tony Alpert, Director of Assessment, Oregon Department of Education

Email as PDF attachment to: Tony.Alpert@ode.state.or.us , or
Fax: 503-378-5156

The Document of Commitment may be returned after April 15, allowing a state to begin to participate as a voting Member State from the date of commitment. Signature on this document indicates support of decisions made prior to Consortia receipt of this document.

Complete descriptions of the responsibilities and time commitments of various levels of consortium governance are provided in the Governance Structure document. This initial governance structure refers to the *proposal process only.* Governance structure will be revised after proposal acceptance to reflect long-term needs during the grant implementation period.

State Name: _____

Please indicate which governance levels are of interest to your state at this time.

- ☐ **Member State** – May also sign as member state for other consortia, may participate in setting general direction, may vote on selected issues.
- ☐ **Governing State** – May only sign with one consortia per competition category; has an active role in policy decisions, is committed to using the assessment system or program developed.

- ☐ Please consider my state for representation on the **steering committee**. (10 hr/wk)
- ☐ Please consider my state for representation on the **proposal design team** (20 hr/wk)
- ☐ We are interested in participating in the following **work groups** (variable hr/wk)
  - ☐ Item Specs/Quality Control, Writing/Constructed Response Scoring/Validity
  - ☐ Psychometrics, Reliability, Standard Setting, Reporting
  - ☐ Universal Design, Test Administration, Accommodations, Special Populations
  - ☐ Technical Specifications/Requirements
  - ☐ Communications and Documentation
  - ☐ External Validation, Research and Innovations
  - ☐ Professional Development and Capacity Building (IT and Human)
  - ☐ Formative and Benchmark Assessment
  - ☐ Performance-Based, Curriculum-Embedded Assessments
  - ☐ High School and Higher Education

_____ _____
Chief State School Officer Signature Date

Figure 1. Professional Pathways for Alabama Teachers

MASTER TEACHER

ROLE/SPHERE OF INFLUENCE: Professional Teacher who has some time allocated for work with peers (e.g., instructional coach, mentor, cooperating teacher, facilitator of adult learning) and/or for instruction of a larger number of students (e.g., distance learning instructor)
EDUCATION: Minimum Master's Degree in area of specialization and/or NBPTS certification
PROFESSIONAL LEARNING: Leadership role in team-based, job-embedded learning focused on improving student achievement; participation in continuous learning related to assigned role (e.g., mentor training)
IMPACT ON STUDENT AND EDUCATOR LEARNING: Documentation of impact on learning of one's own students & of adults whom one is coaching; maintenance of electronic record of *Evidence of Professional Accomplishments*

LEARNING DESIGNER

ROLE/SPHERE OF INFLUENCE: Professional Teacher who has time allocated to work in school- or district-wide design tasks (e.g., curriculum development, assessment & data analysis, school improvement, technology integration)
EDUCATION: Minimum Master's Degree in area of specialization and/or NBPTS certification
PROFESSIONAL LEARNING: Leadership role in team-based, job-embedded learning focused on improving student achievement; participation in continuous learning related to assigned role (e.g., curriculum design, change theory, assessment,)
IMPACT ON STUDENT AND EDUCATOR LEARNING: Documentation of impact on learning of one's own students & of students in classrooms of adults in one's sphere of influence; maintenance of electronic record of *Evidence of Professional Accomplishments*

Master Teacher Requirements:
Completion of (1) approved training in specialization area; (2) stipulated *Evidence of Professional Accomplishments (EPA)*; & (3) Review and approval of EPA by regional or state peer review panel.

PROFESSIONAL TEACHER

ROLE/SPHERE OF INFLUENCE: Full-time Classroom Teacher who assumes team and/or school-wide professional instructional responsibilities including, but not limited to, team leader, dept. chair, mentor
EDUCATION: Graduate of an approved teacher education program or state-endorsed alternative certification program; encouraged to pursue advanced degrees in content areas of teaching or related professional area (e.g., technology, teacher leadership)
PROFESSIONAL LEARNING: Continuous engagement in individual and team-based, job-embedded learning focused on improving student achievement
IMPACT ON STUDENT LEARNING: Documentation of impact of instructional strategies on student achievement; maintenance of electronic record of *Evidence of Professional Accomplishments.*

Learning Designer Requirements:
Completion of (1) approved training in specialization area; (2) stipulated *Evidence of Professional Accomplishments (EPA)*; and (3) Review and approval of EPA by regional or state peer review panel.

Classroom Teacher Requirements:
Graduation from state -approved teacher education program, or completion of state-endorsed alternative certification program; periodic assessment using Alabama Continuum for Teacher Development

CLASSROOM TEACHER

ROLE/SPHERE OF INFLUENCE: Full-time classroom teacher working in the context of a team (e.g., grade level or department)
EDUCATION: Graduate of an approved teacher education program or state-endorsed alternative certification program
PROFESSIONAL LEARNING: Ongoing job-embedded learning related to Alabama Quality Teaching Standards supported by colleagues and, if new to the profession, an assigned mentor; pursuit of individual and team professional learning goals based upon analysis of student data
IMPACT ON STUDENT LEARNING: Collection and analysis of student data related to impact of teaching strategies; reflection & modification of instruction based on such data

Professional Teacher Requirements:
Satisfactory completion of (1) *Evidence of Professional Accomplishments*; and (2) Recommendation of local peer review panel.

APPRENTICE TEACHER

ROLE/SPHERE OF INFLUENCE: **PROSPECTIVE** teacher or intern with classroom duties
EDUCATION: Enrollment in an approved teacher education program or state-endorsed alternative certification program
PROFESSIONAL LEARNING: Teaching under supervision of Master Teacher and/or university professor; participation in team-based learning
IMPACT ON STUDENT LEARNING: Learning to collect & analyze student data to assess impact of teaching strategies

THE TORCHBEARER CONSORTIUM

Andrea M. Kent, Director of Field Services
Phillip Feldman, Associate Dean for External Affairs
Richard L. Hayes, Dean

College of Education
University of South Alabama

May 20, 2009

The Torchbearer Consortium

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Preamble

During the past decade, educational progress in Alabama has arguably been the most progressive in the state's history. The implementation of the Alabama Reading Initiative and the Alabama Math, Science, and Technology Initiative has seen student achievement rise far above expected performance. The Alabama Teacher Mentor Program has focused support for first-year teachers and has stemmed the tide of teachers leaving the profession so prevalent across the nation. Teacher education has seen the development of alternative certification pathways to help bring new teachers into the profession in critical needs areas. The Torchbearer Schools recognition program has proven that quality education is attainable for children in high poverty/high needs schools. Differentiated professional pathways for career teachers have been designed and the Alabama Quality Teaching Standards have set a clear direction for the preparation of a new generation of teachers equipped to meet the demands of teaching in the 21st century.

Although much progress has been made, there has been no systematic integration of these exemplary programs despite the facts that each program deals with the same student population and shares the mutual goal of helping students achieve to their maximum potential. The *Torchbearer Consortium* proposes to prepare teachers in a unique practice-based teacher education program that aligns the efforts of Alabama's most successful educational reforms. No longer will these programs operate in isolation of one another. Rather, these model programs will be at the core of the preparation of Alabama's next generation of teachers guided by the experience of the best teachers in the best schools the state has to offer.

Abstract

The *Torchbearer Consortium* is a collaborative, practice-based teacher education partnership intended to strengthen the clinical components of pre-service teacher preparation at both the baccalaureate and graduate levels. The *Consortium* integrates existing partnerships among the University of South Alabama, the Mobile County Public School System, and the Alabama State Department of Education through its Alabama Math Science and Technology Initiative (AMSTI), Alabama Reading Initiative (ARI), and its Torchbearers School Recognition program. The *Consortium* was created to address the critical need to strengthen the clinical components of educator preparation, to ensure that preparation programs meet the needs of the P-12 school system, and that candidates are prepared to teach all students, including students with special needs, English-language learners, and students in high-need, low-income schools.

Teacher preparation candidates will participate in a practice-based teacher preparation program that provides a year-long residency in a high poverty yet high-achieving school. These *Torchbearer Schools* are among only seven high poverty schools to have been recognized by the Alabama State Department of Education for meeting or exceeding rigorous state standards in mathematics and reading by their students. One hundred fifty teacher candidates will complete the program at either the baccalaureate or master's level during the five year grant period.

The goals of the *Torchbearer Consortium* are: (1) to fundamentally revise and strengthen the University's pre-baccalaureate and graduate elementary teacher education residency programs

making candidates better prepared to meet the challenges in today's schools; (2) to provide a validated and replicable model for emulation by other teacher education programs; and, (3) to increase student learning in high need, hard to staff schools. The work of the *Consortium* is based on research-based best practices in both P-12 student achievement and teacher preparation. In addition to acquiring the knowledge necessary to provide effective instruction, teacher candidates will be expected to apply this knowledge "to increase student learning, convey academic subject matter, teach higher-order thinking and communication skills, communicate with parents, manage a classroom, and provide differentiated teaching to classrooms with diverse learning needs."

Under the supervision of clinical faculty members, two mixed cohorts of 15 candidates, each consisting of both graduates and undergraduates, will engage in an intensive year-long residency in the six high poverty *Torchbearer* elementary schools in the Mobile County Public School System. The residency is designed to help teachers-in-training apply their classroom learning as they develop the skills and dispositions necessary to succeed in high need 21st century schools.

***Torchbearer* residents work with our best teachers in schools that have proven to be effective places to teach and to learn in spite of high risk demographics.**

These *Torchbearer* residents will learn through an intensive year-long field experience in a high achieving, high need school under the supervision of teacher-mentors who have proven their effectiveness in providing a positive learning environments for all children. By working in the schools approximately 30 hours per week, residents will provide more than 33,000 hours of instruction in reading, mathematics, and other curricular areas for more than 900 children across Mobile County during each academic year.

The *Consortium* makes extensive use of new and emerging technologies in that residents will use interactive video conferencing (IVC) to attend University courses while in the schools and learn to use laptop computers with public school students to enhance the delivery of instruction in the classroom.

The *Consortium* exemplifies how true collaborative relationships benefit all partners. Recognizing the need to provide more comprehensive clinical field experiences, the College of Education will revise its clinical methods coursework to include over 30 hours each week of in-school experiences for senior teacher education candidates and for graduate candidates who are seeking alternative certification at the master's level. This revision will greatly expand the 15 hours per week of clinical experience offered in the traditional undergraduate program, and 10 hours per week in the alternative certification program.

In addition to meeting the high *Quality Teaching Standards* set by the Alabama State Department of Education, course requirements will be aligned with the priorities of the *Torchbearer Schools* to maximize the rich opportunities that extensive clinical experiences offer to candidates. University faculty members will participate as both leaders as well as collaborators in training alongside residents through professional development activities in programs such as the Alabama Reading Initiative, the Alabama Math, Science, and Technology Initiative, Talents

Unlimited Training, and other joint clinical field experience seminars with public school mentor teachers. Collaboration among University faculty and public school partners will sharpen the focus on the needs of P-12 schools while maintaining a solid academic foundation. Graduates will be prepared using principles of universal design for learning to work effectively with the broad range of students in these schools, especially English-language learners and students with special needs.

Project Description

The *Torchbearer Consortium* supports an innovative teacher education program that prepares teachers to be successful in hard to staff, high need schools. The *Consortium* uses extensive *mentoring* of teachers-in-training *in the classroom* by P-12 teachers and clinical faculty members who have effective in promoting high levels of learning by students enrolled in these schools.

Recently, the National Education Association (NEA) predicted that more than one million veteran teachers are nearing retirement while the number of students enrolled continues to rise. Thus, experts expect that the United States will need more than 2 million new teachers to fill these positions within the next decade (NEA, 2008). Statistics regarding the present state of our nation's educators are startling. "Some 20 percent of all new hires leave the classroom within three years. In urban districts, the numbers are worse—close to 50 percent of newcomers flee the profession during their first five years of teaching (NEA, 2008)." Though there may be many reasons for teacher attrition and mobility, results from a recent survey conducted by the National Center for Educational Statistics (NCES) seem to suggest that an exceedingly high percentage of teachers who abandoned their careers as teachers may have entered the teaching profession under-prepared, overwhelmed, and under-supported, resulting in frustrated teachers who became burned out after only a few years of teaching.

During the 2003-2004 school year, the NCES conducted the Teacher Follow-Up Survey (TFS) as part of a continued effort to monitor the attrition and mobility rates of all the participants of the previous year's Schools and Staffing Survey (SASS). Results indicated that out of 314,900 teachers surveyed, 16 percent of public school teachers and 19 percent of private school teachers had either left the teaching profession entirely, or had begun employment at a different school (Marvel, Lyter, Petola, Stitzek, & Morton, 2006). Other research has suggested that many teachers leave the profession due to increasing teacher workloads and the growing demands placed upon teachers to improve student achievement and performance regardless of each school's and each student's unique circumstances (Haberman, 2005). Of the professionals who abandoned their teaching careers to pursue other occupations, the NCES survey indicated that 65 percent of former public school teachers and 51percent of former private school teachers report that their workload in their new positions seems more manageable than in teaching (Marvel, Lyter, Petola, Stitzek, & Morton, 2006). Additional surveys report that between 20 and 55 percent of all former teachers felt that the general work conditions, the availability of resources, materials, and equipment, and the support from colleagues, administration, and/or management are better in their current employment positions when compared to their former careers as educators. Fifty-seven percent of former public school teachers and 28 percent of former private school teachers reported feeling a greater sense of accomplishment in their new places of employment also. Still, the most alarming results indicate that 26 percent of former public school

teachers and 20 percent of former private school teachers now working outside the field of education believe their opportunity to make a difference in the lives of others *increased* upon changing professions (Marvel, Lyter, Petola, Stitzek, & Morton, 2006).

Due to the growing level of dissatisfaction among teachers, and the ever increasing trend of teacher attrition, many districts are faced with a teacher shortage at all levels, especially in schools identified as hard to staff (Nelson, 2004). If action is not taken to alleviate this growing problem, continued dissatisfaction will only increase teacher attrition, thus exacerbating the problem and inadvertently creating a cycle that is likely to continue threatening the framework of America's education system.

As this trend continues, it is imperative that quality instruction for future teachers be placed at the center of our nation's reform efforts in order to combat this problem. At present, many teacher preparation programs emphasize the latest theories behind education, leadership, and instruction at the expense of engaging in the real world experience of active participation in teaching and learning with children. Rather than engaging future teachers in the vital hands-on field experience necessary for integrating theory and practice, teacher preparation programs across the United States too often limit their students by providing only a replica of the activities that typically occur in today's classrooms and schools. Thus, one likely cause of teacher attrition may be limited instructional experiences at the University level, which have produced under-prepared novice teachers.

Teacher education programs must graduate teachers who are prepared to meet the challenges of educating today's students. In addition to being expected to master the content knowledge of their disciplines, teacher education candidates should be provided with a comprehensive induction program that uses the real world of public schools to provide hands-on field experience to observe and to practice proven methods for meeting the needs of all students, including those who are behaviorally or academically challenging. Providing committed university candidates with intensive mentoring by exemplary mentor teachers and actively engaged university supervisors has already been shown to graduate novice teachers who are better prepared to enter the classroom (Kent, Feldman, & Hayes, 2009). Also, it is likely that candidates who received training with the committed support of their college and district administration will remain committed to providing consistent, quality education and instruction on a long-term basis.

Mentoring and Responsibility

Teacher mentoring programs have been in existence for approximately 50 years, with more than half the country now requiring mentoring for novice teachers (NEA). However, according to the Council for Exceptional Children, many past mentor programs have failed after having been implemented too quickly, with mentors having no standards for modeling appropriate practices and no plans for evaluating student performance. These programs were also plagued with unrealistic or unreasonable expectations of both mentor teachers and new teachers (White & Mason, 2003). Thus, history suggests that mentor teacher programs have not yet proven themselves for increasing teacher success rates consistently. In a written summary of the Teacher Mentoring Symposium sponsored by the National Foundation for the Improvement of Education, an NEA Alaskan affiliate noted that that the purpose of mentoring was to help new teachers

"translate their academic knowledge into meaningful instruction", and therefore, "If a teacher doesn't have a grasp of the content area . . . , there is no way a mentor will overcome that shortfall." Thus, it is clear that a rigorous university course of study and training is a critical factor in the success of teacher mentor programs.

The NEA has suggested that, if mentor programs are to be effective, they must combine the best aspects of teaching strategies from both the past and the present. Mentor teachers must understand and be able to relate important long-term professional goals to novice teachers, including helping new teachers to uncover the ways in which students think and aiding in the development of students' sound reasoning skills (Feiman-Nemser & Parker, 1993). In a recent study, Giebelhaus and Bowman (2002) suggested that mentor teachers who receive specific training before working as advisors to novice teachers may have a greater impact on their growth and development when compared to mentors who received no formal training. Also, several reports have indicated that highly qualified mentors are associated with an increase in student achievement, improved student behavior, and greater teacher enthusiasm (Council for Exceptional Children, 2003).

It is the responsibility of the mentoring program to provide knowledgeable mentors who will engage prospective teachers in the clinical supervision of their practice and to provide future teachers with the content knowledge necessary for teaching the subjects required in schools today. However, most programs currently offered by colleges of education lack the authority needed to ensure their full implementation because the clinical experiences need to integrate theory and practice are determined largely by the public schools. Therefore, school districts must be engaged as active partners in the preparation of teachers by sharing the responsibility for creating a training environment that promotes student achievement while decreasing teacher attrition and increasing teachers' long-term job satisfaction.

Far too few mentor teacher programs have accepted the challenge to integrate curricular demands by university instructors and supervisors with the situational demands of participating school's administration and classroom teachers for the specific purposes of improving teacher retention and reducing teacher mobility within urban school districts. Specifically, one of the primary purposes of the *Consortium* is to improve teacher retention through an active mentoring program that enriches students' training experiences in the field during student teaching and inducts newly-prepared teachers into the profession.

The University of South Alabama's teacher preparation program has a long history of providing mentoring as part of inducting new teachers into the profession. USA's "No Child Left Behind" partnership with the Mobile County Public School System began in 2004. Following the success of that program, USA and MCPSS initiated the Mobile Mentor Teacher program. Most recently, the Principal Investigators of the *Torchbearer Consortium* have worked with the State Department of Education to implement the Alabama Mentor Teacher Program for the seven school districts in southwest Alabama. The literature and our experience suggest that candidates who have completed a rigorous teacher preparation program that includes intensive supervised clinical field experiences followed by systematic and responsive mentoring will elect to remain in an academically challenging, high risk school for the next academic year and for many years thereafter (Darling-Hammond & Wood, 2008; Kent, Feldman, & Hayes, 2009).

Excellent Teachers for All Students

It is well documented that African American students on average score lower than their White counterparts on standardized tests and that African American students are disproportionately placed in special education. These two problems are major challenges that must be addressed by teachers, administrators, and African American families (Johnson & Carter, 2007). Many African American students are participating in an educational system that is failing them. The data indicate that this failure begins in the elementary grades and by the time African American students enter the fourth grade an achievement gap between them and their White counterparts already exists (Education Trust, 2009).

57% of African American children in the fourth grade in Alabama cannot read at grade level

The National Assessment of Educational Progress (NAEP), a standard test taken by a sample of students in every state, reported that nationally only 32% of fourth grade African American students scored at the basic level and 12% scored at the proficient level in the area of reading (Johnson & Carter, 2007). Those numbers combine to a pass rate of around 44%. These figures mean that 56% of fourth grade African American children nationally cannot read at grade level. Even worse, African American children in the fourth grade in Alabama faired worse on the national test because their pass rate is below that of African Americans nationally. In Alabama, only 30% of fourth grade African American students scored at the basic level and 13% scored at the proficient or advanced level. These numbers combine to a total passing rate of 43%, meaning that 57% of African American children in the fourth grade in Alabama cannot read at grade level. In comparison, their White counterparts in Alabama had a combined pass rate of 73% with 34% passing at the basic level and 39% passing at the proficient or advance level (NAEP, 2007).

Table 1. Fourth grade National Assessment of Educational Progress (NAEP) reading scores, 2007

Group	Below Basic	Basic Score	Proficient Score	Advanced Score	Pass Rate
African American – National	54%	32%	12%	2%	46%
African American – Alabama	57%	30%	11%	2%	43%
White – Alabama	27%	34%	30%	9%	73%

In Alabama, the results on the mathematics portion of the NAEP test are not as horrific as in reading, however, the numbers indicate that much work still needs to be done. According to the test results, 40% of African American students in the fourth grade passed at the basic level and 9% passed at the proficient or advanced level (NAEP, 2005). These numbers indicate that 50% of fourth grade African American students in Alabama cannot do math at grade level. In comparison, 47% and 32% of their White counterparts scored at the basic and proficient level respectively (NAEP, 2007). The same patterns of low achievement in both reading and math

exist in middle and in high school for African American students. These results indicate that there a significant gap still exists between White and non-White students, and between high poverty and non-poverty students.

Table 2. Fourth grade National Assessment of Educational Progress (NAEP) math scores, 2007

Group	Below Basic	Basic Score	Proficient Score	Advanced Score	Pass Rate
African American – National	36%	49%	14%	1%	64%
African American – Alabama	50%	40%	9%	1%	50%
White – Alabama	17%	47%	32%	4%	80%

As is shown in the fourth grade science comparison, African American children in Alabama fared no better in science in 2005 than they did in mathematics or reading. In actuality, African American children in Alabama were seven percentage points behind the national average for fourth grade and 35 percentage points below the national average.

Table 3. Fourth grade National Assessment of Educational Progress (NAEP) science scores, 2005

Group	Basic Score	Proficient Score	Pass Rate	Fail Rate
African American – Alabama	27%	4%	31%	69%
White – Alabama	45%	32[1]%	77%	23%

Definitions

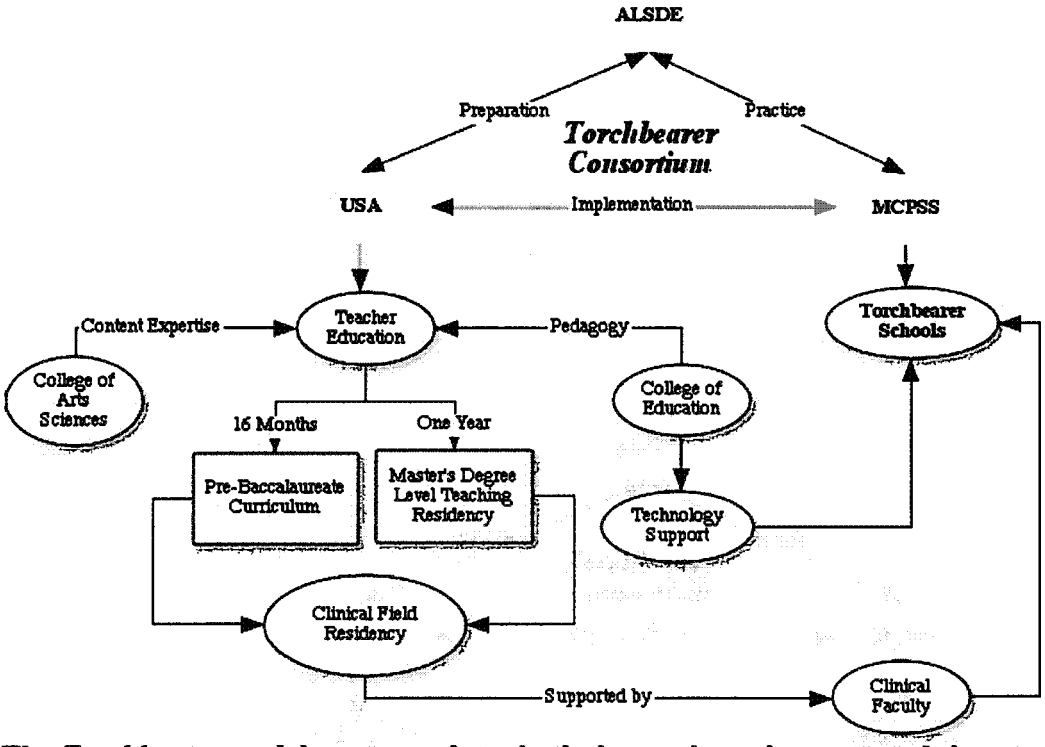
The Torchbearer Model

Taking the constructivist notion that what one knows is the consequence of how one comes to know it, we believe that learning to teach must be embedded in the real world of public schools. For far too many first-year teachers, the "right of passage" includes placing novice teachers in poorly-equipped schools to supplement the poor performance of ineffective teachers, especially when working with poor and minority children. As an alternative, we believe that placing pre-service and novice teachers alongside effective veterans who will mentor them in best practices for educating poor and minority children, will provide a lasting testimony to what is an can be done to be successful with these" children. To this end, the *Consortium* has resulted from a deliberate attempt to align rigorous academic preparation at the University with high expectations as defined by the Quality Teaching Standards of the Alabama State Department of Education with the embedded practices of highly effective teachers working with poor and minority children in high needs schools.

[1] This score represents 29% Proficient and 3% Advanced.

The *Torchbearer Consortium* model recognizes the multiple levels of collaboration that are required for the effective preparation of teachers. A basic tenet of the *Torchbearer* philosophy is that the preparation of new teachers cannot be solely the responsibility of a college of education or even the sole responsibility of a university. Nor do we believe that the induction of teachers should be the responsibility solely of the school administrators, sympathetic colleagues, or the students themselves. Effective preparation of teachers should be a collaborative effort between all of the academic units in an institution of higher education and its P-12 partners. An effective preparatory experience must include content expertise and instruction in pedagogy that leads to the clinical practice provided by a strong partnership with local school districts, extending into the first few years of employment.

Figure 1. Torchbearer Consortium Overview



The *Torchbearer* model accommodates both the pre-baccalaureate and the master's degree teaching residency programs (often referred to as the alternative certification program.) In both programs, teacher education candidates complete university coursework in anticipation of the clinical field residency followed by a period of mentored induction.

Torchbearer Schools

The *Torchbearer Schools Program* was created by the Alabama State Department of Education to recognize high-poverty, high-performing public schools in Alabama. To be eligible, the Torchbearer School must make Adequate Yearly Progress (AYP) for two consecutive years and meet additional criteria, including at least 80% poverty rate; at least 80% of students scoring at Level III or Level IV on the reading section of the *Alabama Reading and Mathematics Test,* and

at least 80% of students scoring at Level III or Level IV on the mathematics section of the *Alabama Reading and Mathematics Test,* among other criteria.

For 2008, only seven schools throughout the state received this recognition, six of which are located in the Mobile County Public School District:

Anna F. Booth Elementary	George Hall Elementary	Calcedeaver Elementary
Indian Spring Elementary	Holloway Elementary	Saint Elmo Elementary

Clinical Faculty
The sole responsibility of the clinical faculty members is to mentor, monitor, and model best practices for the residents' clinical field experience in the *Torchbearer* schools. Clinical faculty members hold appointments Adjunct Instructors at the University. The clinical faculty member, as agreed upon by the unit and the program area, serves as the liaison between the classroom and the University.

Mentor Teacher
Mentor teachers are employees of the school district who supervise residents. They are accomplished school professionals who are properly certified at the Class A level for their present assignment, have at least three years of educational experience in their field of specialization, and are currently teaching classes in the resident's area(s) of specialization. Mentor teachers must complete a two-day orientation taught by *Torchbearer* staff on effective mentoring practices in education. In addition, recognizing the unique contribution that mentor teachers bring to the teacher preparation program, they must agree to co-teach courses with clinical faculty and University faculty members during the intensive year-long residency.

Resident
Residents are teacher education candidates seeking certification in elementary education. Residents may also be referred to as teachers-in-training. Residents have completed all requirements for admission to the teacher education program and are completing a 9-month supervised clinical field experience in a high needs school. Graduate residents will be paid a living stipend/salary and in return agree to serve as a full-time teacher in a high-need school in the MCPSS for at least three academic years after completing the residency program. Undergraduate residents will be paid a stipend equivalent to the per diem for substitute teachers and in return agree to serve as a full-time teacher in a high-need school in the MCPSS for at least one academic year after completing the residency program

University Faculty
University faculty members are full-time employees of the University, and hold faculty rank as either tenure track or clinical faculty in their respective colleges.

A Practice-Based Preparation Program

The essential elements of the practice-based teacher education program... are: (a) the acquisition of a body of knowledge that (b) enables the gradual release of responsibility for an extended period of time under (c) the supervision of a mentor teacher with (d) the support structures necessary for success.

Just as Dewey argued that "education is not preparation for life, it is life itself," the *Torchbearer* model recognizes that all components of teacher education must be essential and immediate. The acquisition of content is not less important than the mastery of teaching techniques. Both are required for effective practice, but teacher education candidates must acquire both the content of pedagogy and develop mastery of teaching techniques in an authentic context (i.e, in a classroom). Thus, teacher educators must engage candidates in field experiences throughout their preparation to link content recently learned with pedagogical theory that emerges from a self-reflective practice embedded in encounters with students in the real world of effective schools.

New teachers must master a variety of cultural as well as content issues to become career educators. They must respond in a variety of settings to school administrators, their colleagues, their students, and to parents. The skills required to respond appropriately to the vast array of interpersonal, pedagogical, organizational, and psychological challenges that teachers face daily are best learned in the actual environment under the tutelage of a successful professional. True self-confidence comes from successful experiences.

Torchbearer residents will have more experience than is typically attained through completion of a traditional student teaching experience only. Residents will have a richer set of experiences, over a longer period of time, and with a deeper understanding of teaching practices, school district policies, and classroom procedures that simply cannot be experienced in a traditional teacher preparation program.

The essential elements of the practice-based teacher education program, whether at the pre-baccalaureate or graduate level, are: (a) the acquisition of a body of knowledge that (b) enables the gradual release of responsibility for an extended period of time under (c) the supervision of a mentor teacher with (d) the intensive support structures necessary for success (e) along a pathway of increasing opportunity, expertise, and responsibility over a career as a professional educator.

Essential Elements

The acquisition of a body of knowledge

One of the most exciting instructional programs in which residents will participate is the Alabama Math Science and Technology Initiative (AMSTI). Residents will learn from one of the most successful math science and technology education program in the nation, a $40M annual state initiative that has trained over 13,000 teachers in inquiry based instruction and investigations. This inquiry-based program emphasizes students' critical and creative thinking skills within the context of the math and science curricula. The project-based nature of AMSTI instruction provides an authentic context and structure for residents as they facilitate students' learning of these high-level processes to academic content. In addition, learning to teach through

this approach helps the residents learn effective classroom management strategies, an often-cited need for novice teachers.

In addition to AMSTI, the Alabama Reading Initiative (ARI) has gained national prominence for the impact that this reading curriculum has had in achieving student gains. ARI emphasizes that classroom reading instruction must include phonics, phonemic awareness, vocabulary, fluency, and comprehension tailored to the needs of students, based on student data. Last year, for example, Alabama fourth-grade students achieved the greatest gain score in the nation in reading. Residents will learn about the ARI approach at the University and will provide ARI direct instruction with children in the P-12 classroom. Again, the *Torchbearer* approach links University training with classroom practice.

The partnership that supports AMSTI and ARI is comprised of the Alabama State Department of Education, the University of South Alabama, the Mobile County Public School System, and the South Alabama Research and Inservice Center. This standards-based mathematics and science program relies heavily on intensive professional development for teachers. Residents and their mentor teachers engage in cross-curriculum studies that include social studies, art, reading and language arts.

Gradual release of responsibility for an extended period of time
In an era of accountability based on student performance, time on task and keeping pace with the curriculum must be balanced with meeting individual student's learning needs. The pressure to be more accountable has influenced experienced teachers and school administrators to concentrate more on passing high stakes tests at the expense of providing valuable classroom instructional time for teachers-in-training to practice their emerging skills, especially during the spring semester when annual assessments are administered. However, the practice-based teacher preparation program pairs a resident with a mentor teacher for an entire academic year. This prolonged internship has several benefits.

The longer that the residents are in the classroom, the more capable they are of adding value to the educational effort. Teachers and administrators come to view residents as welcomed assets in the classroom.

Residents themselves will have much more time in the public school classroom to learn about effective teaching methods than will their traditionally trained colleagues. As members of a learning community, graduates of the *Torchbearer* program will be more effective in the classroom, have a more positive impact on student achievement, and will be more likely to become career teachers.

Supervision of a mentor teacher
Mentor teachers will provide direct instructional supervision for residents in the classroom. These mentor teachers will be selected based on their professional credentials and their ability to work effectively with their colleagues and teacher education candidates. Mentor teachers will also be provided with intensive training to assist them in working effectively with residents in the classroom.

In collaboration with University clinical supervisors and faculty members assigned to teaching methods courses, the mentor teacher will facilitate instructional opportunities in the classroom that are aligned with the *Alabama Quality Teaching Standards*. Working in this way, University and *Torchbearer School* personnel will jointly plan University coursework to reflect instructional strategies used in the schools and to ensure that the school classroom climate complements University coursework while enhancing student achievement.

Support structures necessary for success

The *Torchbearer Consortium* provides an over-arching support structure for teacher preparation and induction into the profession. By aligning the University's teacher preparation program with the best practices of *Torchbearer Schools* in meeting the *Alabama Quality Teaching Standards*, the *Consortium* provides a learning community for ensuring that graduates are prepared to bring all children to high levels of academic achievement. In particular, embedding teacher preparation in a learning community committed to meeting the needs of poor and minority children in high needs schools, provides a rich clinical laboratory for the preparation of teachers who know and are able to use empirically based practices to teach and assess student learning, who are prepared in and can implement research-based state instructional initiatives (e.g., AMSTI, ARI), and who can provide differentiated instruction to meet the needs of all learners. Critical to realizing these ends are the core concepts of providing rigorous content knowledge and pedagogy grounded in intensive clinical field experiences supported by ongoing mentoring by master teachers, and the effective use of technology for instruction and ongoing assessment.

The *Torchbearer* model rests upon the core understanding that "education is an academically taught clinical practice profession" (Carnegie, 2001, p. 12). Utilizing a practice-based preparation philosophy of curriculum design and development, University coursework will focus on supporting the clinical field experiences of the residents in the schools. Toward that end, University classes will be taught on site at a *Torchbearer s*chool rather than in the University classroom.

Working under the guidance of exemplary mentor teachers, the *Torchbearer* residents help to enrich the classroom in many ways. For example, each resident will be provided a laptop computer to integrate technology in the classroom. The residents will use these computers to introduce their students to a broad spectrum of inquiry-based learning, rich internet-based resources such as wikis and blogs, and integrated video and audio presentations. In addition, both the residents and their mentor teachers will be provided with an on-site technology support technician as they explore new ways to make learning more exciting and more effective through the use of technology.

In addition to the direct supervision provided by the mentor teacher, residents will be part of a learning community in the school led by the school's clinical faculty member.

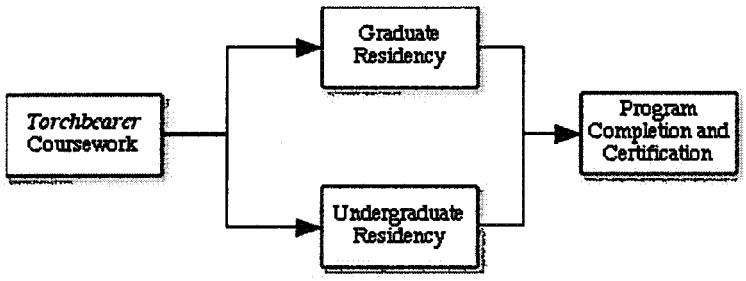
Clinical faculty members will serve as day-to-day liaisons for the residents. These clinical faculty members may be selected from the ranks of master classroom teachers, principals in training, or other professional educators. These key personnel will act as instructional leaders as they guide the efforts of the residents, cooperating teachers, and the University faculty in the alignment of University coursework and school-based practices. That is, the clinical faculty help

create in the schools the authentic context to support the teacher education program taught at the University. In addition, *Torchbearer* residents will have the benefit of school literacy coaches, media center specialists, and the school principal.

The Torchbearer Curriculum

The *Torchbearer* curriculum is a practice-based preparatory curriculum that supports both pre-baccalaureate teacher education and intensive graduate residency programs. The revisions to both the graduate and the undergraduate programs reflect increased attention to the importance of clinical field experiences and the tight integration of these experiences into the required academic coursework.

"The most promising strategy for sustained, substantial school improvement is developing the ability of school personnel to function as professional learning communities" (DuFour & Eaker, 1998, p. xi).



In particular, the *Torchbearer* curriculum focuses on helping new teachers learn how to:

1. Use evidence-based practices to increase student learning, achievement, and ability to apply knowledge.
2. Provide differentiated instruction that is specific to the academic subject matter yet focused on meeting the specific needs of each learner.
3. Examine and use classroom-level achievement data to prioritize student learning goals and develop individualized student-based lesson plans.
4. Conduct ongoing data collection and analysis of student learning using multiple formats and observations to measure student progress toward individual goals, identify areas for professional development, and address weaknesses in the school district's curricula.
5. Effectively explain academic subject matter while teaching higher-order analytical, evaluation, problem-solving, and communication skills.
6. Use assessment data to help develop and analyze curriculum alignment to ensure that all standards are adequately addressed in the students' learning plans.
7. Create a classroom climate of high expectations that supports academic achievement for all students.
8. Communicate and work in collaboration with parents as educational partners.

The Torchbearer Pre-Baccalaureate Curriculum

The *Torchbearer* pre-baccalaureate curriculum begins the summer semester before the resident's senior year and continues through the subsequent fall and spring semesters until graduation in

May. The following table also shows the spring semester coursework to be completed prior to the summer semester. Starting in the fall semester, *Torchbearer* undergraduate residents will receive a $10,904 stipend. This amount is calculated at 50% of the cost of a substitute teacher times 187 days in a school year.

Table 4. Undergraduate courses and residency

Spring (15 sem hrs)	**Summer** (9 sem hrs)	**Fall** (15 sem hrs)	**Spring** (12 sem hrs)
Reading Methods I	Learning Theory and Exceptional Children	Reading Methods II	Internship
Language Arts Methods	Evaluation of Teaching & Learning	Clinical Field Experiences	Classroom Management
Literature for Children		Teaching Social Studies	
Elementary Early Childhood and Exceptional Children Curriculum	AMSTI Institute – Math	Teaching Math	
	AMSTI Institute – Science	Teaching Science	

NOTE: During the spring semester, candidates will be recruited for the *Torchbearer* program. Spring semester teacher education candidates, although not enrolled in the *Torchbearer* program must complete the methods courses required for Alabama state certification.

The pre-baccalaureate instructional schedule allows undergraduate candidates to complete their academic preparation and clinical residency in four academic semesters. Prerequisite coursework for the *Torchbearer* residency begins for undergraduate candidates in the spring semester and continues through the summer. During this time, undergraduate candidates will be made aware of the *Torchbearer* program and encouraged to apply for admission. During the fall semester each year, a new cohort of *Torchbearer* residents will begin their work in the schools.

The Torchbearer Graduate Residency Curriculum

The *Torchbearer* graduate residency program can be completed in one calendar year. Graduate candidates will receive a $27,000 stipend to reduce the burden of attending graduate school on a full-time basis and working in the school during their residency.

Table 5. Graduate courses and residency schedule

Summer (12 sem hrs)	**Fall** (15 sem hrs)	**Spring I** (9 sem hrs)	**Spring II** (6 sem hrs)
Multicultural Education	Principals of Learning	Internship	Elementary School Curriculum

Summer (12 sem hrs)	**Fall** (15 sem hrs)	**Spring I** (9 sem hrs)	**Spring II** (6 sem hrs)
Teaching Science	Language Development	Classroom Management	Technology and Media
Teaching Math	Teaching Reading		
Assessment and Research	Instructional Planning		
	Practicum		

Graduate candidates begin their coursework in the summer semester. In the subsequent fall and spring semesters, they are engaged in a full-time residency in the schools where they work alongside a mentor teacher who is teacher of record in a P-12 classroom while completing coursework to meet the requirements of the academic degree. Grouped as cohorts for both school residencies and academic coursework, *Torchbearer* graduate residents will form a mutually supportive learning community that will culminate in a master's degree and certification in a 12-month period.

The Torchbearer Instructional Support System

The *Torchbearer* curriculum retains many of the features of traditional teacher education programs (e.g., face-to-face instruction, routine classroom visits to observe candidates in clinical settings, and individual and group supervision with candidates to review their progress). The emphasis upon practice-based preparation and the reality that candidates spend 30 hours per week working in schools demands that the school operate as a clinical site for teacher preparation. Toward this end, preparation requires taking the instruction to the school rather than bringing the *Torchbearer* residents to the University for their classes. The desire to share experiences among mentor teachers, university faculty, and residents and the reality that practice takes place at multiple sites demands an alternative delivery system for supporting ongoing collaboration.

Interactive video conferencing (IVC) technology will be used to support the delivery of University coursework, case conferences, expert demonstrations, consultation and the like to the Torchbearer residents during the school day. During the fall and spring semesters, for example, professors will teach each required University methods classes on site in one of the six Torchbearer schools on a rotating basis.

Table 6. Sample fall semester IVC schedule

Monday (IVC)	Tuesday (IVC)	Wednesday (IVC)	Thursday (IVC)	Friday (Campus)
Reading Methods II	Teaching Math	Teaching Science	Teaching Social Studies	Clinical Field Experiences Seminar

Each of the schools will be equipped with Internet-based Interactive Video Conference (IVC) systems so that the teachers-in-training at these schools can attend their class sessions taught by University professors while still in the *Torchbearer* schools. Thus, when a professor teaches a class session to a group of *Torchbearer* residents at school site #1, for example, the *Torchbearer* residents at that other five sites will participate in the class session via IVC.

During the semester, the professors will work each week at one of the six *Torchbearer* school sites and deliver equal numbers of *live* class sessions at each site. Each week during the semester, a different *Torchbearer* school will host the IVC session so that all of the residents have the opportunity to attend both *live* as well as *virtual* IVC class sessions. During the scheduled class times, the University professor will meet with the *Torchbearer* residents on site in a *Torchbearer* school and deliver the class lecture to the residents in that school and to the residents in the other five *Torchbearer* schools via IVC technology.

Table 7. Sample interactive video conference instruction schedule

During week:	Instruction emanates from:
One, Four, Seven, Ten, Thirteen	School 1
Two, Five, Eight, Eleven, Fourteen	School 2
Three, Six, Nine, Twelve, Fifteens	School 3

An additional benefit of providing IVC technology in each *Torchbearer* school will be the opportunity to enable all of the residents to conduct *virtual visits* to the classrooms of exemplary teachers throughout the program to observe the *best practices* in each subject area. The use of IVC technology will create a virtual learning community among the six schools that will enable the *Torchbearer* residents to observe effective instruction as part of their academic program, engage in peer supervision, and support ongoing collaboration across sites.

The use of Interactive Video Conference technology to deliver instruction on site at each of the *Torchbearer* schools maximizes the amount of time that residents work in the school by reducing or even eliminating travel time between the schools and between the schools and the University. Also, the use of IVC technology provides teachers in training an opportunity to learn in a much more authentic setting, their own schools. The Principal Investigators have extensive experience in the delivery of field-based coursework and in the use of interactive video conference (IVC) technology.

Mentor Training for Cooperating Teachers

Mentoring matters. Well-planned, comprehensive mentoring programs increase the instructional effectiveness of new teachers (Darling-Hammond & Wood, 2008). While virtually all teacher education programs require some sort of clinical residency, relatively few programs provide the mentor teacher (cooperating teacher) with the skill set necessary to be an effective mentor to help induct new teachers into the profession.

The *Torchbearer Consortium* recognizes the essential role of the mentor teacher and will engage the mentor teacher in a comprehensive program designed to help mentor teachers become more effective as they work with residents in their classrooms. The Principal Investigators for the *Torchbearer* program have worked with the Alabama State Department of Education for two years to refine, deliver, and implement mentor training across the state. As a result, the *Torchbearer* program is uniquely positioned to incorporate this mentor training into the teacher education program and to validate a strategy of mentor training that will serve as a model for other teacher education programs.

The mentor training is organized around five *Quality Teaching Standards*:

- Content Knowledge
- Literacy
- Professionalism
- Teaching and Learning
- Diversity

Content Knowledge. Teachers have deep knowledge of the academic discipline they are teaching, facilitate students' understanding of the subject, and know the state standards and district curriculum for subjects taught. In this module, mentor teachers will review the importance of an understanding of the content of the academic disciplines and curriculum and how to impart this understanding to the new teachers-in-training

Teaching and Learning. In a classroom environment conducive to learning, teachers use "best practice" instructional and assessment strategies appropriate to the students. The teaching and learning standard will complement the foundational and methods coursework at the University. Mentor teachers will provide an authentic context for Torchbearer residents to view human development, classroom organization and management, effective learning environments, and a variety of instructional strategies and assessment techniques.

Literacy. Teachers model and teach effective oral and written communication, integrating basic reading, math and technology as appropriate. The literacy standard embraces more than the traditional view of literacy. When working with the literacy standard mentor teachers will emphasize oral and written communication, reading, mathematics, and the use of technology to enrich the learning experience.

Diversity. Teachers differentiate instruction in ways that exhibit a deep understanding of cultural, ethnic, and social backgrounds; second language learning; special needs; and learning styles. An increased emphasis on understanding that diversity issues impact a much broader set of issues than only race and gender. In the high poverty high-achieving Torchbearer residents will work with their mentor teachers to explore cultural, ethnic and social diversity, language diversity, special needs, and various learning styles.

Professionalism. Teachers engage in continuous learning and self-improvement through collaboration with colleagues. Professionalism is the final component of the mentor training. In this training, mentor teachers will learn how to inculcate the principles collaboration, continuous lifelong professional learning, school improvement, and ethics into the value system of the teachers-in-training.

Post-Employment Mentoring
Upon successful completion of all requirements, graduates are committed to accept employment by the MCPSS to teach in high need schools. The *Torchbearer Consortium* will work with the high need school during the induction phase of the new teacher into the profession to ensure that each *Torchbearer* graduate will have a highly trained assigned mentor in the high need school. Working with the Alabama Mentor Teacher Program, the *Consortium* will provide training for post-employment mentor teachers and monitor the progress of the *Torchbearer* graduate. The importance of post-employment mentoring is considered critical to the success of the *Torchbearer* program and is addressed in the Evaluation section of the proposal.

Management Plan
The management of the *Torchbearer Consortium* will be the primary responsibility of three Principal Investigators, one each from the Alabama State Department of Education, the Mobile County Public School System, and the University of South Alabama. These administrators will have direct responsibility for the management of all aspects of the *Consortium*. Meeting monthly, they will review the *Consortium's* progress toward its critical objectives, monitor the research that the *Consortium* yields, and work with the *Consortium's* evaluator to ensure that the *Consortium* is in compliance with all aspects of the project.

Management and Administrative Structure
In a proven management model similar to the Kansas City-Teach Program (http://education.umkc.edu/kc-teach/), the *Torchbearer Consortium* will support five committees to ensure that the program is run efficiently and effectively. The Principal Investigators will serve on all committees.

The *Public Relations Committee* will also include the *Torchbearer* clinical faculty, the University publication services, and the Associate Dean of the College of Education. This committee will handle all advertisement and reporting issues. It is this committee's responsibility to distribute recruitment materials and to ensure that the *Torchbearer* program promotes its successes in different arenas to a wide audience of professionals and the public.

The *Recruitment Committee* will include the clinical faculty, the Office of Field Services Program Specialist for the College of Education, the Academic Records Specialist for Graduate Studies, and the Director of the Office of Student Services. It is this committee's responsibility to prepare recruitment materials and to ensure that all applicants meet the requirements to enter into the *Torchbearer* program.

The *Selection Committee* will include the *Torchbearer* Principal Investigator, clinical faculty, and representatives from the Mobile County Public School System to include mentor teachers and principals of participating schools. This committee's primary task will be to oversee the selection process for admitting students to the program. It is this committee's job to ensure that the best candidates possible are chosen for the *Torchbearer* program.

The *Monitoring and Compliance Committee is discussed* in detail in the section entitled *Description of plans to monitor and enforce*, below.

The Advisory committee is discussed in detail in the section entitled *Institutional commitment to making the program a central focus,* below.

Description of plans to monitor and enforce

The *Monitoring and Compliance Committee* will include the Director of Financial Aid, University Coun*sel, the As*sociate Dean of the College of Education, and representatives from the MCPSS and the ALSDE. The sole task of this committee will be to ensure that all obligations of the participants are fulfilled. It will be this committee's responsibility to create the memoranda of agreement that all participants must sign before entering the *Torchbearer* program. The agreement will inform the candidates that failure to fulfill the post-graduate teaching commitment will result in payback of all stipend monies plus interest. The administrative structures and policies are already in place for awarding scholarships and for monitoring recipients' compliance with academic and service requirements. In addition, this committee will oversee compliance by University and school personnel in adhering to relevant institutional and state polices consistent with fulfilling the purposes of the *Torchbearer Consortium* and its programs.

Institutional Commitment to make the program a central focus

The purpose of the *Advisory Committee* is to ensure that the *Torchbearer Consortium* is a central focus of the participating institutions: the University of South Alabama, the Mobile County Public School System, and the Alabama State Department of Education. The committee will include the Senior Vice President for Academic Affairs, the deans of the College of Education and of Arts & Science, the associate dean of the College of Education, the MCPSS superintendant, and the State Superintendent of Education, and/or their representatives.

This committee will identify obstacles that may impede the progress of the *Torchbearer Consortium* and its programs. The members of this committee, due to the positions held, have the authority to implement policies that can benefit the entire project. The members of this committee also have the responsibility to ensure that the *Torchbearer Consortium* is institutionalized and the elements of its successful programs continued after the support for this proposal is exhausted.

Evidence of a Supportive Infrastructure During Program of Study

Many schools in the MCPSS are considered high need/hard to staff schools. Because the USA College of Education prepares by far the largest proportion of professional educators for employment in these schools, its programs are uniquely designed to prepare its candidates to work with a diverse group of students from all backgrounds. From special needs students to students from different racial and socio-economic backgrounds, graduates of the *Torchbearer* program will interact with a wide array of students through their extensive field experiences. *Torchbearer* residents will also take courses that deal with a broad range of topics to provide them the foundational knowledge needed to assist them in becoming career teachers.

The Principal Investigators will serve as the primary academic advisors of the *Torchbearer* residents. These residents will also have the cooperating teachers and clinical faculty as mentors. In addition, organizing the residents in cohorts will encourage peer support that will likely

extend beyond the program into initial employment in the school district. Although the pre-baccalaureate and graduate programs are highly structured, the *Torchbearer* residents will be members of a learning community of peers, experienced professionals, and University faculty engaged in the most authentic instructional context possible--teaching in an elementary classroom for an entire academic year.

Meeting with Torchbearer schools

Torchbearer residents and clinical faculty will have monthly meetings with the PIs to discuss problems or issues that they may be facing. Because the program is so intense, the residents will be monitored closely throughout this process to ensure their continued progress and to address areas of concern.

In addition, the Principal Investigators and the Project Evaluator will meet quarterly with building principals, University faculty, and mentor teachers. The purpose of these meetings is to gather qualitative interview data that will guide the formative assessment of the project and to discuss issues that may require intervention.

Key Personnel

Dr. Phillip Feldman, Professor and Associate Dean of the College of Education at the University of South Alabama, has 35 years of experience in teacher education. A former teacher corps intern, Dr. Feldman is a strong proponent of the use of technology in the classroom. He is an experienced administrator and his funded research includes serving as Principal Investigator for Validating Hypermedia in Elementary Mathematics ($980,000, National Science Foundation. 1990-1994) and Principal Investigator for Preparing Tomorrows Teachers to Use Technology ($1,300,000, US Department of Education. 1999-2003). In addition, Dr. Feldman is Principal Investigator for the Alabama Math Science and Technology Initiative ($4,500,000 annually, NSF and AL Department of Education. 2005-present).

Dr. André M. Green holds academic rank in the Department of Chemistry in the College of Arts and Sciences and in the Department of Leadership and Teacher Education in the College of Education at the University of South Alabama. A graduate of Alabama State University, Hampton University, and Virginia Tech, Dr. Green has extensive experience in working with minority students from urban environments. Since his employment at the university in 2006 Dr. Green has received over $462,000 in grants from foundations and the Alabama State Department of Education to further his work and research with minority students. Dr. Green is also an experienced mentor with the Alabama State Department of Education and teaches secondary and elementary science education at the university.

Dr. Richard L. Hayes, Professor and Dean of the College of Education at the University of South Alabama, was a public school teacher, counselor, and university professor prior to assuming his current position. Since coming to Alabama in 2004, he has been an active member of two gubernatorial commissions to transform the preparation of teachers and instructional leaders and he authored the state's vision statement on the transformation of the teaching profession. Collaborating with a broad coalition of schools, colleges, universities, business

leaders, government and human service agencies, and public and private foundations, he has been instrumental in establishing innovative programs in special education, math, science, and engineering with local schools, securing state approval for new master's and doctoral programs, implementing a model teacher mentoring program, and initiating Internet-based distance education partnerships with regional schools.

Dr. Andrea M. Kent is Director of Field Services at the University of South Alabama. Dr. Kent has extensive experience in clinical field based education having served as a classroom teacher, elementary reading coach, university clinical faculty, and assistant professor of reading education. She has pioneered the use of interactive video conference technology at the University and is a key mentor trainer for the State of Alabama. Dr. Kent teaches reading courses to graduate students in the College of Education. Dr. Kent has published over 20 scholarly articles on the use of interactive video technology in teacher education, mentoring, and reading education.

Dr. Tony Thacker is an Education Administrator with the Alabama Department of Education. He is currently the Project Administrator for the Governor's Commission on Quality Teaching. The Commission is charged with the task of updating and improving all phases of the teaching profession in the state of Alabama. Prior to his current position, Dr. Thacker was responsible for the day-to-day operation of the Alabama Leadership Academy, the leadership training arm of the Alabama Department of Education.

Torchbearer School Principal, who has the necessary experience, leadership skills, interest, and proven record of success in transforming low performing schools, to be identified to serve as coordinator of the partner schools.

University of South Alabama

The University of South Alabama (USA) is a major center of high quality undergraduate, graduate, medical, and professional education located on the upper Gulf Coast. The University enrolls more than 14,200 students and has awarded more than 62,000 degrees, including 2, 000 medical degrees and more than 15,000 education degrees. USA is Alabama's fourth largest university in enrollment and the second largest in terms of overall budget, including its health care programs. It is one of the fastest growing universities within Alabama. USA also boasts an outstanding College of Medicine and clinical facilities, in addition to USA Medical Center, the USA Mitchell Cancer Center, and USA Children's and Women's Hospital. USA's physicians, hospitals and clinics serve more than 250,000 people annually. USA offers a residential university experience for students of traditional age, and also serves as an urban university that provides learning for people across the life span. Eighty-five percent of the teachers in the MCPSS hold either an academic degree or teacher certificate from USA. USA employs 5,800 people and has the largest dollar value payroll in Mobile County. USA's has a net economic impact on the region and state of $2 billion annually through its program in teaching, research, service, and health care.

USA has experienced a growth in sponsored activities over the past five fiscal years. The University, as a whole has had a 31% growth in competitive external funding during this period. For academic departments, such as the College of Education where the project will be housed, there has been an 88% growth in competitive external funding. University-wide there was over $35.3 million in external funding to USA in FY 2007.

Web Services
The Web Services team is responsible for the design and maintenance of the top-level web pages that provide general information about the University, index, directories, search engines, and menu pages with links to departmental or organizational unit pages. Web Services also designs and maintains web sites for other USA organizations. Web Services maintains the USA Web Server (www.southalabama.edu), a Sun computer using the Solaris (UNIX) operating system that hosts many of the web sites of the University. Web Services also maintains www2.southalabama.edu, a Dell computer using the Windows 2000 operating system that hosts secure web sites and web sites requiring Microsoft SQL Server or Access data bases. Web Services provides the following services to the University: web site design and layout, web site hosting, graphic design, photography services, scanning services, audio file conversion, video file conversion, web publishing support, and directory of official USA symbols.

Office of Grants Administration
The Office of Grants Administration provides comprehensive non-financial management of awards received by USA in support of research and scholarly activity. It is a service-oriented office which functions to assure compliance with applicable federal, state, and private regulations, to adhere to terms of external funds received, and to support the University's faculty and administration in efficiently managing awards.

Grants and Contracts Accounting
The primary goal of the Grants and Contracts Accounting Department is to support the sponsored research activity of academic departments by serving as the central fiscal administrator for the post award function of sponsored research. The department is responsible for creating and maintaining restricted accounts on the Financial Accounting System for all sponsored projects, approving certain charges to accounts, managing cash drawdowns, managing the accounts receivable cycle, effort reporting, re-budgeting, and providing cost accounting training to departments involved in sponsored research. Based on the requirements of each sponsor agency. Grants and Contracts Accounting prepares financial reports required by those agencies. Additionally. Grants and Contracts Accounting serves as a resource for fiscal issues identified by Principal Investigators, Departmental Administrators, or the Office of Sponsored Programs. Office of Research compliance

The Office of Research Compliance coordinates Human Subjects, Animal Care and Use, Biosafety, Conduct of Research, and Export Controls. This office ensures University compliance with federal, state, and local regulations with regard to research, and the commitment of the research community to ethical and responsible research involving human subjects, animal care and use, biosafety and responsible conduct of research.
Research Compliance Services provides direction and development of regulatory compliance issues related to institutional research by complying with all applicable laws, regulations, guidelines, and policies by: developing and maintaining a system of compliance that includes activity review and approval, monitoring, and reporting; performing compliance assurance audits as needed; conducting monthly IRB study reviews; providing educational/instructional programs for faculty, staff, and students; providing a communications link between agencies to promote compliance; and submitting assurances, reports and other required information to appropriate government agencies.

College of Education

With enrollment of over 2,300 undergraduate and graduate students, the College leads the Gulf Coast in teacher preparation and is the third largest provider of public school educators in Alabama. In the 2006-2007 academic year, the College awarded 9 doctoral degrees, 208 undergraduate degrees, 202 Master's degrees, and 8 Educational Specialist degrees.

In addition to an organizational structure comprised of administrative offices, departments and associated programs, faculty within specific departments are also affiliated with cross-disciplinary teams that target emerging issues that have been identified as having the potential for significant impact upon the College. These Initiatives are necessarily strategic, interdisciplinary, and targeted to College-wide issues. Each Initiative is coordinated by a Task Force or similar team structure and is accountable for strategies, resources, and performance in realizing tangible outcomes of the Initiative. These Initiatives cover a broad range of critical issues and are developing some of the most innovative programs in the College today. This project is the result of one of these Initiatives. Other College Initiatives have related to MCPSS's need for new teachers in elementary and special education, and helping schools and students in the aftermath of Hurricane Katrina.

The College of Education has made it part of its mission to improve research funding. In the past five years, external competitive funding in the College has increased. As a result of this initiative, the College more than doubled its external funding and in FY 2007 was successful in obtaining more than $4.9 million in external funding. This amount made the College of Education the college with the second highest amount of external funding in the University. Only the College of Medicine received more external funding in FY 2007. For the first half of FY 2008, the College of Education received over $5.2 in competitive external funding.

The College of Education has a physical facility of over 52,000 square feet of office, classroom, and lab space. The Department of Health Physical Education and Leisure Studies, also in the College of Education, has its own 107,000 square foot building that has office space, classrooms, labs, and athletic facilities. Office space for new personnel for this project is available in these buildings.

Media Services

Media Services is responsible for acquiring, building, repairing, maintaining, supporting, and installing computer-related equipment for classrooms, computer labs, and faculty in the College of Education. The coordinator is responsible for supporting classroom technology and video conferencing rooms, and scheduling the computer labs for student use, classes, and special events. The College of Education maintains six computer labs and a media check-out facility in the University Commons Building. All 113 computers in the labs have the Microsoft Vista operating system, Microsoft Office Suite, high speed broadband Internet connectivity, printing capability, and a wide array of software programs. Lab assistants are available to assist persons who have questions about using computers and to ensure that stocks of necessary supplies are maintained. In addition, there is wireless connectivity throughout the College of Education.

Office of Contracts and Grants

The College of Education's Office of Contracts and Grants reports to the Associate Dean for Professional Development and External Affairs. The Office is staffed by a Grants Administration Specialist who assists faculty in preparing institutional documents related to extramural funding. Upon receipt of funding, the Grants Administration Specialist also works with Principal Investigator in fiscal matters related to successful grant implementation.

Evaluation

The Office of Assessment and Evaluation in the College of Education at USA will carry out the evaluation of the project. The office is led by Dr. James Van Haneghan who is an experienced evaluator and is currently working on the evaluation of a Robert Noyce project that is structured similarly to the proposed program (an alternative master's program). The evaluation of the *Torchbearer Consortium* will have both formative and summative components. There are four major areas that need to be evaluated: (1) recruitment of high quality students; (2) preparation of students; (3) effectiveness of graduates as teachers; and, (4) the retention of *Torchbearer* graduates in the schools. The overall goal of putting high quality teachers in classrooms that are retained in high need schools requires making sure all of the different elements of the program are working. That objective requires formatively evaluating and improving each of the components during each year of the project.

The evaluation will be aided by ongoing data collection done by the College of Education at USA as part of its continuous improvement plan. Student characteristics, academic performance, and success after graduation are all tracked through various databases. As part of this project, there will also be databases that track the recruitment activities and contacts made by individuals interested in the program. Below is a brief description of each element of the evaluation focusing on the indicators of performance in each area. Then, a table describing the basic evaluation questions at each phase as well as the indicators of performance will be laid out.

The recruitment of high quality students will be tracked in several ways. First, all inquiries into the program will be tracked in a Filemaker Pro database that will indicate the nature of the contact, the questions asked by the individuals, where they heard about the program, and any other comments or concerns they have about the program. Once students apply for the program, we will track their academic records and examine any barriers or deficiencies they might have to be able to pursue the program. Alabama requires a GPA of 2.5 in undergraduate degree programs for admission to an Alternative Masters program. In addition, students are required to pass the APTT (a basic skills test), and have sufficient course work. The University requires the students to take the GRE as well. Once admitted, we will be able to use the student academic profile to determine what predicts success in the program. Further, we will examine student dispositions and attitudes toward teaching science upon entry into the program to determine how these predict their success in the program.

Once in the program, there will be an ongoing evaluation of the preparation of the students in the program. First, students' performance on indicators of the *Alabama Quality Teaching Standards* (AQTS) will be tracked in the Foliotek system. Foliotek is the college's electronic portfolio system. Students will be scored on a four-point rubric on each of the indicators. Students will also be tracked on content area standards using the same four-point rubric in the Foliotek system.

Field experiences will be evaluated through the triangulation of the evaluations of students, the cooperating teachers, and faculty supervisors. Given that USA is a site for the AMSTI initiative in Alabama, we will track the students' participation in AMSTI and record the numbers who become AMSTI certified. One other indicator of success will be students' performance on the relevant Praxis II exam required for state licensing. The program will track both the proportion of students meeting the state's cutoff score and the profiles of student scores on the test components. The latter will be used formatively for program improvement. Finally, the quality of mentoring will be examined using mentor and mentee evaluations, as well as through examination of mentoring logs detailing the type of support provided and the success of the interaction from the point of view of the mentor and mentee.

After candidates graduate, we will continue to monitor the mentoring of these candidates (now new teachers) and examine their success in the field. An assessment of all teachers trained in the program will be conducted during the first year using the newly developed state assessment as part of the College's ongoing evaluation. These evaluations, as well as project specific evaluations, will be used to determine the success of students. Further, Mobile County Schools gives its students quarterly criterion referenced tests in all science courses. We will examine the scores of *Torchbearer*-prepared teachers to examine whether their percent passing on these tests is equal to or better than the district average. Because some *Torchbearer*-prepared teachers may be working middle schools (grade 6) , it will be possible to examine their students' performance on the SAT-10 science tests and Alabama Math and Reading Test (ARMT) to determine whether their students reach proficiency at equal or higher rates than the district average. Given that *Torchbearer*-prepared teachers should have training that reflects innovative practices, lesson plans will be examined and *Torchbearer*-prepared teachers will be observed to determine whether they are using innovative practices. Finally, because *Torchbearer*-prepared teachers should be innovators, they can be expected to be more active than average teachers in pursuing professional development opportunities. Hence, the amount of professional development they pursue will be compared to that of their colleagues.

The last part of the evaluation will involve tracking *Torchbearer*-prepared teachers to determine if they continue to work in high need schools for their required service and beyond. Graduates will be tracked through the three years of required service, and then continue to be tracked as they continue their careers. Given that most of the graduates will likely remain in the local area, it should be possible to track them further into their careers. At the very least, it will be possible to survey them periodically about their intentions to continue in their current or other high need schools.

Pre-employment Assessment

The effective recruitment, selection, and preparation of teachers are critical factors in the overall success of the *Torchbearer* program. *Torchbearer* candidates will be recruited and selected using more rigorous criteria than mandated state minimum standards. The University will strengthen its overall teacher education program by requiring more careful attention to the critical factors that indicate success for teaching, particularly for effective teaching in high need schools.

Specific pre-employment evaluation questions and indicators are listed in the table below.

Table 8. Pre-employment assessment

Area	Question	Indicators
Recruitment and Selection		
Eval Q. # 1.1	Are enough students recruited to meet recruitment goals?	# of respondents contacted through various recruiting activities
Eval Q. # 1.2	Which recruitment methods are most successful?	# of respondents contacted through various recruiting activities
Eval Q. # 1.3	What are the characteristics of the students that are interested in and /or recruited into the program?	Demographic information about students
Eval Q. # 1.4	What are the qualifications of the students entering the program	Academic record, APTT scores
Preparation		
Eval Q. #2.1	Do students meet Alabama Quality Teaching Standards?	Foliotek Rubric Scores
Eval Q. # 2.2	Do students meet Alabama Content Area Standards?	Foliotek Rubric Scores
Eval Q. # 2.3	Do students pass the Praxis Licensing Exam in their area?	Praxis Score
Eval Q. # 2.4	Do students receive high quality mentoring?	Reports mentors, mentees, logs of mentoring activity
Eval Q. # 2.5	Do students gain knowledge of the major state initiatives in reading and science education?	ARI and AMSTI certification by students

Post-employment Assessment

The evaluation of the *Torchbearer* program requires consistent monitoring and follow up, specifically with respect to teacher effectiveness and retention. Of the four major evaluation components in the *Torchbearer* evaluation design (Recruitment, Preparation, Effectiveness, and Retention), fully half of these factors (Effectives and Retention) require post-employment assessment.

Specific post-employment evaluation questions and indicators are listed in the table below.

Table 9. Post-employment assessment

Area	Question	Indicators
Effectiveness		
Eval Q. # 3.1	Are students able to show that they can help diverse students learn?	Teacher work sample
Eval Q. # 3.2	Do students meet criterion for the state educator evaluation program?	% proficient

Area	Question	Indicators
Eval Q. # 3.3	Do *Torchbearer* trained teachers have students who succeed on Mobile County Criterion Referenced tests at higher rates than their non-Torchbearer colleagues working in diverse schools?	% proficient on the Quarterly CRT exams
Eval Q. # 3.4	Do students taught by *Torchbearer* trained teachers succeed on state tests (SAT-10, ARMT) at equal or higher rates than students taught by non-Torchbearer teachers?	Student scores on SAT, ARMT
Eval Q. # 3.5	Do *Torchbearer* teachers use innovative methods that take advantage of research on teaching and technology more than other teachers?	Sample lesson plans and materials used by Teachers
Eval Q. # 3.6	Do *Torchbearer* teachers engage in more professional development activities than other teachers at high needs schools?	Number and kind of professional development activities pursued.
Retention		
Eval Q. # 4.1	Do *Torchbearer* students working in high poverty schools stay in those schools for the duration of their required service period?	Number of Torchbearer graduations working in high poverty school for four or more years.
Eval Q. # 4.2	Do *Torchbearer* students plan on continuing to work in high needs schools beyond their required service period?	Self reported intentions/contract or other evidence of continuing employment in high need schools beyond the required years.

Budget

PERSONNEL	YEAR ONE	YEAR TWO	YEAR THREE	YEAR FOUR	YEAR FIVE	Row Totals	% of total
Princ. Invest (0.5 FTE)	$26,309	$27,099	$27,912	$28,749	$29,611	$139,680	2.23%
Co-PI (0.25 FTE)	$12,075	$12,437	$12,810	$13,195	$13,591	$64,108	1.02%
Co-PI (0.25 FTE)	$6,450	$6,644	$6,843	$7,048	$7,260	$34,244	0.55%
ALSDE PI	$50,000	$51,500	$53,045	$54,636	$56,275	$265,457	4.23%
MCPSS PI	$50,000	$51,500	$53,045	$54,636	$56,275	$265,457	4.23%
Team Leader	$45,000	$46,350	$47,741	$49,173	$50,648	$238,911	3.81%
Team Leader	$45,000	$46,350	$47,741	$49,173	$50,648	$238,911	3.81%
Tech Support (1 FTE)	$30,000	$30,900	$31,827	$32,782	$33,765	$159,274	2.54%
Tech Support (1 FTE)	$30,000	$30,900	$31,827	$32,782	$33,765	$159,274	2.54%
Personnel Subtotal	$294,834	$303,679	$312,790	$322,173	$331,839	$1,565,315	24.95%
Fringe Benefits @ 25%	$73,709	$75,920	$78,197	$80,543	$82,960	$391,329	6.24%
Materials/Supplies	$22,000	$20,000	$19,000	$18,000	$17,000	$96,000	1.53%
Travel	$15,000	$15,000	$15,000	$15,000	$15,000	$75,000	1.20%
Printing	$5,000	$5,000	$4,500	$3,000	$5,000	$22,500	0.36%
Consultants (External Eval)	$20,000	$22,000	$24,000	$26,000	$28,000	$120,000	1.91%
MODIFIED TOTAL DIRECT COST	$430,543	$441,599	$453,487	$464,717	$479,798	$2,270,144	36.18%
Equipment	$55,000	$30,000	$23,500	$20,000	$20,000	$148,500	2.37%
Other							
UG Stipends	$163,560	$163,560	$163,560	$163,560	$163,560	$817,800	13.03%
GR Stipends	$405,000	$405,000	$405,000	$405,000	$405,000	$817,800	13.03%
Teacher Stipends	$30,000	$30,000	$30,000	$30,000	$30,000	$150,000	2.39%
Subtotal	$653,560	$628,560	$622,060	$618,560	$618,560	$3,141,300	50.07%
F & A Rate	38%	38%	38%	38%	38%		
INDIRECT COSTS	$163,606	$167,808	$172,325	$176,592	$182,323	$862,655	13.75%
GRAND TOTAL	$1,247,709	$1,237,967	$1,247,872	$1,259,869	$1,280,682	$6,274,099	

Budget Notes

1. Personnel costs include a principal investigator for the Alabama State Department of Education, the Mobile County Public Schools and the University of South Alabama.
2. Modified Total Direct Costs exclude stipends and equipment.
3. Stipends for graduate candidates are calculated at the cost of a living wage as determined by allowable federal guidelines.
4. Stipends for undergraduate candidates are calculated at daily rate of 50% of the cost of a substitute teacher times 187 days in a school year.
5. Indirect costs for research projects are calculated at 38% of Modified Total Direct Costs.

Table 10. Matching funds from other sources

Program Area	Fund Source	Amount (annual)
Recruitment of Candidates	USA College of Education – Office of Student Services, Department of Leadership and Teacher Education (LTE) , Dean's Office	$5,000
Mentoring of Teachers	Mobile County Public Schools – Staff Development.	$5,500
	USA – Associate Dean of Education, Office of Field Services, LTE	
Mentoring of Candidates	Mobile County Public Schools – *Torchbearer* Schools.	$556,000[1] $12,000
	USA – Office of Field Services, LTE.	
Preparation of Candidates	Alabama Math Science and Technology Initiative	$50,000[2]
Program Evaluation	USA – Office of Assessment	$5,000[3]

NOTE: 1. Includes percentage of teacher salaries devoted to mentoring *Torchbearer* candidates. 2. Includes instructional materials for 30 classrooms in math and 30 classroom in science. 3. Includes graduate student data analyst.

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U.S. Department of Education

Washington, D.C. 20202-5335

APPLICATION FOR GRANTS UNDER THE

STATEWIDE LONGITUDINAL DATA SYSTEM RECOVERY ACT GRANTS
CFDA # 84.384A
PR/Award # R384A100009

Closing Date: NOV 19, 2009

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OMB No.4040-0004 Exp.01/31/2012

Application for Federal Assistance SF-424 Version 02

* 1. Type of Submission	* 2. Type of Application:	* If Revision, select appropriate letter(s):
[ ] Preapplication	[X] New	
[X] Application	[ ] Continuation	* Other (Specify)
[ ] Changed/Corrected Application	[ ] Revision	

* 3. Date Received:	4. Applicant Identifier:
11/25/2009	

5a. Federal Entity Identifier:	* 5b. Federal Award Identifier:
	NA

State Use Only:

6. Date Received by State:	7. State Application Identifier:

8. APPLICANT INFORMATION:

* a. Legal Name: Alabama Department of Education

* b. Employer/Taxpayer Identification Number (EIN/TIN):	* c. Organizational DUNS:
636000619	627193386

d. Address:

* Street1:	50 North Ripley Street
Street2:	5327 Gordon Persons Building
* City:	Montgomery
County:	Montgomery
State:	AL
Province:	
* Country:	USA
* Zip / Postal Code:	36130

e. Organizational Unit:

Department Name:	Division Name:
Information Systems	Instructional Services Division

f. Name and contact information of person to be contacted on matters involving this application:

Prefix:	Mr.	* First Name:	Gary
Middle Name:	E		

* Last Name:	Weatherly
Suffix:	
Title:	Director
Organizational Affiliation:	
Alabama Department of Education	
* Telephone Number: (334)242-9724	Fax Number: (334)242-2818
* Email: GWEATHERLY@ALSDE.EDU	

Application for Federal Assistance SF-424 Version 02

9. Type of Applicant 1: Select Applicant Type:

A: State Government

Type of Applicant 2: Select Applicant Type:

Type of Applicant 3: Select Applicant Type:

* Other (specify):

10. Name of Federal Agency:

U.S. Department of Education

11. Catalog of Federal Domestic Assistance Number:

84.384A

CFDA Title:

Statewide Longitudinal Data System Recovery Act Grants

*** 12. Funding Opportunity Number:**

ED-GRANTS-072909-001

Title:

Grant Program for Statewide Longitudinal Data Systems Recovery Act Prgram (ARRA) CFDA84.384A

13. Competition Identification Number:

84-384A2009

Title:

Grant Program for Statewide Longitudinal Data Systems Recovery Act Prgram (ARRA) CFDA84.384A

14. Areas Affected by Project (Cities, Counties, States, etc.):

State of Alabama

*** 15. Descriptive Title of Applicant's Project:**

Alabama Longitudinal Data System

Attach supporting documents as specified in agency instructions.

Attachment:
Title :
File :

Attachment:
Title :
File :

Attachment:
Title :
File :

Application for Federal Assistance SF-424 Version 02

16. Congressional Districts Of:
* a. Applicant: 2 * b. Program/Project: AL-ALL

Attach an additional list of Program/Project Congressional Districts if needed.
Attachment:
Title :
File :

17. Proposed Project:
* a. Start Date: 5/1/2010 * b. End Date: 4/30/2013

18. Estimated Funding ($):

a. Federal	**$ 13788150**
b. Applicant	**$ 0**
c. State	**$ 976848**
d. Local	**$ 0**
e. Other	**$ 0**
f. Program Income	**$ 0**
g. TOTAL	**$ 14764998**

*** 19. Is Application Subject to Review By State Under Executive Order 12372 Process?**

[ ] a. This application was made available to the State under the Executive Order 12372 Process for review on .
[ ] b. Program is subject to E.O. 12372 but has not been selected by the State for review.
[X] c. Program is not covered by E.O. 12372.

*** 20. Is the Applicant Delinquent On Any Federal Debt? (If "Yes", provide explanation.)**

[ ] Yes [X] No

21. *By signing this application, I certify (1) to the statements contained in the list of certifications and (2) that the statements herein are true, complete and accurate to the best of my knowledge. I also provide the required assurances** and agree to comply with any resulting terms if I accept an award. I am aware that any false, fictitious, or fraudulent statements or claims may subject me to criminal, civil, or administrative penalties. (U.S. Code, Title 218, Section 1001)**

[X] **** I AGREE**

** The list of certifications and assurances, or an internet site where you may obtain this list, is contained in the announcement or agency specific instructions.

Authorized Representative:

Prefix:	Dr.	* First Name:	Thomas
Middle Name:	R		
* Last Name:	Bice		
Suffix:			

Title:	Deputy Superintendent		
* Telephone Number:	(334)242-8154	Fax Number:	
* Email:	TBICE@ALSDE.EDU		
* Signature of Authorized Representative:		* Date Signed:	

Application for Federal Assistance SF-424 Version 02

*** Applicant Federal Debt Delinquency Explanation**

The following field should contain an explanation if the Applicant organization is delinquent on any Federal Debt. Maximum number of characters that can be entered is 4,000. Try and avoid extra spaces and carriage returns to maximize the availability of space.

U.S. DEPARTMENT OF EDUCATION BUDGET INFORMATION NON-CONSTRUCTION PROGRAMS	OMB Control Number: 1894-0008 Expiration Date: 02/28/2011
Name of Institution/Organization: Alabama Department of Education	Applicants requesting funding for only one year should complete the column under "Project Year 1." Applicants requesting funding for multi-year grants should complete all applicable columns. Please read all instructions before completing form.

SECTION A - BUDGET SUMMARY

U.S. DEPARTMENT OF EDUCATION FUNDS

Budget Categories	Project Year 1(a)	Project Year 2 (b)	Project Year 3 (c)	Project Year 4 (d)	Project Year 5 (e)	Total (f)
1. Personnel	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
2. Fringe Benefits	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
3. Travel	$ 8,500	$ 8,500	$ 8,500	$ 0	$ 0	$ 25,500
4. Equipment	$ 463,300	$ 0	$ 0	$ 0	$ 0	$ 463,300
5. Supplies	$ 428,100	$ 400,000	$ 0	$ 0	$ 0	$ 828,100
6. Contractual	$ 1,860,625	$ 3,745,625	$ 1,515,000	$ 0	$ 0	$ 7,121,250
7. Construction	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
8. Other	$ 3,650,000	$ 1,650,000	$ 50,000	$ 0	$ 0	$ 5,350,000
9. Total Direct Costs (lines 1-8)	$ 6,410,525	$ 5,804,125	$ 1,573,500	$ 0	$ 0	$ 13,788,150
10. Indirect Costs*	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
11. Training Stipends	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
12. Total Costs (lines 9-11)	$ 6,410,525	$ 5,804,125	$ 1,573,500	$ 0	$ 0	$ 13,788,150

***Indirect Cost Information** ***(To Be Completed by Your Business Office)*:**

If you are requesting reimbursement for indirect costs on line 10, please answer the following questions:

(1) Do you have an Indirect Cost Rate Agreement approved by the Federal government? [] Yes [] No
(2) If yes, please provide the following information:
Period Covered by the Indirect Cost Rate Agreement: From: __/__/____ To: __/__/____ (mm/dd/yyyy)
Approving Federal agency: [] ED [] Other (please specify): _____ The Indirect Cost Rate is _____%
(3) For Restricted Rate Programs (check one) -- Are you using a restricted indirect cost rate that:
[] Is included in your approved Indirect Cost Rate Agreement? or, [] Complies with 34 CFR 76.564(c)(2)? The Restricted Indirect Cost Rate is _____%

ED Form No. 524

U.S. DEPARTMENT OF EDUCATION

BUDGET INFORMATION

NON-CONSTRUCTION PROGRAMS

OMB Control Number: 1894-0008

Expiration Date: 02/28/2011

Name of Institution/Organization:
Alabama Department of Education

Applicants requesting funding for only one year should complete the column under "Project Year 1." Applicants requesting funding for multi-year grants should complete all applicable columns. Please read all instructions before completing form.

SECTION B - BUDGET SUMMARY

NON-FEDERAL FUNDS

Budget Categories	Project Year 1(a)	Project Year 2 (b)	Project Year 3 (c)	Project Year 4 (d)	Project Year 5 (e)	Total (f)
1. Personnel	$ 219,076	$ 376,075	$ 156,500	$ 0	$ 0	$ 751,651
2. Fringe Benefits	$ 65,724	$ 112,523	$ 46,950	$ 0	$ 0	$ 225,197
3. Travel	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
4. Equipment	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
5. Supplies	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
6. Contractual	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
7. Construction	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
8. Other	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
9. Total Direct Costs (lines 1-8)	$ 284,800	$ 488,598	$ 203,450	$ 0	$ 0	$ 976,848
10. Indirect Costs	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
11. Training Stipends	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
12. Total Costs (lines 9-11)	$ 284,800	$ 488,598	$ 203,450	$ 0	$ 0	$ 976,848

ASSURANCES - NON-CONSTRUCTION PROGRAMS

Standard Form 424B (Rev.7-97)

Public reporting burden for this collection of information is estimated to average 15 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to the Office of Management and Budget, Paperwork Reduction Project (0348-0040), Washington DC 20503.

PLEASE DO NOT RETURN YOUR COMPLETED FORM TO THE OFFICE OF MANAGEMENT AND BUDGET. SEND IT TO THE ADDRESS PROVIDED BY THE SPONSORING AGENCY.

NOTE: Certain of these assurances may not be applicable to your project or program. If you have questions, please contact the awarding agency. Further, certain Federal awarding agencies may require applicants to certify to additional assurances. If such is the case, you will be notified.

As the duly authorized representative of the applicant, I certify that the applicant:

1. Has the legal authority to apply for Federal assistance, and the institutional, managerial and financial capability (including funds sufficient to pay the non-Federal share of project cost) to ensure proper planning, management, and completion of the project described in this application.

2. Will give the awarding agency, the Comptroller General of the United States, and if appropriate, the State, through any authorized representative, access to and the right to examine all records, books, papers, or documents related to the award; and will establish a proper accounting system in accordance with generally accepted accounting standards or agency directives.

3. Will establish safeguards to prohibit employees from using their positions for a purpose that constitutes or presents the appearance of personal or organizational conflict of interest, or personal gain.

4. Will initiate and complete the work within the applicable time frame after receipt of approval of the awarding agency.

5. Will comply with the Intergovernmental Personnel Act of 1970 (42 U.S.C. "4728-4763) relating to prescribed standards for merit systems for programs funded under one of the 19 statutes or regulations specified in Appendix A of OPM's Standards for a Merit System of Personnel Administration (5 C.F.R. 900, Subpart F).

6. Will comply with all Federal statutes relating to nondiscrimination. These include but are not limited to: (a) Title VI of the Civil Rights Act of 1964 (P.L. 88-352) which prohibits discrimination on the basis of race, color or national origin; (b) Title IX of the Education Amendments of 1972, as amended (20 U.S.C. "1681-1683, and 1685-1686), which prohibits discrimination on the basis of sex; (c) Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. '794), which prohibits discrimination on the basis of handicaps; (d) the Age Discrimination Act

9. Will comply, as applicable, with the provisions of the Davis-Bacon Act (40 U.S.C. "276a to 276a-7), the Copeland Act (40 U.S.C. '276c and 18 U.S.C. "874) and the Contract Work Hours and Safety Standards Act (40 U.S.C. " 327-333), regarding labor standards for federally assisted construction sub-agreements.

10. Will comply, if applicable, with flood insurance purchase requirements of Section 102(a) of the Flood Disaster Protection Act of 1973 (P.L. 93-234) which requires recipients in a special flood hazard area to participate in the program and to purchase flood insurance if the total cost of insurable construction and acquisition is $10,000 or more.

11. Will comply with environmental standards which may be prescribed pursuant to the following: (a) institution of environmental quality control measures under the National Environmental Policy Act of 1969 (P.L. 91-190) and Executive Order (EO) 11514; (b) notification of violating facilities pursuant to EO 11738; (c) protection of wetlands pursuant to EO 11990; (d) evaluation of flood hazards in floodplains in accordance with EO 11988; (e) assurance of project consistency with the approved State management program developed under the Coastal Zone Management Act of 1972 (16 U.S.C. "1451 et seq.); (f) conformity of Federal actions to State (Clear Air) Implementation Plans under Section 176(c) of the Clear Air Act of 1955, as amended (42 U.S.C. "7401 et seq.); (g) protection of underground sources of drinking water under the Safe Drinking Water Act of 1974, as amended, (P.L. 93-523); and (h) protection of endangered species under the Endangered Species Act of 1973, as amended, (P.L. 93-205).

12. Will comply with the Wild and Scenic Rivers Act of 1968 (16 U.S.C. "1721 et seq.) related to protecting components or potential components of the national wild and scenic rivers system.

13. Will assist the awarding agency in assuring compliance

of 1975, as amended (42 U.S.C. " 6101-6107), which prohibits discrimination on the basis of age; (e) the Drug Abuse Office and Treatment Act of 1972 (P.L. 92-255), as amended, relating to nondiscrimination on the basis of drug abuse; (f) the Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment and Rehabilitation Act of 1970 (P.L. 91-616), as amended, relating to nondiscrimination on the basis of alcohol abuse or alcoholism; (g) " 523 and 527 of the Public Health Service Act of 1912 (42 U.S.C. " 290 dd-3 and 290 ee 3), as amended, relating to confidentiality of alcohol and drug abuse patient records; (h) Title VIII of the Civil Rights Act of 1968 (42 U.S.C. ' 3601 et seq.), as amended, relating to nondiscrimination in the sale, rental or financing of housing; (i) any other nondiscrimination provisions in the specific statute(s) under which application for Federal assistance is being made; and (j) the requirements of any other nondiscrimination statute(s) which may apply to the application.

7. Will comply, or has already complied, with the requirements of Titles II and III of the uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (P.L. 91-646) which provide for fair and equitable treatment of persons displaced or whose property is acquired as a result of Federal or federally assisted programs. These requirements apply to all interests in real property acquired for project purposes regardless of Federal participation in purchases.

8. Will comply, as applicable, with the provisions of the Hatch Act (5 U.S.C. "1501-1508 and 7324-7328) which limit the political activities of employees whose principal employment activities are funded in whole or in part with Federal funds.

with Section 106 of the National Historic Preservation Act of 1966, as amended (16 U.S.C. '470), EO 11593 (identification and protection of historic properties), and the Archaeological and Historic Preservation Act of 1974 (16 U.S.C. "469a-1 et seq.).

14. Will comply with P.L. 93-348 regarding the protection of human subjects involved in research, development, and related activities supported by this award of assistance.

15. Will comply with the Laboratory Animal Welfare Act of 1966 (P.L. 89-544, as amended, 7 U.S.C. "2131 et seq.) pertaining to the care, handling, and treatment of warm blooded animals held for research, teaching, or other activities supported by this award of assistance.

16. Will comply with the Lead-Based Paint Poisoning Prevention Act (42 U.S.C. "4801 et seq.) which prohibits the use of lead- based paint in construction or rehabilitation of residence structures.

17. Will cause to be performed the required financial and compliance audits in accordance with the Single Audit Act Amendments of 1996 and OMB Circular No. A-133, "Audits of States, Local Governments, and Non-Profit Organizations."

18. Will comply with all applicable requirements of all other Federal laws, executive orders, regulations and policies governing this program.

Signature of Authorized Certifying Representative:
Name of Authorized Certifying Representative: Dr. Thomas R. Bice
Title: Deputy Superintendent
Date Submitted: 11/25/2009

Approved by OMB 0348-0046 Exp.

Disclosure of Lobbying Activities

Complete this form to disclose lobbying activities pursuant to 31 U.S.C. 1352

1. Type of Federal Action: [ ] Contract [ ] Grant [ ] Cooperative Agreement [ ] Loan [ ] Loan Guarantee [ ] Loan Insurance	**2. Status of Federal Action:** [ ] Bid/Offer/Application [ ] Initial Award [ ] Post-Award	**3. Report Type:** [ ] Initial Filing [ ] Material Change **For Material Change only:** Year: 0Quarter: 0 Date of Last Report:
4. Name and Address of Reporting Entity: [ ] Prime [ ] Subawardee Tier, if known: Name: Address: City: State: Zip Code + 4: - **Congressional District, if known:**	**5. If Reporting Entity in No. 4 is a Subawardee, Enter Name and Address of Prime:** Name: Address: City: State: Zip Code + 4: - **Congressional District,** if known:	
6. Federal Department/Agency:	**7. Federal Program Name/Description:** CFDA Number, if applicable:	
8. Federal Action Number, if known:	**9. Award Amount,** if known: $	
10. a. Name of Lobbying Registrant (if individual, last name, first name, MI): Address: City: State: Zip Code + 4: -	**b. Individuals Performing Services** (including address if different from No. 10a) (last name, first name, MI): Address: City: State: Zip Code + 4: -	
11. Information requested through this form is authorized by title 31 U.S.C. section 1352. This disclosure of lobbying activities is a material representation of fact upon which reliance was placed by the tier above when this transaction was made or entered into. This disclosure is required pursuant to 31 U.S.C. 1352. This information will be reported to the Congress semi-annually and will be available for public inspection. Any person who fails to file the required disclosure shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.	Name: Title: Applicant: Alabama Department of Education Date:	
Federal Use Only:		Authorized for Local Reproduction Standard Form LLL (Rev. 7-97)

CERTIFICATION REGARDING LOBBYING

Certification for Contracts, Grants, Loans, and Cooperative Agreements.

The undersigned certifies, to the best of his or her knowledge and belief, that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal Loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan or cooperative agreement, the undersigned shall complete and submit Standard Form - LLL, "Disclosure of Lobbying Activities," in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

Statement for Loan Guarantees and Loan Insurance.

The undersigned states, to the best of his or her knowledge and belief, that:

If any funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee or any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this commitment providing for the United States to insure or guarantee a loan, the undersigned shall complete and submit Standard Form-LLL, "Disclosure of Lobbying Activities," in accordance with its instructions. Submission of this statement is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required statement shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

APPLICANT'S ORGANIZATION Alabama Department of Education	
PRINTED NAME AND TITLE OF AUTHORIZED REPRESENTATIVE Prefix: Dr. First Name: Thomas Last Name: Bice Title: Deputy Superintendent	Middle Name: R Suffix:
Signature: _____	Date: 11/25/2009
ED 80-0013	03/04

OMB No.1894-0007 Exp.05/31/2011

SUPPLEMENTAL INFORMATION
REQUIRED FOR
DEPARTMENT OF EDUCATION GRANTS

1. Project Director:

Prefix:	* First Name:	Middle Name:	* Last Name:	Suffix:
Mr.	Gary	E	Weatherly	

Address:

* Street1: 50 North Ripley Street
Street2: 5327 Gordon Persons Building
* City: Montgomery
County: Montgomery
* State: AL* Zip / Postal Code: 36130 * Country: **USA**

* Phone Number (give area code)	Fax Number (give area code)
(334)242-9724	(334)242-2818

Email Address:

GWEATHERLY@ALSDE.EDU

2. Applicant Experience

Novice Applicant [ ] Yes [ ] No [X] Not applicable

3. Human Subjects Research

Are any research activities involving human subjects planned at any time during the proposed project period?

[ ] Yes [X] No

Are ALL the research activities proposed designated to be exempt from the regulations?

[ ] Yes Provide Exemption(s) #:

[ ] No Provide Assurance #, if available:

Please attach an explanation Narrative:

Attachment:
Title :
File :

Project Narrative

Project Narrative - Project Abstract

Attachment 1:
Title: **ALSDE SLDS Grant - Project Abstract** Pages: **1** Uploaded File: **05 - Project Abstract.pdf**

Alabama State Department of Education SLDS Grant
Project Abstract

The Alabama State Department of Education (ALSDE) has accomplished much in the development of its Statewide Longitudinal Data System (SLDS). Up until now, it has done so without the benefit of any Federal grants. Among the accomplishments are:

- Established a statewide K-12 unique student ID system
- Developed an assessment data warehouse
- Data sharing between ALSDE and the Alabama Commission on Higher Education
- Linked student data with teachers through the use of the unique student identifier and teacher social security number (SSN)
- Implemented the teacher education and certification that can match teachers with information about their certification and teacher preparation programs, including information about the institutions at which they received their training
- Built a system of reasonability checks and business rule validations for data submitted to the statewide student management system housed in each district

ALSDE has many of the parts in place to develop a true PK-20 SLDS that will meet the requirements of the America COMPETES ACT. However, in order to meet the requirements in a timely manner, ALSDE is seeking a grant for a Statewide Longitudinal Data System under the American Recovery and Reinvestment Act of 2009. ALSDE proposed to use these funds to achieve the following project outcomes.

- **Alabama Consolidated Education System (ACES)** – an internal data warehouse that would combine many current data collections into a longitudinal data repository
- **On-line Teacher Certification and Renewal System**
- **Teacher Education Program and Staff Evaluation System**
- **Alabama System for Collaborative Education Needs Data warehouse (ASCEND)** – a data repository that will allow the sharing of data between the ALSDE and as many as five other early childhood and higher education agencies
- **E-transcript transport system**

Funding from this grant will permit Alabama to increase the availability of information on student performance to all stakeholders (agency partners, parents, teachers, principals, local superintendents, researchers, legislators, media, and professional organizations in support of education). The result for the State of Alabama is to: better inform policy making; draw clearer focus on effectiveness of instruction from cradle to career; and equip students to compete in a global economy.

Project Narrative

Project Narrative - Project Narrative

Attachment 1:
Title: **ALSDE SLDS Grant - Project Narrative** Pages: **26** Uploaded File: **06 - Project Narrative.pdf**

Alabama State Department of Education SLDS Grant
Project Narrative

Introduction

The Alabama State Department of Education (ALSDE) is very excited to submit this application for a Statewide Longitudinal Data System grant under the American Recovery and Reinvestment Act of 2009. Over the past several years, ALSDE has been developing the source systems for building a data warehouse which, in turn, would be used for Federal and state reporting, as well as to improve education within the state. To date, these source systems have been developed entirely with state resources. No Federal funds or grants have been used.

ALSDE realizes that, while it has accomplished much on its own, it will need funds from this grant in order to take our efforts to the next level: building a statewide longitudinal data system. Resources from this grant will enable ALSDE to proceed with the five project outcomes necessary to meet the expectations of the America COMPETES Act and the State Fiscal Stabilization Fund. These outcomes will provide the tools to drive education decision-making and create and enhance a culture of using data within ALSDE and among its partners in the education enterprise.

Perhaps the highlight of our vision for this project is the collaborative approach being undertaken to plan, develop, and extend the use of the project outcomes across the many education stakeholders in the state of Alabama. The Alabama Comprehensive Education System, the On-line Teacher Certification and Renewal System, and the Teacher Education-Program and Staff Evaluation System will integrate several systems within the Department. The resulting SLDS will be used to determine strengths and weaknesses in the state education system by analyzing trends in assessments, programs, and teacher effectiveness. This will only be accomplished through collaboration across many offices within the Department.

Similarly, the America COMPETES Act and the State Fiscal Stabilization Fund are clear about the need to track student progress from early childhood though higher education and into the workforce. To that end, ALSDE is seeking funds for two outcomes that will require collaboration across several other agencies in the state. The Alabama System for Collaborative Education Needs Data warehouse (ASCEND) and the E-transcript transport system will enable several stakeholders to share data in a common repository. These data will be used to determine the effectiveness of programs in preschool, K-12, and higher education. The backbone of this system will be the use of the statewide student ID system already in place in K-12 schools.

ALSDE has already initiated this collaborative work. For example, the Alabama Commission on Higher Education has proposed the establishment of a PK-20 Council to coordinate and advocate a fully integrated educational system in Alabama. Such a body will undoubtedly be a solid building block toward the success of this project and the coordination of efforts across all levels of education in Alabama.

Finally, the ALSDE appreciates the leadership that has been provided by the US Department of Education through the release of this grant application for statewide longitudinal data systems. Through its work with SEAs, the Department has compiled a vast library of best practice documents for states to use in SLDS development. ALSDE will make use of standards such as the Forum Guide to Metadata: The Meaning Behind Education Data, Traveling through Time: The Forum Guide to Longitudinal Data Systems, the NCES Data Handbooks Online, and the National Education Data Model—all of which will help to ensure that the systems developed as a result of these funds will be based on the best practices and education data standards available to the education community. We firmly believe that the integration of these standards during the development of our SLDS will improve the quality, comparability, and use of data within the state of Alabama and nationally.

ALSDE is proud to present its need and plan for the use of education data in Alabama.

a. Need for Project

Current Status of the SLDS: Capabilities and Key Elements to be Addressed in this Project

The following is a summary of the status of the Alabama State Department of Education's (ALSDE) ability to meet the Capabilities and Elements as defined in the America COMPETES Act. This is further summarized in Appendix C.

Capabilities

1. *Enable States to examine student progress over time*

   Current Status

   Student level data are currently collected in several different data bases within the ALSDE. Separate files are received for each assessment from the respective assessment vendor. These files are merged through a manual process to create a longitudinal assessment data warehouse which enables ALSDE and districts to track student assessments over time. These data can also be merged manually with other types of data collected by ALSDE. This is an on-going project that must be completed every time new data are received. The current assessment data warehouse has been developed without the assistance of federal resources.

   Proposed Developments and Improvements

Funds from this grant would be used to create a consolidated operational data store called the Alabama Consolidated Education System (ACES) with an accompanying data warehouse. Using a common data dictionary (based, for example, on the NCES Handbooks Online) and metadata (see, for example, The Forum Guide to Metadata), the existing data files would be merged into a data repository through an automated process with several data marts made available to track student assessment results over time. ALSDE expects this automation to drastically improve the efficiency, timeliness, and quality of these data relative to our current manual processes.

2 *Facilitate and enable exchange of data among agencies and institutions within state and between states*

Current Status

Data are currently shared between ALSDE and the Alabama Commission on Higher Education (ACHE) for reporting purposes. However, this is done on a very limited basis and requires the manual merging of data files. Ideally, a true PK-20 SLDS enables and requires the exchange of data from the ALSDE and ACHE, as well as the Department of Children's Affairs - Office of School Readiness (DCA), Department of Industrial Relations (DIR), Department of Rehabilitation Services/Early Intervention (DRS), and the Department of Postsecondary Education (DPE).

Proposed Developments and Improvements

Funds from this grant would be used to develop the **A**labama **S**ystem for **C**ollaborative **E**ducation **N**eeds **D**ata Warehouse (ASCEND,) a shared data repository that would store data from and for each of the participating agencies. As a component of planning this application, these agencies have agreed, in principle, to a shared data repository, and upon receipt of a grant, this vision will be formalized, similar to that between ALSDE and ACHE. Implicit in this cooperation, we will be using grant funds to develop an agreed upon set of data structures and elements that will be shared by all agencies through an appropriate transport mechanism or common data store.

3 *Link student data with teachers*

Current Status

ALSDE currently has the ability to link student data with teachers through the use of a unique student identifier and teacher social security number (SSN). This connection is now made through an official data collection. The data are sent to the vendor every two weeks to update the assessment data warehouse. This capability will not be addressed in this project.

4 *Enable the matching of teachers with information about their certification and teacher preparation programs, including the institutions at which they received their training*

Current Status

The current teacher education and certification system was developed internally. It can match teachers with information about their certification and teacher preparation programs, including information about the institutions at which they received their training. This is accomplished through the use of SSN. However, the existing system is fragmented, outdated, technologically insufficient, and incapable of meeting the changing needs of the policymakers, teachers, and other stakeholders.

Proposed Developments and Improvements

Funding from this grant will be used to enhance the current system to include a consolidated data store for all teacher education and certification information. This enhancement will be part of the overall data architecture for ACES, the data warehouse in ALSDE. It will include an on-line teacher certification and renewal system coupled with an automated workflow engine to assist in the certification and renewal process. A common data dictionary and metadata repository will include data on teacher education programs as well as the staff evaluation system, enabling staff performance to be linked to teacher training institutions. In addition, a staff evaluation system will be developed that will enabling staff performance to be linked to teacher training institutions.

5 *Enable data to be easily generated for continuous improvement and decision-making*

Current Status

ALSDE has been working on this capability for some time as state resources allow. Reports have been generated in areas such as student assessment, attendance, discipline, demographics, graduates, dropouts, and truancy. Since much of these data do not reside in the same repository or system, they have to be merged manually.

Proposed Developments and Improvements

Funding from this grant will enable ALSDE to develop a data reporting portal and associated tools that will work off of the ACES and data warehouse, making it easier to use the data for informed decision-making in a more accurate and timely manner.

6 *Ensure quality and integrity of data contained in the system*

Current Status

ALSDE has built a system of reasonability checks and business rule validations for all data submitted to the student management system (SMS) including student level data, staff data, and assessment data. Turn-around documents are provided to LEAs to verify or check the validity of data received at the LEA. Each LEA superintendent must approve and sign off on any data that will be used for official reporting, such as in school report cards and accountability reports. Only state funds have been used for this system thus far.

Although not part of this grant application, ALSDE has planned enhancements that would automate the process of providing turn-around data to the LEAs in order to enable quicker error identification and correction. It will also include enhanced training for staff in the field at all levels from the superintendent to data entry clerk, using tools that would allow repeatable training (i.e. video, Camtasia, etc.). The Forum Guide to Building a Culture of Quality Data (and the Curriculum) will be a helpful resource in this effort.

7 *Provide ability to meet reporting requirements of USED*

Current Status

Using funds from an existing USED, non-IES/LDS grant, full time staff are assigned to the creation and submission of EDFacts and CSPR data. Additional staff members are assigned to provide OSEP data, as well as data used for the Perkins Consolidated Annual Report (CAR). Proposed Developments and Improvements

ALSDE will use these state resources to develop highly automated processes to generate USED required submissions from ACES. It is not part of this current grant application.

Key Elements

The following elements focus on preschool through grade 12 and postsecondary education.

1 *A unique statewide student identifier that does not permit a student to be identified by users of the system*

Current Status

ALSDE has developed a statewide unique student ID (SSID) for all public K-12 students in Alabama, as well as all Pre-K students participating in public school programs. This was accomplished without the use of external funds or grants. A student identifier defined as an encrypted SSN is currently being used to identify students in postsecondary and higher education and workforce preparation.

Proposed Developments and Improvements

Funds from this grant will be used to develop an e-transcript system that would include the SSID, matched with SSN, of all public school students in Alabama. This will result in a true P-20 student ID repository with a supporting data dictionary and common metadata.

2 *Student-level data including Enrollment, Demographic, and Program Participation*

Current Status

Approximately 95% of these data are already captured in the statewide student management system, Software Technology, Inc. (STI). Data from some programs such

as Neglected and Delinquent and EvenStart are reported through separate data collections. The use of STI will be expanded to include these programs, resulting in a reduction in the number of non-standard data collections. This will be accomplished with ALSDE resources and will not be included as part of this grant.

3 *Student-level information about the points at which students: Exit, Transfer in, Transfer out, Drop out, and Complete P-16 education programs*

Current Status

The STI student management system currently includes enrollment, dropout, and high school graduation data for every K-12 student in public schools in Alabama using state resources. These data are not collected by ALSDE for students enrolled in postsecondary schools.

Proposed Developments and Improvements

ASCEND, the shared data repository proposed in this application, will connect data from ALSDE and partners such as the Alabama Commission on Higher Education (ACHE), the Department of Industrial Relations, Department of Children's Affairs - Office of School Readiness (DCA), the Department of Postsecondary Education (DPE), and the Department of Rehabilitation Services/Office of Early Intervention programs. This will link enrollment and graduation data for students in postsecondary schools with their K-12 data.

4 *Capacity to communicate with higher education data system*

Current Status

ACHE currently provides student level data to ALSDE periodically on a limited basis.

Proposed Developments and Improvements

With the development of ASCEND, funded by this grant, data will be linked electronically and automatically on a regularly scheduled basis between all partner agencies / entities. This will result in a common data store that can be shared between the ALSDE and other agencies / entities.

5 *State data audit system assessing data quality, validity, and reliability*

Current Status

ALSDE has built separate audit systems for each of the existing source data systems such as STI and the Assessment Data Warehouse. These audit steps check for validity, reliability, acceptable values, and format. After the components described in this application are completed, a single integrated audit system will be developed that will handle all existing and future source data systems as they are integrated into ACES and

ASCEND. It is anticipated that this will be accomplished after the completion of this grant with state resources.

Preschool through grade 12 education

6 *Yearly test records of individual student with respect to assessments under section 1111(b) of ESEA 1965*

Current Status

Individual student test records for each year already exist in the Assessment Data Warehouse for all statewide tests using the statewide unique student ID.

Proposed Developments and Improvements

Using funds from this grant, the ALSDE assessment data warehouse will be integrated into the ACES and ASCEND data repositories, providing partner agencies / entities with a longitudinal record of student assessments.

7 *Information on students not tested by grade and by subject area*

Current Status

The Assessment Data Warehouse also includes needed data on students not tested for each statewide assessment as well as reason not tested. Each assessment record includes the subject area of the assessment. This key element will not be addressed in this project.

8 *Teacher identifier with the ability to match teachers to students*

Current Status

ALSDE currently uses SSN as its unique staff identifier, which is used to link teacher information to students through the use of class lists and course enrollment information. While not part of this grant, ALSDE plans to develop a statewide staff unique identifier that does not use SSN as the key. It will be modeled after the student id system already in place. This will be undertaken using state resources after the completion of the projects funded by this grant.

9 *Student-level transcript information including Courses completed and Grades earned data*

Current Status

The data to support a student-level transcript currently exist in the statewide student management system housed at the LEA level. However, the data are not collected by the ALSDE.

Proposed Developments and Improvements

Funds from this grant will be used to develop a statewide e-transcript and storage system that will be part of the ASCEND repository used across all partner agencies / entities and based upon a common data dictionary and metadata repository.

10 *Student-level college readiness test scores*

Current Status

Individual scores for students who choose to take the ACT are currently provided to the state from the test vendor. These are loaded into the Assessment Data Warehouse. ALSDE is in the process of instituting a program that will require every eligible student to take the ACT free of charge as part of the state high-stakes testing program. These data will be included in ACES using state resources and funds requested in this grant application will not be used for this purpose.

Postsecondary Education

11 *Data that provide information regarding extent to which students transition successfully from secondary school to postsecondary education, including whether students enroll in remedial coursework*

Current Status

ACHE currently provides ALSDE with data on students who attend public higher education institutions and receive remedial course work.

Proposed Developments and Improvements

Because of a common data dictionary and metadata, the ASCEND data repository that will be developed with this grant will enable ALSDE and participating partners to share assessment, transcript, and other types of data. ALSDE will be able to determine how students perform in postsecondary programs and look for patterns based on programs and courses taken in high school.

12 *Data that provide other information determined necessary to address alignment and adequate preparation for success in postsecondary education*

Current Status

This key element does not currently exist.

Proposed Developments and Improvements

Data provided to ASCEND by each of the participating partners will enable the ALSDE and other stakeholders to address curriculum alignment and the adequacy of preparation for success in postsecondary education and the workforce. Plans are already underway to add components to the assessment program. The ACT Explore (8th graders Career exploration/interest), Plan Assessment (10th graders "pre-ACT" to gauge

students readiness for college), ACT (all 11th graders free of charge), Work Keys (12th graders indication of workforce readiness), the current graduation exam, Alabama High School Graduation Exam (AHSGE), will be included as end-of-course assessments that are more rigorous and indicative of college readiness. These will become part of the final grade for credit. These data will be added to ASCEND as part of this grant.

Capabilities and Key Elements will support Alabama's education improvement efforts, goals, and accountability system

As a result of capabilities and key elements already in place and those which will be developed as a result of this grant support, education improvement efforts, goals, and an accountability system will be enhanced at all levels of education, including local districts, multiple state agencies, and even the Federal government. As the proposed data standards, data collection processes, and other components are implemented, they will result in improved data quality, efficiency, timeliness, utility, and accessibility. Several disparate data systems within ALSDE will be consolidated in to a single ACES data warehouse, thereby eliminating redundancy of reporting and efficiency of efforts to maintain the data. Data from other state agencies will be integrated with ALSDE data in a comparable format, thereby increasing utility and policymaking throughout the preschool-K-12-postsecondary-workforce continuum.

The ASCEND data repository to be developed with support from this grant will be used across partner agencies / entities to enhance internal accountability as well as accountability across the entire system. For example, data from early childhood programs will be integrated with data from LEAs to determine which programs work best with students from various demographic groups in preparing children for school. Similarly, student and staff evaluation data from school districts will be integrated with data from higher education to determine which programs and courses better prepare students for success in college as well as in the work force. Also, ALSDE will be able to determine which teacher training programs and staff development programs result in better trained and more successful teachers. This will be aided by a common data dictionary and metadata shared between ALSDE and its partners. These are just a few examples of how this grant will impact on the use of data at all levels.

Finally, reporting and analytical tools will be developed as part of this grant that will provide end-users access to the data across all participating agencies. This will result in an improved ability for ALSDE to report accountability data to the US Department of Education, as well as its other constituents. Longitudinal data will result in improved analytical capabilities to determine trends in the education process as well as the ability for forecast future needs. The tools will provide decision-makers within ALSDE and partner agencies / entities with the ability to mine the data and generate information that will lead to the setting of policy based on longitudinal trends.

Alabama's current capacity to use the data system to support improvement efforts

ALSDE and its partners have demonstrated the capacity to use data to support improvement efforts at many levels. To date, this capacity has been developed solely with state resources. Data are currently collected in multiple formats, often on an ad hoc basis, to satisfy required data reporting for various state and federal agencies. These data are generally received as separate flat files. The data are provided to its users using canned or custom developed reports. At this stage, data from multiple files must be merged manually.

Accountability reporting is a good example of data use for improving education in Alabama. ALSDE provides data from STI, the statewide student management system, to DRC, the state assessment vendor. Using business rules provided by ALSDE, DRC generates the results of Adequate Yearly Progress (AYP) calculations to satisfy NCLB reporting requirements. These results, as well as several other types of data, are posted on the ALSDE website for public viewing. Some of these reports are available at the school level as far back as the 1998-1999 school year. ALSDE has developed an interactive reporting tool that allows end users to set filters based on multiple demographic characteristics. Additionally, the DRC data warehouse is used to provide teachers at the building level with the ability to look at the performance on state assessments of students in their classrooms.

ALSDE manually merges the same data with additional data sources to generate an annual statistical and financial report to the governor and legislature. These data are used by the Alabama legislature to support funding and legislation. The reports since 1999 are also made available on the ALSDE website.

ALSDE has also demonstrated its capability to share data with other agencies. ALSDE already exchanges data with the Alabama Commission on Higher Education (ACHE). Using these data, ALSDE has generated Higher Education Report Cards for teacher preparation programs at virtually every college in the state. These report cards go back as far as 2000 and are also available on the ALSDE website.

While the capacity exists to use the data to support school improvement efforts, doing so is a very time consuming and inefficient task. Using funds from this grant, ALSDE intends to streamline the data collection and reporting process. Savings in staff time will enable ALSDE to sustain the project.

Training and technical assistance needs to be addressed in this project

Virtually any project involving changes in the way data are collected, reported, and utilized requires training at many different levels. Such a focus on the use of data results in a change in the culture of using data to make decisions. All projects to be funded under this grant anticipate the appropriate training to all relevant constituencies.

Some of the projects to be funded by this grant involve the sharing of many types of data across agencies. Such sharing of data is regulated by the Family Educational Rights and Privacy Act (FERPA) which governs the disclosure of educational records. It is anticipated that FERPA related training would be an essential component in all training modules associated with the use of the proposed SLDS. It would include information on what data can be shared, who can use it, and what records need to be retained related to the disclosure of the data.

ALSDE anticipates using a "train-the-trainer" approach for any statewide delivery or interagency components of projects funded by this grant. Such training will be accomplished using state resources. Since ACES will be used within the Department, ALSDE will continue to use internal resources to provide all support for the users of the system. ASCEND, on the other hand will be used across several agencies. It is anticipated that technical assistance on an on-going basis would be provided by the third party vendor chosen to house the data-warehouse. The Forum Guide to Building a Culture of Quality Data (and the Curriculum) developed with NCES sponsorship will be a helpful resource in this effort.

Addressing requirements of SFSF with Alabama's SLDS

The US Department of Education has proposed data and information requirements for all states receiving funds under Phase 2 of the State Fiscal Stabilization Fund. These requirements provide indicators and descriptors for the four education reform areas:

a. Alabama will work to Achieve Equity in Teacher Distribution

The ALSDE will use data from the Teacher Education Program and Staff Evaluation, as well as the On-line Teacher Certification and Renewal System, to determine the level to which equity in teacher distribution has been achieved.

b. Alabama is Improving the Collection and Use of Data

ALSDE will be substantially improve data collection and use through the integration of several existing data sources into the ACES and ASCEND. These will result in more robust, efficient, and less redundant data to be used for reforming education.

c. Alabama is Raising Standards and Improving Assessments

ALSDE will use assessment and accountability data included in the SLDS (to be developed with funds from this grant) to determine the extent to which standards in reading/language arts, math, and science exist, whether there are assessments in these areas, whether all students are being assessed, and whether students are enrolling in and graduating from Institutes of Higher Education.

d. Alabama is Supporting Struggling Schools

ALSDE will use longitudinal data collected by this grant project to track changes in the status of struggling schools (including those designated as in improvement, corrective action, restructuring, or charter schools), and to determine which schools are most in need of support.

ALSDE will use the capabilities of the systems to provide tools, reports, and data to the applicable staff to enable them to make informed decisions with respect to their area of interest.

b. Project Outcomes Related to System Requirements and Implementation

As a result of the review of the America COMPETES, the Alabama State Department of Education has identified five project outcomes that will be funded by this grant. The first three will be focused within ALSDE. The other two outcomes will involve collaboration with several external agencies. Funds from this grant will enable all five project outcomes to be completed within the three year life of the grant.

Alabama Consolidated Education System (ACES)

ACES will enable ALSDE to comply with the following capabilities and elements as required by America COMPETES.

Capabilities

1 Must enable States to examine student progress over time
5 Must enable data to be easily generated for continuous improvement and decision-making

Elements

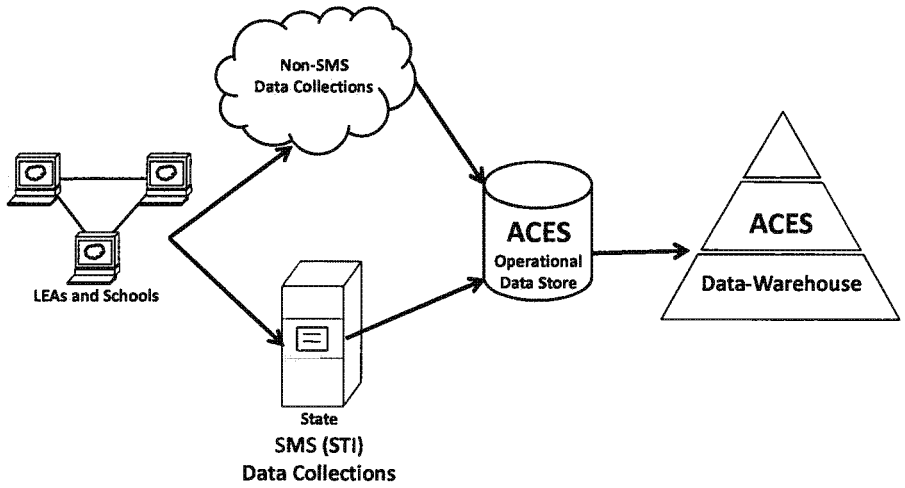
6 Yearly test records of individual student with respect to assessments under section 1111(b) of ESEA 1965

Products: ALSDE has already begun the development of several ACES components. Funds from this grant will enable the completion of a consolidated operational data store (ACES) and accompanying longitudinal data warehouse with associated data-marts. The operational data store will integrate data from the student management systems in each school and LEA, as well as other non-SMS data sources, using a common data dictionary and metadata repository. The data warehouse at a minimum will include student assessment, attendance, discipline, demographics, graduates, dropouts, and truancy data. This project outcome will include the development of a data reporting portal and associated tools for data mining that will enable a front end for user access to data.

Features: ACES will incorporate a robust and technically compliant suite of products. It will provide frequent updates from the operational data store to the data warehouse resulting in the availability of the most current data possible for use. The data reporting portal will be easy to use and include a comprehensive dashboard as well as current data-mining technologies. It will have the ability to produce predefined, canned reports as well as dynamic reports with the appropriate blend of graphical, tabular, and analytical presentations to assist SDE decision makers.

Benchmarks: By the end of this grant, ACES will provide an operational data store and data warehouse based on a common data dictionary and metadata repository that enables end users within ALSDE to quickly access the most current student level longitudinal data possible (following appropriate levels of training). Policy makers will be able to identify trends and needs within the state to address educational and operational issues related to student performance and school management. Student progress will be presented in an easy-to-navigate and user-friendly format. End users will be able to generate reports at the individual student level (after confirming user authentication and access privileges) to track progress on each content standard. These data will be used to identify at risk students and create "prescriptions" for student progress using a web-enabled dashboard. This will result in positive performance based outcomes for all Alabama students.

The following diagram illustrates how data from the schools and LEA's will be integrated into the ACES data warehouse.



On-line Teacher Certification and Renewal System

This project outcome will be an additional component of ACES. It will enable ALSDE to comply with the following capability as required by America COMPETES.

Capability

4 Must enable the matching of teachers with information about their certification and teacher preparation programs, including the institutions at which they received their training

Products: Although a teacher education and certification system currently exists, it is fragmented, outdated, technologically insufficient, and incapable of meeting changing needs of the policymakers, teachers and other stakeholders. This consolidated data store will include all teacher education and certification information. It will become part of the ACES overall data architecture. The On-line Teacher Certification and Renewal System will be coupled with an automated workflow engine based on a common data dictionary and metadata repository. Through ACES, it will be linked with the Teacher Education Program and Staff Evaluation System.

Features: The Online Teacher Certification and Renewal System will be significantly enhanced by this grant to provide a simplified user experience. At the completion of this grant, this system will result in a reduction in time required to apply for, renew, and receive certification from the SDE. The efficiencies gained will provide cost containment opportunities achieved by

the redeployment of state resources. Savings gained as a result of these efficiencies will enable ALSDE to sustain the system following the completion of the grant.

Benchmarks: The success of the On-line Teacher Certification and Renewal System will be measured by end user satisfaction and reduced time for teacher certification and renewal processes. The elimination of unnecessary tasks required to support the certification process and improved human resource utilization will result in cost savings realized through greater efficiency of the process.

Teacher Education - Program and Staff Evaluation System

Like the Online Teacher Certification and Renewal System, this project outcome will be an additional component of ACES. It will also enable ALSDE to comply with the following capability as required by America COMPETES.

Capability

4 Must enable the matching of teachers with information about their certification and teacher preparation programs, including the institutions at which they received their training

Products: The Teacher Education-Program and Staff Evaluation System will be an online application that will provide capabilities necessary to evaluate teacher education programs and staff throughout the state. It will include an administrative tool to be used by ALSDE program staff for creating and maintaining a bank of test items that will be used to generate evaluation instruments for each of the following categories of certified staff:

- Teachers
- Special Education Teachers
- Principals and Assistant Principals
- Education Administrators
- Librarians
- Guidance Counselors
- Speech Pathologists
- Psychometrists

Each certified employee that fills a supervisory position in Alabama public schools will be able to log into the portal and complete evaluations of assigned staff. An automated process will be employed to calculate scores for the relevant evaluations. Evaluation history will include responses to questions as well as points scored by all certified staff throughout the relevant periods of employment in Alabama public schools.

Features: Deans of the Schools of Education will review the evaluations of all program completers from their respective institutions. Through this system, all program staff, deans, and other stakeholders will have the tools necessary to perform needed data analysis by program area. The system will interface with the existing Teacher Preparation Reporting System to ensure evaluation results are included in the annual teacher preparation report card.

Benchmarks: Detail project plans for conducting the analysis portion of this work will begin in 2011. Construction, testing, training and delivery of the new features will also be completed in this time period.

Alabama **S**ystem for **C**ollaborative **E**ducation **N**eeds **D**ata warehouse **- (ASCEND)**

The Alabama System for Collaborative Education Needs Data Warehouse is the project outcome that makes this a true PK-20 longitudinal data system. Funds from this grant will enable ALSDE to meet the greatest number of the required capabilities and elements specified in the America COMPETE Act.

Capabilities

2 Must facilitate and enable exchange of data among agencies and institutions within state and between states.
5 Must enable data to be easily generated for continuous improvement and decision-making

Elements

3 Student-level information about the points at which students: Exit, Transfer in, Transfer out, Drop out, and Complete P-16 education programs
4 Capacity to communicate with higher education data system.
6 Yearly test records of individual student with respect to assessments under section 1111(b) of ESEA 1965
11 Data that provide information regarding extent to which students transition successfully from secondary school to postsecondary education, including whether students enroll in remedial coursework
12 Data that provide other information determined necessary to address alignment and adequate preparation for success in postsecondary education

Products: The major product of this project outcome will be a shared data repository, called the Alabama System for Collaborative Education Needs Data Warehouse (ASCEND), that will connect data from ALSDE and partners such as the Alabama Department of Rehabilitation Services (DRS), Alabama Commission on Higher Education (ACHE), Alabama Department of Postsecondary Education (DPE), Alabama Department of Children's Affairs - Office of School Readiness (DCA), and the Alabama Department of Industrial Relations (DIR). A Memoranda of Understanding (MOU) between agencies has been agreed to in principle and will be formally signed early in the project. An executive order from Governor's office may be necessary in

order to share data across agencies. The project will begin by developing an agreed upon set of data structures and elements to be used among participating agencies. This will lead to the development of a common data dictionary and metadata repository. A transport mechanism, including data transformation and loading routines, will be developed to move data into the shared data store for use by all of the cooperating agencies. A data reporting portal and data mining tool will be implemented to provide easy access for each of the participating agencies.

Features: ASCEND will feature a common data standard with data that are regularly refreshed. It will provide easy access to required data for federal and state reporting needs, consistent with the business needs of the agencies involved. Reports, dashboards, and interactive inquiry capabilities will allow the ALSDE and partners to readily make informed decisions regarding policy, procedure, and education in Alabama.

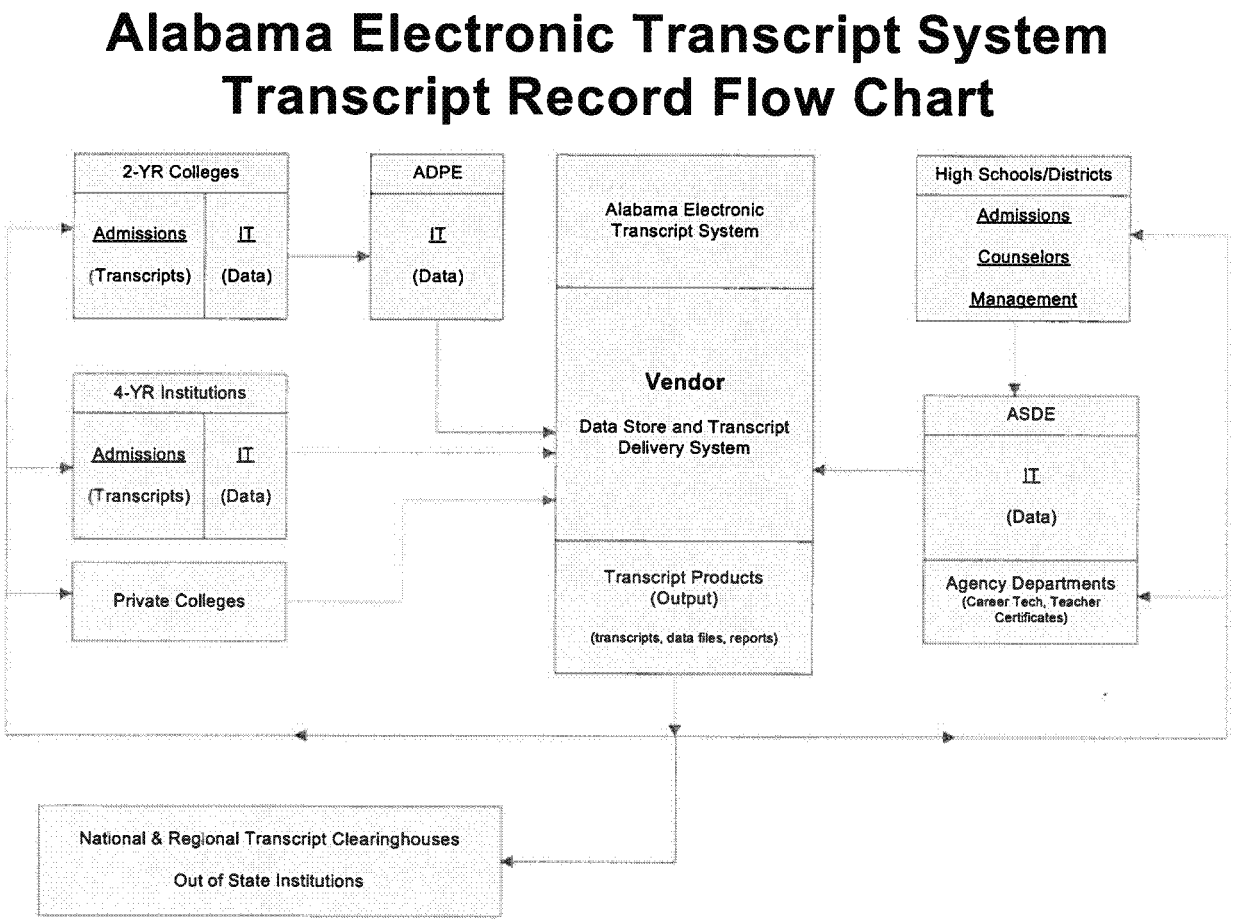
Benchmarks: The creation of a common data store that can be shared between the ALSDE and other agencies such as ACHE and DIR will result in timely, accurate, and better quality data. The various constituents will be able to assess the frequency, impact, and nature of the success in programs targeted to improve student retention, completion, and performance. An Executive order may be required to enable the exchange of data between the ALSDE and ACHE, Department of Children's Affairs - Office of School Readiness (DCA), Department of Industrial Relations (DIR), Department of Rehabilitation Services/Early Intervention, and the Department of Postsecondary Education (DPE). The data store will include data from ACHE on student's enrollment/exit data from public colleges within the state, as well as similar data from DPE for two year colleges. Another goal will be to gather data from private colleges within the state. It is anticipated that his will be completed by the end of 2012.

E-transcript transport system

Products: The E-transcript transport and storage system will be a component of the overall ASCEND Shared Data Repository. As such it will include a common data dictionary and metadata repository. The E-transcript system will contain statewide student ID of a public school student that will help to link PK-12 data with that of higher education.

Features: The E-transcript transport and storage system will have the ability to track students that have participated in Alabama public education through higher education using the statewide student ID as the key identifier. It will feature the automated movement of standardized student transcript information to the shared data repository and designated institutions of higher education. The transcript information will be permanently stored as an additional entity of a student's profile.

Benchmarks: As a result of the E-Transcript transport and storage system, all students who participate in Alabama public education will have a unique state assigned identifier, which will be the foundation of longitudinal tracking across their entire education career. This will enable users to successfully move data to any Alabama institution of higher education.



c. Timeline for Project Outcomes

Upon notification of the grant award, the Alabama State Department of Education anticipates beginning this project in the second quarter of 2010. ALSDE will select a consultant to serve as the Project Management Office (PMO) director. This individual will coordinate the work of all five project outcomes to assure that activities in the individual plans proceed according to the established timetables.

Each project outcome will begin with a period of organization and administration. This will involve the development of a more detailed project plan and communications plan, followed by project administration and control activities. In the case of ACES, ALSDE expects to create a Request for Proposal (RFP) or an Invitation to Bid (ITB), as required by Alabama purchasing policy, to identify a vendor with the requisite skills and experience to assist in advancing this work in timely manner and design, develop, deploy, and migrate the data included in the scope of this work. Additional contract staff will be hired for each outcome as necessary.

During this planning stage, ALSDE will collaborate with external organizations as appropriate. In the case of ACES, ALSDE will engage various K-12 related groups (such as, principals, teachers, parents, and other K-12 entities) to determine their data-related needs and interests. ALSDE has already met with all state agencies that would be essential to providing data for ASCEND. Efforts are also underway to establish a PK-20 Council that would provide additional structure and complementary work undertaken as a result of this project. From these working groups, ALSDE will determine the best method of providing access to the information, consistent with privacy laws and other protections afforded to students and staff.

ALSDE LDS Grant Proposal Major Projects

Design, Construction, and Delivery

Proj	Task	Description	2010 2Q	2010 3Q	2010 4Q	2011 1Q	2011 2Q	2011 3Q	2011 4Q	2012 1Q	2012 2Q	2012 3Q	2012 4Q
001		Alabama Consolidated Education System (ACES)											
	000	Organization and Administration											
	001	Operational Data Store											
	002	Common data dictionary											
	003	Meta data repository											
	004	Consolidated data store for all teacher education and certification information											
	005	ACES Data warehouse / Data-marts											
	006	Data reporting portal											
	007	Associated tools – Tools associated with the use and mining of Data											
	008	Automated workflow -											
002		On-line teacher certification and renewal system											
	000	Organization and Administration											
	100	Design											
	200	Construct											
	300	Policy & Procedure											
	400	Training											
	500	Implementation											
003		Teacher education - Program and staff evaluation system											
	000	Organization and Administration											
	100	Design											
	200	Construct											
	300	Policy & Procedure											
	400	Training											
	500	Implementation											

ALSDE LDS Grant Proposal Major Projects

Design, Construction, and Delivery			2010			2011				2012			
Proj	**Task**	**Description**	**2Q**	**3Q**	**4Q**	**1Q**	**2Q**	**3Q**	**4Q**	**1Q**	**2Q**	**3Q**	**4Q**
004		Shared data repository – (ASCEND)											
	000	**Organization and Administration**											
	001	**Data warehouse / Data-marts / E-transcript storage**											
	002	**Common data dictionary**											
	003	**Meta data repository**											
	004	**Transport mechanism – For Inter-Agency transport of data to the Shared Data Repository**											
	005	**Data reporting portal**											
	006	**Associated tools – Tools associated with the use and mining of Data**											
	007	**Automated workflow -**											
005		E-transcript transport system											
	000	**Organization and Administration**											
	001	**Phase I (Vendor System)**											
		Design											
		Construct											
		Policy & Procedure											
		Training											
		Implementation											
	002	**Phase II (Feed to ASCEND)**											
		Design											
		Construct											
		Policy & Procedure											
		Training											
		Implementation											

As already indicated, work on parts of these project outcomes has been ongoing within ALSDE in advance of this grant application. These activities have been accomplished using only state resources. There are no existing grants with which activities funded by this grant will need to be coordinated.

d. Project Management and Governance Plan

The success of all project outcomes will depend on strong leadership and collaboration across numerous offices and departments both within and outside of ALSDE. It is anticipated that a Project Management Office will be formed within the ALSDE to coordinate the execution of the activities across all five of the project outcomes. The work of this office will be led by the contract Project Management Office Director to be hired upon notification of this grant award. The Project Management Office will work very closely with the Information System section, which already has a strong working relationship with all other sections within ALSDE, as well as other agencies in the state. The Information Systems section has developed the source systems for the other functional areas within ALSDE that will be integrated into the data warehouses and repositories to be included as part of this project. The Project Management Office will be responsible for approval and oversight of all project activities.

Standard Methodology will be employed for each project outcome with consideration given to the unique or specific requirements of each outcome. To the extent possible, the project will be organized and managed according to best practices as outlined in the Project Management Institute's Project Management Book of Knowledge (PMBOK). The use of these guiding principles will enable the Project Management Office to achieve the goals of each of the project outcomes on time and within budget.

As indicated in the Project Timeline, each of the project outcomes will be accomplished through a five step process. These steps will involve the design of the outcome, construction of the outcome, definition of policy and procedure, training, and implementation.

Three of the project outcomes will be designed and developed for use specifically within ALSDE. These include the Alabama Consolidated Education System (ACES,) the On-line Teacher Certification and Renewal System, and the Teacher Education-Program and Staff Evaluation System. The Information Systems section will have primary responsibility for the development and subsequent operation of these outcomes.

The remaining two project outcomes will be the result of collaboration across several agencies outside of ALSDE (but including the ALSDE). These outcomes included the Alabama System for Collaborative Education Needs Data warehouse (ASCEND,) and the E-transcript transport system. The Alabama Commission on Higher Education has recommended the establishment of a PK-20 Council in its State Plan for Alabama Higher Education for 2009-2014. This would be accomplished through Executive Order, legislation, or other means. This council would be comprised of executive level leadership from each of the respective agencies and serve as an advisory board for these project outcomes.

Upon receipt of the award letter for this grant, the PK-20 Council and the Project Management Office will begin to define the functional and technical requirements for ASCEND and the E-transcript Transport System. The groups will use these requirements to solicit and select the appropriate vendor, and oversee the implementation and any modifications to the chosen solutions. Upon completion, the selected entities or vendors will assume primary responsibility for the maintenance and operation of both ASCEND and the E-transcript Transport System. The ALSDE will work with the partner agencies / entities to finalize a multi-agency memorandum of agreement that permits the continuation/extension of this collaborative effort to be established through this grant in order to ensure the continuity and relevance of the system.

ALSDE fully anticipates that the following Agencies / Entities will be contributors/partners in the creation and development of the system:

- Alabama Commission on Higher Education (ACHE)
- Department of Postsecondary Education (DPE)
- Department of Rehabilitation Services (DRS)
- Department of Industrial Relations (DIR)
- Department of Children's Affairs - Office of School Readiness (DCA)
- Alabama Association of Independent Colleges & Universities (AAICU)

Stakeholders such as teachers, administrators, and others deemed as subject matter experts will be engaged (using surveys, roundtables, and working groups) in all phases of project planning and development as necessary in order to ensure that end-user needs are adequately addressed both functionally and technically.

e. Staffing

ALSDE's Director of Information Systems, Mr. Gary Weatherly, will serve as the Project Director for all projects enumerated herein. Working within an international consulting firm, Mr. Weatherly assisted more than two hundred client companies in the design and development of automated financial and operational systems. More recently, as the Chief Information Officer for three publicly traded companies, his leadership in executive management while overseeing a portfolio of information systems projects has complemented his broad industry and technical expertise.

In addition to leading an extensive array of engagements using highly structured systems development lifecycle methodology, Mr. Weatherly holds the Project Management Professional (PMP) certification sponsored by the Project Management Institute (PMI). Accordingly, ALSDE Information Systems projects are guided by the cumulative knowledge of successful project management tools and techniques, as well as lessons learned across many years of systems development efforts.

Mr. Dominique Martel, Mr. Scott Crews, and Mrs. Patsy Eiland are scheduled to provide direction and guidance to the various projects being undertaken. Mr. Martel and Mrs. Eiland

currently serve as programming managers responsible for ALSDE's application development staff.

Mr. Martel's focus includes web-based applications, EDEN submissions, annual data collections for the ALSDE, and thought leadership associated with the design of ACES and ASCEND.

Mrs. Eiland's twenty-plus years' service at ALSDE spans virtually the entire spectrum of education data requirements. Her participation in national education data forums lends additional perspective to all projects being undertaken. Mrs. Eiland's primary focus for the last few years has been in the Accountability and Assessment arena. In concert with her other duties Mrs. Eiland has also played a major role in the implementation of the assessment data-warehouse.

Mr. Crews manages the technical staff that provides support for the entire ALSDE and includes all aspects of desktop hardware support, network and security considerations, and all operational aspects of ALSDE's data center.

Additional ALSDE staff members have been slotted into projects where their specific talents are consistent with the applications and technologies included.

ALSDE proposes to deploy certain contract resources who are already familiar with ALSDE's functional requirements in the design and development of projects for which their expertise is appropriate. Mr. Charles Sullivan, Mr. Ray Faircloth, Mr. Joe Hall, Mr. Steven Jones, Mr. Charles Stringham, Mr. Jonathan Joiner, will fill various roles including project manager, business analyst, software architect, and software developer.

ALSDE's chosen contract PMO director will assure that all work is conducted using recognized best practices, including guidance from the PMI Project Management Book of Knowledge (PMBOK).

Resumes for all listed team members are provided in Appendix B.

Title	Description
SDE Project Director Gary Weatherly - (20 %)	Manage the preparation and execution of the RFP process coordinate the overall work of all concurrent activities and server as primary liaison to other agencies/stakeholders
Agency SME	Performs expert analysis of business requirements and serves as liaison for functional and technical aspects of the project activities relating to their respective agencies
SDE PM Scott Crews - (0 - 5 %) Patsy Eiland - (0 - 10 %) Dominique Martel - (25 - 100 %)	Develops and manages project plans, provides overall guidance to project team members, handle communication with stakeholders, address staffing assignments, and performs other leadership tasks to ensure the successful delivery of the project
SDE Business Analyst / SME BA #1 - (10 - 100 %) BA #2 - (10 - 100 %)	Performs expert analysis of business requirements and serves as liaison for functional and technical aspects of the project activities
SDE Developer Joe Reynolds - (0 - 75 %) Developer #2 - (0 - 75 %) Developer #3 - (0 - 75 %) Developer #4 - (0 - 75 %)	Prepares source code, tests developed applications for compliance with requirements, performs unit/integration testing of products. Prepares code to interface with existing and acquired systems to meet stated requirements and objectives
Contractual	
Contract PMO Director (100%)	Establishes the overall PMO for the five projects. Works with the individual Project Managers of the respective projects to coordinate activities and resources.

Title	Description
Contract PM Charles Sullivan - (25 %) PM #2 - (25 - 100 %) PM #3 - (25 - 100 %) PM #4 - (25 - 100 %)	Develops and manages project plans, provides overall guidance to project team members, handle communication with stakeholders, address staffing assignments, and performs other leadership tasks to ensure the successful delivery of the project
Contract Business Analyst Ray Faircloth - (100 %) BA #2 - (100 %) BA #3 - (100 %) BA #4 - (100 %) BA #5 - (100 %)	Performs expert analysis of business requirements and serves as liaison for functional and technical aspects of the project activities
Contract Software Architect Joe Hall - (100 %) SA #2 - (100 %) SA #3 - (100 %) SA #4 - (100 %)	Designs, prepares, and configures the overall software structure, develops framework for integration with various components and subsystem whether built in-house or acquired for implementation
Contract DBA Charles Stringham - (25 - 100 %) Jonathon Joiner - (25 - 100 %) DBA #3 - (100 %) DBA #4 - (100 %) DBA #5 - (100 %)	Designs overall database architecture, schemas, scripts, data transformation of external data sources, and services of the enterprise data repositories. Monitors operational performance of database servers and all databases to ensure data integrity and reliability
Contract Developer Jamie Swindall - (25 - 100 %) Steven Jones - (100 %) Developer #3 - (100 %) Developer #4 - (100 %) Developer #5 - (100 %) Developer #6 - (100 %) Developer #7 - (100 %) Developer #8 - (100 %)	Prepares source code, tests developed applications for compliance with requirements, performs unit/integration testing of products. Prepares code to interface with existing and acquired systems to meet stated requirements and objectives

Project Narrative

Project Narrative - Appendix A, Optional Attachments

Attachment 1:
Title: **ALSDE SLDS Grant - Project Narrative Appendix A** Pages: **6** Uploaded File: **08 - Appendix A - Optional Attachments.pdf**

Appendix A - Exhibit 1
ALSDE LDS Grant Proposal Major Projects

ALSDE LDS Grant Proposal Major Projects					FTE											
Design, Construction, and Delivery					2010			2011				2012				2013
Proj	Task	Step	Description	Resource	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q
001			Alabama Consolidated Education System (ACES)													
				Project Director	0.07	0.10	0.07	0.05								
				Contract PMO Director	0.33	0.50	0.33	0.25								
				Agency SME	0.00	0.00	0.00	0.00								
				Contract PM	1.00	1.00	1.00	1.00								
				SDE PM	0.50	0.25	0.25	0.25								
				Contract Business Analyst	0.00	1.00	1.00	1.00								
				SDE Business Analyst / SME	0.00	0.50	0.25	0.75								
				Contract Software Architect	0.00	0.00	1.00	1.00								
				SDE Software Architect	0.00	0.00	0.00	0.00								
				Contract DBA	0.00	3.00	3.00	3.00								
				SDE DBA	0.00	0.00	0.00	0.00								
				Contract Developer	0.00	1.00	2.00	2.00								
				SDE Developer	0.00	1.00	2.00	2.00								
	000		**Organization and Administration**													
		010	Project Plan Development													
		020	Communications Plan													
		030	Project Admin & Control													
	001		**Operational Data Store**													
		100	Design													
		200	Construct													
		300	Policy & Procedure													
		400	Training													
		500	Implementation													
	002		**Common data dictionary**													
		100	Design													
		200	Construct													
		300	Policy & Procedure													
		400	Training													
		500	Implementation													
	003		**Meta data repository**													
		100	Design													
		200	Construct													
		300	Policy & Procedure													
		400	Training													
		500	Implementation													
	004		**Consolidated data store for all teacher education and certification information**													
		100	Design													
		200	Construct													
		300	Policy & Procedure													
		400	Training													
		500	Implementation													
	005		**ACES Data warehouse / Data-marts**													
		100	Design													
		200	Construct													
		300	Policy & Procedure													
		400	Training													
		500	Implementation													
	006		**Data reporting portal**													
		100	Design													

Appendix A - Exhibit 1
ALSDE LDS Grant Proposal Major Projects

ALSDE LDS Grant Proposal Major Projects					FTE											
Design, Construction, and Delivery					2010			2011				2012				2013
Proj	Task	Step	Description	Resource	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q
		200	Construct													
		300	Policy & Procedure													
		400	Training													
		500	Implementation													
	007		**Associated tools – Tools associated with the use and mining of Data**													
		100	Design													
		200	Construct													
		300	Policy & Procedure													
		400	Training													
		500	Implementation													
	008		**Automated workflow -**													
		100	Design													
		200	Construct													
		300	Policy & Procedure													
		400	Training													
		500	Implementation													
002			On-line teacher certification and renewal system													
				Project Director			0.07	0.05	0.05							
				Contract PMO Director			0.33	0.25	0.25							
				Agency SME			0.00	0.00	0.00							
				Contract PM			0.25	0.25	0.25							
				SDE PM			0.00	0.00	0.00							
				Contract Business Analyst			1.00	1.00	0.50							
				SDE Business Analyst / SME			0.25	0.25	0.25							
				Contract Software Architect			1.00	1.00	0.50							
				SDE Software Architect			0.00	0.00	0.00							
				Contract DBA			0.25	0.25	0.25							
				SDE DBA			0.00	0.00	0.00							
				Contract Developer			2.00	3.00	3.00							
				SDE Developer			0.50	0.50	0.50							
		000	**Organization and Administration**													
		100	**Design**													
		200	**Construct**													
		300	**Policy & Procedure**													
		400	**Training**													
		500	**Implementation**													
003			Teacher education - Program and staff evaluation system													
				Project Director					0.05	0.07	0.07					
				Contract PMO Director					0.25	0.33	0.33					
				Agency SME					0.00	0.00	0.00					
				Contract PM					0.25	0.25	0.25					
				SDE PM					0.00	0.00	0.00					
				Contract Business Analyst					0.50	1.00	1.00					
				SDE Business Analyst / SME					0.25	0.25	0.25					
				Contract Software Architect					0.50	1.00	1.00					
				SDE Software Architect					0.00	0.00	0.00					

Appendix A - Exhibit 1
ALSDE LDS Grant Proposal Major Projects

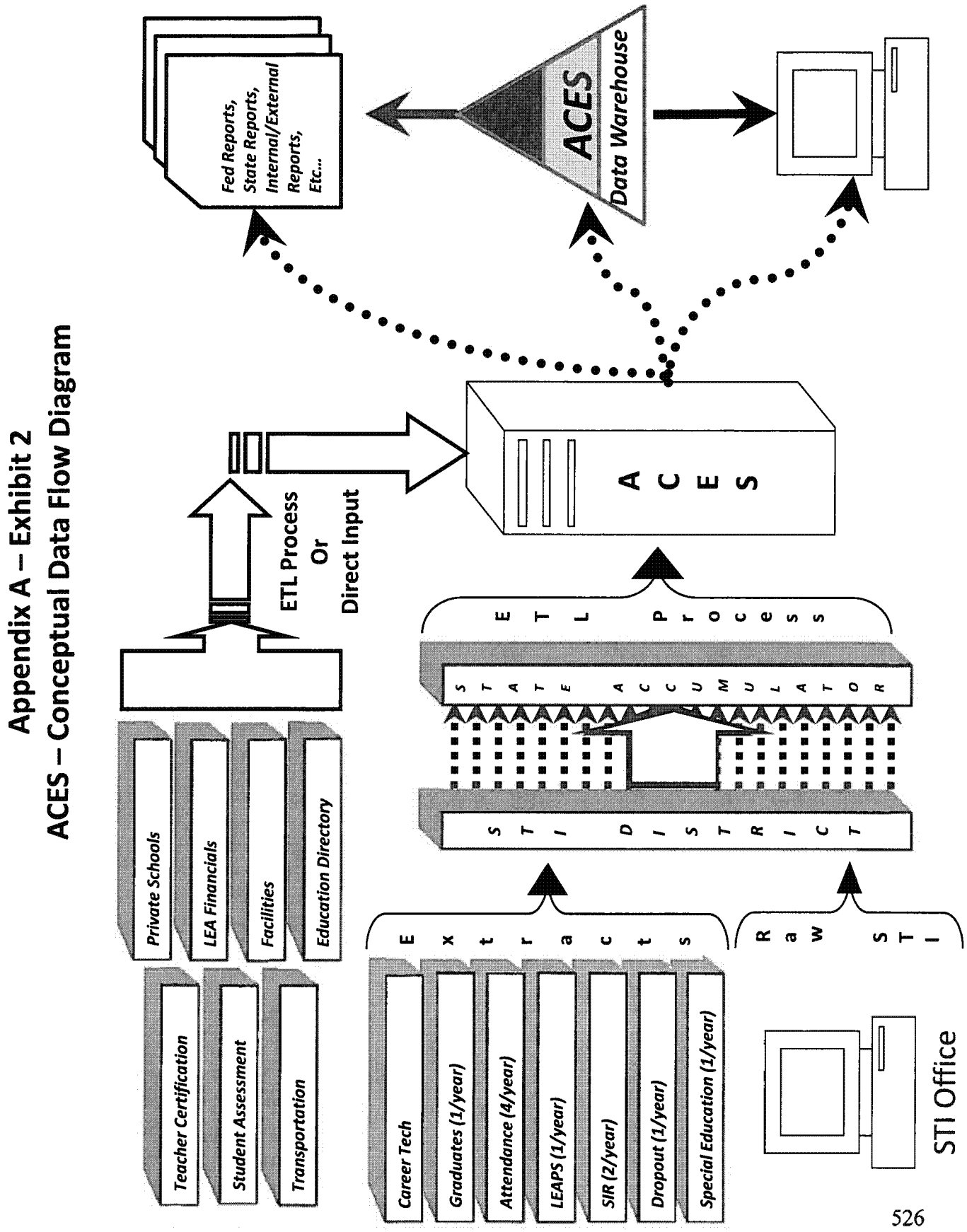
ALSDE LDS Grant Proposal Major Projects					FTE											
Design, Construction, and Delivery					2010			2011				2012				2013
Proj	Task	Step	Description	Resource	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q
				Contract DBA					1.00	1.00	1.00					
				SDE DBA					0.00	0.00	0.00					
				Contract Developer					2.00	3.00	3.00					
				SDE Developer					0.50	0.50	0.50					
		000	**Organization and Administration**													
		100	**Design**													
		200	**Construct**													
		300	**Policy & Procedure**													
		400	**Training**													
		500	**Implementation**													
004			Shared data repository – (ASCEND)													
				Project Director	0.07			0.05	0.05	0.07	0.07	0.10	0.10			
				Contract PMO Director	0.33			0.25	0.25	0.33	0.33	0.50	0.50			
				Agency SME	0.05			0.05	0.05	0.05	0.05	0.05	0.05			
				Contract PM	1.00			1.00	1.00	1.00	1.00	1.00	1.00			
				SDE PM	0.50			0.50	0.25	0.25	0.25	0.25	0.25			
				Contract Business Analyst	1.00			1.00	1.00	1.00	1.00	1.00	1.00			
				SDE Business Analyst / SME	0.25			0.25	0.25	0.25	0.25	0.25	0.25			
				Contract Software Architect	0.00			0.00	0.00	1.00	1.00	1.00	1.00			
				SDE Software Architect	0.00			0.00	0.00	0.00	0.00	0.00	0.00			
				Contract DBA	0.00			0.00	3.00	3.00	3.00	3.00	3.00			
				SDE DBA	0.00			0.00	0.00	0.00	0.00	0.00	0.00			
				Contract Developer	0.00			0.00	0.00	2.00	2.00	2.00	2.00			
				SDE Developer	0.00			0.00	0.00	2.00	2.00	2.00	2.00			
	000		**Organization and Administration**													
		010	Project Plan Development													
		020	Communications Plan													
		030	Project Admin & Control													
	001		**Data warehouse / Data-marts / E-transcript storage**													
		100	Design													
		200	Construct													
		300	Policy & Procedure													
		400	Training													
		500	Implementation													
	002		**Common data dictionary**													
		100	Design													
		200	Construct													
		300	Policy & Procedure													
		400	Training													
		500	Implementation													
	003		**Meta data repository**													
		100	Design													
		200	Construct													
		300	Policy & Procedure													
		400	Training													
		500	Implementation													
	004		**Transport mechanism – For Inter-Agency transport of data to the Shared Data Repository**													
		100	Design													

Appendix A - Exhibit 1
ALSDE LDS Grant Proposal Major Projects

ALSDE LDS Grant Proposal Major Projects					FTE											
Design, Construction, and Delivery					2010			2011				2012				2013
Proj	Task	Step	Description	Resource	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q
		200	Construct													
		300	Policy & Procedure													
		400	Training													
		500	Implementation													
	005		**Data reporting portal**													
		100	Design													
		200	Construct													
		300	Policy & Procedure													
		400	Training													
		500	Implementation													
	006		**Associated tools – Tools associated with the use and mining of Data**													
		100	Design													
		200	Construct													
		300	Policy & Procedure													
		400	Training													
		500	Implementation													
	007		**Automated workflow -**													
		100	Design													
		200	Construct													
		300	Policy & Procedure													
		400	Training													
		500	Implementation													
005			E-transcript transport system													
				Project Director	0.07	0.10	0.07	0.05	0.05	0.07	0.07	0.10	0.10	0.20	0.20	
				Contract PMO Director	0.34	0.50	0.34	0.25	0.25	0.34	0.34	0.50	0.50	1.00	1.00	
				Agency SME	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Contract PM	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
				SDE PM	0.50	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	
				Contract Business Analyst	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	
				SDE Business Analyst / SME	0.25	0.25	0.25	0.10	0.10	0.10	0.00	0.25	0.25	0.10	0.10	
				Contract Software Architect	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	
				SDE Software Architect	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Contract DBA	0.00	1.00	1.00	1.00	1.00	1.00	0.00	2.00	2.00	2.00	2.00	
				SDE DBA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Contract Developer	0.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	
				SDE Developer	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	
	000		**Organization and Administration**													
		010	Project Plan Development													
		020	Communications Plan													
		030	Project Admin & Control													
	001		**Phase I (Vendor System)**													
		100	Design													
		200	Construct													
		300	Policy & Procedure													
		400	Training													
		500	Implementation													
	002		**Phase II (Feed to ASCEND)**													
		100	Design													

Appendix A - Exhibit 1
ALSDE LDS Grant Proposal Major Projects

ALSDE LDS Grant Proposal Major Projects					FTE											
Design, Construction, and Delivery					2010			2011				2012				2013
Proj	Task	Step	Description	Resource	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q
		200	Construct													
		300	Policy & Procedure													
		400	Training													
		500	Implementation													


Appendix A – Exhibit 2
ACES – Conceptual Data Flow Diagram
Private Schools
LEA Financials
Facilities
Education Directory
Teacher Certification
Student Assessment
Transportation
ETL Process
Or
Direct Input
Fed Reports,
State Reports,
Internal/External
Reports,
Etc...
ACES
Data Warehouse
A C E S
E T L P r o c e s s
S T A T E A C C U M U L A T O R
S T I D I S T R I C T
E x t r a c t s
Career Tech
Graduates (1/year)
Attendance (4/year)
LEAPS (1/year)
SIR (2/year)
Dropout (1/year)
Special Education (1/year)
R a w S T I
STI Office

Project Narrative

Project Narrative - Appendix B Resumes of Key Personnel

Attachment 1:
Title: **ALSDE SLDS Grant - Project Narrative Appendix B** Pages: **31** Uploaded File: **09 - Appendix B - Resumes.pdf**

GARY E. WEATHERLY

(b)(6)

SUMMARY

Information systems executive with successful track record as a consultant and senior information technology officer. Acknowledged strengths in general management/administration, software development, and project management leadership. A pragmatic goal-oriented CIO whose focus is to ensure alignment of technology initiatives with business objectives. Well-rounded leader with broad industry experience base, supported by an array of technical skills.

- Executive Management and Administration
- Strategic Systems Planning
- Staff Development and Mentoring
- Business Development
- Performance Measurement
- Business Process Reengineering
- Software Development / Implementation
- Outsource Relationship Management

PROFESSIONAL EXPERIENCE

DIRECTOR – INFORMATION SYSTEMS SERVICES

Alabama Department of Education – Montgomery, Alabama **2005 - Present**

State education agency supporting 131 school districts and 1,400 schools.

- Applied private sector techniques to improve Information Systems delivery and efficiency for this state agency's 450 internal customers.
- Instituted a controlled software change process with student management system vendor to increase data quality associated with unique student identifier that was essential to longitudinal analysis.
- Launched and directed an information technology governance structure consisting of State Department of Education senior leadership team.
- Engineered an early warning system for the detection of influenza outbreak in cooperation with the Alabama Department of Public Health.
- Created application systems development methodology and trained staff in achieving repeatable processes.
- Consolidated software vendor communications paths and cemented relationships with key stakeholders through accurate project tracking protocol.
- Ensured compliance with data privacy regulations for connectivity between local schools, district education agencies, and this state education agency.
- Fostered software quality assurance delivery process to improve reliability of internal application development activities

INTERIM CIO / VICE PRESIDENT – BUSINESS SYSTEMS

Commonwealth Industries, Inc. - Louisville, Kentucky **2003 – 2004**

Leading manufacturer of common alloy aluminum with $1 billion revenue and 2,000 employees.

- Accountable for Project Management Office of an Enterprise Resource Planning system implementation (J. D. Edwards Software) at Company's corporate office and five plant sites, consolidating multiple legacy systems onto a common platform. Process improvements estimated at more than $12 million savings.

- Served as technical advisor to the CEO and presented information technology-related updates to the Board

- Administered a $14 million information technology operating budget.

VICE PRESIDENT – INFORMATION SYSTEMS

ProAssurance Corporation - Birmingham, Alabama **1996 – 2002**

Medical professional liability insurance company with $475 million revenue and eleven offices.

- Developed plans for strategic initiatives and monitored delivery of mission-critical projects. Coordinated software acquisition with vendors and Company's business units. Installed new policy administration and claims system to permit substantial growth in volume without corresponding underwriting or claims department staff increases.

- Enhanced Company's technical infrastructure, established connectivity with satellite offices, and constructed interfaces among disparate systems, thereby avoiding routine delays in information exchange.

- Assimilated information systems of four acquired companies over five years into Company's centralized data center and accommodated over 100% growth in business volume during this period.

- Recruited and mentored a high-performance technology team and enriched the overall quality of internal staffing. Eliminated the Company's dependence on outside consulting resources and recognized savings of more than $3 million in two years.

- Reduced business travel costs and expedited collaboration among business units through the introduction of videoconferencing facilities at corporate offices.

VICE PRESIDENT – MIS & CIO

Beverly Enterprises, Inc. - Fort Smith, Arkansas **1991 - 1995**

Long-term health care provider with $3 billion annual revenues and 80,000 employees in 36 states.

- Executed a comprehensive rollout of technology to upgrade and modernize Beverly's 775 sites. Integrated nursing assessment software at these facilities and produced multimillion-dollar annual savings.

- Prepared the Company's first strategic systems plan, generated support within the Company's MIS Steering Committee for major systems investments, and coordinated relationships with multiple professional services firms.

- Cosponsored a business process reengineering function and realized 50% reduction in resident admission time during the initial process improvement project.

- Deployed software upgrades to pharmaceutical business unit's drug ordering system which represented $250 million annual sales at twenty U.S. locations.

- Managed the negotiation of software contracts and saved the Company $8 million in licensing fees.

- Planned and controlled a $12 million MIS operating budget. Set the strategic direction for the MIS Steering Committee and chaired the MIS User Committee, which allocated data processing resources to multiple locations and companies.

PRINCIPAL
Arthur Andersen & Company
Tulsa, Oklahoma **1988 - 1991**
Houston, Texas **1970 - 1983**

- In charge of Andersen's newly formed Business Systems Consulting Practice for the state of Oklahoma. Responsible for practice development activities with Tulsa and Oklahoma City offices to cultivate these markets.

- Performed a wide array of technical services including hardware/software selection, software implementation, custom software development, and system performance measurement and tuning.

- Conducted these assignments for a diverse client base (energy, financial services, wholesale/retail, government, not-for-profit, manufacturing, healthcare, legal and education).

- Significantly extended technical skills during the construction of three Andersen software products for worldwide distribution.

PRINCIPAL
Eubank & Betts – Jackson, Mississippi **1983 - 1988**

- Built this accounting firm's systems consulting practice including recruitment and training of staff consultants. Industry expertise spanned state and local government agencies, physicians' practice groups, law firms, wholesale, retail, telecommunications, real estate, and not-for-profit organizations.

- Generated $500,000 cost savings at state procurement agency with a system to augment staff efficiency and enabled this agency to increase its volume of work processed without adding personnel.

- Replaced labor intensive manual reporting procedures within an economic development agency using custom and packaged software.

EDUCATION / PROFESSIONAL / CIVIC

B. S., Mississippi State University
PMP – Project Management Institute
Project Management Institute – Montgomery Chapter
Society for Information Management, Officer – Alabama Chapter
Physician Insurers Association of America – Finance, Operations, and Technology Subcommittee
Leadership Tulsa – Class XV
Tulsa Street School – Board of Directors
Authored "*How to Buy a Computer System*" – Tulsa Business Chronicle

Huelon (Scott) Crews, MCSE

(b)(6)

SUMMARY

Employ my degrees, skills and experience in managing technical employees, multiple projects, technology budgets, and coordinating complex events within a dynamic organization to meet stated objectives.

PROFESSIONAL EXPERIENCE

NETWORK MANAGER – INFORMATION SYSTEMS

Alabama Department of Education – Montgomery, Alabama **2007 - Present**

State education agency supporting 131 school districts and 1,400 schools.

- Manage and supervise all network and technical teams including 16 technical and non-technical employees. ASA II, ASA III, Data Processing Tech I, IT Operations Supervisor, IT Systems Tech Sr., IT Systems Specialist and IT Systems Specialist, Sr. positions.
- Supervise and lead teams to include assigning work, delegating authority, motivating employees, scheduling work, assessing capabilities and limitations of staff, monitoring and evaluating performance, and training employees as needed to ensure effective utilization of human resources.
- Manage a team of 3 Database Administrators to include daily work assignments, projects, and planning for the Department's goals.
- Manage the Department's $4M professional services contract which provides Information Technology personnel to the Department.
- Project Manager (PM) for the Alabama Student Management System (SMS). This system is located in 132 School Districts and services 750,000 students. As the PM, I work with School Districts to gather requirements, relay those requirements to the vendor and schedule testing before release to the customers.
- Plan and develop IT short, mid, and long term goals for the Department. This includes technical goals as well as the state's Smart Budget process.
- Changed the traditional business for the Department of Education by implementing Virtual Machine Ware (VMWare). Reduced 55 physical servers to 10.
- Implemented a 40TB Storage Area Network which supports 450 employees.
- Procured and managed the installation of the Department's Cisco Wireless Network.
- Managed a Microsoft Office 2007 upgrade for 450 users.

NETWORK MANAGER/ADMINISTRATOR – INFORMATION SYSTEMS

Alabama Department of Education – Montgomery, Alabama **2001 - 2007**

State education agency supporting 131 school districts and 1,400 schools.

- Supervise 11 technical and non-technical employees. ASA II, Data Processing Tech I, IT Operations Supervisor, IT Systems Tech Sr., and IT Systems Specialist positions.
- Supervise and lead teams to include assigning work, delegating authority, motivating employees, scheduling work, assessing capabilities and limitations of staff, monitoring and evaluating performance, and training employees as needed to ensure effective utilization of human resources.

- Manages and supervises all Department data systems, applications, and related systems to ensure the Department's strategic goals are met.
- Responsible for the development and maintenance of all Information Systems policies and procedures to include helpdesk, purchasing, and operations.
- Plan and develop IT short, mid, and long term goals for the Department. This includes technical goals as well as the state's Smart Budget process.
- Assists the Information Systems Services Director with IT staffing and budgeting projections for the Department.
- Directly responsible for all network security.
- Make decisions to include identifying minimum levels of performance needed and maximum resources available as needed to identify the most cost-effective solution to a user's problems or needs.
- Develop a working relationship with users and vendors to include tactful verbal and written exchanges of information, and listening and responding to their needs as needed to promote a good working relationship.
- Ensures that support for around-the-clock information transfer, storage, and processing is timely, efficient and meets the service levels required by the Department.

CHIEF, INFORMATIONS SYSTEMS

Air Force Doctrine Center (AFDC) – Maxwell AFB, Alabama **1997 – 2001**

Writes Doctrine for the Air Force with joint services, budget of $500k.

- Provides specialized technical support in systems engineering, local/wide area communications networks, and video/telecommunication capabilities including design reviews and long-range configuration planning to the AFDC.
- Chairman for AFDC's Configuration Control Board (CCB). I communicated complex technical needs to the Commander and staff personnel. I held quarterly meetings/briefings to discuss new projects and ongoing projects with the staff. Developed the center's system lifecycle strategy.
- Project leader for the system administration of 2 Microsoft Windows 2000 and 4 Microsoft Windows NT 4.0 servers that support file serving, electronic mail capabilities (Exchange 5.5), databases (MS SQL Server 7 and 2000), and Internet connectivity for AFDC personnel across the country. Administered a Microsoft Windows 2000 server with Internet Information Server (IIS) 4.0 (Web Server). Led a migration team in the conversion from Banyan Vines to Windows NT and from Beyond Mail to MS Exchange. The migration was completed 2 weeks ahead of schedule without any data or e-mail loss.
- Researched, procured, installed, and administered a classified and unclassified Video Teleconferencing system (VTC). This VTC system saved the Doctrine Center $50k in travel costs the first year.
- Administers yearly budget of over $500K for all information technology purchases.
- Serves as officer responsible for network security on a classified military network and secure video teleconferencing system. Developed certification packages for both systems in accordance with Air Force Instructions.
- Designed and purchased equipment to allow gigabit throughput to the customer's desktop, the first and only upgrade like it in the Air Force.
- Provided all technology solutions for the AFDC's recent desktop upgrade; procured, managed, and installed over 100 desktop systems, 20 laptop systems and 4 data storage devices.
- Led a team for the Air Force Doctrine Center in implementation of an Oracle system called Information Resource Support System (IRSS), the information technology tool used in writing, reviewing and coordinating requirements documents. This system adhered to the industry web services and standards.
- Installed, configured, and administered a Windows 2000 Remote Access Server (RAS) for 100 users. This allowed some operating locations to connect to our Local Area Network (LAN) and then connect to the Wide Area Network (WAN).

- Supervises military and contractor personnel.

COMMANDER, HEADQUARTERS SQUADRON SECTION

88TH Communications Group- Wright-Patterson AFB, Ohio **1996 - 1997**
Administered all personnel matters for 500 enlisted members.

- Administered a Novell Netware 3.51 network and file servers that supported the daily operations the Communications Group Orderly Room.
- Provided all technology solutions and procurement procedures for the sections systems upgrades.
- Managed all administrative functions including the orderly room and the information management section for a 650-person organization. Initiated promotions, demotions, discharges, control rosters, and administrative punishment actions.
- Administered the quarterly and annual employee awards programs for military and civilians. These programs helped improve motivation and loyalty throughout the organization.
- Improved and monitored the unit's upgrade training program by implementing procedures that improved the average test score from 80% to 90%.
- Managed a $69K operational budget.
- Supervised 9 military personnel.
- Used Microsoft Office suite to conduct administrative business.

ASSISTANT CHIEF, INFORMATION SYSTEMS

88TH Air Base Wing - Wright-Patterson AFB, OH
Liaison between the Air Base Wing and Communication Squadron for all Comm Issues **1995 - 1996**

- Planned, organized, and coordinated communications and computer requirements for multiple user organizations within the 88th Air Base Wing. Assisted users in developing solutions to their automation requirements. Prepared necessary documents to procure hardware and software to accomplish the organization's mission.
- Administered Novell Netware 3.51 networks and file servers for 2000 personnel located in over 30 buildings. Supervised 35 organic network administrators within the Air Base Wing.

CONTRACT NEGOTIATOR

Air Force Material Command – Wright-Patterson AFB, OH **1993 - 1995**

- Managed 6 manpower and 2 financial management contracts worth over $100,000,000. Prepared acquisition strategies and formulated negotiation objectives for contract modifications. Performed all post award functions including contract administration, modifications, compliance, and closeout.

EDUCATION / PROFESSIONAL / CIVIC

M. S., Central Michigan University
B.S., Resourse Management, Troy State University
Microsoft Certified Systems Engineer (MCSE)
Microsoft Certified Professional + Internet (MCP+Internet)

PATRICIA C. EILAND

(b)(6)

SUMMARY

Over 35 years experience in data analysis and management systems design and implementation as a developer, statistician, instructor, and management consultant Has a broad background in both business oriented systems and educational tracking and performance monitoring systems. Has strong interpersonal skills with the ability to interface between any level of non-technical program stakeholders and technical information systems development team. Has served as the lead business analyst for major state agencies in 3 states. Has experience in all aspects of project development: planning, design, database design and normalization, construction, unit and integration testing, documentation, implementation, and deployment of mainframe based systems, client-server applications, and desk-top applications. Has over 20 years experience as team lead and manager of staff responsible for complex processes and systems.

PROFESSIONAL EXPERIENCE

PROGRAMMING MANAGER – INFORMATION SYSTEMS

Alabama Department of Education – Montgomery, Alabama **1989 - Present**

State education agency supporting 131 school districts and 1,400 schools.

- Supervise and lead teams developing applications and providing data analysis in the areas of student accountability and teacher accountability including No Child Left Behind, federal reporting, state reporting, providing management information for program area stakeholders in the Alabama Department of education, in local systems and in public schools to include assigning and scheduling work, monitoring progress and validity of results, assessing capabilities and limitations of staff, monitoring and evaluating performance, and training employees as needed to ensure effective utilization of human resources.

- Serve as lead data analysis for the Alabama Student Management System (SMS) with duties including: gather requirements, developing and writing specifications and business rules, relay those requirements and specifications to the vendor, and implementing test plans before release to the 131 local school systems and associated schools.

- Participates in the planning and development of the Department's Information Technology Plan and development of short, mid, and long term goals for the Department and as well as participates in the state's Smart Budget process.

- .Serve as senior business analyst for the Department and provides input to program area stakeholders in determining data collection strategies, ,development of business rules that reflect requirements, and interpretation of federal reporting guidelines.

- Serve as the Alabama K-12 representative to national educational information technology committees including the National Center for Education Statistics(NCES) Forum and the

Chief State School Officers (CCSSO) – Education Information Management Advisory Consortium (EIMAC) and participates in various taskforce and work group committees in these organizations.

ADJUCT INSTRUCTOR COMPUTER SCIENCE AND MATHEMATICS
Troy University at Montgomery – Montgomery, Alabama **1992 – 2008**

- Taught undergraduate classes in information systems including systems analysis and design, database, data structures, C, C++, PASCAL, ADA, JAVA, Calculus of a Single Variable, Multivariable Calculus, and Pre-Calculus

ADJUCT INSTRUCTOR OF INFORMATION SYSTEMS AND DESCISON SCIENCES
Auburn University at Montgomery – Montgomery, Alabama **1990 – 2000**

- Taught undergraduate classes in information systems including systems analysis and design, database, data structures, C, PASCAL, COBOL, and business statistics

ASSOCIATE PROFESSOR OF INFORMATION SYSTEMS AND DESCISON SCIENCES
Auburn University at Montgomery – Montgomery, Alabama **1983 – 1989**

- Taught undergraduate classes in information systems including systems analysis and design, database, data structures, C, , PASCAL, COBOL, and business statistics.

- Provided data analysis and systems design support for contacts with state agencies in the State of Alabama.

VICE PRESIDENT AND SENIOR SYSTEMS DEVELOPER
A. F. Austin and Associates – Montgomery **1978 – 1983**

- Served as lead analyst on the design of the KDOT Resource Management System for the State of Kansas which provided on-line allocation and monitoring of people, equipment, and supplies for operational processes from cutting right of ways to paving highways to constructing new roads and bridges in the State of Kansas.

- Provided mentoring and programmer training for a novice team of 6 programmers with little or no formal training in order to implement portions of the KDOT Management System

- Lead analyst and statistician for the Alabama Model Traffic Records Systems, a federal project, to implement a comprehensive system that inventoried highways, upgraded the on-line Alabama Drivers' License System, created a comprehensive traffic accident reporting and monitoring system, and provided data analysis tools for measuring traffic safety issues for the State of Alabama.

- Wrote a church management system for Professional Systems, Inc. which was marketed and sold to churches in central and south Alabama.

PROJECT MANAGER AND SENIOR SYSTEMS DEVELOPER
R. J. Hansen and Associates – Sacramento, California **1976 – 1978**

- Designed and implemented a data management system for tracking inmates in the Alabama Department of Corrections.

- Was a lead developer in the design and implementation of the first automated drivers' license issuance system for the State of Alabama.

- Provide project management and served as database administrator on project to develop and implement the Child Protective Services Information system for the State of Virginia which interfaced an on-line system to the state hotline for reporting potential abuse and neglect, providing needed history for emergency intervention and tracked children and services provided by the Department of Human Resources.

- Served as lead analyst for the development and implementation of the Virginia Welfare Information System.

- Provided data analysis support in developing a volunteer resource tracking and management system for the State of Virginia.

ASSISTANT PROFESSOR MATHEMATICS AND COMPUTER SCIENCE
Huntingdon College – Montgomery, Alabama **1972 – 1976**

- Taught undergraduate classes in Mathematics and Computer Science.

- Provided system administration and programming support for college administrative systems including scheduling, grade assignment, GPA calculation, transcripts, and alumni affairs.

- Developed course of study for initial computer science offerings for the college.

- Provided research data analysis for local government agencies

TEACHER
Jefferson Davis High School – Montgomery, Alabama **1971 - 1972**

- Taught Biology and Human Physiology

STATISTICIAN / DATA ANALYST
Florida State University – Tallahassee, Florida **1969 - 1971**

- Provided statistical Support to faculty and graduate Students on research projects.

- Completed data analysis to assist faculty in decision support for research projects.

- Was the primary statistician / data analyst on federal grant project (DOVAK) to develop an Alternative Reading Program for improving the performance and proficiency of rural students elementary and middle school grades based on stories dictated by the students from their daily lives

EDUCATION / PROFESSIONAL / CIVIC

B. A. - Huntingdon College
M. S. - Florida State University
National Center for Education statistics (NCES) Forum - SEA Representative – State of Alabama
NCES –CCD Coordinator – State of Alabama
NCES Forum – Executive Committee 2008-2010
NCES Forum – Tech Committee Vice-Chair 2008-2009
NCES Forum – Tech Committee – Chair 2009-2010
Council of Chief State School Officers (CCSSO) – Education Information Management Advisory Consortium (EIMAC) – State of Alabama Representative

Dominique G. Martel

(b)(6)

SUMMARY

Information systems professional with broad background in client-server systems. Strong interpersonal skills. Excellent design skills. Talented in all aspects of project development: planning, program design, database design and normalization, development, integration testing, documentation, and implementation. Substantial project management experience in various sized projects.

- Project Management
- Strategic Systems Planning
- Staff Mentoring
- Performance Measurement
- Software Development / Implementation

PROFESSIONAL EXPERIENCE

Program Manager – INFORMATION SYSTEMS SERVICES
Alabama Department of Education – Montgomery, Alabama **2003 - Present**
State education agency supporting 131 school districts and 1,400 schools.

- Manage team of developers responsible for the collection of student leveal and summary level information from every school and school system within the state of Alabama.
- Supervise and lead teams to include assigning work, delegating authority, motivating employees, scheduling work, assessing capabilities and limitations of staff, monitoring and evaluating performance, and training employees as needed to ensure effective utilization of human resources.
- Project Manager (PM) for multiple projects including Bus Route Report, Career Tech Follow Up, Capital Plan, Facilities' Assessment, and several others. All of these projects require the collection of data from every school system in Alabama.
- the Alabama Student Management System (SMS). This system is located in 132 School Districts and services 750,000 students. As the PM, I work with School Districts to gather requirements, relay those requirements to the vendor and schedule testing before release to the customers.
- EdFacts coordinator for the state of Alabama. EdFacts is a federal portal to report various data to the federal government. This entails the coordination, collection, and processing of over 180 data files that have to be sent to the federal government.
- Manage a controlled software change process with student management system vendor to increase data quality associated with unique student identifier that was essential to longitudinal analysis.
- Managed the development of an early warning system for the detection of influenza outbreak in cooperation with the Alabama Department of Public Health.
- Managed the creation and delivery of real-time tracking process of employees hours through Microsoft Project.

- Ensured compliance with data privacy regulations for connectivity between local schools, district education agencies, and this state education agency.

Senior Programmer – INFORMATION SYSTEMS SERVICES
Alabama Department of Education – Montgomery, Alabama **2001 - 2003**
State education agency supporting 131 school districts and 1,400 schools.

- Duties included Web master for the Alabama Department of Education (ALSDE), as such had responsibility for ensuring that the ALSDE websites we current and up to date.

- Responsible for the automation of Career Technical Education Rosters for the ALSDE, to help accurately identify students that enrolled in career technical education courses and who thierr instructors were.

- Wrote the first on-line education directory for the state of Alabama. This system identifies every system, school within Alabama, all contact information for each facility as well as Key personnel and program area key contacts for each school system.

- Lead programmer responsible for training and mentoring of junior development staff at the ALSDE.

Network Manager *ACS Government Solutions Group –*
Air Force Doctrine Center (AFDC) – Maxwell AFB, Alabama **1997 – 2001**
Writes Doctrine for the Air Force with joint services, budget of $500k.

- Singly responsible for the migration of existing Banyan Vines Network Operating System to Microsoft windows domain based network to include the migration of e-mail to Microsoft exchange server. Project was completed early and resulted in zero down time for any users at the AFDC.

- Responsible for the day to day maintenance of the network infrastructure within the AFDC.

- Managed upgrade of network cabling within the AFDC from Category 5 twisted pair wiring to fiber optic to the desk-top.

- Managed all AFDC data systems, applications, and related systems to ensure the AFDC's strategic goals are met.

Non-Commissioned Officer in Charge – Office of Academic Support – Maxwell AFB, Alabama **1993 – 1997**
Small computer and network support for schools at Maxwell AFB

- Supervise and led team of nine technicians to include assigning work, delegating authority, motivating employees, scheduling work, assessing capabilities and limitations of staff, monitoring and evaluating performance, and training employees as needed to ensure effective utilization of human resources.

- Responsible for management of Wide Area Network across two Air Force bases for six units

- Responsible for the support and maintenance of more than 20 servers and more than 4,000 end user PCs and laptop computers.

Communication Computers Systems Programmer –Gunter AFB, Alabama **1991 – 1993**
Air Force wide correspondence course delivery and assessment

- Wrote and maintained software for a coursework development and grading systems for Air Force students worldwide. In this capacity I was required to have a full understanding of client/server technologies in relation to development of the software. All software I developed was done in ANSI C and PL/SQL programming languages. The backend database on the mainframe was ORACLE and required that I have a solid understanding of the ORACLE query langue PL/SQL as well as standard SQL

- Part of a team of Air Force programmers responsible for the maintenance of the ECI automated system for the delivery of more than 500,000 units of training material shipped worldwide annually.

EDUCATION / CERTIFICATIONS / TRAINING

Air Force Communications Computer Systems Software Engineering Course – Keesler AFB
Database Administration
C Design and Programming
Air University Career Development Course Graduate of the Year
ACS government solutions Employee of the Quarter

Charles T. Sullivan

(b)(6)

SUMMARY

Information technology management experience with a successful track record in delivering high business value. Acknowledged strengths in general management/administration, software development, project management, and total quality management. A pragmatic goal-oriented leader whose focus is to ensure alignment of technology initiatives with business objectives.

- Management and Administration
- Strategic Business/Technology Planning
- Staff Development and Mentoring
- Business Development
- Finance/Accounting/Budgets
- Performance Measurement
- Business Process Reengineering
- Software Development Life Cycle
- Outsource Relationship Management
- Banking/Operations/Branch Automation

PROFESSIONAL EXPERIENCE

Principal
Edge Solutions, Inc. Wetumpka, Alabama **2008 - Present**

Alabama Department of Education – Montgomery, Alabama **2008 - Present**
State education agency supporting 131 school districts and 1,400 schools.

- Applied private sector techniques to improve Information Systems delivery and efficiency for this state agency's 450 internal customers. Effectively balancing the needs of the business with IT capabilities to deliver value on time and on budget.

- Instituted a software change control board that was essential to systems / environment stability with reducing errors, system outagages, increased communications, increased performance, and increased end user experience.

- Launched and directed an information technology service level agreement for internal customers and vendors.

- Transition teams to single touch-point for business unit-IT interaction, proactive versus reactive, and governance of accountability.

- Re-kindled a Standards team to embrace a systems development life cycle, trained staff in achieving repeatable processes, and adoption of a release methodology.

- Leverage a consistent team model across AD with common team sizes, team roles and responsibilities.

- Establish clear alignment and ownership/accountability between teams and the systems they support.

- Fostered software quality assurance delivery process to improve reliability of internal application development activities.

- Manage the Child Nutrition System development that consist for Schools, State Child and Adult Care providers, Day Care homes, Summer Food Service providers, and a state wide food procurement and distribution system. Ensured compliance with State and USDA rules for applications and claims payment processing.

- Manage the Teacher Certification new system development. Process Re-engineering principles were used to streamline and redefine this business processes to develop the new workflow system. Ensured compliance with State and Federal rules for applications, certifications and ongoing teacher performance.

- Manage the Financial and HR systems. Ensured compliance with State and Federal fund accounting to meet transparency and grant funding requirements.

IT Management
Regions Financial Corporation. – Montgomery. Alabama **1986 – 2008**
140 billion in assets and 1400 branches

Lending Origination, Underwriting, Doc Preparation systems Manager:
Directed the Regions and AmSouth reverse merger enterprise loan origination systems integration.

- Accountable for the chosen go forward loan origination systems from executive management integration development and implementation. This Service Oriented Architecture project utilized Microsoft BizTalk 2006 middleware application to integrate vendor systems of multiple technologies of Mainframe (ACAPS, AFS) and Open Systems (ARGO, Adobe Lifecycle products, Harland Financial LaserPro products, and AFS express).

- Served as technical advisor and presented information technology-related updates to the COO, KPMG, E&Y, and Deloitte consulting companies during the merger.

- Managed multiple internal teams from Montgomery and Birmingham along with contractors.

- Administered a multimillion dollar information technology operating budget.

IT Director and Business Information Officer: 1200 branches
Managed the Lending Delivery systems post merger of Regions and Union Planters.
Directed the Regions and Union Planters merger enterprise loan systems integration.

- IT liaison for each lending line of business to include Consumer, Small Business, Commercial, Special Assets, Leasing, Credit, Compliance, Loan operations, and Collections, to establish their Target Operating Model based on Accenture business integration best practices methodology.

- Managed all lending delivery systems (31) during and post merger integration. Major tier 1 applications included Branch Automation – Sellstation, Appro, B2B, ALScom, LaserPro, LoanSTAR, Risk Pro, Moodys, ECI Farm Equity, Leasing, ALS, Shaw, and Loan Portal.

- Managed multiple teams of Regions, Union Planters and contractors in the four IT areas of Montgomery AL, Birmingham AL, Little Rock AR, and Memphis TN during and post merger.

- Accountable for the chosen go forward loan origination systems from the lending line of business TOMs integration development and implementation. The first Service Oriented Architecture

project utilized Microsoft BizTalk 2006 middleware application to integrate vendor systems of multiple technologies of Mainframe (Hogan, ALS, Shaw) and Open Systems (Sellstation, Appro, LaserPro products, and General Ledger).

- Managed multiple IT vendor relationships, co-developed with legal strong vendor SLA's, and assisted in contract renewals with the contract administration group.

- Leader or sponsor of several Software Development Life Cycle principles, methodologies and processes implemented to insure quality development delivered on time and with in budget to meet customer solutions.

- Utilize the Waterfall, Rapid Application Development, Agile development methodologies and Joint Application Design sessions for strategic initiatives to meet customer solutions.

IT Business Analyst Manager:
Directed the analyst team of Regions branch delivery system including Teller, New Accounts, Loans, Call Center, and corporate functions.

- Project Manager of small to very large projects. Business liaison for technical solutions.

- Served as a member of a management team for development, training, and rollout of the Branch automation system upgrades and replacements.

- Lead small bank / branches acquisitions conversion to Regions systems.

- Directed command center operations for major bank / branch acquisitions conversion to Regions systems.

- Assisted in new branch openings from systems, operations, processing loan applications, opening accounts, and teller supervisor.

Special Projects Business Analyst: 120 branches
Lead First Alabama Bancshares Inc. first branch automation delivery system of New Accounts and Lending in 1988 and reengineered the failing teller pilot application for 128 branches. According to independent studies and written publications, this system allowed the bank to be one of the top technology advanced banks in America.

EDUCATION / PROFESSIONAL / CIVIC

Major in Management Information Systems and Finance, Auburn University
Alabama Banking School
Dale Carnegie
Project Management
Accenture Business Model and Project Methodology
EDS Systems Development
Featured speaker for Microsoft Gold Partner
Member of Harland Financial Solutions, Fidelity, Appro, Baker Hill, and ARGO vendor committees
Dixie League girls softball coach for the past 3 years
Past President of Redland community association

THOMAS R. (Ray) FAIRCLOTH

(b)(6)

SUMMARY

Extensive experience in operations management and as a management consultant, working with chief executive officers and senior managers to redesign operations and develop and implement business improvement strategies.

- Executive Management and Administration
- Strategic Planning
- Staff Development and Mentoring
- Business Process Reengineering
- Software Requirements Definition
- Outsource Relationship Management

PROFESSIONAL EXPERIENCE

Principal

Focus Consulting, LLC, Birmingham, Alabama **June 2006 - Present**

Provider of consulting services to clients in both private and public sectors. Clients include APWU Health Plan, Linthicum, Maryland; NORCAL Mutual Insurance Company, San Francisco, California; The Doctors Company, Napa, California; State of Alabama Department of Education, Montgomery, Alabama.

Vice President

ProAssurance Corporation, Birmingham, Alabama **December 1998 to June 2006**

Integrated management information systems and implemented consistent business processes in primary and regional operations centers of this professional liability insurance company.

- Stabilized the underwriting and premium accounting operation of this large, multi-state medical malpractice insurance company. Strengthened operational infrastructure, creating a major increase in operational capacity.
- Developed a team of business analysts to support a rapidly growing organization. Developed training capacity to support added offices and employees while increasing quality and service.
- Led the integration of underwriting operations of several acquired companies. Migrated books of business to centralized computer systems and implemented consistent business practices in all offices.
- Led project team to select and implement document imaging and automated workflow. This project reduced staff requirements and facilitated further improvements in service and productivity.

Senior Consultant

Dean Consulting, Inc., Birmingham, Alabama **September 1989 to December 1998**

Performed in-depth business assessments to identify opportunities for business improvement. Sold and managed consulting engagements in addition to personally performing consulting services. Accomplishments include:

- Directed an enterprise-wide redesign engagement in a commercial multi-line property and casualty insurance company with revenues of approximately $50 million. Developed and implemented improvement strategies in all areas of the company. The project yielded productivity improvements of over 20%, significant improvements in space and asset utilization, and a more focused and effective management team.

- Conducted a business process redesign engagement in the human resources department of a diversified financial services company. The department served a federal savings bank, a real estate company, a title insurance company, a life insurance company, and other subsidiaries.

- Developed a strategic marketing and sales plan for a mutual life insurance company. Led a successful project for the same client to develop and implement new products with a redesigned service team operation that yielded both improved customer service and much higher productivity.

- Managed a redesign engagement in one of the nation's largest health claim processing companies, serving approximately 250,000 insured individuals through multiple operations centers. The engagement resulted in dramatic improvements in customer service and expense reductions of over $3 million.

- Led a redesign engagement in a fast growing Worker's Compensation insurance company with over $100 million in premium. Developed recommendations to improve service and reduce costs. Developed functional specifications for a new computer system.

Second Vice President
Liberty National Life Insurance Company, Birmingham, Alabama **May 1969 to September 1989**

Managed all areas of insurance operations in this large life and health insurance company. Areas managed included:

- Underwriting and Issue
- Claims and Policy Benefits
- Group Insurance Operations
- Premium Accounting
- Customer Service

- Led the definition and development of an on-line new business support system to reduce paper flow and dramatically reduce manpower requirements to process new accounts. Installed a system for low band policies that provided automated underwriting and fast, inexpensive policy issuance. Reduced manpower requirements by 40% in 18 months while maintaining excellent quality and time service.

- Led a team that designed, developed, and installed an individual accident and health claim system. Installed the new system within 7 months of the project start date and within budget. The new system yielded a productivity improvement of over 35%.

- Served as a member of a management team that accomplished a dramatic turnaround in financial results of a group health operation. Defined system requirements for group life and health administration and claims systems.

EDUCATION

Bachelor of Science in Business Administration
Major: Finance; Minors: Economics; Insurance
Samford University
Birmingham, Alabama
Chartered Life Underwriter, CLU
Fellow, Life Management Institute, FLMI

PUBLICATIONS

Risk and Insurance, May 1997, "Creating a Competitive Advantage"

Joseph Barrett Hall

(b)(6)

SUMMARY

Nearly 20 years of professional software development experience, working for industry leaders such as Microsoft and IBM, using cutting edge technologies.

LANGUAGES AND TECHNOLOGIES

C / C++, C#, Java, JSP / ASP / ASP.NET / HTML, JavaScript / CSS, XML / XSL, SQL, VB / VB.NET, K2EE/ J2SE / J2ME, COM / EJB, CE / MIDP, JNI / COM Interop, Remoting / Web Services, Media / Graphics, Cross-Platform, Performance Tuning, UI

PROFESSIONAL EXPERIENCE

Principal
Codetopia, LLC – Montgomery, Alabama **February, 2006 - Present**
Independent Consultant/Owner

Provide software development services, training, and technical writing in Microsoft's .NET and Sun's Java.

Chief Technical Officer
TicketBiscuit - Birmingham, Alabama **July, 2007 – June, 2008**

Chief technical Officer, Software Architect, and Development Lead for an internet-based ticket servicing company using Microsoft's SQL and .NET technologies for web and mobile devices.

Software Architect / Team Lead
Regions Bank – Montgomery, Alabama **September, 2004 – February, 2006**

- Develop, Publish, and champion enterprise programming standards and best practices.
- Provide architectural reviews for new projects.
- Develop and deliver .NET and J@EE training for developers.
- Manage team of IBM WebSphere administrators.
- Provide technical screenings for interview candidates.
- Serve as tech liaison to contractors and vendors.
- Prototype new applications in .NET or Java.
- Develop new shared components and libraries.

December, 2002 – September, 2004

- Design and implement applications used by entire enterprise, written in Java, JSP, ASP, VC6, and VB6.
- Develop shared components for other developers.
- Establish process and infrastructure for source control.
- Design and implement automated build / versioning tool.

Software Design Engineer in Test
Visual Studio .NET, Performance Team
Microsoft Corp. – Redmond, Washington **December, 2001 – December, 2002**

- Write tests in C++, managed C++, VB6, VB.NET, C#, and Java to measure performance of the .NET runtime that run in an automated test harness.
- Track CLR performance from build to build.
- Investigate performance degradations, isolate the root cause, fix it or track until it's resolved.
- Share performance trends and status of known degrades with .NET team, via team website.
- Continually develop "real-world" applications to ensure performance tests are generally applicable.
- Automate any tasks that we find ourselves doing by hand too often.

May, 2000 – December, 2001

- Design / implement the "F1 Help Solution" by modifying VS6 source code to integrate protected Xbox documentation into the IDE without disrupting existing MSDN or 3rd-party help.
- Automate nightly Xbox documentation builds
- Work closely with developers, testers, and developer support to research and develop Xbox documentation
- Research and write whitepapers on various Xbox techs
- Research and write whitepapers on various Xbox techs
- Design and develop book-like section of the Xbox documentation entitled "Developing for the Xbox"
- Design and develop documentation for Xbox Prototyping Kit (XPK) and Xbox Incubator Program

October, 1998 – May, 2000

- Provide programming support for Java developers within and outside Microsoft in Java / J++, C++, Visual Basic, COM, Win32 API, Sun's JDK / AWT, Microsoft's SDK for Java / WFC, JNI, JDirect,
- Write and review: code samples, MSDN Knowledge Base (KB) articles, MSDN Dr. GUI articles, FAQs.
- Serve as Y2K Tech Lead.
- Serve as Team JNI & JDirect Specialist.
- Serve as liaison to Visual Source Safe team.
- Serve as Queue Supervisor for Java issues.

Java / Internet Programmer
Enterprise Knowledge solutions Group (CBT Team)
IBM Corp. - Atlanta, Georgia **September, 1996 – October, 1998**

- Work with software architect to design a reusable computer-based training (CBT) engine in Java.
- Using pure Java, deliver interactive multimedia content on Windows, OS/2, and Macintosh clients.
- Work closely with instructional design team.
- Work with other developers to ensure adherence to documented design and best practice.
- Serve as a mentor to other Java developers.

Multimedia Programmer
Interactive Media Team
IBM Corp. - Atlanta, Georgia **September, 1995 – September 1996**

- Develop Windows and OS/2 applications, presentations, DLLs, screen savers, CBTs, installers, and kiosks in Icon Author, Delphi, and C
- Programs include code for credit card readers, printers, modems, DDE, and network peer interaction
- Develop DLLs and utilities for use by other team members
- Serve on a dozen-person committee assembled to suggest tech strategies for current / future business

Technical Director
Interactive Entertainment - Rochester, Vermont **September, 1994 – September, 1995**

- Design and implement UI and functional changes to a monthly CD-ROM gaming magazine.
- Assemble special issues from existing content.
- Sole provider of technical support for subscribers.
- Monthly duties include: assemble 40+ articles, digitize 60+ video clips, write code for 3+ game tutorials (hints & tips), maintain archive, coordinate technical aspects of advertisements & demos with gaming companies, and create master CD for press.

CERTIFICATIONS

- MCSD.NET (Microsoft Certified Solution Developer)
- MSTS SQL Server 2005 (MS Cert. Tech. Specialist)
- MCAD.NET / MCP, requisite for MCSD.NET

PUBLISHED WORKS

- July 2007. Author. XNA Game Studio Express: Developing Games for Windows and the Xbox 360. Thomson Course Technology, publisher.

Charles A. Stringham

(b)(6)

SUMMARY

Mr. Stringham is a senior software engineer with over sixteen years of software development and consulting experience in all aspects of the development life cycle. This includes information/software engineering, requirements gathering, analysis, design, database design and administration, coding, and testing. Acknowledged strengths are in database administration, requirements analysis, software design and data analysis. In addition to expertise in the educational field gained through his current position, he also has military technical and functional knowledge based on prior military service and consulting assignments.

- Database Administration
- Requirements Analysis
- Data Analysis
- Customer Support
- Database Design
- Life Cycle Testing
- Application Design
- Software Engineering Process

PROFESSIONAL EXPERIENCE

Lead Database Administrator – INFORMATION SYSTEMS
Alabama Department of Education – Montgomery, Alabama **2005 - Present**
State education agency supporting 136 school districts and 1,400 schools.

- Coordinate the work of the DBA team.
- Ensure the continual availability of the departments 90+ application databases.
- Work with the individual application development teams to design and implement database changes based on user requirements.
- Implemented and manage the replication of data from the 136 school districts and 38 state supported schools to the state servers.
- Designed and implemented the process for the daily accumulation of the school districts data from their separate replicated databases into a single database.
- Designed and implemented the process for providing an automated bi-weekly data feed to the Data Recognition Corporation (DRC).
- Closely work with the software vendor that provides the state's student management system to ensure accuracy of data and correction of software defects.
- Developed and implemented the plan for migrating all SQL Server databases from a single server configuration to an Active/Active/Active cluster configuration providing real time automated failover of the databases in case of hardware failure.
- Created the automated backup and recovery procedures to ensure that application data can be recovered to any point within a given window of time based on user requirements.
- Provide technical guidance and assistance to the school districts as needed.

- Assist the application development teams in identifying any performance issues related to database queries and stored procedures and helping them tune their code.

- Member of the Standards Committee which is responsible for developing and implementing the software engineering process, methodologies and standards used by the Information Systems.

Principal Consultant – Government, Education and Health Systems
Oracle Corp. – Redwood Shores, CA **1996-2005**
Lead Consultant supporting the Air Force's Manpower Data System (MDS).

- Technical lead providing training and technical guidance for the Air Force programmers.

- Worked with the functional analysts as the design lead to provide application design to the programmers.

- Create and maintain customer's Developer 6i Forms & Reports and PL/SQL database objects.

- Define logical and physical database design.

- Helped define and develop customer's software development process based on the SEI Capability Maturity Model. This includes definition of the toolset to be used to support their process: DOORS (Telelogic), Test Director (Mercury), and PVCS Tracker (Merant).

- Enhanced the performance of the application through tuning the custom Oracle code.

- Designed and coded custom legacy system interfaces (database to database and existing flat file implementations).

Programmer/Analyst – Manpower Data System
United States Air force – Maxwell AFB-Gunter Annex, Alabama **1993-1996**

- Redesigned and converted the legacy X-Windows based application that was written in ADA to Oracle Forms and Reports

- Developed the batch processing systems that provided data for all external interfaces and after hours processing.

- Developed data conversion utilities to allow mass import of data into the system from various sources.

- Implemented the data access layer between the Oracle database and the legacy application.

EDUCATION / CERTIFICATIONS / TRAINING

Air Force Communications Computer Systems Software Engineering Course – Keesler AFB
Data Modeling and Relational Database Design
Database Administration
SQL Statement Tuning
C Design and Programming
Java Programming

Jonathon R. Joiner

(b)(6) [redacted]

SUMMARY

- Over ten years experience in Information Systems.
- Strong programming background including systems and product development from design to implementation.
- Extensive background in problem management/resolution.
- Ability to develop and maintain excellent relationships with all levels of management, coworkers and customers.
- Experienced supervisor including managing programmers responsible for multiple processes and systems.
- Experienced in Object Oriented program design and implementation.

PROFESSIONAL EXPERIENCE

SQL Server DBA / ASP.NET Developer -- INFORMATION SYSTEMS SERVICES
Alabama Department of Education Information Systems Services – Montgomery, Alabama **2007 - Present**
State education agency supporting 131 school districts and 1,400 schools.

.NET Developer

- Website design and development
- Developed data access layer for department
- Developed standard application connection class for SQL server applications
- Developed custom membership provider for department
- Formalized development standards and procedures
- Technical specifications for web applications
- Developed and documented a standard namespace to be used with .net applications

SQL Server DBA

- Aid development team with procedures, functions and views
- SQL Server Clustering
- SQL Server Integration Services
- Team Foundation code promotion
- Database design and stored procedures for web applications Windows Services
- Maintain daily server uptime

Regions Financial Corporation – Montgomery, Alabama **1998 – 2007**
One of the largest full-service providers of consumer and commercial banking, trust, securities brokerage, mortgage and insurance products and services.

.NET Developer

- Visual Basic & C# development
- SQL Server Database development
- Active Directory programming with VBS and .NET
- Process automation using WMI and multithreaded applications
- Database design and stored procedures for web applications Windows Services

Enterprise Architect

- Responsible for translating business strategies into technical strategies.
- Work with development team leads, project managers, development managers and infrastructure managers to develop architectures and strategies.

Database Administrator

- Responsible for more than 50 MSSQL database servers (Enterprise wide).
- Single server, single application and clustered servers using Microsoft clustering with more than twenty applications.
- Assist with implementing new projects as well as supporting existing projects post-implementation.

Software Systems Engineer

- Primary responsibilities included database administration.
- Implemented backup and recovery strategies for all sizable company databases.
- VB.net and C# applications with Active Directory interface.

IT Supervisor

- Supervisor of Imaging Systems.
- Managed up to eight employees.
- Responsible for a budget of over $1 million dollars.
- Implemented a document imaging system for consumer loans.

Application Developer

- Developed a document tracking system for the entire consumer loan division that utilized SQL server with a Visual Basic user interface. Imaging system handled 250 users.

C / C++ Programmer

- Developed programs and utilities for branches.
- Provided automation for over 800 branch servers.

Programmer Trainee

- Supported server and desktop software for over 800 branch locations.

Sherlock, Smith & Adams - Montgomery, Alabama **1994 – 1998**
Full-service Architecture and Engineering firm.

CAD Manager

- Developed policies and procedures to provide consistency.
- Maintained standards for entire company.
- Supported desktop and server infrastructure.
- Mechanical drafting for SS&A.

Draftsman

- Wrote programs to improve efficiency of day-to-day processes.

EDUCATION / PROFESSIONAL / CIVIC

John Patterson State Technical College, 1994
Tallassee High School, 1992

- Visual Studio 2005 / 2008 / Team System
- ASP.NET
- C#
- VB.Net
- AJAX
- VB Script
- Microsoft .NET Framework
- WMI
- SQL 2000 / 2005
- SQL Data Transformation Services (DTS)
- SQL Server Integration Services (SSIS)
- T-SQL

Steven L. Jones

(b)(6) [redacted]

SUMMARY

Broad background in business oriented systems. Strong interpersonal skills. Excellent design skills. More than six years of experience in developing mainframe based systems and more than eight years of experience developing client-server applications. Familiar with new and legacy technologies. Talented in all aspects of project development: planning, program design, database design and normalization, development, integration testing, documentation, implementation and distribution/deployment.

PROFESSIONAL EXPERIENCE

Software Engineer / Consultant

Edge Solutions, Inc, Wetumpka, Alabama **August 2008 - Present**

- Developing a web based system to support Teacher Education and Certification functions.
- Integrating on-line payment functions with order creation and fulfillment.
- Migrating legacy data from an obsolete Oracle database to SQL.

Managing Consultant

IBM Global Business Services – Montgomery, Alabama **February 2008 – August 2008**

- Programmed using SQL Server 2000 and vbscript.
- Experience using SQL Enterprise Manager, Query Analyzer, Management Studio and Profiler.
- Responsible for scheduling SQL jobs, backups, and restores. Also responsible for all hours support.
- Experience working with a diverse group located in the United States and in London, England.

Senior Programmer Analyst

Regions Financial Corp. - Montgomery, Alabama **May 2003 – February 2008**

- Programmed using Visual Basic .NET (1.1 & 2.0), C# .NET (1.1 & 2.0), ASP .NET (1.1 & 2.0), SQL Server 2000, SQL Server 2005, XML, XSLT, HTML, vbscript, javascript, BizTalk 2004, and BizTalk 2006.
- Developed reports using Active Reports, Crystal Reports and SQL Reports.
- Experience using SQL Enterprise Manager, Query Analyzer, Management Studio and Profiler.
- Lead technical person on loan origination system consisting of web services, BizTalk applications, and windows applications, and web applications all using SQL Server for transaction and non-transactional processing. System has many interfaces both internal to the bank and external implemented using BizTalk Server by transmitting XML to vendor api's, ftp, web services, and file drops.
- Experience with the entire life-cycle of project, including analysis and development.

Software Engineer Consultant

Digital One Services, Inc.

(State of Alabama, Dept. of Public Safety) – Montgomery, Al **July 2000 – March 2003**

- Programmed using Visual Basic, VBA, Access, SQL Server, WinBatch, COBOL, DB2, CICS, EZTrieve Plus, JCL, and RPF.
- Experience with reports using Active Reports and Crystal Reports.
- Experience using TSO, Roscoe, Expeditor, CEDF, File-Aid, and CA7.
- Experience with the entire life-cycle of project, including analysis and development.
- Familiar with HTML, VBSCRIPT, and ASP (Active Server Pages).

Project Narrative

Project Narrative - Appendix C Current Status of State's Longitudinal Data System

Attachment 1:
Title: **ALSDE SLDS Grant - Project Narrative Appendix C** Pages: **4** Uploaded File: **10 - Appendix C - Current Status of State's Longitudinal Data Systems.pdf**

Appendix C - Current Status of State's Longitudinal Data System

Capabilities and Elements	Current Status	Relevant Project Outcomes
Capabilities 1. Must enable States to examine student progress over time	**In progress, no existing grant**	**INCLUDED** **Products:** • Consolidated operational data store (ACES) and an accompanying data warehouse / data-marts. • Front end for user access to data. • Common data dictionary and meta data repository.
2. Must facilitate and enable exchange of data among agencies and institutions within state and between states	**In progress, no existing grant**	**INCLUDED** **Products:** • Memoranda of Understanding (MOU) between agencies. • Executive order from Governor's office (if applicable). • An agreed upon set of data structures / elements to be shared among participating agencies. • A transport mechanism and or shared data store for use by the ALSDE, ACHE, Office of School Readiness, Department of Industrial Relations (DIR), Rehabilitation Services/Early Intervention, Department of Post Secondary Education (DPE).
3. Must link student data with teachers	**Status: Completed, no Federal Grants**	**Not INCLUDED**
4. Must enable the matching of teachers with information about their certification and teacher preparation	**Status: In progress, no Federal Grants**	**INCLUDED** **Products:**

Capabilities and Elements	Current Status	Relevant Project Outcomes
programs, including the institutions at which they received their training		• Consolidated data store for all teacher education and certification information. • On-line teacher certification and renewal system coupled with an automated workflow engine. • Teacher education program and staff evaluation system. • Common data dictionary and meta data repository.
5. Must enable data to be easily generated for continuous improvement and decision-making	**In progress, no existing grant**	**INCLUDED** **Products:** • ACES and data warehouse database systems. • Data reporting portal and associated tools.
6. Must ensure quality and integrity of data contained in the system	**In progress, no existing grant**	**Not INCLUDED** -
7. Must provide ability to meet reporting requirements of USED	**In progress, existing USED non IES/LDS Grant**	**Not INCLUDED -**
<u>Elements</u> Preschool through grade 12 and postsecondary education 1. A unique statewide student identifier, that does not permit a student to be identified by users of the system	**In progress, no existing grant**	**INCLUDED** **Products:** • E-transcript that would contain SSID of a public school student. • Common data dictionary and meta data repository.
2. Student-level data -Enrollment -Demographic	**In progress, no existing grant** Yes, Yes,	**Not INCLUDED -**

Capabilities and Elements	Current Status	Relevant Project Outcomes
-Program Participation	Partial (95% of data is captured in SMS)	
3. Student-level information about the points at which students: -Exit -Transfer in -Transfer out -Drop out -Complete P-16 education programs	**In progress, no existing grant** Yes Yes Yes Yes No – have high school graduation data but not higher education graduating data.	**INCLUDED** **Products:** • Shared data repository connecting ALSDE and partners such as ACHE, DIR, Office of School Readiness, PSE, Early Intervention, etc. • Common data dictionary and meta data repository.
4. Capacity to communicate with higher education data systems	**In progress, no existing grant**	**INCLUDED** **Products:** • Shared data repository connecting ALSDE and partners such as ACHE, DIR, Office of School Readiness, PSE, Early Intervention, etc. • Common data dictionary and meta data repository.
5. State data audit system assessing data quality, validity, and reliability	**In progress, no existing grant**	**Not INCLUDED** -
Preschool through grade 12 education 6. Yearly test records of individual student with respect to assessments under section 1111(b) of ESEA 1965	**Complete**	**Not INCLUDED** -
7. Information on students not tested: -By grade -By subject	**Complete** Yes Yes	**Not INCLUDED** -
8. Teacher identifier with the ability to match teachers to students	**Complete, no existing grant**	**Not INCLUDED** -
9. Student-level transcript information: -Courses completed -Grades earned	**In progress, no existing grant**	**INCLUDED** **Products:**

Capabilities and Elements	Current Status	Relevant Project Outcomes
		• E-transcript transport and storage system. (As part of the overall Shared Data Repository) • Common data dictionary and meta data repository.
10. Student-level college readiness test scores	**In progress, no existing grant**	**Not INCLUDED**
Postsecondary Education 11. Data that provide information regarding extent to which students transition successfully from secondary school to postsecondary education, including whether students enroll in remedial coursework	**In progress, no existing grant**	**INCLUDED** **Products:** • Shared data repository connecting ALSDE and partners such as ACHE, DIR, Office of School Readiness, PSE, Early Intervention, etc. • Common definition of a successfully transitioned student. • Common data dictionary and meta data repository.
12. Data that provide other information determined necessary to address alignment and adequate preparation for success in postsecondary education	**In progress, no existing grant**	**INCLUDED** **Products:** • Shared data repository connecting ALSDE and partners such as ACHE, DIR, Office of School Readiness, PSE, Early Intervention, etc. • Common definition of a successfully transitioned student. • Common data dictionary and meta data repository.

Project Narrative

Project Narrative - Appendix D Letters of Support

Attachment 1:
Title: **11 - Appendix D - Letters Of Support.pdf** Pages: **8** Uploaded File: **11 - Appendix D - Letters Of Support.pdf**

OFFICE OF THE GOVERNOR

BOB RILEY
GOVERNOR

STATE CAPITOL
MONTGOMERY, ALABAMA 36130

(334) 242-7100
FAX: (334) 242-0937

STATE OF ALABAMA

November 24, 2009

The Honorable Arne Duncan
Secretary
U.S. Department of Education
400 Maryland Avenue, SW
Washington, D.C. 20202

Dear Secretary Duncan:

I am writing to express my strong support of the application submitted by the Alabama Department of Education for a Longitudinal Data System Grant that will be awarded under the *American Recovery and Reinvestment Act of 2009.*

In response to this funding opportunity, the Alabama Department of Education will spearhead an aggressive project to extend current capabilities, establish underlying data sharing arrangements, and create joint accessibility among various agencies, including the Alabama Commission on Higher Education, the Alabama Department of Postsecondary Education, the Alabama Department of Industrial Relations, the Alabama Department of Children's Affairs, and the Department of Rehabilitation Services.

This work will result in increased availability of information concerning student performance to all stakeholders and increased accountability for the entire education and workforce development system. It is our goal to have all Alabama children graduate college and career ready, and your support of our application will help provide Alabama with the information we need to make data-driven decisions to ensure our success.

We respectfully seek your positive consideration of the Alabama Department of Education's request for funding under this program.

Sincerely,

Bob Riley
Governor

BR/md

STATE OF ALABAMA
DEPARTMENT OF EDUCATION

Joseph B. Morton
State Superintendent
of Education

Alabama
State Board
of Education

Governor Bob Riley
President

Randy McKinney
District I
Vice President

Betty Peters
District II

Stephanie W. Bell
District III

Dr. Ethel H. Hall
District IV
Vice President
Emerita

Ella B. Bell
District V

David F. Byers, Jr.
District VI

Gary Warren
District VII

Dr. Mary Jane Caylor
District VIII
President Pro Tem

Joseph B. Morton
Secretary and
Executive Officer

November 17, 2009

Institute of Education Sciences
National Center for Education Statistics
1990 K Street, Room 9023
Washington, DC 20006-5651

Dear Grant Review Committee Members:

On behalf of the Alabama Department of Education, I want to add my personal endorsement to this response being submitted for funding under the *American Recovery and Reinvestment Act of 2009.*

The Alabama Department of Education plans to build on a successful track record of implementing a unified statewide student management system with a unique student identifier. This work will extend our data systems to truly effect the longitudinal data analysis of students throughout their entire public education career and beyond into the workforce.

Additionally, we anticipate the project outcomes that have been identified in this grant application will better inform policy making at the state level and will draw a clearer focus on the effectiveness of instruction, especially at the K-12 level.

We will appreciate your careful consideration of Alabama's request for funding under this program.

Sincerely,

Joseph B. Morton
State Superintendent of Education

JBM:GW

GORDON PERSONS BUILDING • P.O. BOX 302101 • MONTGOMERY, ALABAMA 36130-2101 • TELEPHONE (334) 242-9700 • WEB SITE: www.alsde.edu

Alabama Commission on Higher Education

Mailing Address: P.O. Box 302000 ❑ Montgomery, Alabama 36130-2000
Delivery Address: 100 North Union Street ❑ Montgomery, Alabama 36104-3758
Telephone: (334) 242-1998 ❑ ATTNet: 220-1998 ❑ Fax: (334) 242-0268
www.ache.state.al.us

Bob Riley
Governor

November 3, 2009

Dr. Joseph B. Morton
State Superintendent
Alabama Department of Education
P. O. Box 302101
Montgomery, AL 36130-2101

Dear Dr. Morton:

The Alabama Commission on Higher Education heartily endorses and is pleased to join with you and other agency partners in support of the Alabama Department of Education's grant application for a Statewide Longitudinal Data System to be awarded under the American Recovery and Reinvestment Act of 2009.

Members of our staff have worked with their counterparts at the Alabama Department of Education in crafting the overall approach to be taken in several major components of the proposed work. We are fully confident that, in continuing this joint effort, we will be successful in reaching our objectives for the longitudinal data system, electronic transcript/records exchange, and the other required capabilities and elements outlined by the U. S. Department of Education.

We look forward to continuing our partnership with the Alabama Department of Education.

Sincerely,

Gregory G. Fitch, Ph.D
Executive Director

GGF/DS/dn

e2

Joan Y. Davis
Interim Chancellor

Department of Postsecondary Education
Post Office Box 302130
Montgomery, AL 36130-2130
t 334.293.4500
f 334.293.4504
www.accs.cc

November 6, 2009

Dr. Joseph B. Morton, Superintendent
Alabama Department of Education
Post Office Box 302101
Montgomery, AL 36130-2101

Dear Dr. Morton:

On behalf of the Alabama Department of Postsecondary Education and the Alabama Community College System, I am pleased to join with you and other agency partners in support of the Alabama Department of Education's grant application for a Statewide Longitudinal Data System to be awarded under the *American Recovery and Reinvestment Act of 2009*.

Our staff members have worked together to identify an overall approach to achieving the capabilities and data elements outlined by the U.S. Department of Education. We have also noted some of the barriers that we need to overcome. Part of the work outlined in our joint response to this funding opportunity involves upgrading the capabilities of the 29 entities that are a part of the Alabama Community College System. We eagerly support this funding mechanism to allow the Alabama Community College System a method of participating in the electronic records/transcript exchange.

We look forward to working with you and your staff in achieving these important milestones.

Very truly yours,

Joan Y. Davis
Interim Chancellor

SG/gs

education works.

Governor Bob Riley
President

Randy McKinney
District 1
Vice President

Betty Peters
District 2

Stephanie Bell
District 3

Ethel Hall
District 4
Vice President
Emerita

Ella B. Bell
District 5

David F. Byers Jr.
District 6

Gary Warren
District 7

Mary Jane Caylor
District 8
President Pro Tem

Alabama Department of
REHABILITATION SERVICES

Bob Riley
GOVERNOR

Cary F. Boswell
COMMISSIONER

November 2, 2009

Dr. Joseph B. Morton
Superintendent
Alabama Department of Education
Post Office Box 302101
Montgomery, AL 36130-2101

Dear Dr. Morton,

On behalf of the Department of Rehabilitation Services, I am pleased to join with you and other agency partners in support of the Alabama Department of Education's grant application for a Statewide Longitudinal Data System to be awarded under the American Recovery and Reinvestment Act of 2009.

By partnering with the Alabama Department of Education in this effort, the Alabama Department of Rehabilitation Services' Early Intervention program will be able to more effectively assess the impact of services for eligible children and their families through a longitudinal view of students served.

We look forward to extending our longstanding relationship with the Department of Education and working with you on this important project.

With best regards,

Cary F. Boswell
Commissioner

e4

602 S. Lawrence Street ■ Montgomery, AL 36104 ■ 334-293-7500 ■ 1-800-441-7607
Fax: 334-293-7383 ■ www.rehab.alabama.gov

PR/Award # R384A100009

STATE OF ALABAMA
DEPARTMENT OF INDUSTRIAL RELATIONS

Bob Riley
Governor

G. Thomas Surtees
Director

October 30, 2009

Dr. Joseph B. Morton
Superintendent
Alabama Department of Education
Post Office Box 302101
Montgomery, AL 36130-2101

Dear Dr. Morton,

I am writing to express my support for the Alabama Department of Education's grant application for a Statewide Longitudinal Data System to be awarded under the American Recovery and Reinvestment Act of 2009. The Department of Industrial Relations looks forward to working with the Alabama Department of Education and other partners in this effort.

We believe that providing the linkages necessary to track students throughout their careers will benefit the State of Alabama through better information concerning workforce readiness and knowledge of the availability of talent "in the pipeline" as we seek to expand Alabama's economic base.

Our staff is eager to explore these opportunities with the Alabama Department of Education.

Sincerely,

Tom

G. Thomas Surtees
Director

649 MONROE STREET MONTGOMERY, ALABAMA 36131
TELEPHONE: (334) 242-8990
A Partner in Alabama's Career Center System

PR/Award # R384A100009

DEPARTMENT OF CHILDREN'S AFFAIRS
2 North Jackson Street, Suite 602
Montgomery, Alabama 36104
www.children.alabama.gov
Phone: (334) 223-0502
Fax: (334) 240-3054

STATE OF ALABAMA
GOVERNOR BOB RILEY

MARQUITA DAVIS, Ph.D.
COMMISSIONER

October 30, 2009

Dr. Joseph B. Morton
Superintendent
Alabama Department of Education
Post Office Box 302101
Montgomery, AL 36130-2101

Dear Dr. Morton,

On behalf of the Office of School Readiness, I am pleased to join with you and other agency partners in support of the Alabama Department of Education's grant application for a Statewide Longitudinal Data System to be awarded under the American Recovery and Reinvestment Act of 2009.

By partnering with the Alabama Department of Education in this effort, the Office of School Readiness will extend its reach toward attaining its goal of ensuring quality preschool experiences that prepare students for entry into the education system. We believe that this longitudinal view of student performance will assist us in evaluating program effectiveness for all our children.

We stand ready to assist the Alabama Department of Education in carrying out this important work.

With best regards,

Marquita F. Davis, Ph.D.

Working Together to Improve the Lives of Alabama's Children

Alabama
INDEPENDENT COLLEGES & UNIVERSITIES

5950 Carmichael Place • Suite 213 • Montgomery, Alabama 36117
334-356-2220 • Fax 334-356-2202 • www.aaicu.net

November 17, 2009

Dr. Joseph Morton
Superintendent
Alabama Department of Education
Post Office Box 302101
Montgomery, AL 36130-2101

Dear Dr. Morton,

On behalf of the Alabama Association of Independent Colleges and Universities (AAICU), I would like to express my support for the Alabama Department of Education's grant application for a Statewide Longitudinal Data System to be awarded under the American Recovery and Reinvestment Act of 2009.

AAICU represents the fourteen fully accredited independent colleges across the state. Our schools account for 24,000+ students and produce 16% of Alabama's bachelor degrees, and 38% of the state's professional degrees. We are confident that tracking students throughout their careers will benefit higher education efforts throughout the state. We look forward to continuing our work with the Alabama Department of Education on this important project.

Sincerely,

Paul Hankins
President, AAICU

Budget Narrative

Budget Narrative - Budget Justification

Attachment 1:
Title: **Budget Narrative (Justification)** Pages: **41** Uploaded File: **07 - Budget Narrative _Justification_.pdf**

Budget Narrative (Justification)

The Alabama Department of Education's budget request will supplement its ongoing efforts to achieve the reporting and data accessibility requirements of this current grant. Funding under this grant will enable the Alabama Department of Education (ALSDE) to address the five major project outcomes outlined in this proposal through staff augmentation and contractual services.

1. **Alabama Consolidated Education System (ACES)**
2. **On-line Teacher Certification and Renewal System**
3. **Teacher Education - Program and Staff Evaluation System**
4. **Alabama System for Collaborative Education Needs Data-warehouse – (ASCEND)**
5. **E-transcript Transport System**

To achieve the entire spectrum of data across the PK-20 continuum, assistance to partnering agencies is also included as an integral part of the overall project request.

This budget request does not include any salary and benefits costs for ALSDE staff enumerated herein. The ALSDE staff represents an In-Kind contribution to this one-time effort as well as, through participation in this project, a good faith effort to position the ALSDE for maintaining and supporting the enhanced systems capabilities beyond the budget request period.

To comply with applicable State purchasing laws, vendors have not been defined in all instances. However, when existing staff augmentation resources are expected to participate, those individuals are shown in the following detailed descriptions of applicable project outcomes. ALSDE anticipates the development and issuance of RFP's for securing professional services and special purpose software to support various project outcomes enumerated in this Budget Narrative.

For planning purposes, rates for external resources have been estimated as shown in the following table. These figures are based on known prevailing rates for the geographic region and would be all-inclusive hourly rates (meaning, professional fees and expenses are presumed to be reflected in the amounts shown).

Title	Hourly Rate
PMO Director	150
Contract PM	125
Contract Business Analyst	100

Contract Software Architect	100
Contract DBA	100
Contract Developer	75

The following three project outcomes are focused on results entirely within ALSDE:

1. **Alabama Consolidated Education System (ACES)**
2. **On-line Teacher Certification and Renewal System**
3. **Teacher Education - Program and Staff Evaluation System**

The following two project outcomes require the cooperation and participation by the partner agencies:

4. **Alabama System for Collaborative Education Needs Data-warehouse – (ASCEND)**
5. **E-transcript Transport System**

Alabama Consolidated Education System (ACES)

The Alabama Consolidated Education System (ACES) will bring together various disparate operational data stores into a single source of information for reporting to various constituencies within ALSDE and outside of ALSDE. This project includes the design and construction of the ACES Data Warehouse which will be the primary source for reporting and analysis of longitudinal data.

There are currently forty-five different official data collections managed at the ALSDE in a given year. Many of these data are received in different formats and are stored in various formats including paper. ACES will be used to consolidate and standardize the information into a common location, format, and storage platform. This will significantly improve data access and streamline the collection process.

A portion of the architectural framework for ACES currently exists. This project will bring additional resources and expertise together for the completion of design/development of data transformation processes for ongoing integration as well as one-time data migration of historical data.

ALSDE expects to generate a Request for Proposal (RFP) or an Invitation to Bid (ITB), as required by Alabama purchasing policy, to identify an organization with the requisite skills and experience to assist in moving ahead in a timely manner to design, develop, deploy, and transform the data included in the scope of this work.

ALSDE also anticipates that acquisition of a suitable business intelligence reporting mechanism will be necessary to permit end-users the ability to effectively interact with the system.

Hardware requirements to support the ACES data repository in our three-tiered development environment include seven MS SQL database servers to accommodate increased processing load. From a data storage perspective, ALSDE must also enhance its Storage Area Network (SAN) to sustain the longitudinal data structure within ACES.

In 2010 – ALSDE will select a consultant to serve as the Project Management Office (PMO) director. This individual will coordinate the work on all five project outcomes to assure that activities in the individual plans proceed according to the established timetables.

ALSDE will also develop an RFP or ITB to select and secure incremental staffing to update and extend current data structures surrounding the data repository to be known as ACES.

The project team will standardize data collections and create associated data structures within the ACES operational data store for housing all official data submissions.

Stored procedures for routine data loading, data-marts, and data transformation for populating the ACES data warehouse will be undertaken.

Business intelligence tools will be acquired and implemented to support the presentation of dashboards, fixed reports, ad hoc queries, and other data integration needs associated with annual reporting cycles.

In 2011 – ALSDE will complete the construction of, and conduct training in the use of, the data reporting tool and associated data mining tools. The automated workflow for moving data from the various source systems will also be finalized.

ACES						
		2010	**2011**	**2012**	**2013**	**TOTAL**
1. ALSDE Staff Salaries						
Project Director (20 %)	Manage the preparation and execution of the RFP process coordinate the overall work of all concurrent activities and server as primary liaison to other agencies/stakeholders	8,775	1,875	0	0	10,650

ACES						
		2010	2011	2012	2013	TOTAL
SDE Project Manager (25 - 50 %)	Develops and manages project plans, provides overall guidance to project team members, handle communication with stakeholders, address staffing assignments, and performs other leadership tasks to ensure the successful delivery of the project	26,500	6,625	0	0	33,125
SDE Business Analyst / Subject Matter Expert (25 - 75 %)	Performs expert analysis of business requirements and serves as liaison for functional and technical aspects of the project activities	18,750	18,750	0	0	37,500

ACES						
		2010	2011	2012	2013	TOTAL
SDE Developer 2 Staff (100 %)	Prepares source code, tests developed applications for compliance with requirements, and performs unit/integration testing of products. Prepares code to interface with existing and acquired systems to meet stated requirements and objectives	67,500	45,000	0	0	112,500
Salaries Subtotal		**121,528**	**72,250**	**0**	**0**	**193,775**
2. Employee Benefits		**36,458**	**21,675**	**0**	**0**	**58,133**
ALSDE In-Kind Contributions		157,983	93,925	0	0	251,908
3. Travel						
Annual Grantee Meeting (Two person team)	Airfare, hotel, ground transportation, meals,	5,000	5,000	5,000	0	15,000
Travel Subtotal		**5,000**	**5,000**	**5,000**	**0**	**15,000**
4. Equipment						
Additional Hardware	SQL Server (R900 3 tiered environment), Desktop PCs, SAN	152,400				152,400

ACES						
		2010	2011	2012	2013	TOTAL
	Storage					
Total Equipment		**152,400**	**0**	**0**	**0**	**152,400**
5. Materials and Supplies						
Software Licenses	MS Sql Server, Microsoft Server 2008, Business Intelligence Tools	62,000	400,000	0	0	462,000
General Office Supplies						
Total Materials and Supplies		**62,000**	**400,000**	**0**	**0**	**462,000**
6. Contractual						
PMO Director (20 %)	Establishes the overall PMO for the five projects. Works with the individual Project Managers of the respective projects to coordinate activities and resources.	87,000	18,750	0	0	105,750

ACES						
		2010	2011	2012	2013	TOTAL
Contract Project Mgr (100 %)	Develops and manages project plans, provides overall guidance to project team members, handle communication with stakeholders, address staffing assignments, and performs other leadership tasks to ensure the successful delivery of the project	187,500	62,500	0	0	250,000
Contract Bus. Analyst (100 %)	Performs expert analysis of business requirements and serves as liaison for functional and technical aspects of the project activities	100,000	50,000	0	0	150,000
Contract Software Architect (100 %)	Designs, prepares, and configures the overall software structure, develops framework for integration with various components and subsystem whether built in-house or acquired for implementation	50,000	50,000	0	0	100,000

ACES						
		2010	2011	2012	2013	TOTAL
Contract Database Administrator 3 Staff (100 %)	Designs overall database architecture, schemas, scripts, data transformation of external data sources, and services of the enterprise data repositories. Monitors operational performance of database servers and all databases to ensure data integrity and reliability	300,000	150,000	0	0	450,000
Contract Developer 2 Staff (100 %)	Prepares source code, tests developed applications for compliance with requirements, and performs unit/integration testing of products. Prepares code to interface with existing and acquired systems to meet stated requirements and objectives	90,000	60,000	0	0	150,000
Total Contractual Services		**814,500**	**391,250**	**0**	**0**	**1,205,750**

ACES						
		2010	2011	2012	2013	TOTAL
8. Other						
Total Other						
11. Training						
Total Training						
Total Funding Requested		1,033,900	796,250	5,000	0	1,835,150

On-line Teacher Certification and Renewal System

ALSDE has begun the work of creating a web-based teacher certification and renewal system. Funding through this grant will accelerate ALSDE's progress toward permitting this component of the teacher-based information portal to be achieved.

With the online teacher application, teachers can apply online and school districts will be able to interact with the process in a timely basis. The workflow component of the On-Line Teacher Certification work will control the status and assignment of work within ALSDE. Teachers and administrators will be notified through a messaging component to keep them updated on the progress of their applications for certification.

Integration with the statewide student management system to determine the need for professional development and continuing education will further enable the process of automating the certification process. The workflow component will permit processing to flow smoothly and without interruption.

Hardware requirements to support the On-line Teacher Certification System in our three-tiered development environment include three additional application servers, scanners, and development PCs to accommodate increased processing load. From a data storage perspective, ALSDE must also enhance its Storage Area Network (SAN) to sustain the longitudinal data structure within ACES.

In 2010 – Detail project plans for conducting the analysis portion of this work will begin. Also, in the latter part of 2010, construction of these features, acquisition of the workflow and rules-based engine will be undertaken.

In 2011 – Construction, testing, training and delivery of the new features will be completed.

On-Line Teacher Certification						
		2010	**2011**	**2012**	**2013**	**TOTAL**
1. ALSDE Staff Salaries						
Project Director (20 %)	Manage the preparation and execution of the RFP process coordinate the overall work of all concurrent activities and server as primary liaison to other agencies/stakeholders	2,513	3,750	0	0	6,263
SDE Business Analyst / Subject Matter Expert (25%)	Performs expert analysis of business requirements and serves as liaison for functional and technical aspects of the project activities	6,250	12,500	0	0	18,750

On-Line Teacher Certification						
		2010	2011	2012	2013	TOTAL
SDE Developer (50 %)	Prepares source code, tests developed applications for compliance with requirements, and performs unit/integration testing of products. Prepares code to interface with existing and acquired systems to meet stated requirements and objectives	11,250	22,500	0	0	33,750
Salaries Subtotal		**20,013**	**38,750**	**0**	**0**	**58,763**
2. Employee Benefits		**6,004**	**11,625**	**0**	**0**	**17,629**
ALSDE In-Kind Contributions		26,017	50,375	0	0	76,392
3. Travel						
Travel Subtotal						
4. Equipment						
Additional Hardware	SQL Server (R900 3 tiered environment), Desktop PCs, SAN Storage, Scanners	120,400	0	0	0	120,400

On-Line Teacher Certification						
		2010	2011	2012	2013	TOTAL
Total Equipment		**120,400**	**0**	**0**	**0**	**120,400**
5. Materials and Supplies						
Software Licenses	BizTalk 2009, MS Windows 2003/2008 Server. AX Workflow BizTalk Connector, Compuware Dev Express, Application Monitoring Tools, K2 Workflow Engine, RedGate SQL and .NET Profiler Bundle	330,100	0	0	0	330,100
General Office Supplies						
Total Materials and Supplies		**330,100**	**0**	**0**	**0**	**330,100**
6. Contractual						

On-Line Teacher Certification						
		2010	2011	2012	2013	TOTAL
PMO Director (20 %)	Establishes the overall PMO for the five projects. Works with the individual Project Managers of the respective projects to coordinate activities and resources.	24,750	37,500	0	0	62,250
Contract Project Mgr (25 %)	Develops and manages project plans, provides overall guidance to project team members, handle communication with stakeholders, address staffing assignments, and performs other leadership tasks to ensure the successful delivery of the project	15,625	31,250	0	0	46,875
Contract Bus. Analyst (50 - 100 %)	Performs expert analysis of business requirements and serves as liaison for functional and technical aspects of the project activities	50,000	75,000	0	0	125,000

On-Line Teacher Certification						
		2010	2011	2012	2013	TOTAL
Contract Software Architect (50 - 100 %)	Designs, prepares, and configures the overall software structure, develops framework for integration with various components and subsystem whether built in-house or acquired for implementation	50,000	75,000	0	0	125,000
Contract Database Administrator (25%)	Designs overall database architecture, schemas, scripts, data transformation of external data sources, and services of the enterprise data repositories. Monitors operational performance of database servers and all databases to ensure data integrity and reliability	12,500	25,000	0	0	37,500

On-Line Teacher Certification						
		2010	2011	2012	2013	TOTAL
Contract Developer 3 Staff (100 %)	Prepares source code, tests developed applications for compliance with requirements, and performs unit/integration testing of products. Prepares code to interface with existing and acquired systems to meet stated requirements and objectives	60,000	180,000	0	0	240,000
Total Contractual Services		**212,875**	**423,750**	**0**	**0**	**636,625**
8. Other						
Total Other						
11. Training						
Total Training						

On-Line Teacher Certification						
		2010	2011	2012	2013	TOTAL
Total Funding Requested		663,375	423,750	0	0	1,087,125

Teacher Education - Program and Staff Evaluation System

The Teacher Evaluation system will be developed as an online application that will include an administrative tool to be used by ALSDE program staff in creating and maintaining a bank of evaluation questions to be utilized in the various types of certified staff evaluation instruments.

Additionally an administrative tool will be developed which will enable program staff at the ALSDE to generate the evaluation instruments used to evaluate each of the following categories of certified staff:

- Teachers
- Special Education Teachers
- Principals and Assistant Principals
- Education Administrators
- Librarians
- Guidance Counselors
- Speech Pathologists
- Psychometrists

Each certified employee filling a supervisory position in Alabama public schools will be able to log into the portal and complete evaluations of assigned staff. An automated process will be employed to calculate scores for the relevant evaluations.

Evaluation history will include responses to questions as well as points scored by all certified staff throughout the relevant periods of employment in Alabama public schools.

Deans of the Schools of Education will be able to review the evaluations of all program completers from their respective institutions.

By using this system, all program staff, deans, and other stakeholders will have the tools necessary to perform needed data analysis by program area.

The system will interface with the existing Teacher Preparation Reporting System to ensure novice evaluation results are included in the Annual Teacher Preparation Report Card.

In 2011 – Detail project plans for conducting the analysis portion of this work will begin. Construction, testing, training and delivery of the new features will also be completed in this time period.

Program/Staff Evaluation System						
		2010	2011	2012	2013	TOTAL
1. ALSDE Staff Salaries						
Project Director (20 %)	Manage the preparation and execution of the RFP process coordinate the overall work of all concurrent activities and server as primary liaison to other agencies/stakeholders	0	6,900	0	0	6,900
SDE Business Analyst / Subject Matter Expert (25%)	Performs expert analysis of business requirements and serves as liaison for functional and technical aspects of the project activities	0	18,750	0	0	18,750

Program/Staff Evaluation System						
		2010	2011	2012	2013	TOTAL
SDE Developer (50 %)	Prepares source code, tests developed applications for compliance with requirements, and performs unit/integration testing of products. Prepares code to interface with existing and acquired systems to meet stated requirements and objectives	0	33,750	0	0	33,750
Salaries Subtotal		**0**	**59,400**	**0**	**0**	**59,400**
2. Employee Benefits		**0**	**17,820**	**0**	**0**	**17,820**
ALSDE In-Kind Contributions		**0**	**77,220**	**0**	**0**	**77,220**
3. Travel						
Travel Subtotal						
4. Equipment						
Additional Hardware						
Total Equipment						

Program/Staff Evaluation System						
		2010	2011	2012	2013	TOTAL
5. Materials and Supplies						
Software Licenses						
General Office Supplies						
Total Materials and Supplies						
6. Contractual						
PMO Director (20 %)	Establishes the overall PMO for the five projects. Works with the individual Project Managers of the respective projects to coordinate activities and resources.	0	68,250	0	0	68,250

Program/Staff Evaluation System						
		2010	2011	2012	2013	TOTAL
Contract Project Mgr (25%)	Develops and manages project plans, provides overall guidance to project team members, handle communication with stakeholders, address staffing assignments, and performs other leadership tasks to ensure the successful delivery of the project	0	46,875	0	0	46,875
Contract Bus. Analyst (50 - 100 %)	Performs expert analysis of business requirements and serves as liaison for functional and technical aspects of the project activities	0	125,000	0	0	125,000
Contract Software Architect (50 - 100 %)	Designs, prepares, and configures the overall software structure, develops framework for integration with various components and subsystem whether built in-house or acquired for implementation	0	125,000	0	0	125,000

Program/Staff Evaluation System						
		2010	2011	2012	2013	TOTAL
Contract Database Administrator (100 %)	Designs overall database architecture, schemas, scripts, data transformation of external data sources, and services of the enterprise data repositories. Monitors operational performance of database servers and all databases to ensure data integrity and reliability	0	150,000	0	0	150,000
Contract Developer 3 Staff (100 %)	Prepares source code, tests developed applications for compliance with requirements, and performs unit/integration testing of products. Prepares code to interface with existing and acquired systems to meet stated requirements and objectives	0	240,000	0	0	240,000
Total Contractual Services		**0**	**755,125**	**0**	**0**	**755,125**

Program/Staff Evaluation System						
		2010	2011	2012	2013	TOTAL
8. Other						
Total Other						
11. Training						
Total Training						
Total Funding Requested		0	755,125	0	0	755,125

Alabama System for Collaborative Education Needs Data Warehouse (ASCEND)

ALSDE is promoting the creation of a common, shared data repository into which partner agencies would push relevant data and from which appropriate reporting and analysis would occur. ALSDE is referring to this data repository as ASCEND – **A**labama **S**ystem for **C**ollaborative **E**ducation **N**eeds **D**ata Warehouse.

Efforts are underway to establish a PK-20 Council that would provide additional structure and may complement work undertaken as a result of this project outcome. Regardless of the timing of the creation of such a PK-20 Council, ALSDE has already met with all of the agencies that would be essential to providing data for a shared data repository that addresses the requirements of this grant.

ALSDE has identified the following agency partners to participate in the implementation of ASCEND.

- Alabama Department of Rehabilitation Services – Early Intervention
- Alabama Commission on Higher Education
- Alabama Department of Postsecondary Education
- Alabama Department of Children's Affairs - Department of Children's Affairs
- Alabama Department of Industrial Relations

The use of the Alabama State Unique Student Identifier (SSID) will be a critical component in the success of the project outcome. The SSID will provide the linkage necessary to connect student level information across time and operational platforms. ALSDE's statewide student management system creates an SSID for all public K-12 students. The system will use the assigned SSIDs to link students in the State's early childhood, K-12, and higher education institutions.

In 2010 – ALSDE will move through the appropriate procurement steps to identify and select an organization to host the ASCEND platform and to serve as the data repository. All constituencies who are parties to ASCEND will be engaged in the design phase to identify data/reporting needs that address the continuum of student tracking afforded by this longitudinal data system.

ALSDE will engage various PK-20 related groups (such as, principals, teachers, parents, and other PK-20 entities) to determine their data-related needs and interests. From these working groups, ALSDE will determine the best method of providing access to the information, consistent with privacy laws and other protections afforded.

ALSDE will also develop an RFP or ITB to select and secure incremental staffing to create data structures surrounding the data repository to be known as ASCEND.

Hardware requirements to support the ASCEND data repository in our three-tiered development include four additional servers - two MS SQL database servers and two Web servers to accommodate increased processing load. From a data storage perspective ALSDE must also enhance its Storage Area Network (SAN) to sustain the longitudinal data structure within ASCEND.

In 2011 – The work of the project team will focus on acquisition of appropriate hardware and software tools to support the data needs identified. The project will move through the development phase and into the delivery of the infrastructure (hardware, software, and telecommunications) for launching ASCEND.

Data transformation and loading routines will be created to handle both the one-time and ongoing data movement into ASCEND. During this time period partner agencies will be similarly engaged in the creation of procedures to populate their respective portions of ascend. ALSDE understands that this effort will require some re-engineering of existing systems to fulfill their obligations to populate the appropriate structures within ASCEND.

Business intelligence tools will be acquired and implemented to support the presentation of dashboards, fixed reports, ad hoc queries, and other data integration needs associated with annual reporting cycles.

ASCEND						
		2010	**2011**	**2012**	**2013**	**TOTAL**
1. ALSDE Staff Salaries						
Project Director (20 %)	Manage the preparation and execution of the RFP process coordinate the overall work of all concurrent activities and server as primary liaison to other agencies/stakeholders	2,513	8,775	0	0	11,288
Agency SME (5%)		1,500	6,000	0	0	7,500

ASCEND						
		2010	2011	2012	2013	TOTAL
SDE Project Manager (25 - 50 %)	Develops and manages project plans, provides overall guidance to project team members, handle communication with stakeholders, address staffing assignments, and performs other leadership tasks to ensure the successful delivery of the project	13,250	33,125	0	0	46,375
SDE Business Analyst / Subject Matter Expert (25%)	Performs expert analysis of business requirements and serves as liaison for functional and technical aspects of the project activities	6,250	25,000	0	0	31,250

ASCEND						
		2010	2011	2012	2013	TOTAL
SDE Developer 2 Staff (100 %)	Prepares source code, tests developed applications for compliance with requirements, and performs unit/integration testing of products. Prepares code to interface with existing and acquired systems to meet stated requirements and objectives	0	90,000	0	0	90,000
Salaries Subtotal		**23,513**	**162,900**	**0**	**0**	**186,413**
2. Employee Benefits		**7,054**	**4,870**	**0**	**0**	**55,624**
ALSDE In-Kind Contributions		30,567	211,770	0	0	242,037
3. Travel						
Travel Subtotal						
4. Equipment						
Additional Hardware	SQL Server (R900 3 tiered environment), Desktop PCs, SAN Storage	190,500	0	0	0	190,500

ASCEND						
		2010	2011	2012	2013	TOTAL
Total Equipment		**190,500**	**0**	**0**	**0**	**190,500**
5. Materials and Supplies						
Software Licenses	MS Sql Server, Microsoft Server 2008	36,000	0	0	0	36,000
General Office Supplies						
Total Materials and Supplies		**36,000**	**0**	**0**	**0**	**36,000**
6. Contractual						
PMO Director (20 %)	Establishes the overall PMO for the five projects. Works with the individual Project Managers of the respective projects to coordinate activities and resources.	24,750	87,000	0	0	111,750

ASCEND						
		2010	2011	2012	2013	TOTAL
Contract Project Mgr (100 %)	Develops and manages project plans, provides overall guidance to project team members, handle communication with stakeholders, address staffing assignments, and performs other leadership tasks to ensure the successful delivery of the project	62,500	250,000	0	0	312,500
Contract Bus. Analyst (100 %)	Performs expert analysis of business requirements and serves as liaison for functional and technical aspects of the project activities	50,000	200,000	0	0	250,000
Contract Software Architect (100 %)	Designs, prepares, and configures the overall software structure, develops framework for integration with various components and subsystem whether built in-house or acquired for implementation	0	100,000	0	0	100,000

ASCEND						
		2010	2011	2012	2013	TOTAL
Contract Database Administrator 3 Staff (100 %)	Designs overall database architecture, schemas, scripts, data transformation of external data sources, and services of the enterprise data repositories. Monitors operational performance of database servers and all databases to ensure data integrity and reliability	0	450,000	0	0	450,000
Contract Developer 2 Staff (100 %)	Prepares source code, tests developed applications for compliance with requirements, and performs unit/integration testing of products. Prepares code to interface with existing and acquired systems to meet stated requirements and objectives	0	120,000	0	0	120,000
Total Contractual Services		**137,250**	**1,207,000**	**0**	**0**	**1,344,250**

ASCEND						
		2010	2011	2012	2013	TOTAL
8. Other						
Other State Agencies / Partners – Data Systems Modification	System modifications for the Alabama Commission on Higher Education, the Alabama Department of Industrial Relations, the Department of Children's Affairs, and the Alabama Department of Rehabilitation Services to accommodate the required changes to conform to the requirements of this objective	200,000	200,000	0	0	400,000
Total Other		**200,000**	**200,000**	**0**	**0**	**400,000**
11. Training						
Total Training						
Total Funding Requested		563,750	1,407,000	0	0	1,970,750

E-transcript Transport System

Implementing an electronic transcript exchange has been a goal of both ALSDE and the Alabama Commission on Higher Education for several years. Initial planning has begun and work is underway to clearly define a standardized transcript format to be used among the institutions of higher learning. The approach for implementing the electronic transcript system has not been addressed from a funding or structural basis.

This project outcome addresses the need for a standardized approach to data exchange between K12 and the various institutions of higher learning. ALSDE will pursue the creation of a vendor-neutral approach to accomplish this objective.

Additionally ALSDE expects to employ the use of national standards, such as the Postsecondary Electronic Standards Council (PESC), to enhance sustainability, durability, and reliability of the system. The specific method of exchange/transport will be determined in the design phase of this work and in conjunction with the implementation of ASCEND.

Workflow software will drive significant improvements in this process and will permit accurate and timely transfer of data with the participating institutions. The automation of this process will enable the ALSDE, K12, and higher education to reduce on-going costs associated with movement of this information and further the sustainability of the system.

Funding through this grant will allow progress to be accelerated by enabling the systems at the institutions of higher learning to be adjusted to handle these inbound and outbound electronic transactions. Alabama's institutes of higher learning include an array of software platforms. As a result, remediation and/or modification of those systems will vary significantly from school to school. The community college network, in particular, will require significant funding to overcome the great disparity in technologies employed.

This project outcome will include two essential phases of development. Phase I will focus on the construction of a vendor based transport-only system. This component will provide a web based solution that interacts with the K12 student management system to permit student transcripts to be transmitted to all higher education institutions within Alabama. Phase II will extend the capabilities of this system to incorporate the transport mechanism for movement of transcript data directly into ASCEND from the source systems and to provide a long-term data retention strategy for these data.

In 2010 – Phase I – ALSDE will develop an RFP or ITB to select a vendor solution for implementing the e-transcript transport system. Design, construction and implementation of the chosen vendor solution will occur.

In 2011 – Phase I – ALSDE continues to work with the chosen vendor to bring this system on-line. ALSDE expects to devote significant amount of time to training and roll-out activities.

In 2012 – Phase II – ALSDE will use incremental staffing to design and build the structures that will enable the movement of data into ASCEND and to the established transport mechanism.

E-Transcript						
		2010	**2011**	**2012**	**2013**	**TOTAL**
1. ALSDE Staff Salaries						
Project Director (20 %)	Manage the preparation and execution of the RFP process coordinate the overall work of all concurrent activities and server as primary liaison to other agencies/stakeholders	8,775	8,775	22,500	0	40,050

E-Transcript						
		2010	2011	2012	2013	TOTAL
SDE Project Manager (25 - 50 %)	Develops and manages project plans, provides overall guidance to project team members, handle communication with stakeholders, address staffing assignments, and performs other leadership tasks to ensure the successful delivery of the project	26,500	26,500	26,500	0	79,500
SDE Business Analyst / Subject Matter Expert (10 - 25 %)	Performs expert analysis of business requirements and serves as liaison for functional and technical aspects of the project activities	18,750	7,500	17,500	0	43,750

E-Transcript						
		2010	2011	2012	2013	TOTAL
SDE Developer (100 %)	Prepares source code, tests developed applications for compliance with requirements, and performs unit/integration testing of products. Prepares code to interface with existing and acquired systems to meet stated requirements and objectives	0	0	90,000	0	90,000
Salaries Subtotal		**54,025**	**42,775**	**156,500**	**0**	**253,300**
2. Employee Benefits		**16,208**	**12,833**	**46,950**	**0**	**75,991**
ALSDE In-Kind Contributions		70,233	55,608	203,450	0	329,291
3. Travel						
	Project team travel	2,000	2,000	2,000	0	6,000
	In-state travel for partner agencies and key stakeholders outside of Montgomery, AL area	1,500	1,500	1,500	0	4,500
Travel Subtotal		**3,500**	**3,500**	**3,500**	**0**	**10,500**
4. Equipment						
Additional Hardware						

E-Transcript						
		2010	2011	2012	2013	TOTAL
Total Equipment						
5. Materials and Supplies						
Total Materials and Supplies						
6. Contractual						
PMO Director (20 %)	Establishes the overall PMO for the five projects. Works with the individual Project Managers of the respective projects to coordinate activities and resources.	88,500	88,500	225,000	0	402,000

E-Transcript						
		2010	2011	2012	2013	TOTAL
Contract Project Mgr (100 %)	Develops and manages project plans, provides overall guidance to project team members, handle communication with stakeholders, address staffing assignments, and performs other leadership tasks to ensure the successful delivery of the project	187,500	250,000	250,000	0	687,500
Contract Bus. Analyst (100 %)	Performs expert analysis of business requirements and serves as liaison for functional and technical aspects of the project activities	100,000	150,000	200,000	0	450,000
Contract Software Architect (100 %)	Designs, prepares, and configures the overall software structure, develops framework for integration with various components and subsystem whether built in-house or acquired for implementation	100,000	150,000	200,000	0	450,000

E-Transcript						
		2010	2011	2012	2013	TOTAL
Contract Database Administrator 2 Staff (100 %)	Designs overall database architecture, schemas, scripts, data transformation of external data sources, and services of the enterprise data repositories. Monitors operational performance of database servers and all databases to ensure data integrity and reliability	100,000	150,000	400,000	0	650,000
Contract Developer 2 Staff (100 %)	Prepares source code, tests developed applications for compliance with requirements, and performs unit/integration testing of products. Prepares code to interface with existing and acquired systems to meet stated requirements and objectives	120,000	180,000	240,000	0	540,000
Total Contractual Services		**696,000**	**968,500**	**1,515,000**	**0**	**3,179,500**

E-Transcript						
		2010	2011	2012	2013	TOTAL
8. Other						
Higher Education Institution – Data Systems Modification	System modifications for 14 Public and 14 Independent Colleges and Universities to accommodate the required changes to conform to the requirements of this objective	1,400,000	1,400,000	0	0	2,800,000
Post Secondary Education Institution – Data Systems Modification	System modifications for 22 Comprehensive Community Colleges and 4 Technical Colleges to accommodate the required changes to conform to the requirements of this objective	2,000,000	0	0	0	2,000,000
Alabama Commission on Higher Education	Alabama Commission on Higher Education for coordination with the colleges and universities in the implementation of e-transcripts	50,000	50,000	50,000	0	150,000
Total Other		**3,450,000**	**1,450,000**	**50,000**	**0**	**4,950,000**
11. Training						

E-Transcript						
		2010	2011	2012	2013	TOTAL
Total Training						
Total Funding Requested		4,149,500	2,422,000	1,568,500	0	8,140,000

Budget Narrative

Budget Narrative - ED 524 Section C Spreadsheet

Attachment 1:
Title: **Budget Information Non-Construction Programs (ED 524)?Section C** Pages: **22** Uploaded File: **04 - Budget Information _ED524_ - Section C.pdf**

ACES						
		2010	2011	2012	2013	TOTAL
1. ALSDE Staff Salaries						
Project Director (20 %)	Manage the preparation and execution of the RFP process coordinate the overall work of all concurrent activities and server as primary liaison to other agencies/stakeholders	8,775	1,875	0	0	10,650
SDE PM (25 - 50 %)	Develops and manages project plans, provides overall guidance to project team members, handle communication with stakeholders, address staffing assignments, and performs other leadership tasks to ensure the successful delivery of the project	26,500	6,625	0	0	33,125
SDE Business Analyst / SME (25 - 75 %)	Performs expert analysis of business requirements and serves as liaison for functional and technical aspects of the project activities	18,750	18,750	0	0	37,500

SDE Developer 2 Staff (100 %)	Prepares source code, tests developed applications for compliance with requirements, performs unit/integration testing of products. Prepares code to interface with existing and acquired systems to meet stated requirements and objectives	67,500	45,000	0	0	112,500
Salaries Subtotal		121,525	72,250	0	0	193,775
2. Employee Benefits		36,458	21,675	0	0	58,133
ALSDE In-Kind Contributions		**157,983**	**93,925**	**0**	**0**	**251,908**
3. Travel						
Annual Grantee Meeting (2 person team)	Airfare, hotel, ground transportation, meals,	5,000	5,000	5,000	0	15,000
Travel Subtotal		**5,000**	**5,000**	**5,000**	**0**	**15,000**
4. Equipment						
Additional Hardware - MS Sql Server, Microsoft Server 2008		152,400	0	0	0	152,400
Total Equipment		**152,400**	**0**	**0**	**0**	**152,400**
5. Materials and Supplies						
Software Licenses - MS Sql Server, Microsoft Server 2008, Business Intelligence Tools		62,000	400,000	0	0	462,000
General Office Supplies						
Total Materials and Supplies		**62,000**	**400,000**	**0**	**0**	**462,000**
6. Contractual						

PMO Director (20 %)	Establishes the overall PMO for the five projects. Works with the individual Project Managers of the respective projects to coordinate activities and resources.	87,000	18,750	0	0	105,750
Contract PM (100 %)	Develops and manages project plans, provides overall guidance to project team members, handle communication with stakeholders, address staffing assignments, and performs other leadership tasks to ensure the successful delivery of the project	187,500	62,500	0	0	250,000
Contract Business Analyst (100 %)	Performs expert analysis of business requirements and serves as liaison for functional and technical aspects of the project activities	100,000	50,000	0	0	150,000
Contract Software Architect (100 %)	Designs, prepares, and configures the overall software structure, develops framework for integration with various components and subsystem whether built in-house or acquired for implementation	50,000	50,000	0	0	100,000

Contract Database Administrator 3 Staff (100 %)	Designs overall database architecture, schemas, scripts, data transformation of external data sources, and services of the enterprise data repositories. Monitors operational performance of database servers and all databases to ensure data integrity and reliability	300,000	150,000	0	0	450,000
Contract Developer 2 Staff (100 %)	Prepares source code, tests developed applications for compliance with requirements, performs unit/integration testing of products. Prepares code to interface with existing and acquired systems to meet stated requirements and objectives	90,000	60,000	0	0	150,000
Total Contractual Services		814,500	391,250	0	0	1,205,750
8. Other						
Total Other						
10. Total Indirect Costs						
Total Funding Requested		**1,033,900**	**796,250**	**5,000**	**0**	**1,835,150**

On-Line Teacher Certification						
		2010	2011	2012	2013	TOTAL
1. ALSDE Staff Salaries						
Project Director (20 %)	Manage the preparation and execution of the RFP process coordinate the overall work of all concurrent activities and server as primary liaison to other agencies/stakeholders	2,513	3,750	0	0	6,263
SDE Business Analyst / SME (25 %)	Performs expert analysis of business requirements and serves as liaison for functional and technical aspects of the project activities	6,250	12,500	0	0	18,750
SDE Developer (50 %)	Prepares source code, tests developed applications for compliance with requirements, performs unit/integration testing of products. Prepares code to interface with existing and acquired systems to meet stated requirements and objectives	11,250	22,500	0	0	33,750
Salaries Subtotal		20,013	38,750	0	0	58,763
2. Employee Benefits		6,004	11,625	0	0	17,629
ALSDE In-Kind Contributions		**26,017**	**50,375**	**0**	**0**	**76,392**
3. Travel						
Travel Subtotal						

4. Equipment						
Additional Hardware - SQL Server (R900 3 tiered environment), Desktop PCs, SAN Storage, Scanners		120,400	0	0	0	120,400
Total Equipment		**120,400**	**0**	**0**	**0**	**120,400**
5. Materials and Supplies						
Software Licenses - BizTalk 2009, MS Windows 2003/2008 Server. AX Workflow BizTalk Connector, Compuware Dev Express, Application Monitoring Tools, K2 Workflow Engine, RedGate SQL and .NET Profiler Bundle		330,100	0	0	0	330,100
General Office Supplies						
Total Materials and Supplies		**330,100**	**0**	**0**	**0**	**330,100**
6. Contractual						
PMO Director (20 %)	Establishes the overall PMO for the five projects. Works with the individual Project Managers of the respective projects to coordinate activities and resources.	24,750	37,500	0	0	62,250
Contract PM (25 %)	Develops and manages project plans, provides overall guidance to project team members, handle communication with stakeholders, address staffing assignments, and performs other leadership tasks to ensure the successful delivery of the project	15,625	31,250	0	0	46,875

Contract Business Analyst (50 - 100 %)	Performs expert analysis of business requirements and serves as liaison for functional and technical aspects of the project activities	50,000	75,000	0	0	125,000
Contract Software Architect (50 - 100 %)	Designs, prepares, and configures the overall software structure, develops framework for integration with various components and subsystem whether built in-house or acquired for implementation	50,000	75,000	0	0	125,000
Contract DBA (25 %)	Designs overall database architecture, schemas, scripts, data transformation of external data sources, and services of the enterprise data repositories. Monitors operational performance of database servers and all databases to ensure data integrity and reliability	12,500	25,000	0	0	37,500
Contract Developer 3 Staff (100 %)	Prepares source code, tests developed applications for compliance with requirements, performs unit/integration testing of products. Prepares code to interface with existing and acquired systems to meet stated requirements and objectives	60,000	180,000	0	0	240,000

Total Contractual Services	**212,875**	**423,750**	**0**	**0**	**636,625**
8. Other					
Total Other					
10. Total Indirect Costs					
Total Funding Requested	**663,375**	**423,750**	**0**	**0**	**1,087,125**

Program/Staff Evaluation						
		2010	2011	2012	2013	TOTAL
1. ALSDE Staff Salaries						
Project Director (20 %)	Manage the preparation and execution of the RFP process coordinate the overall work of all concurrent activities and server as primary liaison to other agencies/stakeholders	0	6,900	0	0	6,900
SDE Business Analyst / SME (25 %)	Performs expert analysis of business requirements and serves as liaison for functional and technical aspects of the project activities	0	18,750	0	0	18,750
SDE Developer (50 %)	Prepares source code, tests developed applications for compliance with requirements, performs unit/integration testing of products. Prepares code to interface with existing and acquired systems to meet stated requirements and objectives	0	33,750	0	0	33,750
Salaries Subtotal		0	59,400	0	0	59,400
2. Employee Benefits		0	17,820	0	0	17,820
ALSDE In-Kind Contributions		**0**	**77,220**	**0**	**0**	**77,220**
3. Travel						
Travel Subtotal						

4. Equipment						
Additional Hardware						
Total Equipment						
5. Materials and Supplies						
Software Licenses						
General Office Supplies						
Total Materials and Supplies						
6. Contractual						
PMO Director (20 %)	Establishes the overall PMO for the five projects. Works with the individual Project Managers of the respective projects to coordinate activities and resources.	0	68,250	0	0	68,250
Contract PM (25 %)	Develops and manages project plans, provides overall guidance to project team members, handle communication with stakeholders, address staffing assignments, and performs other leadership tasks to ensure the successful delivery of the project	0	46,875	0	0	46,875
Contract Business Analyst (50 - 100 %)	Performs expert analysis of business requirements and serves as liaison for functional and technical aspects of the project activities	0	125,000	0	0	125,000

Contract Software Architect (50 - 100 %)	Designs, prepares, and configures the overall software structure, develops framework for integration with various components and subsystem whether built in-house or acquired for implementation	0	125,000	0	0	125,000
Contract DBA (100 %)	Designs overall database architecture, schemas, scripts, data transformation of external data sources, and services of the enterprise data repositories. Monitors operational performance of database servers and all databases to ensure data integrity and reliability	0	150,000	0	0	150,000
Contract Developer 3 Staff (100 %)	Prepares source code, tests developed applications for compliance with requirements, performs unit/integration testing of products. Prepares code to interface with existing and acquired systems to meet stated requirements and objectives	0	240,000	0	0	240,000
Total Contractual Services		0	755,125	0	0	755,125
8. Other						

Total Other					
10. Total Indirect Costs					
Total Funding Requested	0	755,125	0	0	755,125

ASCEND						
		2010	2011	2012	2013	TOTAL
1. ALSDE Staff Salaries						
Project Director (20 %)	Manage the preparation and execution of the RFP process coordinate the overall work of all concurrent activities and server as primary liaison to other agencies/stakeholders	2,513	8,775	0	0	11,288
Agency SME (5%)		1,500	6,000	0	0	7,500
SDE PM (25 - 50 %)	Develops and manages project plans, provides overall guidance to project team members, handle communication with stakeholders, address staffing assignments, and performs other leadership tasks to ensure the successful delivery of the project	13,250	33,125	0	0	46,375
SDE Business Analyst / SME (25 %)	Performs expert analysis of business requirements and serves as liaison for functional and technical aspects of the project activities	6,250	25,000	0	0	31,250

SDE Developer 2 Staff 100%	Prepares source code, tests developed applications for compliance with requirements, performs unit/integration testing of products. Prepares code to interface with existing and acquired systems to meet stated requirements and objectives	0	90,000	0	0	90,000
Salaries Subtotal		23,513	162,900	0	0	186,413
2. Employee Benefits		7,054	48,570	0	0	55,624
ALSDE In-Kind Contributions		**30,567**	**211,470**	**0**	**0**	**242,037**
3. Travel						
Annual Grantee Meeting						
Travel Subtotal						
4. Equipment						
Additional Hardware - SQL Server (R900 3 tiered environment), Desktop PCs, SAN Storage		190,500	0	0	0	190,500
Total Equipment		**190,500**	**0**	**0**	**0**	**190,500**
5. Materials and Supplies						
Software Licenses - MS Sql Server, Microsoft Server 2008		36,000	0	0	0	36,000
General Office Supplies						
Total Materials and Supplies		**36,000**	**0**	**0**	**0**	**36,000**
6. Contractual						

PMO Director (20 %)	Establishes the overall PMO for the five projects. Works with the individual Project Managers of the respective projects to coordinate activities and resources.	24,750	87,000	0	0	111,750
Contract PM (100 %)	Develops and manages project plans, provides overall guidance to project team members, handle communication with stakeholders, address staffing assignments, and performs other leadership tasks to ensure the successful delivery of the project	62,500	250,000	0	0	312,500
Contract Business Analyst (100 %)	Performs expert analysis of business requirements and serves as liaison for functional and technical aspects of the project activities	50,000	200,000	0	0	250,000
Contract Software Architect (100 %)	Designs, prepares, and configures the overall software structure, develops framework for integration with various components and subsystem whether built in-house or acquired for implementation	0	100,000	0	0	100,000

Contract Database Administrator 3 Staff (100 %)	Designs overall database architecture, schemas, scripts, data transformation of external data sources, and services of the enterprise data repositories. Monitors operational performance of database servers and all databases to ensure data integrity and reliability	0	450,000	0	0	450,000
Contract Developer 2 Staff (100 %)	Prepares source code, tests developed applications for compliance with requirements, performs unit/integration testing of products. Prepares code to interface with existing and acquired systems to meet stated requirements and objectives	0	120,000	0	0	120,000
Total Contractual Services		**137,250**	**1,207,000**	**0**	**0**	**1,344,250**
8. Other						
Other State Agencies / Partners – Data Systems Modification	System modifications for the Alabama Commission on Higher Education, the Alabama Department of Industrial Relations, the Department of Children's Affairs, and the Alabama Department of Rehabilitation Services to accommodate the required changes to conform to the requirements of this objective	200,000	200,000	0	0	400,000

Total Other	**200,000**	**200,000**	**0**	**0**	**400,000**
10. Total Indirect Costs					
Total Funding Requested	**563,750**	**1,407,000**	**0**	**0**	**1,970,750**

E-Transcript						
		2010	2011	2012	2013	TOTAL
1. ALSDE Staff Salaries						
Project Director (20 %)	Manage the preparation and execution of the RFP process coordinate the overall work of all concurrent activities and server as primary liaison to other agencies/stakeholders	8,775	8,775	22,500	0	40,050
SDE PM (25 - 50 %)	Develops and manages project plans, provides overall guidance to project team members, handle communication with stakeholders, address staffing assignments, and performs other leadership tasks to ensure the successful delivery of the project	26,500	26,500	26,500	0	79,500
SDE Business Analyst / SME (10 - 25 %)	Performs expert analysis of business requirements and serves as liaison for functional and technical aspects of the project activities	18,750	7,500	17,500	0	43,750

SDE Developer (100 %)	Prepares source code, tests developed applications for compliance with requirements, performs unit/integration testing of products. Prepares code to interface with existing and acquired systems to meet stated requirements and objectives	0	0	90,000	0	90,000
Salaries Subtotal		54,025	42,775	156,500	0	253,300
2. Employee Benefits		16,208	12,833	46,950	0	75,991
ALSDE In-Kind Contributions		**70,233**	**55,608**	**203,450**	**0**	**329,291**
3. Travel						
Project Team		2,000	2,000	2,000	0	6,000
In-State Travel for Partner Agencies		1,500	1,500	1,500	0	4,500
Travel Subtotal		**3,500**	**3,500**	**3,500**	**0**	**10,500**
4. Equipment						
Additional Hardware						
Total Equipment						
5. Materials and Supplies						
Software Licenses						
General Office Supplies						
Total Materials and Supplies						
6. Contractual						

PMO Director (20 %)	Establishes the overall PMO for the five projects. Works with the individual Project Managers of the respective projects to coordinate activities and resources.	88,500	88,500	225,000	0	402,000
Contract PM (100 %)	Develops and manages project plans, provides overall guidance to project team members, handle communication with stakeholders, address staffing assignments, and performs other leadership tasks to ensure the successful delivery of the project	187,500	250,000	250,000	0	687,500
Contract Business Analyst (100 %)	Performs expert analysis of business requirements and serves as liaison for functional and technical aspects of the project activities	100,000	150,000	200,000	0	450,000
Contract Software Architect (100 %)	Designs, prepares, and configures the overall software structure, develops framework for integration with various components and subsystem whether built in-house or acquired for implementation	100,000	150,000	200,000	0	450,000

Contract Database Administrator 2 Staff - 100 %	Designs overall database architecture, schemas, scripts, data transformation of external data sources, and services of the enterprise data repositories. Monitors operational performance of database servers and all databases to ensure data integrity and reliability	100,000	150,000	400,000	0	650,000
Contract Developer 2 Staff (100 %)	Prepares source code, tests developed applications for compliance with requirements, performs unit/integration testing of products. Prepares code to interface with existing and acquired systems to meet stated requirements and objectives	120,000	180,000	240,000	0	540,000
Total Contractual Services		**696,000**	**968,500**	**1,515,000**	**0**	**3,179,500**
8. Other						
Higher Education Institution – Data Systems Modification	System modifications for 14 Public and 14 Independent Colleges and Universities to accommodate the required changes to conform to the requirements of this objective	1,400,000	1,400,000	0	0	2,800,000
Post Secondary Education Institution – Data Systems	System modifications for 22 Comprehensive Community Colleges	2,000,000	0	0	0	2,000,000

Modification	and 4 Technical Colleges to accommodate the required changes to conform to the requirements of this objective					
Alabama Commission on Higher Education	Alabama Commission on Higher Education for coordination with the colleges and universities in the implementation of e-transcripts	50,000	50,000	50,000	0	150,000
Total Other		**3,450,000**	**1,450,000**	**50,000**	**0**	**4,950,000**
10. Total Indirect Costs						
Total Funding Requested		4,149,500	2,422,000	1,568,500	0	8,140,000

Appendix D1

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COURT OPINIONS

US Supreme Court

US Tax Court

Board of Patent Appeals

STATE LAWS

Alabama

Arizona

California

Florida

Georgia

Illinois

Indiana

Massachusetts

Michigan

Nevada

New Jersey

New York

North Carolina

Ohio

Oregon

Pennsylvania

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Code of Alabama - Title 16: Education - Section 16-3-16.1 - Board to review requirements for teacher education; nationally normed teacher examination

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Section 16-3-16.1 - Board to review requirements for teacher education; nationally normed teacher examination.

(a) The Legislature finds a compelling interest in adequately preparing teachers to teach. The two basic components of teaching consist of knowing what to teach (content) and knowing how to teach (methodology). To assure that teachers entering Alabama's classrooms have been thoroughly prepared, the Legislature directs the State Board of Education to review the requirements of programs for teacher education and preparation and select a nationally normed teacher examination to be used. The nationally normed teacher examination may include the National Teacher Exam or any other national equivalent exam. Colleges and universities shall require each teacher candidate to pass the nationally normed examination as a condition of graduation. Notwithstanding any other provisions of this section, a person can, at any time, elect to not be a teacher candidate. The State Board of Education shall prescribe the manner in which the examination is to be administered and shall further determine the standard to be used for passing the examination.

(b) Graduates of teacher education programs who apply for certification who have attended out-of-state colleges and universities must also pass the same nationally normed teacher examination as required of students attending teacher preparation programs in Alabama. The examination shall be administered in a manner prescribed by the State Board of Education. The same standard used for passing the examination for students enrolled in teacher preparation programs at colleges and universities in Alabama shall be applicable.

(c) This section shall become effective for teacher education candidates who enter their program effective August 1, 1995.

(Acts 1995, No. 95-262, p. 463, §§1, 2, 5.)

Sections: Previous 16-3-9 16-3-10 16-3-11 16-3-12 16-3-13 16-

Appendix D1

Preamble

Art. I - Legislative

Art. II - Executive

Art. III - Judicial

Art. IV - States' Relations

Art. V - Mode of Amendment

Art. VI - Prior Debts

Art VII - Ratification

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Last modified: March 2, 2010

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ALTERNATIVE APPROACHES TO ALABAMA CERTIFICATION

Alternative Baccalaureate-Level
Special Alternative Certificate
Preliminary Certificate
Speech and Language Impaired
Nationally Certified School Psychologist
National Board for Professional Teaching Standards

ALTERNATIVE BACCALAUREATE-LEVEL APPROACH

The Alternative Baccalaureate-Level Certificate (ABC) approach allows an Alabama superintendent or administrator of an eligible nonpublic school to employ an applicant full-time in a teaching field while the applicant completes the requirements of the ABC approach to earning a bachelor's level Professional Educator Certificate in that teaching field. An ABC is available for some K-8 and 6-12 teaching fields, some of which may be STEM or other critical needs areas. An applicant who completes ABC requirements in a teaching field for which Alabama issues a P-12 Professional Educator Certificate will receive a P-12 Professional Educator Certificate. The applicant must have at least an earned bachelor's degree from a regionally accredited senior institution with a major in the teaching field, acceptable coursework in the teaching field, or a passing score on the prescribed Praxis II subject assessment. An applicant using the ABC approach must complete specified requirements for coursework, testing, and a criminal history background check. The ABC approach also requires three full years of full-time satisfactory teaching experience while holding a valid ABC in no more than two public school systems and/or nonpublic schools within the four scholastic years from the July 1 beginning date of the first ABC.

SPECIAL ALTERNATIVE CERTIFICATE

Overview of the SAC for Teaching Fields

A Special Alternative Certificate (SAC) allows an Alabama superintendent or administrator of an eligible nonpublic school to employ an applicant who is completing requirements for a master's degree level Professional Educator Certificate in a teaching field through a State-approved Alternative master's degree level program provided by an Alabama institution. This option also exists for an applicant who already holds a valid Professional Educator Certificate and is seeking initial certification for special education, reading, or English for speakers of other languages through an Alabama State-approved master's degree level program. Furthermore, this option is also applicable to an applicant seeking initial certification in an area of special education through a State-approved education specialist program. The SAC option allows up to three years of employment that do not need to be consecutive or in the same school system and/or nonpublic school. The SAC is not a prerequisite for a Professional Educator Certificate. An applicant using

the Special Alternative Certificate approach must complete requirements for testing and a criminal history background check.

Overview of the SAC for Areas of Instructional Support.
The SAC allows an Alabama superintendent or administrator of an eligible nonpublic school to employ an applicant who holds a valid Professional Educator Certificate and is completing requirements for a master's degree level Professional Educator Certificate for instructional leadership, school counseling, or library-media through a State-approved master's degree level program in the area provided by an Alabama institution. An applicant who has been unconditionally admitted to a school counseling program accredited by the Council for Accreditation of Counseling and Related Educational Programs (CACREP) at an Alabama institution may be eligible for a SAC in school counseling. The SAC allows up to three years of employment that do not need to be consecutive or in the same school system and/or nonpublic school. The SAC is not a prerequisite for a Professional Educator Certificate. An applicant using the Special Alternative Certificate approach must complete requirements for testing and a criminal history background check.

PRELIMINARY CERTIFICATE

When no other certification option is applicable, the Preliminary Certificate allows an Alabama superintendent or administrator of an eligible nonpublic school to employ an applicant full-time who has not met requirements for a Professional Educator Certificate. The applicant must have at least an earned master's degree from a regionally accredited senior institution with a major in the area for which the Preliminary Certificate is recommended. An applicant using the Preliminary Certificate approach must complete requirements for testing and a criminal history background check. A Preliminary Certificate allows up to three years of employment that do not need to be consecutive or in the same school system or nonpublic school.

SPEECH AND LANGUAGE IMPAIRED

An applicant who holds a master's or higher degree in speech-language pathology and a valid speech-language pathology license issued by any state's board of examiners in speech pathology and audiology may be eligible for the appropriate degree level Professional Educator Certificate in speech and language impaired. An applicant using the Speech and Language Impaired Approach must complete requirements for testing and a criminal history background check.

NATIONALLY CERTIFIED SCHOOL PSYCHOLOGIST

An applicant who holds currently valid certification as a Nationally Certified School Psychologist may be eligible for the appropriate degree level Professional Educator Certificate in school psychology. An applicant using the Nationally Certified School Psychologist approach must complete requirements for testing and a criminal history background check.

NATIONAL BOARD FOR PROFESSIONAL TEACHING STANDARDS

An applicant who holds valid certification by the National Board for Professional Teaching Standards may be eligible for a Professional Educator Certificate based on the NBPTS approach if Alabama issues a certificate comparable to the area(s), grade level(s), and degree level(s) of the NBPTS certificate. An applicant using the National Board for Professional Teaching Standards approach must complete requirements for testing and a criminal history background check.

Action Item No. _____
Alabama State Board of Education
May 27, 2010

RESOLUTION FOR
EDUCATOR EFFECTIVENESS

WHEREAS, the Alabama State Board of Education recognizes the steadily growing body of research that demonstrates students who are taught by effective teachers realize greater learning and academic achievement than those who are taught by less effective teachers; and

WHEREAS, the Alabama State Board of Education recognizes the steadily growing body of research that demonstrates teachers who are supported by effective principals realize greater learning and professional development than those supported by less effective principals; and

WHEREAS, effective teachers and principals in every school are critical to improving student learning and academic achievement, closing the achievement gap, and ensuring every student is college- and/or career-ready upon graduation from high school; and

WHEREAS, in order for Alabama's economy to continue to grow and for Alabama's citizens to be prepared to compete for knowledge-based jobs in Alabama, it is critical that improving teacher and principal effectiveness, and thereby student learning results, be the focus of the Alabama Department of Education's educational improvement strategy; and

WHEREAS, the Alabama State Board of Education has a moral obligation to facilitate access to effective teachers and principals for all students statewide; and

WHEREAS, the Alabama State Board of Education supports improving teacher and principal effectiveness throughout the state using objective measures of student learning as the predominant factor in teacher and principal evaluation systems; and

WHEREAS, the Alabama State Board of Education supports improving teacher and principal effectiveness throughout the state by providing teacher and principal preparation programs with information about the effectiveness of their graduates, including teachers and principals prepared through traditional and alternative routes; and

WHEREAS, the Alabama State Board of Education supports examining the possibility of improving student learning and academic achievement by using teacher and principal effectiveness results to inform key human resources decisions related to recruitment, hiring and assignment, transfers, layoffs, and dismissal:

NOW, THEREFORE, BE IT RESOLVED, That in order to improve student learning results, close the achievement gap, and better prepare Alabama students to be college- and/or career-ready, the State Superintendent of Education recommends that the Alabama State Board of Education approve the use of multiple valid, reliable, and objective measures of student learning results as the predominant measure of teacher and principal effectiveness in educator evaluation systems effective with the first day of school in 2011; and

BE IT FURTHER RESOLVED, That the Alabama State Board of Education encourages all local boards of education across Alabama to use teacher effectiveness outcomes as the predominant factor in advancing probationary teachers to non-probationary status while maintaining the current state law that gives the local board of education the ability to not offer tenure status without stating a specific reason; and

BE IT FURTHER RESOLVED, That the Alabama State Board of Education supports the collection and dissemination of teacher and principal effectiveness results to the preparation programs that prepared them; and

BE IT FURTHER RESOLVED, That the Alabama State Board of Education does hereby authorize the State Superintendent of Education to recall the Governor's Commission on Quality Teaching and the Governor's Congress on School Leadership, comprised of individuals from all education associations, the business and industry community and participating non-profits,to work with the State Department of Education staff to develop definitions of teacher and principal effectiveness, determine how to fairly and effectively measure teacher and principal effectiveness, outline how to use effectiveness measures to improve teacher and principal quality and thereby student learning and academic achievement, submit their recommendations to the Education Reform and Innovation Council for review and for the State Superintendent to bring any required actions by the Alabama State Board of Education to this body early in 2011 in order for full implementation to occur with the first day of school in 2011.

Done this 27th day of May 2010

School Leadership Change Emerging in Alabama: Results of the Governor's Congress on School Leadership

Executive Summary

"Read 10 good articles about 10 'effective' schools and you will have read little about effective programs and a great deal about effective people. These schools 'work' because the people driving them are able. Nothing else, ultimately, is very important."

— Theodore R. Sizer[1]

When Governor Bob Riley and State Superintendent of Education, Joseph B. Morton established Alabama's Governor's Congress on School Leadership in 2004, few people in the state fully realized the sea-change that would result in the state's philosophical and conceptual framework for educational leadership. There were even doubters among the chairs of key co mittees in the Congress. Many a blue ribbon commission has resulted in little more than a well-intentioned report. Major reform initiatives are often launched with great fanfare only to go nowhere. As with many major reform initiatives, the Governor's Congress on School Leadership c nfronted skepticism and resistance from those who did not want to change the status quo — who did not see the value of propose changes or accept the need for their involvement. Resolute leadership on the part of the state, nd perseverance on the part of scores of dedicated educators in every corner of the state, overcame these obstacles and ensured that the Governor's Congress would make its mark on educ tion policy and practice in Alabama.

The Governor's Congress on School Leadership resulted in an unmistakable paradigm shift, accepted by all conce ned parties, that Alabama's principals must be instructional leaders as opposed to school administra ors. And while the reform effort is in many respects still in its infancy, we can see that it has borne fruit along several dimensions:

- The Alabama Instructional Leadership Standards succeeded in placing an emphasis on instructional leadership, and with the inclusion of rationale, descriptors and behaviors, informed the redesign of university preparation programs, provided a basis for redesigned professional learning requirements, and are expected to assist in the development of an aligned evaluation system.
- Universities have made a quantum leap forward in the rigor, relevance and authenticity of their school leadership preparation programs. All 13 school leadership programs have been redesigned, and a first crop of 66 future leaders graduated from redesigned programs in 2009.
- There's been a sea-change in who is entering educational leadership: whereas before, many students in leadership programs were only there to get a salary boost, now almost all of them have every desire and intention to become principals. The leadership pipeline appears to be changing to better meet the actual needs of Alabama's schools.

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- Universities, districts and other key stakeholders are in general agreement that the changes resulting from the Governor's Congress on School Leadership have Alabama heading in the right direction.
- Alabama is providing most of its principals with a high degree of autonomy — it is giving them the working conditions, especially the authority, that emerging research says they need to succeed.
- The move to Professional Learning Units (PLUs) from Continuing Education Units (CEUs) is consistent with the other leadership reforms in Alabama.
- In the spring of 2010 the reform efforts received a very tangible endorsement from the Mobile and Baldwin County school systems. Despite significant budget constraints, those districts have seen enough benefit in the improved leadership preparation program at the University of South Alabama to agree to continue to support semester-long residencies for aspiring leaders during the 2010-2011 school year.

There remains much to be done. Even as we pause to take stock of what has been accomplished and consider where Alabama needs to focus its future efforts, we should be aware that the sustainability of the early gains of the Governor's Congress on School Leadership is threatened by a lack of resources and an incomplete understanding among front-line education leaders of what is necessary for implementation, or why implementation is in fact necessary or desirable. Some areas of concern remain:

- Many districts have not fully accepted the changes. For example, many district administrators and school principals continue to resist providin release time in order for aspiring leaders to fulfill the requirement for a 10-consecutive-day residency.
- There are still some university administrators and faculty across the state who do not understand that a change in leadership preparation has occurred, and who want to continue old ways of doing business in spite of clear requirements to the contrary.
- Many of these reforms remai , very nat rally, immature.
    - According to many districts, universities have not transformed their programs as much as they think they have. The universities see how much work they have put in, but the districts are not yet seeing a payoff in better new leaders.
    - The development of university-district partnerships needs continuing work. These are new relationships and they have not always

  These things will take time to develop, and even longer to bear definitive evidence of their success. This is to be expected, but there is a very real danger that without care the reform initiative will lose impetus while this maturing process takes place.
- The availability of resources to sustain the reforms is a major concern. The concern is magnified by a lack of data showing immediate tangible gains in school performance resulting from the changes.
- There is a need for opportunities for the universities to share ideas.
- The PLU system was brand new in the 2009-2010 school year and still involves a large number of questions about how it will work in practice (e.g., How will documentation be handled? How will credentialed aspiring leaders still serving as classroom teachers meet their PLU

implementation requirements? How will district staff wanting to maintain school leader certification meet implementation requirements?)

- The collection and publication of data on Alabama's school leadership infrastructure and pipeline needs further development. Alabama is not unique in this, but it currently has no way to automatically and systematically connect its serving principals and their records as school leaders with the programs that prepared them.

The task forces of the Governor's Congress on School Leadership did not all make equal progress. Some ideas that came out of the Congress have stalled out in the political process. Other ideas have been deliberately deferred for future implementation. Areas for future work include:

- The principal evaluation system still needs to be revised to match the new instructional leadership standards.
- Statewide supports for principal mentoring are still being developed.
- The Congress included a recommendation that Alabama establish a three-tiered licensing system for principals, recognizing licensed-but-not-yet-hired, acting instructional leaders and master-level principals. That development has been put on hold as funding has not been available to support the recognition of master principals.

The Governor's Congress on School Leadership

The Governor's Congress on School Leadership was first convened by Governor Bob Riley and State Superintendent Joseph B. Morton on November 30, 2004. A select group of 200 delegates from across Alabama, representing a wide range of stakeholders, served as members of the Congress. Considerable efforts were made to include representatives from school districts, higher education, associations, and the business community.

Much of the work of the Congress was completed by the members of five task forces, each composed of 20–25 carefully selected individuals. Each task force was co-chaired by a district superintendent and an acting principal. The five task forces were:

Task Force One: Standards for Preparing and Developing Principals and Instructional Leaders
Task Force Two: Selection and Preparation of School Leaders
Task Force Three: Certification Standards for School Leaders
Task Force Four: Professional Development
Task Force Five: Working Conditions and Incentives

The work of the Task Forces met variable success in moving from recommendation to implementation. Task Force One quickly came up with the Alabama Standards for Instructional Leaders, adopted by the State Board of Education in 2005, but its Code of Ethics has not yet advanced beyond recommendation to become official policy. Task Force Two, on the selection and preparation of school leaders, devised a

process that has now been successfully used to redesign all 13 school leader preparation programs in Alabama. Task Force Three presented a recommendation that Alabama adopt a three-tiered scheme of principal certification, but the legislature has not provided funds for the Master Certification level. The work of Task Force Four resulted in a transition from clock-based Continuing Education Units (CEUs) to standards-based Professional Learning Units (PLUs) in the 2009-2010 school year. The work of Task Force Five resulted in the extensive 2008 Take 20 principal working conditions study, discussed in this report, but has not yet resulted in any policy changes regarding incentives for principals.

The Congress was re-convened on May 11, 2005, when its final report was issued and detailed action plans were presented for the Governor, State Board of Education and the legislature to review and implement the recommendations of the Congress.

Alabama Standards for Instructional Leaders

The first and most critical task of the Congress was to create a new set of standards for instructional leadership against which everything else connected with the leadership reforms — the redesign of leadership preparation programs, the creation of a new licensing structure, the development of professional learning frameworks, and the development or adoption of new instructional leader evaluation instruments — could be aligned. The new standards were to represent the philosophical backbone of the reform effort.

The members of Task Force One understood that it was important to clearly state the rationale behind each standard, and to provide detailed key indicators and descriptors to help explicate the meaning of each standard for the purposes of training leaders to meet the standards and evaluating performance against the standards.

While various standards were available that could have been used as starting points or benchmarks, the members of Task Force One believed that it was important to begin with a blank slate and work from their own experience and ex ertise to identify those areas in which instructional leaders must show excellence if they are to be effective principals. The eight standards that were developed by the Congress and then adopted by the State Board are:

Standard 1: Planning for Continuous Improvement
Standard 2: Teaching and Learning
Standard 3: Human Resources Development
Standard 4: Diversity
Standard 5: Community and Stakeholder Relationships
Standard 6: Technology
Standard 7: Management of the Learning Organization
Standard 8: Ethics

Because much of the rest of the work of the Congress was dependent on the development and acceptance of standards as a philosophical foundation for the reform effort, Task Force One worked quickly so that within a period of less than five months it had built a consensus around the eight

standards. The State Board of Education adopted the Standards shortly after the final meeting of the Congress in May 2005.

Alabama's Standards preceded by a couple of years the Educational Leadership Policy Standards: ISLLC 2008,[2] which were adopted by the National Policy Board for Educational Administration in late 2007. A comparison of Alabama's Instructional Leadership Standards and the ISLLC 2008 standards (See Table 1) is instructive. Alabama's eight standards each have between seven and 20 'key indicators,' and the six ISLLC standards each incorporate three to nine 'functions.' SREB staff conducted an alignment exercise using an iterative methodology similar to that used in the past in aligning other states' standards and proposed standards to the national ISLLC standards. A mapping of Alabama's key indicators against the ISLLC functions allows for the identification of relative emphases and gaps. As many of Alabama's key indicators aligned with multiple ISLLC functions, the mapping contained in Table 1 does not represent one-to-one matching.

The comparison of Alabama's Standards to the ISLLC standards makes clear the extent to which the new Alabama Standards do shift the focus from principals as managers and administrators to principals as instructional leaders. As the Dean of one of Alabama's colleges of education said, the new standards "put the focus where it should have been all along."

The three ISLLC functions with the most matches in the Alabama Standards were:

An education leader . . .

- Nurtures and sustains a culture of collaboration, trust, learning and high expectations. (14 matches)
- Develops the instructional and leadership capacity of staff. (17 matches)
- Obtains, allocates, aligns and efficiently utilizes human, fiscal and technological resources. (11 matches)

The review identified six ISLLC functions which the Alabama Standards did not appear to emphasize or directly address:

An education leader . . .

- Supervises instruction. (Although this could be considered an aspect of developing the instructiona capacity of staff.)
- Maximizes time spent on quality instruction.
- Monitors and evaluates the management and operational systems.
- Promotes and protects the welfare of students and staff.
- Safeguards the values of democracy, equity and diversity.
- Acts to influence local, district, state and national decisions affecting student learning.

[2] ISLLC stands for the Intestate School Leaders Licensure Consortium, which has in turn been a project supported by the Council of Chief State School Officers (CCSSO). Since 1996 the ISLLC has been a national leader in setting standards for school leadership.

Some of the ISLLC standards did not appear to match up well with Alabama's standards because of the way ideas were grouped. For instance, while Alabama's Standard 4 is entirely focused on diversity, the corresponding ISLLC function includes with the idea of diversity an expectation that a school leader should act to 'safeguard the values of democracy' as well — and that appears to be a separate and distinct idea that is not incorporated in Alabama's standards. Finally, the ISLLC function of the school leader acting to 'influence local, district, state and national decisions' implies an appropriate role for a principal actively 'managing up' in a way that the Alabama standards do not conceive.

The Alabama Standards for Instructional Leaders have succeeded in serving as a philosophical framework for the redesign effort, are widely accepted as encapsulating expectations for school leaders in Alabama, and were successfully used in setting directions for university redesigns and developing new professional learning frameworks. While the Standards should be periodically reviewed and revised in the future, they are more than adequate in meeting current needs.

DRAFT

Table 1: Alignment Between ISLLC and the Alabama Standards for Instructional Leadership: Alabama Mapped Onto ISLLC

	ISLLC Functions								
ISLLC Standards	A	B	C	D	E	F	G	H	I
1 An education leader promotes the success of every student by facilitating the development, articulation, implementation and stewardship of a vision of learning that is shared and supported by all stakeholders	Collaboratively develop and implement a shared vision and mission	Collect and use data to identify goals, assess organi-zational effective-ness, and promote organizational learning	Create and implement plans to achieve goals	Promote continuous and sustainable improvement	Monitor and evaluate progress and revise plans				
Number of AL 'key indicators' matching function	7	7	6	9	7				
2 An education leader promotes the success of every student by advocating, nurturing, and sustaining a school culture and instructional program conducive to student learning and staff professional growth	**Nurture and sustain a culture of collaboration, trust, learning, and high expectations**	Create a comprehensive, rigorous, coherent curricular program	Create a personalized and motivating learning environment for students	Supervise instruction	Develop assessment and accountability systems to monitor student progress	**Develop the instructional and leadership capacity of staff**	Maximize time spent on quality instruction	Promote the use of the most effective and appropriate Technologies to support teaching and learning	Monitor and evaluate the impact of the instructional program
Number of AL 'key indicators' matching function	14	5	6	2	8	17	2	4	5
3 An education leader promotes the success of every student by ensuring management of the organization, operation, and resources of a safe, efficient, and effective learning environment	Monitor and evaluate the management and ope-rational systems	**Obtain, allocate, align, and efficiently utilize human, fiscal, and technological resources**	Promote and protect the welfare of students and staff	Develop the capacity for distributed leadership	Ensure teacher and organi-zational time is focused to support quality instruction and student learning				
Number of AL 'key indicators' matching function	0	11	2	3	6				
4 An education leader promotes the success of every student by collaborating with faculty and community members, responding to diverse community interests and needs, and mobilizing community resources	Collect and analyze data and information pertinent to the educational environment	Promote understanding, appreciation, and the use of the community's diverse cultural, social, and intellectual resources	Build and sustain positive relationships with families and caregivers	Build and sustain productive relationships with community partners					
Number of AL 'key indicators' matching function	3	3	5	8					
5 An education leader promotes the success of every student by acting with integrity, fairness, and in an ethical manner	Ensure a system of accountability for every student's academic and social success	Model principles of selfawareness, Reflective practice, transparency, and ethical behavior	Safeguard the values of democracy, equity, and diversity	Consider and evaluate the potential moral and legal conse-quences of decision-making	Promote social justice and ensure that individual student needs inform all aspects of schooling				
Number of AL 'key indicators' matching function	3	3	2	5	3				
6 An education leader promotes the success of every student by understanding, responding to, and influencing the political, social, economic, legal, and cultural context	Advocate for children, families, and caregivers	Act to influence local, district, state, and national decisions affecting student learning	Assess, analyze, and anticipate emerging trends and initiative in order to adapt leadership strategies						
Number of AL 'key indicators' matching function	4	0	5						

Principal Working Conditions in Alabama

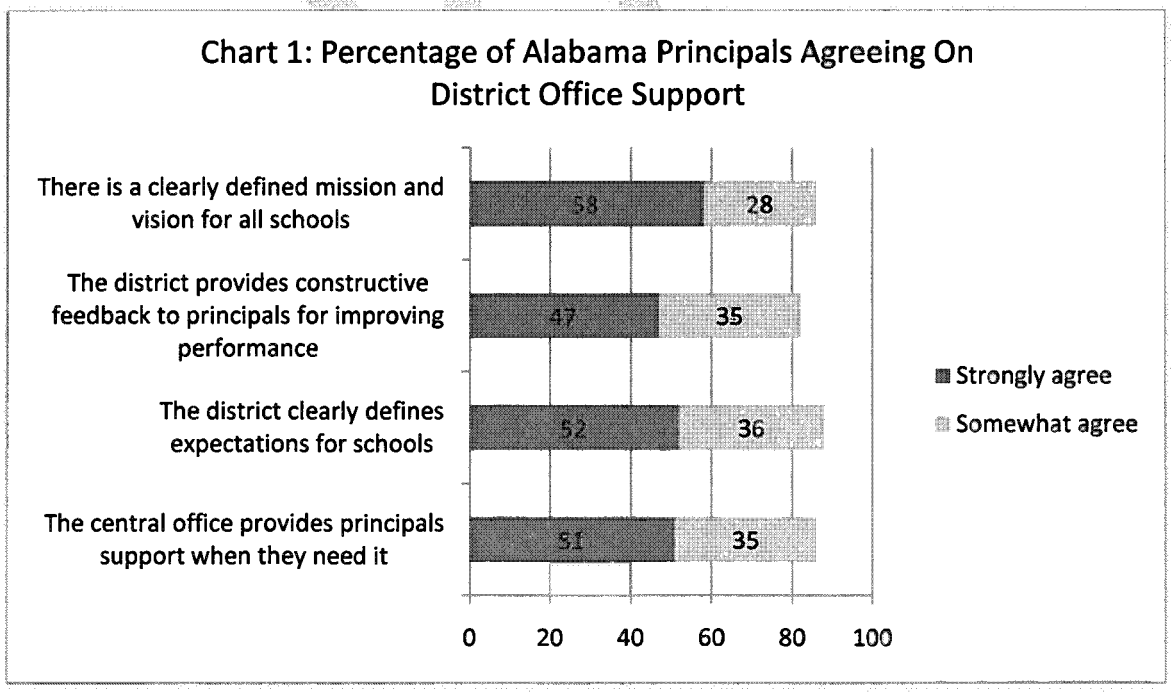
"It is hard to *recruit* the right people to a bad situation. As we say, 'How are you going to keep them down on the farm once they have seen the farm?' Or how are you even going to get them to the farm once they know so much about it?"

Michael Fullan, *What's Worth Fighting For in the Principalship*

In 2008, Alabama principals participated in a Take 20 working conditions study led by Eric Hirsch, a nationally recognized expert in working conditions for K12 educators. Results of the survey were mixed. Alabama's principals were generally positive about their district leadership, professional development, and the extent to which they feel empowered. They were less positive about the time pressures they feel, their inability to devote significant time to actually practicing instructional leadership, and their lack of training and skills to coach and remediate teachers who are weak instructors.

District Leadership

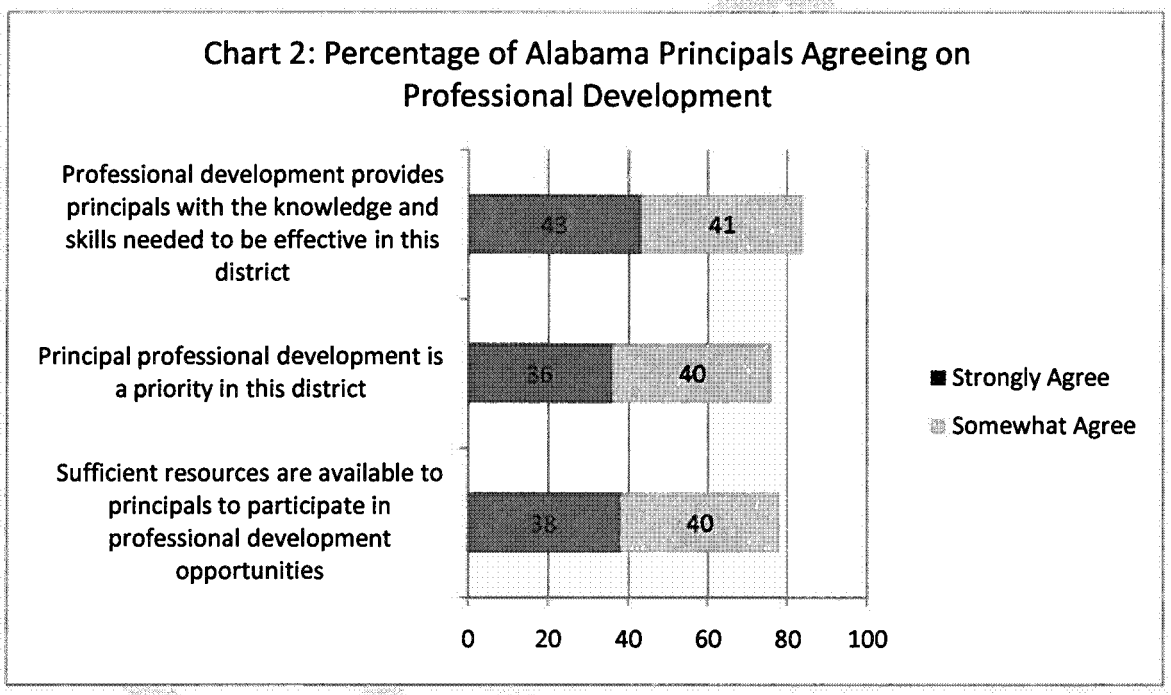
At least four out of five Alabama principals strongly agreed or somewhat agreed (see Chart 1) that their districts provide support when they need it (86 percent), clearly define a mission and vision for all schools (86 percent), clearly define expectations for schools (88 percent) , and provide principals with constructive feedback for school improvement (82 percent). While principals do agree with all of these statements, that a third of principals only 'somewhat' agree with these statements, and in each case more than a tenth of principals agree less than that, give cause for concern and room for improvement.



Professional Development

About the time the 2008 Take 20 working conditions survey was being completed by principals across Alabama the statewide professional development framework for school leaders was undergoing a major shift from a focus on the seat-time requirements for obtaining Continuing Education Units (CEUs) to the standards-based, school-focused and Professional Learning Units (PLUs).

Most current principals in Alabama strongly agreed or somewhat agreed in 2008 (see Chart 2) that they received the professional development they needed in order to be effective (84 percent); that professional development was a priority in their district (76 percent); and that there were sufficient resources available for them to participate in professional development (78 percent). Four in 10 of the respondents only 'somewhat' agreed with these statements, and almost a quarter of respondents did not 'strongly' or 'somewhat' agree that professional development for principals was a priority.



The 2008 Take 20 working conditions survey indicated that principals were already focused on their need for additional training in instructional leadership, teacher remediation and coaching, and data-driven decision making (see Table 2), areas that, based on the design of PLUs, should be receiving more attention now in 2010. The most noteworthy professional development gap in Alabama, according to the Take 20 survey, was in the area of teacher remediation and coaching. While 38 percent of principals identified it as an area where they felt they needed more training, second only to instructional leadership as an area of need (mentioned by 41 percent of respondents), only 11 percent said they had received 10 or more hours of training on teacher remediation and coaching in the previous two years — tenth on the list of topics for professional development actually received. Some respondents took the view that the problem with professional development for teacher remediation and coaching was not a matter of preparing principals to effectively work with teachers to improve teaching practices, but rather a matter of training principals to effectively manage personnel issues when unions become involved in 'protecting' ineffective teachers.

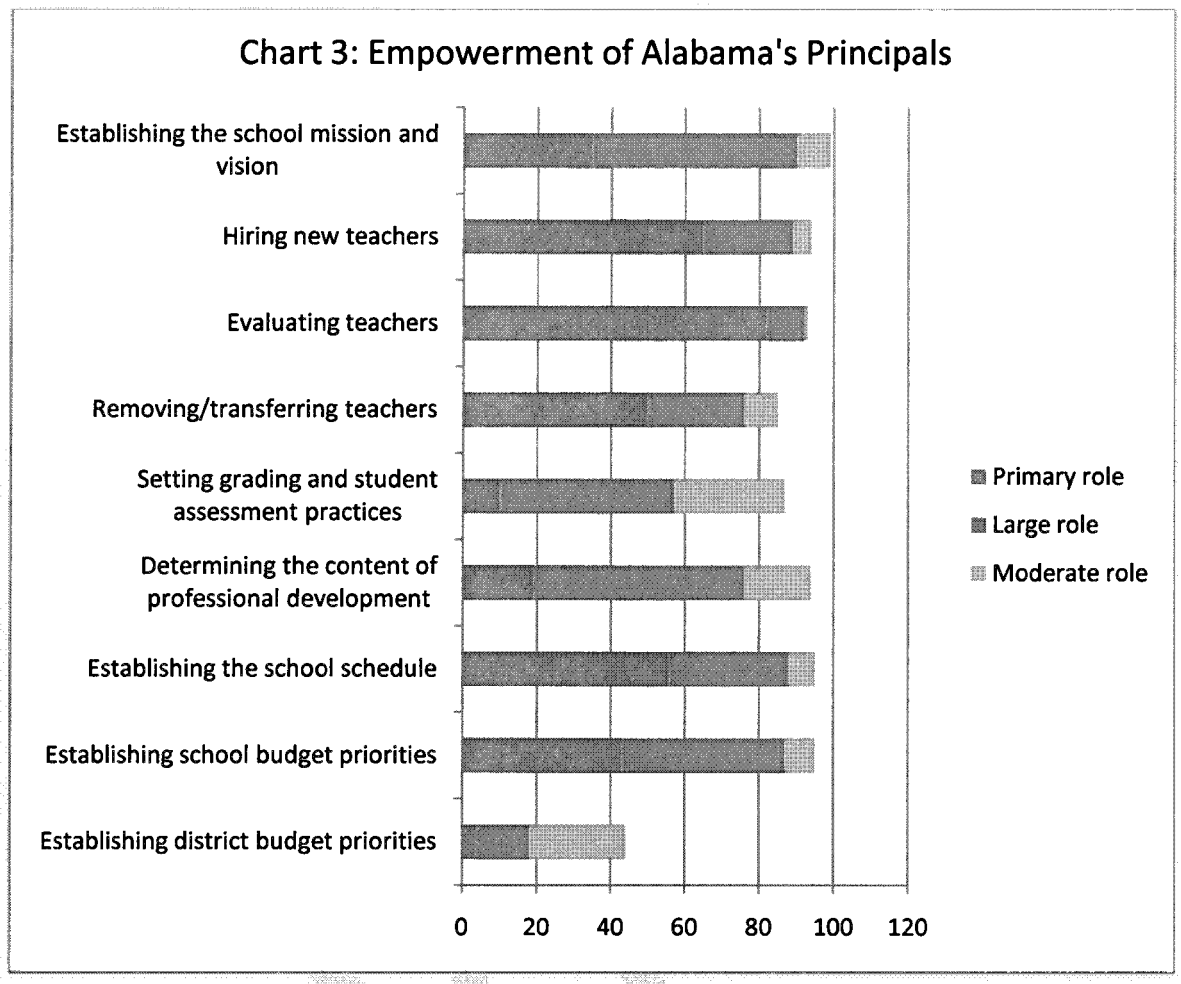
Table 2: Selected Topics of Professional Development Needs of Principals and Professional Development Received

	In which areas do you need additional support to effectively lead your school?	**In which areas have you had 10 clock hours or more of professional development in the past two years?**
Instructional leadership	**41% (1)**	**73% (1)**
Student assessment	31% (4)	65% (3)
School improvement planning	27% (7)	65% (3)
Teacher remediation/coaching	**38% (2)**	**11% (10)**
Data-driven decision making	36% (3)	66% (2)

Empowerment

Recent research indicates that empowerment of principals is proving effective in many parts of the country — the schools in Chicago and New York City being cases in point.[3] With greater empowerment will come greater responsibility on the part of principals, nd a greater need to ensure that the right people with the right training are in fact leading Alabama's schools. The results of Alabama's 2008 Take 20 survey suggest that Alabama principals are in fact given substantial authority and autonomy in making critical decisions for the improvement of their schools (see Chart 3).

[3] Ouchi, William.



Data

Another area the Take 20 principals' survey identified as a real strength for Alabama is the availability of data on which school improvement decisions might be based. Sixty-two percent of responding principals strongly agreed that their schools received sufficient data and information on which to make informed decisions, and another 34 percent 'somewhat' agreed — so that cumulatively 96 percent of principals voiced agreement that they were getting the data they needed. SREB's considerable school improvement and leadership development work suggests that in many cases the availability of data out-strips the skills and capacity of current and aspiring leaders to process the data,

Time

In the Take 20 survey the demands on principals' time emerged as the most important working condition needing improvement in order for principals to be better instructional leaders. While 74 percent of principals said they spent no more than five hours a week observing and coaching teachers (half of those spending three or fewer hours),and 88 percent said that they spent no more than five hours a week in instructional planning with teachers, only 20 percent said that they spent five or fewer

hours on administrative duties. Over half of principals (56 percent) reported that they spent more than 10 hours a week on administrative duties. Most principals (53 percent) also reported spending more than 10 hours a week working before or after school, or on weekends, in order to get the job done.

According to the Take 20 survey results, districts are not providing principals with the support they need in order to focus on instructional leadership. When asked if their central office had 'streamlined procedures to minimize principals' time on non-instructional tasks,' only nine percent strongly agreed, and 39 percent somewhat agreed. **Forty percent of responding principals disagreed that district offices were taking steps to minimize the time they had to spend on non-instructional tasks.**

Time is a commodity that is always in short supply in education. As Alabama focuses on transforming the role of the principalship into instructional leadership, it should work with districts to explore and implement strategies that can increase the amount of time principals and assistant principals are able to devote to leading instruction.

Principal Evaluation

The Alabama Standards for Instructional Leaders were developed with the evaluation of principals and assistant principals in mind from the outset. Extensive descriptors and examples were included with the standards for this purpose.

Despite the inherent articulation contained in the standards, a new principal evaluation system has not been rolled out simultaneously with the new standards and the redesign of the university preparation programs. The Professional Education Personnel Evaluation Program (PEPE) system of principal evaluation is currently still in use.

In part, this is in response to the roll-out of a new Educate Alabama teacher evaluation system during the 2009-2010 school year and a desire to limit the number of changes districts and schools are confronted with implementing simultaneously. District feedback has indicated the need for considerable professional development to implement the new teacher evaluation system, and some district leaders are hoping that, to have more time to work out problems with the new teacher evaluation system, the roll-out of the new principal evaluation system will be delayed until the 2011–2012 school year.

During the 2010–2011 school year, Alabama will, with the support of The Wallace Foundation, pilot the use of the VAL-ED 360° principal evaluation instrument in approximately 110 schools across the state. A 2009 Learning Point Associates study of publicly available principal performance assessment instruments rated the VAL-ED as the best assessment currently available based on both its psychometric properties (validity and reliability) and its potential for ongoing use in formative assessment and personnel development.[4]

[4] Christopher Condon and Matthew Clifford. (2009). Measuring Principal Performance: How Rigorous Are Publicly Available Principal Performance Assessment Instruments? Learning Point Associates.

Professional Learning for Principals

In 2006 Alabama adopted new Standards for Professional Development, applying to all educators.[5] As a logical extension of this change, and in keeping with intentions made clear in the Congress, in 2008 Alabama announced a switch from Continuing Education Units (CEUs) to Professional Learning Units (PLUs). The Alabama Council for Leadership Development (ACLD) provided the following definition of PLUs:

> "A Professional Learning Unit (PLU) is a content driven, long-term unit of professional study for instructional leaders that fully addresses all knowledge and ability indicators under an Alabama Standard for Instructional Leaders. . . A PLU is earned at the completion of professional study which fully addresses the knowledge and ability indicators under an Alabama Standard for Instructional Leaders. The professional study must include comprehensive coverage and evaluation of effectiveness in the school setting. Professional study that earns a PLU must be approved either by the Alabama Council for Leadership Development (ACLD) or approved by the local superintendent. The PLU will take the place of the continuing education unit (CEU) which is based on seat time at one event rather than the development of knowledge and ability over time."[6]

Over a five-year certification cycle, an instructional leader must earn five PLUs. Two PLUs must be approved by the ACLD, two PLUs must be approved by the local superintendent, and one may be approved by either the ACLD or the local superintendent. PLU providers must receive approval for their training ahead of time, and every PLU must include evidence of learning, implementation in a school setting, and evaluation. For example, in June 2009 one of Alabama's leading professional organizations, Council for Leadership in Alabama Schools (CLAS) has approved PLUs for their members with two state-approved opportunities to earn a PLU – one focused on Standard 1 of the Alabama Standards for Instructional Leaders, the other on Standard 7. Both training strands consisted of three phases, as shown in Table 3, with one or more activities in each phase. The Alabama Education Association (AEA), and Alabama School Superintendents of Alabama (SSA) also have approved PLUs.

Table 3: Example of PLU Training Provided Through CLAS

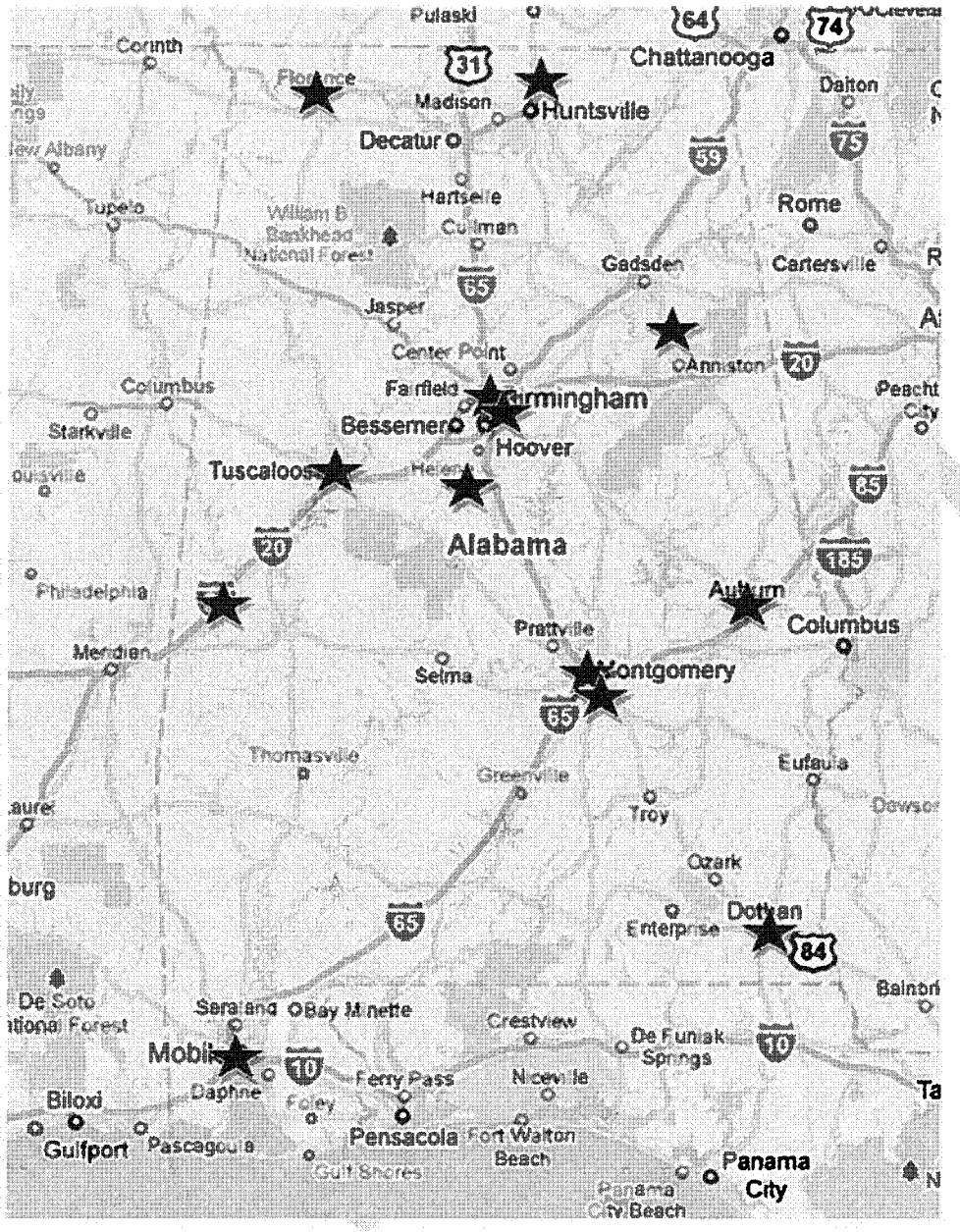
Phase	Focus	Activity 1	Activity 2
Phase I	Knowledge & Content	Attend sessions at the CLAS conference	Take one of two SREB leadership modules
Phase II	Implementation	Focus on implementation at least 1 hour a week in the school setting	Maintain online blog on activities
Phase III	Evaluation	Attend CLAS conference session for follow-up and reflection	

[5] Alabama Council for Leadership Development. Professional Study Training 2009." Powerpoint presentation,
[6] Alabama Council for Leadership Development, http://alex.state.al.us/showleaderpg.php?lnk=psinfo.

The 2009–2010 school year is the first during which PLUs have replaced CEUs, and there are a number of practical questions, and in many cases some confusion, about the implementation of the change.

- Some school leaders saw the change and thought that they should attempt to complete all five PLUs in the first year, to immediately get the requirement out of the way. The learning is supposed to be intensive, continuous, and tied to the leader's professional development plan and annual review, and it has taken some education to ensure that school leaders understand that the intention is that they focus on and complete one PLU every year.
- By intention, there is no requirement that school leaders complete a PLU on a different Standard each year — if a leader needs to focus more of their professional growth in a particular area they can in fact complete PLUs for the same Standard two or three years in a row.
- As a PLU requires evidence of learning, implementation and evaluation, the documentation requirements for PLUs greatly exceed the seat-time (sign-in roster) level of documentation previously required for CEUs. District office staff must necessarily take on these additional responsibilities for collecting and maintaining documentation — and create new systems for doing so.
- Even after the change from C U o PLU submission of documentation is not an indicator or a guarantee of quality of learning.
- The requirement of school-based implementation is creating difficulties for initially certified school leaders who have not yet been hired in school leadership roles (especially if they are still classroom teachers), and for previous principals who are working in central office positions but who want to maintain their credential. State clarification and guidance are needed to explain what those staff must do to complete their PLUs.
- Rural districts with smaller central offices are more likely to have problems making the change to PLUs. Alabama's 11 Regional In-Service Centers (RICs) can assist smaller districts, and in some cases smaller districts have worked with larger districts and borrowed their PLUs. As noted above, professional organizations such as CLAS are stepping forward to create PLU opportunities, but their solutions can be expensive. In the case of CLAS, obtaining a PLU requires paying for a seminar in addition to attending two conferences in Mobile – resulting in a cost that will be prohibitive for some.

Exhibit 1: Map of Alabama Showing University Campuses With School Leadership Programs



Geographic Distribution of Alabama's School Leadership infrastructure

Exhibit 1 (above) shows the distribution of Alabama's 13 college campuses with school leadership programs. While several of the programs offer online classes or satellite locations, and some hold classes at school district locations in order to minimize travel required of their students and maximize the hands-on nature of their training, the map unmistakably shows an empty area through the state's Black Belt, between Montgomery and Mobile. Future plans for professional development for school

leaders, university-district partnerships, and inquiries into the scale and sustainability of Alabama's leadership reforms should take into consideration the ways in which this region will be served.

Redesign of University Instructional Leadership Programs

Until recently many university school leadership programs were caught in a downward spiral, a 'race to the bottom,' in Art Levine's memorable indictment, characterized by accepting anyone willing to pay tuition, preparing them via a curriculum without rigor or relevance to take leadership exams with meaninglessly low cut scores, giving the students degrees that entitled them to pay increases without evidence of value-added, and leadership credentials they might — in some cases fortunately — never use.[7] A consensus grew that our national system for preparing school leaders was almost completely broken. SREB issued a call to Alabama and the other states of the southeast to address this growing crisis in school leader preparation with the 2001 publication, *Preparing a New Breed of Principals: It's Time for Action.*[8]

The Wallace Foundation became a national leader in drawing attention to the necessity of providing every school with a principal who is a strong instructional leader, supporting the work of SREB, the State of Alabama, and many others in improving school leadership over the past decade. Growing out of that work was increased recognition of the necessary components of quality school leader preparation programs. Linda Darling-Hammond and her co-authors provided in 2007 a list of conditions that closely matches the reforms that Alabama pursued in the redesign of its university preparation programs[9]:

- University-district partnerships
- Greater sel ctivity in choosing future leaders
- More rigorous coursework, connected with field-based learning and residency experiences
- More rigorous residency experiences
- Effective mentoring
- Cohort structures for all students

Although the exact details of implementation differed from institution to institution, all six of the points addressed above were included in the redesign of each program before the state allowed it to continue admitting students. A visiting team consisting of ALSDE and SREB staff and other leadership experts traveled to each campus in the state to provide technical assistance and ensure understanding and compliance with the new program rules. On the basis of these visits some programs were temporarily denied permission to re-open as redesigned program until certain defects in their programs were addressed.

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[7] Levine, A. (2005). *Educating school leaders.* Washington, D.C.: The Education Schools Project.

[8] Bottoms, G., & O'Neill, K. (2001). *Preparing a new breed of school principals: It's time for action.* Atlanta, GA: Southern Regional Education Board.

[9] Darling-Hammond, Linda, Michelle LaPointe, Debra Meyerson, Margaret Terry Orr and Carol Cohen. *Preparing School leaders for a Changing World: Lessons from Exemplary Leadership Development Programs — Final Report.* Stanford University, Stanford Educational Leadership Institute, 2007.

College deans said that the changes their programs were going through were costly and difficult, but most of them said that their presidents, provosts and program faculty supported the changes. And they thought that the changes would results in students better prepared to become principals. When asked about the changes expected in their graduates, one dean gave a response that captured the views of many of her colleagues: "I think they will be more confident. They will have deeper understanding of teaching and learning and data and achieving, and how you ensure that students learn. We have a much greater focus on teaching and learning than we did in the past."

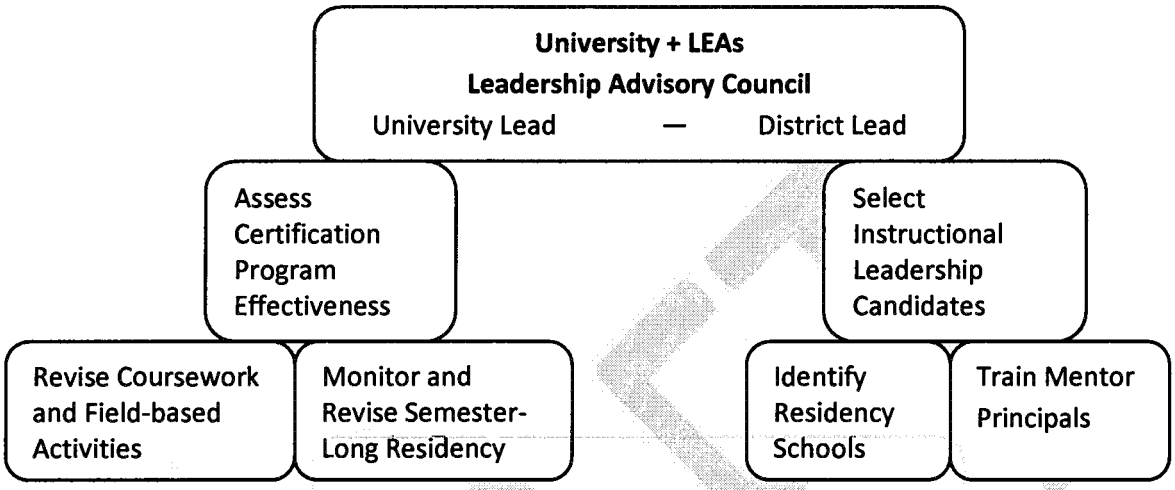
University-District Partnerships

Strong university-district partnerships are a key to achieving both more selective admissions and more authentic residency experiences for aspiring leaders. University-district partnerships also have the potential for increasing the necessary exchange of information between universities and districts: the exchange provides districts with access to the latest research, and it gives university programs a better understanding of the day-to-day problems districts a schools face — information that is necessary if the programs are to produce successful school leaders. As part of the redesign all university programs in Alabama were required to enter into formal agreements with school district partners.

Working out the details of university-district partnerships is difficult and requires conversations about responsibilities, boundaries and expectations. One of the deans reported a strategy of having quarterly meetings with all of the superintendents with which her program had partnerships, and making sure that the meetings were real working sessions and not just 'report-outs.' She said that is was necessary to engage in 'constant selling' of the program and the partnerships, especially in response to turnover among superintendents and key district staff.

The University of South Alabama (see Exhibit 2) has created a Leadership Advisory Council with its LEA partners. The Leadership Advisory Councils oversees all aspects of the program, but also established clear expectations regarding who takes the lead in different areas. For example districts are expected to take the lead in selecting aspiring leaders, identifying residency schools and identifying and training mentor principals. The university takes the lead in revising, delivering monitoring and assessing the curriculum, coursework and residencies.

Exhibit 2: Conceptual Framework for University-District Partnerships (University of South Alabama)



Where the relationships in these university district partnerships have not been worked out the partnership can be perfunctory, awkward or even dysfunctional. One respondent observed that "The LEAs do not want the level of engagement with the University that the Department of Education and the Governor's Congress mandates. They are busy people and we are asking that they participate at a level that requires more than they are willing to give." When it is working as intended the university-district partnership should be recogniz ble as a benefit to both sides. A more positive view was expressed by a respondent from another university: "There is a synergy that develops when the school system buys into the concept of 'growing their own' future leaders in partnership with the university. These kinds of partnerships are the best part of this program."

Selection of Aspiring Leaders

"The people we're selecting and the intensity of the work is wonderful." — Fran Kochan

In all cases the universities changes their selection processes to be more selective and to include district partners in the process. The selection processes at most universities was either designed completely by district partners or with substantial district involvement, and district staff typically participate in candidate selection interviews. Some programs require that candidate aspiring leaders be interviewed by LEA staff who are not from their home district. Some programs have moved to requiring districts to 'tap' candidates, while others are continuing to accept self-nomination in aspiring leaders.

The Troy University admissions process is fairly typical. Candidates must submit a portfolio including evidence of three successful years of teaching, leadership ability, intellectual capacity, and their desire to become a principal. Candidates with satisfactory portfolios are invited in for oral interviews with

program faculty and district representatives. In 2009 a written exam was added to the admissions process at Troy. Candidates are given an authentic writing task, such as preparing a memo to the faculty explaining a policy change. Candidates must receive passing scores on all components of their application. Whereas in the past the university permitted conditional admissions to the program that is no longer allow.

The new selection process at Troy has completely changed the nature of the program: "We began the interview process and included the admission portfolio. Immediately our numbers fell off. Where we might have 20 applicants we ended up with 10. But those ten students were awesome! . . . They were more thoughtful and reflective. The quality of their work was much better than those who self-selected for the program."

The increasing selectivity of the university leadership preparation programs will not only improve the quality of its pool of future leaders — it will make it more difficult for Alabama teachers to get a large salary bump for a master's degree research has not shown to result in better teaching or greater student learning. A 2009 study determined that Alabama provides an average annual salary increase of $6,666 to the 61 percent of its teachers who hold masters' degrees, for a total cost to the state of $202.4 million a year — with no proven commensurate instructional gains to show for the expenditure.[10] Greater selectivity for these leadership programs will save Alabama some education dollars that can be better spent in other ways.

Rigorous Coursework

A long-standing critique of educational leadership programs is that they have offered up a watered-down curriculum that gives preference to school management and administration over instructional leadership, relies on dated texts, and gives graduates a heavy dose of organizational theory and educational philosophy with only a garnish of practical knowledge and experience.[11] The redesign process required that all of the universities review all of their coursework for both rigor and relevancy. Program site-visits organized by the ALSDE ensured that old syllabi were not simply re-packaged with superficial changes, but that program coursework was truly lifted to a higher level.

In some cases the programs increased the number of courses required for students to graduate. For example, before the redesign the university required its aspiring leaders to complete five core courses in leadership. Now students must take "six entirely new courses enhanced by field-based experiences that illustrate application of course concepts and leadership theories." And Jacksonville State University went

[10] Sawchuck, Stephen. (August 12, 2009). "Halt Urged to Paying Teachers For Earning Master's Degrees." *Education Week.*

[11] Levine, A. (2005). *Educating school leaders.* Washington, D.C.: The Education Schools Project. Hess, F.M., & Kelly, A.P. (2005). *Learning to lead: What gets taught in principal preparation programs.* Washington, DC: American Enterprise Institute.

"from a 31 semester-hour program consisting of 10 stand alone courses and a single internship course at the end of the program, to a 36 semester-hour program designed by practicing administrators, district partners, and program faculty." Program faculty also revised the order of courses to make sure that foundation courses came first and students' later coursework would build on previous learning in a logical manner. For example, at Auburn, "since the focus of the program is instructional leadership we decided to teach Instruction and Curricular Development during the first semester and follow up with Continuous Improvement and Planning the next semester."

High-Quality Residency

In order to be prepared to assume the principalship aspiring leaders must have the opportunity to **observe** exemplary school leadership in a variety of settings, **participate** in school leadership tasks as part of a team, **and then lead** instructional activities, under the watchful eye of an experienced mentor, in a working school. Progressing from observing to participating and then leading gives an aspiring leader the experience and confidence to assume the daily tasks of leadership.

The most contentious change in the university programs has been the requirement that all programs include a 10-consecutive-day residency. This requirement was a compromise, as many ALSDE and university leaders wanted and still want a full semester residency, and the University of South Alabama has been able to maintain a full semester residency. Many districts were balk at any requirement to provide release time to aspiring leaders —who are in many cases their best classroom teachers (and in the cases of specialized subject areas such as upper level math and science courses, foreign languages and AP courses can be very hard to replace with substitutes). The 10-consecutive-day residency emerged as a compromise that would ensure some commitment to a meaningful residency. The reasoning behind the 10-consecutive-day rule was that an hour or two at a time would not give an aspiring leader any insight into the daily routines and challenges of the principalship.

One of the critiques of the consecutive-day rule is that the school year too has its own rhythm, and a residency during the spring testing window will look very different from a residency just before or just after the main testing period. The beginning of the school year has its own processes, critical to the success of the school, that an aspiring leader must be familiar with. Scheduling for the next year and hiring to fill vacancies are mission-critical tasks that occur on a predictable schedule that might not coincide with a residency. For reasons of participant and district convenience many programs schedule the 10-consecutive-day residencies to coincide with spring breaks and be split between the resident's and a neighboring district, so that the aspiring leader is only absent from their regular duties for five days. While the consecutive-day rule ensures that aspiring leaders gain the perspective of a full day and week in the life of an school administrator, they aren't guaranteed exposure to all critical tasks of school leadership that they might receive through a more competency-based residency.

The greater rigor and importance of the residency is more demanding of program faculty, and Auburn has responded to this reality by adding a full-time faculty member to manage students' clinical experiences and ensure that all coursework is connected with practical experiences. This innovation is

expensive, but has been a successful addition to the program and it mirrors an approach taken in a similar redesign of a school leadership program at East Tennessee State University that was begun a couple of years before the redesign at Auburn.[12]

Policies and support for release time vary greatly from program-to-program, and even within a program depending on an aspiring leader's home district. Some districts allow their aspiring leaders to continue to draw their salaries while completing the residency. Other districts require their aspiring leader to either take unpaid leave, or pay for their own substitutes (paying for their own substitutes is a serious expense for aspiring leaders, but usually a better option for them than taking unpaid leave).

Effective Mentoring

SREB drew attention to the importance of mentoring for aspiring and new instructional leaders with its 2007 report, *Good Principals Aren't Born—They're Mentored: Are We Investing Enough to Get the School Leaders We Need?* Mentoring was one of the key strategies for leadership preparation identified by Linda Darling-Hammond and her co-autho s in their 2007 study of exemplary preparation programs, and it has been the subject of extensive study by Susan Villani.[13] The importance of effective mentoring has been repeatedly stressed by the participants in SREB leadership programs in states neighboring Alabama, and to Alabama's credit the graduates the pilot redesign prog ams at Auburn and the University of South Alabama gave high marks to the helpfulness of their mentoring experiences in their development (see below).

All leadership programs were required to include provisions for effective mentoring in their redesigns. While several of the programs had for years included mentoring of their students, the redesigns made those plans more formal and exte sive. The purpose of mentoring, as described by the University of South Alabama , is that "mentor principals become role-models who guide candidates to use the SREB's steps of leadership preparation which are to observe, participate, and finally assume a leadership role in those daily activities of the school that contribute to a highly productive culture of success for students."

[12] SREB. (Unpublished – submitted 2009) Final Grant Performance Report to the US Department of Education: Building Capacity for Redesign of Preparation of School Leaders. Author.

[13] Gray, C., Fry, B., Bottoms, G., & O'Neill, K. (2007). *Good principals aren't born—they're mentored: Are we investing enough to get the school leaders we need?* Atlanta, GA: Southern Regional Education Board. Darling-Hammond, Linda, Michelle LaPointe, Debra Meyerson, Margaret Terry Orr and Carol Cohen. *Preparing School leaders for a Changing World: Lessons from Exemplary Leadership Development Programs — Final Report*. Stanford University, Stanford Educational Leadership Institute, 2007. Villani, S. (2006). *Mentoring and induction programs that support new principals.* Thousand Oaks, CA: Corwin Press.

While all of the programs reported providing training to the mentor principals (in one case as much as five days of training), and some of the programs reported taking steps to carefully match aspiring leaders with mentors, none of the programs reported being able to offer stipends to mentors after their state grants to cover the costs of redesign expired.

The more extensive mentoring programs right now benefit from their novelty, but as that wears off Alabama should expect that finding exemplary principals (or even reliably solid performers) who are willing to serve as mentors may become more difficult to find. One of the programs reported that its greatest problem at present is identifying and training suitable mentors: "Too often with their busy schedules, administrators do not have the time to take on the additional responsibility of working closely with interns." Mentoring should not be allowed to default to an aspiring leader's own principal (a common mistake made by systems short on time or funds), or to whoever is willing to do it, but should be strategic. The ALSDE is working to create statewide supports for mentoring, and those efforts should continue to receive a high priority.

Cohort Structures

"We always had cohorts, but these are much more closely bound together. I think we are creating networks that will work together over time, and that's a very powerful thing." – Fran Kochan

As with mentoring, cohort structures have been firmly linked with exemplary school leader preparation programs both by the research of Linda Darling-Hammond and her co-authors and by SREB's own experience in a number of southeastern states. Although a cohort structure has been recognized as the gold-standard for leadership preparation in Alabama, and some universities now only offer cohort routes, some programs continue to allow students to work toward their degrees outside of a cohort structure. Students outside the cohort structure lack a sense of continuity in their studies, the benefits of peer support, and the benefits of sustained peer-to-peer interaction and learning that comes from taking multiple courses together and sharing a common language for their experiences in growing as instructional leaders.

One university reported that it had attempted to create cohorts from specific districts so that it could tailor instruction to their particular context, but was unable to do so because of the lower enrollment resulting from greater selectivity. Another university reported that economic conditions had broken up its planned cohorts as students whose spouses were laid off, or who were laid off themselves, had to drop out of the program or reduce their course loads due to financial concerns. This problem was severe enough that a cohort of 20 students intended to graduate in the spring of 2010 had been reduced to seven students.

In spite of these difficulties the redesign has clearly resulted in more of Alabama's future leaders being prepared as part of formal cohorts, and all of the research suggests that that will be a benefit to the state.

Having described the ways in which university programs have been redesigned in Alabama, the next section of this white paper will address university and district perspectives on all aspects of the implementation, scale and sustainability of Alabama's leadership reforms.

University and District Perspectives on Alabama's School Leadership Reforms

Nine College of Education Deans at universities with instructional leadership programs (13 total) and 46 Alabama superintendents (132 total) responded to surveys designed to elicit their feedback on the extent to which the school leadership reforms in Alabama have been successfully brought to scale and have been made sustainable. SREB adapted a Wallace Foundation worksheet on scale and sustainability of reforms for the purposes of gathering these data.[14] A five-point Likert scale was used in both surveys, and data were collected via an online survey tool.

Focus on Principals as Instructional Leaders, and Consensus That Better Instructional Leadership is a Statewide Need

Both deans and district superintendents agreed that Alabama's school leadership reforms have resulted in a greater emphasis on principals as instruc ional leaders, and also the reforms were based on a widely acknowledged need for better instructional leadership in the state (see Table 4). The university deans were more likely than district superintendents to credit Alabama's reform initiative with strengthening the idea that principals must be instructional leaders (average agreemen rating 4.33, compared to 3.97). Both groups considered the reform effort o be the result of a widespread belief that the state needs better instructional leadership.

These findings are positive in that they show a statewide consensus around the need for improving instructional leadership.

Table 4: University and District Perspectives: Principals as Instructional Leaders

Statement	Level of Agreement (1-5 Likert Scale, 5 high)	
	University Average	District Average
Alabama's school leadership reforms — of leadership standards, principal evaluations and professional learning opportunities – have resulted in an increased focus on principals as instructional leaders.	4.33	3.97
Alabama's school leadership reforms have been based on meeting a widely acknowledged need for better instructional leadership.	4.11	4.14

More Rigorous University Programs, Strength of University-District Partnerships: Divergent Perspectives

[14] Jody Spiro. *Leading Change Handbook: Concepts and Tools.* Wallace Foundation, 2009.

University deans credited the reform effort with creating more rigorous and relevant school leader preparation programs in the state (level of agreement: 4.22 out of 5.00) and improving university-district partnerships (4.00 out of 5.00), but district superintendents were not as convinced (see Table 5). With '3.00' at the mid-point of the Likert scale for these items, superintendents rated their agreement that rigor had increased at 3.77, and their agreement that university-district partnerships had improved at 3.39 — just higher than the center of the scale.

District superintendents are not convinced that the reforms have gone as far as university deans think they have. Some of that may be due to the recentness of the reform effort. As discussed below, as of the early spring of 2010, only 70 graduates have completed redesigned leadership programs, and no more than a handful of them have been hired as school leaders. Furthermore, there were only three university programs in the early redesign process out of the 13 in the state. It may be that district superintendents just need more time to be convinced of the extent to which the rigor has increased. As previously noted in this report, it is significant that Mobile City Schools and Baldwin County Schools have agreed to continue funding of the semester-long residencies for their aspiring leaders. Those two counties have been working with this reform longer than most in the state, as the University of South Alabama was one of the pilot sites for program redesign.

The findings relating to university-district partnerships are more concerning. These are supposed to be *partnerships*, so if the districts do not think university-district partnerships have been strengthened, they are probably right. Unfortunately the recognition of this gap does not necessarily contain a solution to the problem. Because there are 13 university programs and 132 districts, most of the conversations that the state and SREB have had about the need for university-district partnerships have been with universities. It may be that the ALSDE and SREB need to take the university-district partnership message directly to the districts, and provide more technical assistance to districts in entering, managing and understanding the value of these partnerships with universities. At the same time, universities must be aware that they may have created partnerships on paper that are not effectively meeting the needs of the districts.

Table 5: Rigor of University Programs, Strength of University-District Partnerships

Statement	Level of Agreement (1-5 Likert Scale, 5 high)	
	University Average	District Average
More rigorous and authentic university preparation programs have been adopted across the state.	4.22	3.77
University-district partnerships have been strengthened and improved throughout the state.	4.00	3.39

Ownership of Alabama's Reform Initiative: Grounds for Concern That It Has Not Been Fully Embraced at the District Level

The Governor's Congress on School Leadership resulted in a clear, driving vision for improving school leadership throughout the state. The original impetus for change came from the state level, and despite efforts from the beginning to involve the districts (for example, the decision that every task force of the Congress would be co-chaired by a superintendent and a principal), there is a widespread impression that the leadership reforms were imposed from the top-down, and some of the provisions of the reforms (such as the 10-consecutive-day residency) amount to an unfunded mandate (see Table 6). Survey and interview results indicate that the changes have not been fully embraced by districts.

The average response of superintendents, when asked if their district has made better school leadership a priority, was 4.49 out of 5.00. University deans presented a sharply different view, when asked if districts across Alabama had made leadership improvement a priority — giving the statement an average rating of 3.00, meaning they neither agreed nor disagreed with it. Tellingly, however, there was a convergence of views on the statement that "The school leadership reform initiative furthers existing values and norms found in the culture of district central offices." University (3.50) and district (3.33) respondents both gave that statement relatively low marks.

The emerging picture of the reform effort is that it is strongest at the state level, weaker in the universities, and weakest at the district level. One dean philosophically accepted this by saying that it was important and necessary that the change be mandated from the top, as otherwise it never would have happened, but another dean offered the observation that an approach involving more carrot and less stick would have left fewer residual bad feelings. That same dean said that the local superintendents were all supportive, but that superintendents in more rural areas of the state were having a harder time adjusting to the changes.

Leadership turnover accounts for some of the difficulties in garnering support for the reforms. Any time a university president, provost, or dean changes, or whenever a district hires a new superintendent, the need for university-district partnerships, selective admissions and release time for residencies must be discussed again.

Table 6: State, University and District Levels of Engagement With School Leadership Reform

Statement		**Level of Agreement (1-5 Likert Scale, 5 high)**	
		University Average	**District Average**
State Level	The school leadership reform initiative furthers existing values and norms found in the culture of the state department of education and among state leaders for education.	4.25	Not asked
	Key individuals at the state level have been engaged in supporting school leadership reform.	4.00	4.02
	The school leadership reforms have a large number of influential supporters in the state government.	3.78	Not asked
University Level	The school leadership reform initiative furthers existing values and norms found in the culture of university colleges	4.00	3.39

	of education and school leadership departments.		
	The school leadership reforms have a large number of influential supporters in the state's universities.	3.56	Not asked
District Level	The need to improve school leadership has been made a priority in your district.	N/A	4.49
	The need to improve school leadership has been made a priority of districts across Alabama.	3.00	Not asked
	The school leadership reform initiative furthers existing values and norms found in the culture of district central offices.	3.50	3.33
	The school leadership reforms have a large number of influential supporters in school districts.	3.22	Not asked

Supports for the Leadership Reforms Need Work

University and district respondents were in agreement that Alabama still needs to work on its supports for the leadership reforms (see Table 7). Several superintendents called for a reform of tenure laws, and others called for a reform of certification — an effort that was begun with the Congress but then left unfinished when funding was unavailable to support Level 3: Master Certification of principals. Much of the concern over supportive laws and regulations is connected with the view that the new requirements are "intrusive," according to several sources, or unfunded mandates. Greater support is needed to address release time concerns in the districts. O e respondent brought up the issue of online certification routes and requested that the state provide greater guidance on those options. District and university respondents were in agreement that more training and technical assistance is necessary in order to take the leadership reforms to scale (average rating of 3.37 for district respondents and 3.11 for university respondents, on a 5.00 point scale with 3.00 indicating neither agreement nor disagreement). It was not clear exactly what technical assistance and training is still necessary.

The university respondents were asked about a system of data collection and information dissemination relating to the reform initiatives, and their average response was 2.89 out of 5, indicating that they positively disagree that data is currently being collected that can shed light on the initiative's results. This indicates an immediate need to work with the universities to establish a process for collecting data relating to the quantity and quality of Alabama's future leaders, and the role of each university in that pipeline. Data points that might be collected for each university, and shared for the purposes of planning, evaluation and continuous improvement, include:

- Current enrollment in each leadership program
- Program faculty (full-time and adjunct)
- Number of students graduating
- Number of students licensed as instructional leaders
- Number of graduates hired within 1, 2 and 3 years of graduation
- Average Praxis II scores (subject to privacy concerns in small numbers of test-takers)
- Average GRE scores (subject to privacy concerns in small numbers of test-takers)

Furthermore, these data need to be linked to statewide licensure and school performance data, so that Alabama can automatically and systematically determine where its instructional leaders have been prepared, and will be able to provide reports back to universities on a composite profile of school leaders prepared by their program — what types of schools they are leading, and where they are or are not achieving success, as determined by state indicators (here again there may be some privacy issues that need to be addressed — so that the programs can adapt their preparation programs to better meet the needs of current students, and perhaps be able to use empirical data on graduates to better inform their selection processes and criteria.

Table 7: University and District Views on Support for Leadership Reforms

Statement	Level of Agreement (1-5 Likert Scale, 5 high)	
	University Average	District Average
Supportive laws and regulations are in place.	3.63	3.52
The state has well-defined procedures and systems for implementing school leadership reforms.	3.13	Not asked
Training, expertise and technical assistance are available in order to fully support taking the leadership reforms to scale.	3.11	3.37
There is a system in place to monitor progress in the implementation of Alabama's program of school reform, collect necessary data and disseminate information about the initiative's results.	2.89	Not asked

Stakeholder Engagement

From the beginning of the reform initiative, a major effort has been made to engage major stakeholders in the process of leadership redesign. Engaging with stakeholders, and if possible obtaining their support, is critical to the scalability and sustainability of a complex, multi-faceted initiative such as Alabama's school leadership reform. As shown in Table 8, university and district respondents are lukewarm in rating the state's success to date i engaging stakeholders. Of course, the universities and districts are themselves stakeholders in this process, and as detailed above, the universities and districts still have many concerns about the reforms effort.

One of the most important stakeholders in this process has been the Alabama Education Association (AEA). Support of the AEA was critical in the development and quick adoption of the Alabama Standards for Instructional Leaders early in the process. It was the AEA that identified the need to include Standard 4: Diversity — an addition the necessity of which has stood the test of time. However, more recently the AEA came out in opposition to passage of the Code of Ethics for Alabama school leaders, resulting in a delay in that component of the reforms.

At this stage, six years after the convening of the Governor's Congress signaled the launch of the reform initiative, the work of sustaining the reform impulse and completing the job requires a renewed effort to engage with stakeholders.

Table 8: University and District Views on Stakeholder Engagement

Statement	Level of Agreement (1-5 Likert Scale, 5 high)	
	University Average	District Average
Key groups and organizations in Alabama have been successfully engaged in supporting school leadership reform.	3.50	3.67
Key stakeholder groups and organizations perceive the leadership reform effort as furthering their own goals.	3.50	3.67
There have been successful efforts to engage with opponents and reduce open opposition to school leadership reform efforts.	3.13	3.16

Resources are a Significant Concern

Twenty-four of 46 superintendents strongly disagreed with the statement that districts had the funding and resources necessary to sustain Alabama's leadership reforms, and another 13 (28 percent) disagreed — 37 of the 46 respondents expressed some le el of disagreement with the statement that districts have sufficient resources to sustain the leadership improvement initiative (see Table 9). University deans concur in that districts are facing unprecedented challenges in funding the activities necessary to sustain the leadership reforms. Both superintendents and deans rated their agreement that districts have the resources necessary to sustain reform at 1.71 out of 5.00, indicating relatively strong disagreement with the idea that districts can in fact sustain the reform effort. Release time for residency activities is a major concern, as is the ability of districts to identify and support mentoring for aspiring leaders. An influential dean of a college of education observed about the practice of many districts of asking exemplary principals to mentor on a pro bono basis, "When you keep consistently relying on people's goodwill it eventually wears thin."

Alabama is in its second year of statewide pro-ration in order to balance its state budget, and the universities and districts realize that as well and question whether the state in fact has the resources necessary to complete the work of school leadership reform. In the interviews, one of the deans questioned the financial viability of the leadership program at their university, and several talked about their budget cuts and program enrollment declines placing them on the verge of laying off full-time faculty — just after adding faculty in order to meet program redesign requirements. Most of the deans have had to cut some or all of their adjunct faculty, and this has been a serious blow to the programs as the adjunct faculty are often expected to bring a real-world, practical perspective to the leadership courses. In many cases the full-time faculty have never served as principals, so the adjunct faculty meet a crucial need in keeping coursework authentic and relevant.

Alabama may in fact not be able to sustain 13 leadership preparation programs. If the number of programs is reduced, the state should attempt to make that reduction strategic so that surviving programs are fully committed to the vision of high-quality instructional leadership and best cover the needs of districts across the state.

The very real financial difficulties at every level endanger the implementation of leadership reform, but also offer an opportunity to make some decisions about what is really important in that reform. The financial pressures are contributing to a push-back against some program requirements. The state should take this opportunity to strategically identify ways to relieve financial pressures on districts and universities consistent with maintaining high expectations for instructional leadership preparation. Making state funds available for release time and stipends for mentoring for exceptionally qualified candidates may alleviate financial pressures elsewhere in the system; offer recognition to districts and universities that the state understands the costs of the changes; and at the same time, contribute to the ultimate goal of improved instructional leadership for the future.

Table 9: University and District Views on Resources Necessary to Sustain Leadership Reforms

Statement	Level of Agreement (1-5 Likert Scale, 5 high)	
	University Average	District Average
The state has the funding and other resources necessary to sustain its school leadership reform initiative.	2.25	2.24
Universities have the funding and oth r resources necessary to sustain school leadership reform efforts.	1.88	3.30
Districts have the funding and other resources necessary to sustain school leadership reform efforts.	1.71	1.71

Early Redesigned Program Graduates

In 2009 the first cohort of 70 students graduated from the first three redesigned instructional leadership preparation programs at Auburn, the University of South Alabama and Samford. Samford has had three cohorts (fall 2008, spring 2009 and summer 2009) complete its redesigned program, for a total of 39 graduates. The University of South Alabama has had one cohort of 18 students graduate in fall 2009, and Auburn has had one cohort of 13 students graduate in summer 2009.

Few of the program graduates have been placed in leadership positions. Of the 39 Samford graduates, four have been placed in school leadership roles (one as a principal and three more as assistant principals, including one at a private school) and two have been hired as central office administrators. As of the early spring of 2010, the cohorts at Auburn and the University of South Alabama had not yet placed any graduates of their redesigned programs. Program chairs say that these low placement results are atypical and attribute them to current economic conditions. Districts have consolidated schools and reduced allocations of assistant principals in response to declining tax revenues. Districts have reduced central office positions that in the past principals have moved into. Principals are delaying retirement as their investment portfolios have shrunk and opportunities for consulting work have disappeared. Program chairs have also reported that, given current economic uncertainties, many of their graduates are not willing at this time to give up their tenure as teachers in order to pursue school leadership opportunities.

Fourteen graduates of the redesigned programs at Auburn and the University of South Alabama (45 percent of the graduates from those programs)[15] were able to respond to a survey collecting their evaluations of how well the redesigned programs prepared them to lead across a variety of domains and in a variety of contexts. On a four-point Likert scale respondents were asked to indicate their level of agreement with 20 statements relating to their confidence in their preparation (see Table 10). Agreement indicated a positive perception of their preparation, and disagreement indicated a negative perception. Collectively, the fourteen respondents indicated that they 'strongly agreed' with the statement in 69 percent of cases, 'somewhat agreed' in 27 percent of the cases, and 'somewhat disagreed' in only 4 percent of the cases. Almost all of the respondents (13 of 14) strongly agreed with the statement, "The program prepared me to be an effective instructional leader" (average level of agreement 3.93 out of a possible 4). Respondents strongly agreed with the idea that the redesigned programs gave them the tools and strategies that they would need to effectively lead and improve schools (3.86 out of 4.00). They agreed that the mentoring and field-based components of their programs were helpful to them, and that they learned how to use data and to lead teams of educators (average of 3.79 out of 4.00). They were only slightly less confident that the pro rams prepared them to 'be an effective principal,' manage a school building, o successfully handle personnel issues (average of 3.71 out of 4.00).

Program graduates expressed the least co fidence in the extent to which the redesigned programs prepared them for the specific challenges of leading schools characterized by high poverty, high teacher turnover, high dropout rates (all averaging 3.5 out of 4.00), lack of community support, highly mobile student populations, or large populations of English Language Learners (all averaging 3.29 out of 4.00). These responses still indicate that graduates feel the redesigned programs gave them the preparation they would need to lead in these more difficult school setting, but the relatively lower level of confidence indicates an opportunity for programs to focus on building skills to address these specific concerns.

The dean of a College of ducation, who has been one of the state champions for leadership preparation reform, observed that the biggest change has been that it used to be that 80 percent of the College's leadership program students never had any intention of becoming a principal, and were only pursuing the degree as an easy way to obtain a salary increase. Now, he said, at least 80 percent of the leadership program students at his university have every intention of becoming a principal. This observation is supported by graduates' responses when asked where they see their career in five years. Of the 15 respondents who answered the question, seven saw themselves as a principal in five years, and another six anticipated that they would be an assistant principal. Only two respondents saw themselves working in a district or state education agency. None anticipated still being a classroom teacher or in some other role or capacity. This is a very positive finding, given that in another recently redesigned leadership

[15] The response rate was in part lower than desired because in the case of both programs, due to university policies and concerns about the privacy of their graduates SREB was unable to directly contact graduates but sent survey requests through the universities, Furthermore, the university programs did not in all cases have current work email addresses for their graduates, but sent survey requests to the graduates university email accounts, which not all graduates monitor on a regular basis.

preparation program in another southeastern state, over half of the graduates — seven out of 13 — saw themselves working in a district or state education office in five years.

Table 10: Confidence of Graduates That Their Programs Prepared Them For Success

Statement	Level of Agreement (1-4 Scale, 4 High)
The program prepared me to be an effective instructional leader.	3.93
The program gave me the tools and strategies that I would need to take a good school and make it great.	3.86
The program gave me the tools and strategies I would need to turn a failing school around.	3.86
I received realistic advice, critiques, and support through the mentoring component of the program.	3.79
The program improved my ability to lead teams of educators.	3.79
The program prepared me to effectively use data to identify the root causes of low-performance.	3.79
The program prepared me to effectively use data to evaluate initiatives for raising student achievement.	3.79
The field-based component of the program was rigorous, authentic, and meaningful.	3.79
In order to succeed in the program I had to demonstrate that I could lead.	3.79
The program prepared me to be an effective principal.	3.71
The program prepared me to effectively handle the personnel issues that a principal faces.	3.71
The program prepared me to successfully handle the responsibilities of managing a school building.	3.71
[The program prepared me to lead a school characterized by] persistently low test scores.	3.57
[The program prepared me to lead a school serving] a diverse student population.	3.57
[The program prepared me to lead a school characterized by] high poverty.	3.5
[The program prepared me to lead a school characterized by] high teacher turnover.	3.5
[The program prepared me to lead a school characterized by] a high dropout rate.	3.5
[The program prepared me to lead a school characterized by] lack of community support.	3.29
[The program prepared me to lead a school serving] a highly mobile student population.	3.29
[The program prepared me to lead a school serving] a large population of English Language Learners.	3.29

The State of the Leadership Pipeline in Alabama

In 2004, before Alabama's leadership reform initiative was launched, 12 school leadership preparation programs graduated 743 potential leaders. Alabama has only __ schools, __ principals and __ assistant principals, so the 743 school leadership graduates in 2004 greatly exceeded the state's actual needs.

In 2009 the first cohorts graduated from the three redesigned programs at Auburn, Samford and the University of South Alabama. Whereas those three universities collectively graduated 97 students in 2004, they graduated 64 students in 2009 (approximately 66 percent of 2004 levels). The programs at Samford and Auburn increased in size (from 23 to 35, and 7 to 13, respectively), while the program at the University of South Alabama greatly decreased the number of students graduated (from 67 in 2004 to 16 in 2009). Most college deans interviewed reported that enrollment in their leadership programs had decreased to about half of what it was before the Governor's Congress on School leadership,

The difficulties that graduates of the redesigned programs have found in being hired immediately as principals should help to allay concerns that the school leadership reforms will prevent Alabama from meeting its school leadership needs.

Table 11:

University	Expected Annual Graduates for Future	2009 Graduates	2004 Graduates
Alabama A&M	c. 20		31
Alabama State University	c. 30		46
Auburn University	~13	13	7
Auburn University Montgomery	c. 25		38
Jacksonville State University	20 (check on this)		163
Samford University	~35	35	23
Troy University	~65		115
University of Alabama	c. 110		167
University of Alabama at Birmingham	???		Not available
University of Montevallo	~15		25
University of North Alabama	c. 26		39
University of South Alabama	c. 44	16	67
University of West Alabama	c. 15	2	22

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Interviewees

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Scott Snyder

Correspondents

David Gray
William Kiser
Rodney Davis
Lee Doebler
Ellen Reames
Agnes Smith
Maurice Persall

Survey Respondents

Deans of Colleges of Education (9 respondents)
Superintendents (46 respondents)
Program Graduates (14 respondents)

DRAFT

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Communicate, Collaborate and Create... even when you're not face-to-face.

(b)(6)

Section 16-6B-3 - Assistance programs.

(a) Student strategy. The superintendent of the local board of education along with the staff of each school shall develop an assistance program at each school for at-risk students performing below the standards set by the State Board of Education. The standards shall include the results of the required assessment program adopted by the State Board of Education with emphasis on students who are found to be at one or more grade levels below the prescribed norm. The local board of education shall budget at least one hundred dollars ($100) per student so identified to be expended on tutorial assistance programs including, but not limited to, after-school, Saturday school, or summer school, or any combination of these programs. These funds may be budgeted from state or federal funds. However, federal funds already budgeted for at-risk students may not be counted toward the minimum one hundred dollars ($100) requirement set aside to be expended for at-risk students as defined in this chapter. In addition, these funds may be expended for any of the following purposes:

(1) Programs to encourage at-risk five-year olds to attend an approved preschool program.

(2) Programs to identify at-risk students in the first grade.

(3) Programs to ensure strict enforcement of truancy laws.

(4) Programs to create alternative or disciplinary schools in which children who consistently exhibit behaviors or patterns of behaviors that interfere with the learning environment of other students would be placed and would be provided counseling and instruction in basic skills.

(5) Programs to encourage parental involvement of parents of at-risk children.

(6) Programs to encourage literacy of parents of at-risk children.

(b) School strategy. The State Board of Education shall develop an

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assistance program for a school in need of assistance. A school in need of assistance shall mean any school which has a majority of its students scoring one or more grade levels below the prescribed norm on the state adopted student assessments. Local superintendents and local boards of education will be expected to make the effort and commit the resources necessary to improve the instructional program for a school in need of assistance and shall be required to budget all funds earned by that school in the cost calculations of the Foundation Program. Local superintendents and local boards of education are encouraged to use assistance from the State Department of Education, colleges of education, accrediting agencies and other sources.

The State Board of Education's plan for an assistance program shall consist of the following components:

(1) The faculty and staff of each school in need of assistance shall engage in a self-study to examine the problem of low achievement within that school and shall develop steps which may be taken to improve student achievement. Parents of students in the schools shall be consulted as part of this self-study.

(2) If, after two years, student achievement has not improved, the State Superintendent of Education shall designate a team of practicing professionals to visit the school, conduct a study, consult with parents of students in the school, analyze causes of poor student achievement, and make specific recommendations which shall become a part of a school improvement plan for the succeeding year.

(3) As a final step, when insufficient or no improvement as determined by the State Board of Education is evident from the implementation of steps one and two above, the State Superintendent of Education is required to intervene and to appoint a person or persons to run the day-to-day operation of the school. In considering intervention, the State Board of Education shall consider factors which may have affected the prescribed norm test score. Factors shall include drop-out rates, attendance rates, special education enrollment, and any other data necessary to properly interpret student achievement in each school.

(c) School system strategy. The State Board of Education shall develop an assistance program for a local board of education identified as being in need of assistance. A local board of education in need of assistance shall mean any local board of education which has a majority of its schools, or a majority of the students in a system, in which the students are scoring one or more grade levels below the prescribed norm.

The State Board of Education shall require a local board of education in need of assistance to do the following:

(1) The local board of education and the local superintendent with input from other administrators, teachers, staff, parents of students in the school, and the local community shall engage in a self-study to examine the problem of low achievement within the system and to develop steps which may be taken to improve student achievement.

(2) If, after two years, student achievement has not improved, the

state superintendent shall develop a system-wide school improvement plan in consultation with teachers, parents of students in the school, and the local community. This school improvement plan shall become a part of the local board of education's program and financial operations for the succeeding year.

(3) If, after the implementation of the school improvement plan, student achievement has not sufficiently improved, relative to the previous year's performance, the State Board of Education shall require the State Superintendent of Education to intervene and assume the direct management and day-to-day operation of the local board of education for such period of time as may be necessary for student achievement to improve. In considering intervention, the State Board of Education shall consider factors which may have affected the prescribed norm test score. Factors shall include drop-out rates, attendance rates, special education enrollment, and any other data necessary to properly interpret student achievement in each system.

(d) It is the intent of the Legislature that intervention is not to occur when a school or school system scores below the prescribed average. Intervention by the State Board of Education is to occur only after the three-year period provided in this chapter during which a school or school system fails to show improvement. So long as improvement is being shown, the State Board of Education shall not intervene but shall continue to encourage the school to improve.

(Acts 1995, No. 95-313, p. 620, §3; Act 2000-753, p. 1705, §1.)

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Section 16-6B-6 - Release from intervention.

Management of a school or local board of education occasioned by state intervention based on student achievement or financial instability shall continue until such time as either condition improves to an acceptable level. The local board of education may petition the State Board of Education for release from state intervention by showing acceptable improvement in achievement or financial stability or other just cause for such release. The State Board of Education following a hearing shall have final determination on the matter of release from state intervention.

(Acts 1995, No. 95-313, p. 620, §6.)

Sections: Previous 16-6B-1 16-6B-2 16-6B-3 16-6B-4 16-6B-5 16-6B-6 16-6B-7 16-6B-8 16-6B-9 16-6B-10 16-6B-11 16-6B-12 Next

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Alabama State Department of Education

Request for Proposal (RFP) #1385 for Contracting with External Education Management Providers

FAXED COPIES WILL NOT BE ACCEPTED

MAILING ADDRESS:
Alabama State Department of Education
Deputy State Superintendent of Education
Attn: Dr. Ruth C. Ash
5112 Gordon Persons Building
50 North Ripley Street
Montgomery, AL 36104

DEADLINE:
Submit four (4) signed copies of the RFP.
An original signature is required on each copy.
All four copies of the RFP must be received in the office of the Deputy State Superintendent of Education by October 2, 2006.

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SECTION 1.00 ADMINISTRATIVE OVERVIEW

1.01 PURPOSE

The Alabama State Department of Education (SDE) is soliciting proposals from interested respondents who desire to become an external education management provider to carry out educational and management services according to specific negotiated terms. The successful for-profit or non-profit educational management organizations (EMOs) would be expected to work in school districts that have four persistently low-performing schools in the state. The contract for these services will be awarded by the issuance and execution of a Professional Services contract between the SDE and the successful applicant. The contract is contingent upon review by the SDE Administrative and Financial Assistance Section and the state contract review committee.

1.02 ANTICIPATED TIMETABLE

RFP Issued:	August 28, 2006
Proposal Submission Deadline:	October 2, 2006
Public Opening of Proposals:	October 5, 2006, 3:30 p.m.
Award Issued:	November 1, 2006

1.03 SUBMISSION OF PROPOSALS

No later than the end of the business day on October 2, 2006, four copies of the proposal shall be received by:

Dr. Ruth C. Ash
Deputy State Superintendent of Education
Alabama State Department of Education
5112 Gordon Persons Building
50 North Ripley Street
Montgomery, AL 36104

Elements in the response shall be referenced by sections and numbers as in the Request for Proposal (RFP) and responses shall be arranged in the same sequence as in the RFP. Responses should be sufficiently detailed so as to substantiate that services offered meet or exceed all requirements. Addendums, attachments, or amendments, if any, must be signed, dated, and included with the respondent's proposal submission. Failure to complete the requirements of this section may result in rejection of the proposal.

1.04 REJECTION OF PROPOSALS

The SDE reserves the right to reject any and all proposals received as a result of this RFP. The RFP does not commit the SDE to award a contract, to pay costs incurred in the preparation of a proposal in response to this request, or to procure or contract for services and/or supplies.

1.05 DEFINITION OF TERMS

The SDE will clarify terms in question. The words, "bidder," "vendor," "contractor," and "proposer" are used synonymously in this document.

1.06 PROPOSAL OPENING DATE AND LOCATION

A public opening of all legally submitted proposals will be held on October 5, 2006, at 3:30 p.m., in Plaza Room 104, Gordon Persons Building, 50 North Ripley Street, Montgomery, Alabama.

1.07 PROPOSAL EVALUATION

The SDE will evaluate all proposals to ensure that all requirements are met. The award shall be made to the responsible bidder whose proposal is determined to be the most advantageous to the state.

1.08 CONDITIONS AND TERMS

Responses should reference each element in the proposal by number and be arranged in the same sequence as the RFP. On each of the four copies submitted, there should be an original signature of the educational management organization (EMO) official authorized to bind the vendor on the cover. Proposals will be rejected that fail to be submitted by the deadline. Proposal pricing is to be stated in United States dollars and cents. Only Proposals in English will be accepted. Bidders must respond to each element of the RFP.

1.09 TYPE AND TERM OF CONTRACT

The contract shall be in effect from the date of the award until September 30, 2007, and may be deemed renewable if progress is documented.

SECTION 2.00 SCOPE

2.01 SCOPE OF WORK

The Alabama State Department of Education (SDE) is issuing a Request for Proposal (RFP) to solicit competitive written proposals to secure services of an educational management organization (EMO) that has the knowledge and expertise to develop, implement, and facilitate academic and operational turnaround in schools that have been identified for school improvement for more than seven years. The intended EMO will work to support teams,

instructional specialists, school leadership personnel, and classroom teachers in selected schools. The intended role of the EMO will be to provide a structure of curriculum alignment and effective instruction, build local capacity for effective school leadership, encourage the formation of professional learning communities, and improve parent and community involvement. The Contractor will be expected to develop and begin implementation of the EMO structure in each school by December 2006. The SDE will purchase the services and support the vendor on behalf of the identified schools and school systems.

2.02 SCOPE OF WORK AND RESPONSIBILITIES

The EMO shall develop, implement, and facilitate a system of services to support four public schools in Alabama that have not met Adequate Yearly Progress (AYP) for seven years or more. The EMO shall provide training, professional development, technical assistance, and materials for school personnel necessary to implement the EMO structure at each site. The EMO shall interact with the identified school systems to keep them abreast of activities and with the SDE liaison appointed as contact for this RFP.

2.02.1 CONTRACTOR

The EMO shall develop, implement, and facilitate a system of services to turnaround the programs in these four public schools that have not met AYP for seven years or more. The services shall include but are not limited to:

- Facilitating the process of a major curriculum alignment including both the "what and the how" and ensuring that the instructional focus is on literacy and mathematics.
- Introducing a "systemic pedagogical approach under which school administrators and staff are to be held to clear and meaningful standards" (Levin, 2002*).
- Focusing on student performance standards and their relevance to teachers' instruction.
- Aligning classroom instruction with the Alabama courses of study.
- Organizing to ensure that all instruction is standards-based and facilitating time for teachers to have opportunities to reflect on and analyze student work.
- Arranging for a comprehensive external evaluation to analyze the effects of the program's implementation provided on an annual basis.
- Streamlining school administration processes.

The EMO shall also institute a professional learning component that will involve ongoing training for school personnel that includes, but is not limited to:

- Analyzing current instructional curriculum and helping faculty align state and local curricula to help them refine their pedagogical skills.
- Fostering learning environments that employ effective classroom management techniques and use well-defined operational standards.
- Making sure that effective curriculum and teaching materials are readily available to all teachers.
- Securing, printing, and duplicating any and all staff materials relevant to the institution of the EMO structure in a fiscally responsible manner. For example, all printing should be awarded under contract to the lowest responsible bidder. The EMO must provide evidence to the SDE liaison that it will solicit bids on any large printing or duplicating work.

*Levin, H. M. (2002). *Potential of for-profit schools for educational reform.* New York: National Center for the Study of Privatization in Education.

2.02.1 CONTRACTOR Continued:

The EMO shall also provide ongoing technical assistance in each school that shall include but not be limited to:

- Developing teacher skills in analyzing and applying assessment data to help guide instructional decisions including the use of formative and benchmark assessments.
- Modeling for teachers to demonstrate effective instructional strategies.

2.03 ALABAMA STATE DEPARTMENT OF EDUCATION

Specific responsibilities of the SDE are stated below:

- Approve the EMO design.
- Provide funding for the EMO to be put in place on four school campuses.
- Provide a liaison who will work with the EMO and the districts to ensure quality control and ensure that the EMO is knowledgeable about the state courses of study and assessment systems.
- Identify a contact person in each targeted district and school who will work closely with the EMO as it becomes a partner in order to supplement district capacity in these multiple-year schools.
- Develop a system to monitor the effectiveness of the EMO as it works in the identified schools.

SECTION 3.00 PERSONNEL AND ADMINISTRATION

Except where expressly provided otherwise, each party shall bear its own costs incurred in performing its responsibilities. The EMO will provide one staff person who will be responsible for all activities required to fulfill the contract. This individual will be vested with the authority to make decisions and commitments on behalf of the contracted party during the performance of any approved services.

The SDE will designate one liaison who will act as the primary contact for this contract. This representative will be responsible for conferring with any and all parties necessary to resolve issues or requirements that might occur during the course of the contract. The individual will have the authority to ensure that this contract is being implemented properly. Identified school districts will designate an individual to serve as a liaison to act as the primary contact for the implementation of this contract.

SECTION 4.00 GENERAL REQUIREMENTS

Over the period of the project, the contractor shall confer with the SDE liaison, and any other group the SDE liaison shall designate, to coordinate the development, implementation, and management of this project.

4.01 MINIMUM REQUIREMENTS OF PROPOSAL

The proposal shall consist of four parts: Part I - Proposal Transmittal Form; Part II - Qualifications of the EMO; Part III - Production Proposal; and Part IV - Budget.

Part I is the Proposal Transmittal Form which shall serve as the cover page of the contractor's proposal. The contractor shall complete the form and attach the form to the proposal in response to the RFP.

Part II shall provide satisfactory evidence of the contractor's capability to manage and to coordinate the types of activities and to provide the services described in the RFP in a timely manner. Special attention should be given to the discussion of qualifications. The discussion shall include a description of the contractor's background and relevant experience as related to the required activities in the RFP. At a minimum, the EMO must substantiate that it has had experience with turning around low-performing schools which incorporated the activities outlined in the RFP within the last three years. A description of the services provided and details of the relevant experience shall be included. A minimum of three (3) references with contact information shall be provided.

Part III of the proposal shall provide a detailed plan describing how the services will be performed to meet the requirements of the RFP. The description shall encompass the requirements of 2.01 and 2.02 of this RFP. The proposal must be prepared and organized in a clear and concise manner that is easily understandable. The proposal shall address the tasks to be accomplished, processes to be undertaken to accomplish those tasks, and a proposed timeline for completion of the project. Examples of materials that will demonstrate the quality of work done by the contractor on similar projects are requested.

Part IV shall include the cost proposal and must encompass all requirements of the RFP. In order to be considered, the EMO must submit a proposal that includes a detailed budget narrative/cost proposal that addresses all costs for services, expenses, and products specified in the RFP. The budget narrative must reflect all maximum costs. The SDE will not be responsible for any costs above the stated costs listed in the proposal and will expect documentation detailing costs in an end-of-the-school year report. The budget narrative must include all costs associated with the EMO's model for school improvement in an individual school, including development, training, technical assistance, and materials. The EMO shall indicate estimated pricing based on either service to all four schools or for service to an individual school for the fiscal year.

4.02 PROCEDURES FOR DELIVERY OF PROPOSAL

No later than the end of the business day on October 2, 2006, four copies of the proposal shall be received by:

Dr. Ruth C. Ash
Deputy State Superintendent of Education
Alabama State Department of Education
5112 Gordon Persons Building
50 North Ripley Street
Montgomery, AL 36104

Parties submitting proposals are responsible for ensuring that the sealed competitive proposal is delivered by the required time to the designated place. No faxed proposals will be accepted.

4.02 PROCEDURES FOR DELIVERY PROPOSAL Continued:
The proposal must be signed by an authorized official to bind the EMO to the provisions in the proposal. Proposals received after the time delineated will be considered late and will not be considered for review.

4.03 SIGNED TRANSMITTAL LETTERS

The signed transmittal letter must be signed by an individual authorized to legally bind the respondent. It will state that the respondent is a legal entity that will meet the specifications. A transmittal letter must accompany the proposal. Letters accompanying proposals must have original signatures and must include contact numbers and e-mail addresses for the authorized official signing the letters.

4.04 EXECUTIVE SUMMARY

An Executive Summary is required. This summary will condense and highlight the contents of the EMO's proposal.

4.05 VENDOR REFERENCES

Each responder is to provide a list of at least three client references with correct contact information. The references may be contacted regarding vendor's performance and products.

4.06 DISCLAIMER NOTICE

The SDE will not be liable for any costs associated with the preparation of proposals or negotiations of contract incurred by any party.

4.07 SELECTION PROCESS

Final determination of the Contractor will not be based on price alone. Proposals will be evaluated primarily on the scope of the activities linked to associated costs. Proposals will be reviewed to ascertain that minimum requirements have been met. Each responding EMO may be invited to present its proposal to an SDE committee as part of the consideration process. All vendor expenses associated with any possible presentations shall be borne by the vendor. A vendor's inability or refusal to provide a presentation if asked may be cause for rejection of the proposal.

4.08 CRITERIA FOR EVALUATION OF PROPOSALS

An evaluation committee, composed of SDE staff, will review the proposals and score each proposal according to the criteria listed in the chart on the next page.

4.08 CRITERIA FOR EVALUATION OF PROPOSALS Continued:

40 Points	40 Points	20 Points
Qualifications	Scope of Work	Budget
a. Ability to perform the turnaround activities detailed in the proposal. b. Details of training and technical assistance. c. Qualifications and abilities of personnel proposed to be assigned to perform the services. d. Evidence of proven research-based strategies. e. Record of past performances of similar work. f. Evidence of ability to provide services to multiple schools.	Detailed plan for performing the required services.	a. Narrative tied to costs. b. Reflects reasonableness of costs.

4.09 BID PRICE CERTIFYING STATEMENTS AND BID PRICE

A bid will not be considered for award if the price in the bid was not arrived at independently without collusion, consultation, communication, or agreement as to any matter relating to such prices with any other contractor or with competitor. In addition, the contractor is prohibited from making multiple bids in a different form (i.e., as a prime contractor and as a subcontractor to another prime contractor). The contractor must include a certified statement with the bid certifying that the price was arrived at without any conflict or interest, as described above. Should conflict of interest be detected at any time during the contract, the contract shall be deemed null and void and the contractor shall assume all costs of this project until such time that a new contractor is selected.

Total bid price will include services and requirements as described in this request for proposal, for the term of the contract period. The contractor shall include a statement certifying that all services properly requested will be performed as required.

4.10 ATTESTATION FORMAT

Bidders are required to attest that any successful bidder will employ only U. S. citizens or those individuals who are in proper and legal immigration status that authorizes them to be employed for pay in the United States (recently required by the Alabama State Legislature in May 2006).

SECTION 5.00 AVAILABILITY OF FUNDS

It is expressly understood and agreed that the obligations of the SDE to proceed under this agreement is conditioned upon the appropriation and the receipt of state and/or federal funds. If the funds anticipated for the continuing fulfillment of the agreement are, at anytime, not forthcoming or insufficient, either through the failure of the federal government to provide funds or the State of Alabama to appropriate funds or the discontinuance or material alteration of the program under which funds are provided or if funds are not otherwise available to the state, the state shall have the right upon thirty (30) working days written notice to the contractor, to terminate this agreement without damage, penalty, cost of expenses to the state of any kind whatsoever. The effective date of termination shall be as specified in the notice of termination.

SECTION 6.00 GENERAL TERMS AND CONDITIONS

6.01 LEGAL CONSIDERATIONS

The proposed contract shall be construed according to the laws of the State of Alabama. Any legal proceedings against the State regarding this request for proposals or any resultant contract shall be brought in the State of Alabama administrative or judicial forms. Venue will be in Montgomery County, Alabama.

6.02 CONFLICT OF INTEREST

No official or employee of the Alabama State Department of Education and no other public official of the state or the federal government shall participate directly or indirectly in any proceeding or application; request for ruling or other determination; claim or controversy; or other particular matter pertaining to any contract or subcontract, and any solicitation or proposal thereto in which, to the employee's knowledge:

1. The employee or any member of the employee's immediate family has a financial interest.
2. A business or organization has a financial interest in which business or organization the employee, or any member of the employee's immediate family has a financial interest, including any other person, business, or organization with which the employee or any member of the employee's immediate family is negotiating or has an arrangement concerning prospective employment. Direct or indirect participation shall include, but not be limited to, involvement through decision, approval, disapproval, recommendation, preparation of any part of a procurement request, influencing the content of any specification or procurement standard, rendering of advice, investigation, audit, or in other capacity.

6.03 TERMINATION OF CONTRACT

The contract resulting from this RFP shall be subject to the following termination provisions:

6.03.01 Termination for Default - The SDE may terminate this contract in whole, or in part, when it determines that the Contractor or Subcontractor has failed to satisfactorily perform its contractual duties and responsibilities and is unable to cure such failure within a reasonable period of time specified by the State, taking into consideration the gravity and nature of the default. Such termination shall be referred to herein as "Termination for Default."

The State shall have an option to terminate this agreement if the Contractor fails to give satisfactory service, and the State shall be sole judge of service. In the event of such termination, the State may contract for completion of services provided herein with the next highest bidder, and Contractor named herein shall be liable for payment to the State for any additional costs incurred.

In the event of such termination for default, in full or in part as provided by this clause, the State may procure, upon such terms and in such manner as the State may deem appropriate, supplies or services similar to those terminated, and the contractor shall be liable to the State for any excess costs for such similar supplies or services. In addition, the Contractor shall be liable to the State for any administrative costs incurred for procuring such similar supplies or services.

In event of termination for default, the Contractor shall be paid for those deliverables that the Contractor has delivered to the state. Payments for completed deliverables approved by the SDE shall be at the contract price. Payment for partially completed deliverables received or approved by the State shall be an amount determined by the State. Any services or products on contract accepted by the State must be paid for but do not obligate the State to continue the contract beyond the end of the contract period.

The rights and remedies of the State provided in this clause shall not be exclusive and are in addition to any other rights and remedies provided by law or under the contract.

In the event that the anticipated term of this contract extends beyond the current contract period, the contract will be terminable on the part of the State without cause. However the State may agree to continue to contract but in no cause will any renewal, automatic or otherwise, cause the contract to continue beyond this particular contract period.

6.03.02 Procedure for Termination – Upon delivery by certified mail to the Contractor of a Notice of Termination letter specifying the nature of termination and the date upon which such termination becomes effective, the contractor shall:

- Stop working under the contract on the date and to the extent specified in the Notice of Termination letter.
- Place no further orders or subcontracts for materials or services.
- Terminate all activities related to the scope of services described in the approved contract.
- Assign to the State in the manner and to the extent directed by the Contract Administrator or SDE liaison all of the rights, title, and interest of the Contractor under the orders or subcontracts so terminated, in which case the State shall have the right, in its discretion, to settle or pay any or all claims arising out of the termination of such orders and subcontracts.

6.03.03 Termination Claims – After receipt of a Notice of Termination, the contractor shall promptly submit to the Contract Administrator or SDE liaison any termination claim in the form and with the certification prescribed by the Contract Administrator. The Contractor and the State may agree upon the amounts to be paid to the contractor by reason of the total or partial termination of work pursuant to this contract. The contract shall be amended accordingly. In the event of the failure of the Contractor and the State to agree in whole or in part as to the amounts with respect to costs to be paid to the Contractor in connection with the total or partial termination or work pursuant to this article, the State shall determine on the basis of information available the amount, if any, due to the Contractor by reason of termination and shall pay to the Contractor the amount so determined. The Contractor shall have the right to appeal from any such determination made by the Contract Administrator or SDE liaison.

6.04 SERVICES TO BE PROVIDED

All services to be performed and materials to be produced under the contract shall be accomplished in consultation with, and under the direction of SDE. All procedures developed and products provided under the contract shall be subject to final approval by the SDE. All records, data, and products pertaining to the contract shall remain the property of the SDE.

6.05 RECORDS RETENTION

In accordance with federal regulation, the Contractor agrees to retain all pertinent records for five (5) years after final payment is made under this contract or any related subcontract. In the event any audit, litigation, or other action involving these pertinent records is started before the end of the five (5) year period, the Contractor agrees to retain these records until all issues arising out of the action are resolved or until the end of the five (5) year period, whichever is later.

6.06 CONDITIONS OF CONTRACT

The successful bidder shall at all times observe and comply with federal and state laws, local laws, ordinances, orders, and regulations existing at the time of or enacted subsequent to the execution of this contract which in any manner affect the completion of work. The successful bidder and surety shall indemnify and hold harmless the SDE, the agency and all its officers, representatives, agents, and employees against any claim or liability arising from or based upon the violation of any such law, ordinance, regulation, order, or decree by an employee, representative, or subcontractor of the successful bidder.

6.07 DISCRIMINATION

In order to comply with the provision of Act 954 of 1977, relating to unfair employment practices, the bidder agrees that: (a) the bidder will not discriminate against any employee or applicant for employment because of race, sex, color, age, religion, handicap, or national origin; (b) in all solicitations or advertisements for employees, the bidder will state that all qualified applicants will receive consideration without regard to race, color, sex, age, religion,

6.07 DISCRIMINATION Continued:

handicap, or national origin; (c) the bidder will furnish such relevant information and reports as requested for the purpose of determining compliance with the statute; (d) failure of the bidder to comply with the statute, the rules and regulations promulgated there under and this nondiscrimination clause shall be deemed a breach of contract and it may be cancelled, terminated, or suspended in whole or in part; (e) the bidder will include the provisions of items (a) through (d) in every subcontract so that such provisions will be binding upon such subcontractor or contractor.

SECTION 7.00 INQUIRIES

Any questions regarding this RFP should be directed to:

Dr. Ruth C. Ash
Deputy State Superintendent of Education
Alabama State Department of Education
5112 Gordon Persons Building
50 North Ripley Street
Montgomery, AL 36104
334-242-8154

APPENDIX A

CURRENT REFERENCES

1	Name of Company	
	Address	
	Telephone	
	E-mail	
	Contact Name	
	Brief Description and Period(s) of Performance	

2	Name of Company	
	Address	
	Telephone	
	E-mail	
	Contact Name	
	Brief Description and Period(s) of Performance	

CURRENT REFERENCES Continued:

3	Name of Company	
	Address	
	Telephone	
	E-mail	
	Contact Name	
	Brief Description and Period(s) of Performance	

APPENDIX B

RFP Cover Page MUST contain all of the following information:

- Name of Submitting Organization
- Proposal Title
- Name of Program Manager/Director
- Department (*If Applicable*)
- Telephone Number
- Fax Number
- E-mail Address
- Mailing Address (Including City, State, and Zip Code)
- Signature and Title of Program Director
- Signature and Title of Authorizing Organizational Official

Action Item No._____
Alabama State Board of Education
May 27, 2010

RESOLUTION FOR
INNOVATION SCHOOL SYSTEMS

WHEREAS, the Alabama State Board of Education wishes to allow local education agencies (LEAs) the ability to request increased flexibility from certain state rules, regulations and/or policies in exchange for increased accountability and defined consequences through a contractual agreement with the State Board of Education; and

WHEREAS, these LEAs will be known as Innovation School Systems; and

WHEREAS, the Alabama Department of Education shall develop guidance materials related to the accountability, flexibility, and consequences of the contract submission process; and

WHEREAS, the Alabama Department of Education shall develop the necessary guidelines that will include, among other things, a submission timeline and shall annually notify all LEAs regarding the dates for application, review, and approval; and

WHEREAS, the Alabama Department of Education shall establish a process and procedure for the review of all LEA contracts; and

WHEREAS, contract terms shall be negotiated between the LEA and the Alabama Department of Education so once the parties have agreed, the final contract may be subsequently adopted and executed by both the LEA and the Alabama State Board of Education; and

WHEREAS, all initial contracts shall be for a term of five (5) years and the Alabama Department of Education may, upon request of the LEA, extend the contract if the LEA successfully meets the terms of the contract for at least two of three of the last five years; and

WHEREAS, an LEA seeking increased flexibility provisions shall complete a contract template provided by the Alabama Department of Education that shall include at least the following:

(i) Grade levels served for each school in the LEA;
(ii) Student demographic data for the LEA and each school;
(iii) Most current AYP results for the LEA and its schools, by subgroup;
(iv) Teacher and principal evaluation results;
(v) School improvement plans and achievement goals for the LEA and each school by subgroup; and
(vi) Specific accountability measures that will be used to monitor and evaluate the progress of the LEA and its schools for the term of the contract; and

WHEREAS, in exchange for the increased flexibility the LEA is requesting, the specific contract proposal must include accountability provisions (i.e., indicators and measures) that meet or exceed the accountability provisions established by the *Elementary and Secondary Education Act of 1965* and the Alabama Department of Education; and

WHEREAS, an LEA with schools designated as in need of improvement at the initiation of the contract may participate but must provide indicators and measures as to how these schools in improvement will work toward first achieving and then maintaining and improving within the five-year contract period. Indicators and measures for schools in this situation shall focus on student-defined subgroups that will help propel the school into a status of not in need of improvement; and

WHEREAS, an LEA shall propose and negotiate with the Alabama Department of Education at least one (1) accountability measure for each school in the LEA that will participate in the flexibility contract, the number of accountability measures must be proportional to the amount of flexibility being requested, and greater numbers of accountability measures will be required as the request for flexibility increases. The Alabama Department of Education shall ensure that all accountability measures are appropriate to a school's academic and operational environment and that they are sufficiently rigorous. The LEA's contract must include at least one or more of the accountability measures listed below:

(i) High school graduation rates;
(ii) SAT or ACT performance;
(iii) State standardized test data;
(iv) Teacher and principal effectiveness data;
(v) Advanced Placement or International Baccalaureate participation and performance;
(vi) Other measures identified by the LEA and agreed upon in the contract by the State Board of Education; and

WHEREAS, all contract proposals received from an LEA and all contracts approved by the local board of education and submitted to the Alabama State Board of Education for approval must clearly, whether for one or all schools in the system, state the following:

(i) The minimum number of accountability measures for each school;
(ii) The specific rules, regulations and/or policies the LEA is seeking to waive as provided;
(iii) The specific consequences and sanctions for failure to meet the terms of the contract;
(iv) Any other provisions determined necessary to comply with federal and state laws, rules, regulations, guidelines, or guidance by the Alabama Department of Education; and

WHEREAS, the Alabama State Board of Education shall not be authorized to waive or approve variances on any federal, state, or local rules, regulations, court orders, and statutes relating to civil rights; insurance; the protection of the physical health and safety of school students, employees, and visitors; conflicting interest transactions; the prevention of unlawful conduct; any laws relating to unlawful conduct in or near a public school; or any reporting requirements. An LEA that has received a waiver or variance shall remain subject to the following provisions: the requirement that it shall not charge tuition or fees to its students and shall remain open to enrollment in the same manner as before the waiver request; and

WHEREAS, before the local board of education approves the complete local plan for formal submission to the Alabama State Board of Education, the LEA must:

(i) Submit a letter of intent to the Alabama Department of Education that shall be accompanied by a local board of education resolution supporting the LEA's intent to pursue such contract;
(ii) Notify the public regarding the LEA's intent to seek such a contract with the state at a regularly scheduled local board of education meeting before local-state negotiations begin; and

(iii) Schedule and hold a public hearing for the purpose of providing an opportunity for full discussion and public input on the strategic plan and proposed contract including formal, written comments, or suggestions regarding the LEA's flexibility requests and performance goals and their impact on each school. The public hearing shall be advertised in a local newspaper of general circulation which shall be the same newspaper in which other legal announcements of the local board of education are advertised; and

WHEREAS, public hearing notices shall be published on the LEA's Web site for at least five consecutive calendar days prior to a scheduled hearing. Additionally, public hearing notices shall be published in accordance with the state's Open Meetings law; and shall be held at a time convenient to the public; and

WHEREAS, the LEA's draft plan and the parts therein shall be made available to the general public. For those stakeholders that may not have access to the Internet, the LEA shall make copies available upon request in accordance with the state's Open Records law. If the plan or any parts of the plan are to be presented, discussed, or acted upon at a public hearing, the specific documents must be made available to the public at least five calendar days prior to the publicly announced meeting date; and

WHEREAS, annual state progress reports are required and must be presented to the LEA's local board of education at a regularly scheduled public meeting and published on the LEA's Web site for the duration of the contract. For those stakeholders that may not have access to the Internet, the LEA shall make copies available upon request in accordance with the state's Open Records law; and

WHEREAS, in the event the LEA chooses to amend the terms of an existing contract or seek additional flexibility, the LEA shall:

(i) Submit a letter of intent to the Alabama Department of Education that shall be accompanied by a local board of education resolution supporting the LEA's intent to amend the existing contract;
(ii) Schedule and hold a public hearing for the purpose of providing an opportunity for full discussion and public input on the strategic plan and proposed contract, including formal, written comments, or suggestions regarding the local board of education's flexibility requests and performance goals and their impact on each school. The public hearing shall be advertised in a local newspaper of general circulation which shall be the same newspaper in which other legal announcements of the local board of education are advertised; and shall be done in the same manner as the original plan; and

WHEREAS, acceptable performance targets for each accountability measure shall be negotiated between the LEA and the Alabama Department of Education and be based on the state's data as produced and verified by the Alabama Department of Education; and

WHEREAS, the Alabama Department of Education shall make a recommendation to the Alabama State Board of Education whether the proposed terms of the contract should be approved by the Alabama State Board of Education; and

WHEREAS, for a finalized contract to be in full effect, it must be approved by the both the local board of education and the Alabama State Board of Education; and

WHEREAS, the Alabama State Board of Education shall have final authority for the acceptance and approval of accountability measures, flexibility, and consequences; and

WHEREAS, the terms of the contract may be amended only if warranted due to unforeseen circumstances determined by the Alabama State Board of Education and upon approval of the Alabama State Board of Education and the local board of education; and

WHEREAS, as required, the Alabama State Department of Education shall:

(i) Monitor each LEA and its schools annually with regards to its progress toward meeting the intermediate and five-year performance goals in its contract;
(ii) Notify the LEA if it is not in compliance with those goals;
(iii) Present annual written progress reports to the Alabama State Board of Education for each Innovation School System contract:

NOW, THEREFORE, BE IT RESOLVED, That this resolution is to allow LEAs to request increased flexibility from certain state rules, regulations and/or policies in exchange for increased accountability and defined consequences through a contractual agreement with the State Board of Education; and

BE IT FURTHER RESOLVED, That the Alabama State Board of Education does hereby announce the creation of a process to identify, launch, and support Innovation School Systems and there shall be appointed a working committee of practitioners, representatives from business and industry, parents and other representative groups to advise the State Department of Education on the process.

Done this 27th day of May 2010

EDUCATION TRUST FUND RECEIPTS
FY 2005 THROUGH FY 2009

	ACTUAL FY 04-05	ACTUAL FY 05-06	ACTUAL FY 06-07	ACTUAL FY 07-08	ACTUAL FY 08-09
BEER TAX	21,180,928	21,959,644	22,308,475	22,419,772	22,770,801
HYDROELECTRIC TAX	714,361	1,125,475	407,923	(314)	480,658
INCOME TAX	2,832,210,205	3,173,296,526	3,392,631,460	3,472,007,878	3,037,529,547
INSURANCE PREMIUM TAX (1)	30,993,296	30,993,296	30,993,296	30,993,296	30,946,009
MOBILE TELECOMM TAX	29,387,744	31,397,977	34,777,910	34,855,671	37,354,363
SALES TAX	1,501,483,887	1,611,508,358	1,727,612,404	1,711,075,440	1,466,650,167
STORE LICENSES	528,137	525,241	605,825	614,339	103,256
USE TAX	220,352,865	247,778,389	257,348,080	258,438,578	237,459,416
UTILITY TAX	331,322,319	376,871,893	386,856,154	411,878,604	410,861,657
SUBTOTAL	4,968,173,741	5,495,456,799	5,853,541,529	5,942,283,264	5,244,155,873
TRANSFERS & REVERSIONS	1,081,497	2,905,138	485,665	472,347,407 (2)	438,791,602 (3)
TOTAL	4,969,255,238	5,498,361,937	5,854,027,193	6,414,630,671	5,682,947,475

(1) Capped at FY 1992 level by Act 93-679.
(2) Includes one-time transfer of $439,372,515 from the Proration Prevention Account and $32,000,000 repayment from the PSCA.
(3) Includes one-time transfers of $129,590 from the Proration Prevention Account and $437,390,828 from the Rainy Day Fund.

STATE GENERAL FUND RECEIPTS
FISCAL YEARS 2005-2009

NET RECEIPTS	FY 04-05		FY 05-06		FY 06-07		FY 07-08		FY 08-09	
ABANDONED PROPERTY TAX	31,000,000	(1)	30,000,000		55,000,000	(14)	45,000,000	(16)	17,000,000	
A.B.C. BOARD	79,815,646		80,416,669		83,230,692		81,414,506		83,627,400	
AD VALOREM TAX	100,905,868		109,481,118		118,601,855		130,403,575		136,965,110	
AUTO TITLE TAX	22,923,988		22,912,134		22,410,828		21,876,417		19,285,329	
CELLULAR TELEPHONE	54,283,735		58,303,579		65,058,519		65,211,100		70,208,554	
CIGARETTE TAX	126,220,692	(2)	127,455,557		124,340,614		119,423,531		116,156,459	
BUSINESS ENTITY TAXES	17,221,875		17,416,860		32,303,576	(3)	37,227,234	(3)	127,979,408	(3)
COURT COSTS-JUDICIAL ARTICLE	72,364,871	(4)	77,474,812		84,248,855		92,726,285		91,630,439	
DEED RECORD TAX	8,647,036		9,171,882		9,731,750		8,060,024		6,045,220	
DRIVER LICENSE FEES	14,310,390		14,021,229		15,923,064		17,222,487		15,207,104	
FINANCIAL INSTIT. EXCISE TAX	9,749,811		25,482,587		20,022,100		9,707,685		21,296,896	
FREIGHT LINE & EQUIP. CO. TAX	2,751,507		2,765,834		3,011,073		3,299,488		3,368,624	
HAZARDOUS WASTE	193,208		(452,404)		369,101		259,635		80,822	
ESTATE TAX	14,566,183		1,865,283		670,977		(303,785)		(23,637)	
INSURANCE PREMIUM TAX	239,191,250		240,617,692		244,682,317		261,819,301		238,032,616	
INTEREST-ALA. TRUST FUND	99,863,393	(5)	115,273,091	(5)	121,957,704	(5)	213,311,504	(5)	94,668,435	
INTEREST ON STATE DEPOSITS	50,638,872		105,670,429		130,389,801		76,622,698		32,876,705	
JUDICIAL ADMIN FEES	196,701		159,487		126,930		112,859		104,280	
LEASE TANG. PERS. PROP.	64,542,355		68,732,848		70,502,447		69,692,511		66,037,169	
LODGINGS TAX	25,888,142		29,792,228		32,336,010		33,925,067		31,347,485	
MANUFACTURED HOME FEES	776,147		772,698		718,552		679,251		666,402	
MISC. DEPT FEES & RECEIPTS	4,362,624		35,336,043	(12)	4,679,626		112,304,611	(17)	56,180,020	(19)
MORTGAGE RECORD TAX	37,201,058		43,472,312		45,204,637		38,695,118		29,296,285	
MOTOR VEH LICENSE	39,663,970		40,943,571		41,545,284		41,913,649		42,173,631	
OIL AND GAS PRODUCTION	104,977,127	(6)	139,957,308		109,244,116		146,533,051		94,441,583	
OIL CO LICENSES	4,146,197		5,394,025		6,112,678		5,026,902		6,551,595	
PARI-MUTUEL TAX	3,098,363		3,206,932		2,968,111		2,668,067		2,426,605	
PRIVILEGE LICENSE TAX	5,367,788		5,681,124		5,695,696		5,640,164		5,513,151	
PUBLIC SAFETY MISC.	17,253,887		16,521,802		17,123,900		18,476,964		18,459,896	
PUBLIC UTILITY REC TAX	15,578,494		16,094,070		19,242,499		20,130,479		21,764,033	
SALES AND USE TAX ON AUTOS	110,591,001	(7)	126,219,476		86,257,462		80,948,280		60,604,856	
SALES TAX DISCOUNT	12,954,974	(8)	14,326,178		15,748,250		15,958,844		14,689,861	
STATE SECURITIES COMM.	5,429,904		5,844,092		6,145,566		6,306,603		6,800,941	
TOBACCO - MEDICAID WAIVER	2,500,000		2,180,982		2,200,103		2,383,843		2,651,014	
TOBACCO TAX	5,528,587	(9)	5,238,627		5,238,134		5,104,630		5,032,385	
USE TAX DISCOUNT	2,553,277	(10)	2,209,282		368,311		528,799		1,537,118	
UNCLASSIFIED	0		0		0		0			
SUB-TOTAL	1,407,258,921		1,599,959,437		1,603,411,138		1,790,311,377		1,540,683,794	
TRANSFERS AND REVERSIONS	29,971,029	(11)	56,491,902	(13)	31,170,010	(15)	24,001,226	(18)	61,887,862	(20)
GRAND TOTAL	**1,437,229,950**		**1,656,451,339**		**1,634,581,148**		**1,814,312,603**		**1,602,571,656**	

(1) Includes one-time receipts of $5,000,000 and additional receipts of $12,000,000 from the demutualization of property per Act 2004-440.
(2) FY 2005 includes $88,098,462 from increased tax rate per Act 2004-545.
(3) FY 2007 includes $15,000,000; FY 2008 includes $19,000,000; and FY 2009 includes $108,000,000 from privilege and shares escrow account.
(4) FY 2005 includes $12,009,110 from court cost increase per Act 2004-636.
(5) FY 2005 includes $21,409,782; FY 2006 includes $31,862,827; FY 2007 includes $34,979,281; and FY 2008 includes $117,267,060 in unrealized gains transferred pursuant to Constitutional Amendment 666.
(6) FY 2005 includes $8,802,481 from temporary privilege tax per Act 2004-635.
(7) FY 2005 includes $16,759,479 from repeal of contractor's sales and use tax exemption per Act 2004-638.
(8) Includes amount pledged for debt service on state parks and historical sites bonds and the SGF per Act 2000-731.
(9) FY 2005 includes $2,764,293 from increased tax rate per Act 2004-545.
(10) Revenue distributed to SGF per Act 2001-669.
(11) Includes one-time transfers of $3,662,006 from the Mental Health Finance Authority; $8,000,000 from the Securities Commission; $1,000,000 from the Insurance Department; $500,000 from the Public Service Commission; and $1,038,607 from the Attorney General's Office.
(12) Includes one-time transfer of $30,303,930 for sales tax distribution error.
(13) Includes one-time transfer of $47,258,750 from tobacco revenue balances.
(14) Includes one-time receipts of $25,000,000.
(15) Includes one-time transfer of $11,295,111 from tobacco revenue balances and a refund of FEMA disaster funds of $9,923,628.
(16) Includes one-time receipts of $15,000,000.
(17) Includes one-time transfers of $85,750,235 from the Exxon lawsuit; $4,746,080 from pharmaceutical settlement; and $17,023,881 from Corrections asset sale.
(18) Includes one-time transfer of $12,237,060 from tobacco balances.
(19) Includes one-time transfer of $52,034,871 from pharmaceutical settlements and $437,500 from court order for 5th Circuit DA.
(20) Includes one-time transfers of $14,025,410 from tobacco balances and $38,800,000 from the Incentives Financing Authority.

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RESOLUTION IN SUPPORT OF CHARTER SCHOOL LEGISLATION IN ALABAMA

WHEREAS, in 1991 the Minnesota Legislature adopted America's first charter school law; and

WHEREAS, currently 39 states have charter school laws that provide for 4,600 charter schools serving 1.4 million students; and

WHEREAS, charter schools are public schools that operate under a contract with an authorizing entity that is usually a local board of education and such charter schools are held accountable for academic results to the same extent as all other public schools in the authorizer's school district; and

WHEREAS, enrollment in charter schools must be open to all students in the normal attendance zone(s) of the school district in which they are located, and a public charter school may not limit admission based on race, ethnicity, national origin, religion, income level of parents, disability (ies) of students, proficiency in the English language or academic or athletic ability; and

WHEREAS, in the United States 62 percent of public charter school students are non-white, 40 percent of public charter school students qualify for free and reduced-price lunches, and 56 percent of charter school students attend a charter school in a large city with only 14 percent attending in a rural setting; and

WHEREAS, the U.S. Department of Education has announced competitive grants (Race to the Top) to states that total $4.3 billion over three years with the grant application being evaluated on a total of 500 points, with 40 points (8%) being alloted to states with charter school legislation:

NOW, THEREFORE, BE IT RESOLVED, That the Alabama State Board of Education does hereby support and encourage the Alabama Legislature to adopt a charter school law for Alabama during its Regular 2010 Session, which began on January 12 and ends on April 26, 2010.

Done this 14th day of January 2010

Randy McKinney, District 1, Vice President

Betty Peters, District 2

Stephanie W. Bell, District 3

Dr. Ethel H. Hall, District 4, Vice President Emerita

Ella B. Bell, District 5

David F. Byers, Jr., District 6

Gary Warren, District 7

Dr. Mary Jane Caylor, District 8, President Pro Tem

Joseph B. Morton, Secretary and Executive Officer

Governor Bob Riley, President

1 HB189

2 116003-2

3 By Representatives McClurkin, Hubbard, Allen, Sanderford,

4 Williams (P), Wren, Bridges and Gipson

5 RFD: Education Appropriations

6 First Read: 12-JAN-10

116003-2:n:01/12/2010:KMS/th LRS2010-69R1

SYNOPSIS: This bill is the Alabama Innovative Charter Schools Act.

This bill would provide for the creation of charter schools authorized by registered local school boards and the State Board of Education under certain conditions.

This bill would establish the process by which local school boards may register as authorizers of charter schools.

This bill would establish the processes by which a charter contract may be approved, renewed, and revoked.

This bill would prohibit private schools from applying to become a charter school or converting to charter school status.

This bill would require that charter contracts contain certain accountability provisions and that authorizers continually monitor the performance and compliance of charter schools.

1 This bill would provide for the organization
2 of a charter school, enrollment of students,
3 employer requirements, and a minimum number of
4 instructional days.
5 This bill would generally relieve charter
6 schools from the requirements of state education
7 statutes while requiring them to follow laws
8 related to civil rights, health, safety, state
9 content standards, accountability and student
10 assessment, competitive bidding, open meetings, and
11 open records.
12 This bill would provide for the funding of
13 charter schools and require an annual independent
14 audit.
15 This bill would provide for the acquisition
16 and use of facilities and require that charter
17 schools follow the same building codes as other
18 public schools.
19 This bill would require the State Board of
20 Education to promulgate rules and regulations to
21 implement this act.
22 Amendment 621 of the Constitution of Alabama
23 of 1901, now appearing as Section 111.05 of the
24 Official Recompilation of the Constitution of
25 Alabama of 1901, as amended, prohibits a general
26 law whose purpose or effect would be to require a
27 new or increased expenditure of local funds from

1 becoming effective with regard to a local
2 governmental entity without enactment by a 2/3 vote
3 unless: it comes within one of a number of
4 specified exceptions; it is approved by the
5 affected entity; or the Legislature appropriates
6 funds, or provides a local source of revenue, to
7 the entity for the purpose.
8 The purpose or effect of this bill would be
9 to require a new or increased expenditure of local
10 funds within the meaning of the amendment. However,
11 the bill does not require approval of a local
12 governmental entity or enactment by a 2/3 vote to
13 become effective because it comes within one of the
14 specified exceptions contained in the amendment.
15
16 A BILL
17 TO BE ENTITLED
18 AN ACT
19
20 To establish the Alabama Innovative Charter Schools
21 Act relating to public K-12 education; to provide for the
22 creation of charter schools authorized by registered local
23 school boards and the State Board of Education under certain
24 conditions; to establish the process by which a local school
25 board may register as an authorizer of charter schools; to
26 establish the processes by which a charter contract may be
27 approved, renewed, and revoked; to prohibit a private school

1 from applying to become a charter school or converting to
2 charter school status; to require certain accountability
3 provisions in charter contracts; to require an authorizer to
4 continually monitor the performance and compliance of each
5 charter school; to provide for the organization, enrollment of
6 students, employer requirements, and minimum number of
7 instructional days for each charter school; to generally
8 relieve charter schools from the requirements of state
9 education statutes while requiring them to follow laws related
10 to civil rights, health, safety, state content standards,
11 accountability and student assessment, competitive bidding,
12 open meetings, and open records; to provide for the funding of
13 charter schools; to require independent annual audits; to
14 provide for the acquisition and use of facilities and require
15 that charter schools follow the same building codes as other
16 public schools; to require the State Board of Education to
17 promulgate rules to implement this act; and in connection
18 therewith to have as its purpose or effect the requirement of
19 a new or increased expenditure of local funds within the
20 meaning of Amendment 621 of the Constitution of Alabama of
21 1901, now appearing as Section 111.05 of the Official
22 Recompilation of the Constitution of Alabama of 1901, as
23 amended.
24 BE IT ENACTED BY THE LEGISLATURE OF ALABAMA:
25 Section 1. This act shall be known and may be cited
26 as the Alabama Innovative Charter Schools Act.

1 Section 2. Each charter school in the state
2 established pursuant to this act is a public school and part
3 of the public education system of this state. No nonpublic or
4 private school, including church schools, may apply to or
5 become a charter school under this act, and no charter
6 agreement shall be granted pursuant to this act to authorize
7 the conversion of any nonpublic, private, church, or
8 home-based school to charter school status.
9 Section 3. For the purposes of this act, the
10 following terms shall have the following meanings:
11 (1) APPLICANT. Any person or group that develops and
12 submits a charter school application to an authorizer.
13 (2) APPLICATION. A proposal from an applicant to an
14 authorizer to enter into a charter contract whereby the
15 proposed school obtains charter school status.
16 (3) AT-RISK STUDENT. A student who has an economic
17 or academic disadvantage that requires special services and
18 assistance to succeed in educational programs. The term
19 includes, but is not limited to, students who are members of
20 economically disadvantaged families, students who are
21 identified as having special educational needs, students who
22 are limited in English proficiency, students who are at risk
23 of dropping out of high school, and students who do not meet
24 minimum standards of academic proficiency.
25 (4) AUTHORIZER. An entity authorized under this act
26 to review applications, decide whether to approve or reject
27 applications, enter into charter contracts with applicants,

1 oversee charter schools, and decide whether to renew, not
2 renew, or revoke charter contracts.
3 (5) CHARTER CONTRACT. A fixed term, renewable
4 contract between a charter school and an authorizer that
5 outlines the roles, powers, responsibilities, and performance
6 expectations for each party to the contract.
7 (6) CHARTER SCHOOL. A public K-12 school with all of
8 the following qualities:
9 a. Autonomy over decisions including, but not
10 limited to, matters concerning finance, personnel, scheduling,
11 curriculum, and instruction.
12 b. Governed by an independent governing board.
13 c. Established and operating under the terms of a
14 charter contract between the governing board and an
15 authorizer.
16 d. Enrollment pursuant to parental choice.
17 e. Students are admitted on the basis of a random
18 selection process if more students apply for enrollment than
19 the charter school is able to accommodate.
20 f. Program of education includes one or more of the
21 following grades or programs:
22 1. Preschool.
23 2. Prekindergarten.
24 3. Any grade or grades from kindergarten through
25 12th grade.
26 4. Adult community education.
27 5. Adult continuing education.

1 6. Career technical education.
2 g. Operates in pursuit of a specific set of
3 educational objectives as defined by a charter contract.
4 h. Operates under the oversight of an authorizer in
5 accordance with a charter contract.
6 (7) CHARTER SCHOOL CONVERSION. A charter school that
7 existed as a non-charter public school before becoming a
8 charter school.
9 (8) DEPARTMENT. The State Department of Education.
10 (9) EDUCATION SERVICE PROVIDER. A nonprofit or for
11 profit charter management organization, school design
12 provider, or any other partner entity with which a charter
13 school may contract for educational design, implementation, or
14 comprehensive management.
15 (10) GOVERNING BOARD. The independent board of a
16 charter school that is party to the charter contract with the
17 authorizer and whose members have been selected pursuant to
18 the charter school application.
19 (11) LOCAL SCHOOL BOARD. A city or county board of
20 education exercising management and control of a city or
21 county school district pursuant to state law.
22 (12) LOCAL SCHOOL DISTRICT. A public agency that
23 establishes and supervises one or more non-charter public
24 schools within its geographical limits pursuant to state law.
25 (13) NON-CHARTER PUBLIC SCHOOL. A public K-12 school
26 that is under the direct management, governance, and control
27 of a local school board or the state.

1 (14) PARENT. A parent, guardian, or other person or
2 entity having legal custody of a child.
3 (15) STUDENT. Any child who is eligible to attend
4 public school in the state.
5 Section 4. (a) The State Board of Education, upon
6 the recommendation of the State Superintendent of Education,
7 may authorize charter schools within any local school district
8 in the state.
9 (b) A local school board may register with the
10 department, pursuant to Section 5, for chartering authority
11 within the boundaries of the local school district.
12 Section 5. (a) The department shall publicize to all
13 local school boards the opportunity to register with the
14 department for chartering authority within the local school
15 district. The department shall annually provide information
16 about the opportunity, including a registration deadline, to
17 each local school board. To register with the department as a
18 charter authorizer in the local school district, a local
19 school board shall submit to the department all of the
20 following information in a format established by the
21 department:
22 (1) Written notification of intent to serve as a
23 charter authorizer.
24 (2) An explanation of the strategic vision of the
25 local school board for chartering.
26 (3) An explanation of the budget and the personnel
27 capacity of the local school board and the commitment of the

1 local school board to executing the duties of quality charter
2 authorizing.
3 (4) An explanation of how the local school board
4 plans to solicit charter school applicants.
5 (5) A description or outline of the performance
6 framework the local school board plans to use to establish a
7 charter contract and provide ongoing oversight and evaluation
8 of charter schools.
9 (6) A draft of the renewal, revocation, and
10 nonrenewal processes to be used by the local school board
11 consistent with Section 12.
12 (7) A statement of assurance that the local school
13 board commits to serving as a charter authorizer in
14 fulfillment of the expectations, spirit, and intent of this
15 act, and commits to fully participating in any authorizer
16 training provided or required by the state.
17 (b) Within 60 days after the submission of all
18 registration materials by a local school board pursuant to
19 subsection (a) and satisfaction of all conditions of
20 subsection (a), the department shall register the local school
21 board as a charter authorizer within the local school district
22 and shall provide the local school board with a letter
23 confirming registration as a charter authorizer. No local
24 school board shall engage in any charter-authorizing functions
25 without current state registration as a charter authorizer.
26 Once registered, the registration of the local school board as
27 a charter authorizer shall continue from year to year,

1 provided that the local school board fulfills all
2 charter-authorizing duties and expectations provided by this
3 act and remains an authorizer in good standing with the
4 department.
5 Section 6. (a)(1) An authorizer shall perform all of
6 the following essential powers and duties:
7 a. Solicit and evaluate charter applications.
8 b. Approve charter applications that satisfy
9 identified educational needs and promote a diversity of
10 educational choices.
11 c. Decline to approve incomplete or inadequate
12 charter applications.
13 d. Negotiate and execute sound charter contracts
14 with each approved charter school.
15 e. Monitor, in accordance with charter contract
16 terms, the performance and legal compliance of a charter
17 school.
18 f. Determine whether a charter contract merits
19 renewal, nonrenewal, or revocation.
20 (2) An authorizing entity may delegate its duties to
21 offices, employees, and contractors.
22 (3) Regulation by authorizers shall be limited to
23 the powers and duties listed in subdivision (1) that are
24 consistent with the spirit and intent of this act.
25 (b)(1) An authorizer shall develop and maintain
26 chartering policies and practices consistent with nationally
27 recognized principles and standards for quality charter

1 authorizing in all major areas of authorizing responsibility
2 including, but not limited to, all of the following:
3 a. Organizational capacity and infrastructure.
4 b. Solicitation and evaluation of charter
5 applications.
6 c. Performance contracting.
7 d. Ongoing and continuous charter school oversight
8 and evaluation.
9 e. Charter renewal decision making.
10 (2) An authorizer shall perform all duties under
11 this act in a manner consistent with nationally recognized
12 principles and standards and the spirit and intent of this
13 act. Evidence of material or persistent failure to perform in
14 such manner shall constitute grounds for loss of charter
15 authorizing powers.
16 (3) The department shall develop model policies and
17 practices for charter authorizing.
18 (c)(1) Each local school board registered as an
19 authorizer shall annually submit to the department a report
20 summarizing all of the following:
21 a. The strategic vision of the local school board
22 for chartering and progress made toward achieving that vision.
23 b. The academic and financial performance of all
24 charter schools operating under the purview of the local
25 school board, according to the performance expectations for
26 charter schools provided in this act.

1 c. The status of the charter school portfolio of the
2 local school board, identifying the number of charter schools
3 in each of the following categories:
4 1. Approved, but not yet operational.
5 2. Operating.
6 3. Renewed.
7 4. Transferred.
8 5. Revoked.
9 6. Not renewed.
10 7. Voluntarily closed.
11 8. Never opened.
12 d. The authorizing functions provided by the local
13 school board to the charter schools under its purview
14 including, but not limited to, the annual operating costs and
15 expenses of the local school board detailed in audited
16 financial statements that conform to generally accepted
17 accounting principles.
18 e. Any services purchased by a charter school from
19 the local school board including, but not limited to, an
20 itemized accounting of the actual costs of the services
21 pursuant to Section 17.
22 (2) The department shall produce an annual report
23 detailing the authorizing activities of the State Board of
24 Education including, but not limited to, the information
25 required of local school board authorizers in subdivision (1).
26 (d)(1) The State Board of Education may permit an
27 authorizer to assess an oversight fee, of not more than three

1 percent of the annual per student funding provided to a
2 charter school, from the per-student operational funding of
3 each charter school the local school board authorizes.
4 (2) The oversight fee may not include any costs
5 incurred in delivering services purchased by the charter
6 school from the authorizer. The authorizer shall use funding
7 provided under this subsection exclusively for fulfilling
8 authorizing obligations under this act.
9 (3) The State Superintendent of Education shall
10 annually review the effectiveness of any oversight fee
11 adopted, and shall recommend to the State Board of Education
12 any necessary adjustments to the fee in an effort to maximize
13 public benefit and strengthen implementation of this act.
14 (e) No employee, trustee, agent, or representative
15 of an authorizer may simultaneously serve as an employee,
16 trustee, agent, representative, vendor, or contractor of a
17 charter school under the purview of that authorizer.
18 (f) No governmental or other entity, unless
19 expressly granted chartering authority pursuant to this act or
20 other law, may assume any charter authorizing function or duty
21 in any form.
22 (g)(1) With the exception of oversight services
23 provided in subsection (d), a charter school may not be
24 required to purchase services from its authorizer as a
25 condition of charter approval or the execution of a charter
26 contract.

1 (2) If a charter school purchases services from its
2 authorizer, the charter school and authorizer shall execute an
3 annual service contract, separate from the charter contract,
4 specifying the mutual agreement of the charter school and the
5 authorizer regarding the services to be provided and service
6 fees to be charged. An authorizer may not charge more than
7 current market rates for services provided to a charter
8 school.
9 Section 7. The purpose of a charter application is
10 to present the academic and operational vision and plans of
11 the proposed charter school to an authorizer and to
12 demonstrate the capacity of the applicant to execute the
13 proposed vision and plans. An approved charter application is
14 not a charter contract.
15 Section 8. (a) Charter school requests for
16 proposals, application approval decisions, and application
17 denial decisions shall be pursuant to a time line annually
18 established by the department and applied uniformly throughout
19 the state. The department shall issue guidelines regarding the
20 content and format of charter school requests for proposals,
21 application approval decisions, and application denial
22 decisions.
23 (b) To solicit, encourage, and guide the development
24 of quality charter school applications, each authorizer shall
25 issue and broadly publicize requests for proposals.
26 (c)(1) An application to establish a charter school
27 in a local school district where the local school board is

1 registered as an authorizer shall be submitted to the local
2 school board. If the local school board denies the
3 application, the applicant may appeal the denial by submitting
4 an application to the State Board of Education.
5 (2) An application to establish a charter school in
6 a local school district where the local school board is not
7 registered as an authorizer shall be submitted to the State
8 Board of Education.
9 (d) The State Board of Education, upon the
10 recommendation of the State Superintendent of Education, shall
11 consider and may approve an application to establish a charter
12 school submitted pursuant to subsection (c).
13 (e) A charter applicant may submit a proposal for a
14 particular charter school to only one authorizer at a time.
15 (f) An application to establish a charter school
16 submitted to the State Board of Education shall demonstrate
17 the ability of the proposed charter school to serve students
18 who are located in a local school district or attending a
19 non-charter public school that the department has identified
20 as persistently low achieving.
21 (g) An application to establish a charter school by
22 converting an existing non-charter public school to charter
23 school status shall also demonstrate support for the proposed
24 charter school conversion pursuant to a petition signed by a
25 majority of teachers of the non-charter public school and a
26 petition signed by a majority of parents of students enrolled
27 at the existing non-charter public school. A petition is not

1 required if the establishment of the charter school is the
2 result of state intervention due to consistently low academic
3 performance, as determined by state or federal regulation.
4 (h) An application to establish a charter school
5 submitted by an applicant that currently operates one or more
6 charter schools shall also provide documentation detailing
7 past performance and current capacity for growth.
8 Section 9. (a) In reviewing and evaluating a charter
9 application, an authorizer shall employ procedures, practices,
10 and criteria consistent with nationally recognized principles
11 and standards for quality charter authorizing. The application
12 review process shall include a thorough evaluation of each
13 written charter application, a personal interview with the
14 applicant group, and an opportunity in a public forum for
15 residents of the local school district to receive and provide
16 information relating to the application.
17 (b) In deciding whether to approve a charter
18 application, an authorizer shall do all of the following:
19 (1) Grant a charter only to an applicant that
20 demonstrates competence in each element of the published
21 approval criteria of the authorizer and is likely to open and
22 operate a successful charter school.
23 (2) Base decisions on documented evidence collected
24 through the application review process.
25 (3) Follow charter-granting policies and practices
26 that are transparent and based on merit.
27 (4) Avoid any conflict of interest.

1 (c) An authorizer shall adopt by resolution all
2 charter approval or denial decisions during an open meeting of
3 the governing board of the authorizer.
4 (d) The decision to approve a charter application
5 may include reasonable conditions for the charter applicant to
6 satisfy before a charter contract is executed.
7 (e) A decision to deny a charter application shall
8 clearly inform the applicant of the reasons for the denial. A
9 denial does not prohibit an applicant from resubmitting an
10 application to the same authorizer or submitting an
11 application to any other authorizer in the state.
12 (f) An authorizer shall annually submit a written
13 report of all approval and denial actions taken by the
14 authorizer to the department. A copy of the report shall also
15 be provided by the authorizer to any charter applicant
16 mentioned in the report at the same time that the report is
17 submitted to the department. The report shall include a copy
18 of all resolutions adopted by the governing board pursuant to
19 subsection (c), a list of all actions taken, reasons
20 supporting those decisions, and assurances as to compliance
21 with all applicable rules and guidelines adopted pursuant to
22 this act.
23 Section 10. An initial charter shall be granted for
24 a term of up to five operating years. The charter term shall
25 commence on the first day of operation of the charter school.
26 An approved charter school may delay opening for one school
27 year in order to plan and prepare for the physical opening of

1 the charter school. If the approved charter school requires an
2 opening delay of more than one school year, the charter school
3 shall request an extension from the authorizer. The authorizer
4 may grant or deny the extension, depending on the particular
5 circumstances of the charter school.
6 Section 11. (a) The authorizer and the governing
7 board of an approved charter school shall execute a charter
8 contract. The charter contract shall include academic and
9 operational performance expectations for the charter school,
10 measures by which the charter school shall be judged, and
11 specifics relating to the administrative relationship between
12 the authorizer and the charter school, including the rights
13 and duties of both the authorizer and the charter school.
14 Performance expectations and measures contained in the charter
15 contract shall include, but not be limited to, applicable
16 federal and state accountability requirements. Performance
17 provisions in a charter contract may be refined or amended by
18 mutual agreement of the authorizer and the charter school
19 after the charter school begins operation and baseline
20 achievement data has been collected for enrolled students.
21 (b) The charter contract shall be signed by the
22 president of the governing board of the authorizer and the
23 president of the governing board of the charter school. The
24 authorizer shall submit written notification of the charter
25 contract execution to the department, including a copy of the
26 executed charter contract and any attachments.

1 (c) No charter school may commence operations
2 without a charter contract executed in accordance with this
3 section and approved during an open meeting of the governing
4 board of the authorizer.
5 Section 12. An authorizer may establish reasonable
6 preopening requirements or conditions to monitor the startup
7 progress of a newly approved charter school to ensure that the
8 charter school is prepared to open on the agreed date and that
9 all building, health, safety, insurance, and other legal
10 requirements for the opening are satisfied.
11 Section 13. (a) An authorizer may not restrict the
12 number of students a charter school may enroll. The capacity
13 of a charter school shall be determined annually by the
14 governing board of the charter school in conjunction with the
15 authorizer and in consideration of the ability of the charter
16 school to facilitate the academic success of its students, to
17 achieve objectives specified in the charter contract, and to
18 ensure that student enrollment does not exceed the physical
19 limitations of the charter school facility or site.
20 (b) A charter school shall be open to any student
21 who resides in the local school district where a charter
22 school is authorized.
23 (c) A local school district may not require any
24 student enrolled in the local school district to attend a
25 charter school.
26 (d) A charter school may not limit admission based
27 on race, ethnicity, national origin, religion, gender, income

1 level, disabling condition, proficiency in the English
2 language, or academic or athletic ability.
3 (e) A charter school may limit admission to students
4 within a given age group or grade level.
5 (f) A charter school may be organized around a
6 special emphasis, theme, or concept as stated in the charter
7 application.
8 (g) A charter school shall enroll all students who
9 apply for admission, unless the number of students exceeds the
10 capacity of the applicable program, class, grade level, or
11 building.
12 (h) If the capacity of the charter school is
13 insufficient to enroll all students who apply for admission,
14 the charter school shall enroll students through a random
15 selection process.
16 Section 14. Each local school district shall provide
17 and publicize information relating to the existence of a
18 charter school authorized by the local school district as an
19 enrollment option within the local school district to the same
20 extent and through the same means as the local school district
21 provides and publicizes information about non-charter public
22 schools within the local school district.
23 Section 15. (a)(1) A non-charter public school
24 converting to a charter school shall adopt and maintain a
25 policy giving enrollment preference to students enrolled in
26 the non-charter public school.

1 (2) A charter school shall provide enrollment
2 preference to students enrolled in the charter school the
3 previous school year and to siblings of students who are
4 enrolled in the charter school. The enrollment preference
5 provided for returning students and siblings exempts those
6 students from the random selection process.
7 (3) A charter school may also provide enrollment
8 preference to children of charter school founders, governing
9 board members, and full-time employees, so long as the number
10 of children provided enrollment preference does not exceed 10
11 percent of the total student population of the charter school.
12 (b) This section does not preclude the formation of
13 a charter school with a mission of serving students eligible
14 for free or reduced price lunches, students with disabilities,
15 students of the same gender, students who pose such severe
16 disciplinary problems that they warrant a specific educational
17 program, or at-risk students.
18 (c) Credits earned by a student in a charter school
19 shall transfer with the student if he or she transfers to
20 another charter school or non-charter public school in this
21 state. The new school shall accept the credits earned by the
22 student in courses or instructional programs at the charter
23 school in a uniform and consistent manner and according to the
24 same criteria established by the department for accepting
25 academic credits from a non-charter public school.
26 Section 16. (a) The performance provisions of a
27 charter contract shall be based on a performance framework

1 that clearly specifies the academic and operational
2 performance indicators, measures, and methods to guide
3 evaluations by the authorizer of the charter school. The
4 performance framework shall include indicators, measures, and
5 methods to evaluate, at a minimum, all of the following:
6 (1) Student academic proficiency.
7 (2) Student academic growth.
8 (3) Achievement gaps in both proficiency and growth
9 between major student subgroups.
10 (4) Attendance.
11 (5) Recurrent enrollment from year to year.
12 (6) Postsecondary readiness, for charter high
13 schools.
14 (7) Financial performance and sustainability.
15 (8) Board performance and stewardship including, but
16 not limited to, compliance with all applicable law and the
17 charter contract.
18 (b) Annual performance targets shall be established
19 by each charter school, in conjunction with its authorizer,
20 and shall be designed to assist the charter school in meeting
21 or exceeding applicable federal, state, and authorizer
22 expectations.
23 (c) The performance framework shall allow the
24 inclusion of additional rigorous, valid, and reliable
25 indicators proposed by the charter school to augment external
26 evaluations of performance. The authorizer may approve

1 inclusion of the additional indicators if the indicators are
2 consistent with the purposes of this act.
3 (d) The performance framework shall require the
4 disaggregation of all student performance data by major
5 student subgroups including, but not limited to, gender, race,
6 poverty status, special education status, English as a second
7 language status, and gifted status.
8 (e) An authorizer shall collect, analyze, and report
9 all data from state assessments in accordance with the
10 performance framework for each charter school under its
11 purview.
12 (f) Multiple charter schools operating under a
13 single charter contract or under the purview of a single
14 governing board shall report their performance as separate,
15 individual charter schools, and each charter school shall be
16 held independently accountable for its performance.
17 Section 17. (a) The department shall oversee the
18 performance and effectiveness of each authorizer established
19 pursuant to this act.
20 (b) In accordance with subsection (c) of Section 6,
21 each local school board registered as an authorizer shall
22 submit to the department an annual report. The department
23 shall communicate to each authorizer the format, content, and
24 submission requirements for the annual report.
25 (c) If a local school board or the portfolio of
26 charter schools under the purview of the local school board
27 exhibits persistent unsatisfactory performance or is the

1 subject of a pattern of well-founded complaints, or if other
2 objective circumstances exist, the department may perform a
3 special review and evaluation of the local school board
4 utilizing nationally recognized principles and standards for
5 quality charter authorizing. If the department determines that
6 a local school board is not in compliance with an existing
7 charter contract, the authorizing contract with the
8 department, or the requirements of this act, the department
9 shall notify the local school board in writing of the
10 identified problems, and afford the local school board
11 reasonable opportunity to respond and remedy those problems.
12 (d) If a local school board as authorizer continues
13 to violate a charter contract or fails to remedy other
14 authorizing problems after due notice from the department, the
15 department shall notify the local school board that its
16 chartering authority shall be revoked unless the local school
17 board timely and satisfactorily remedies the violation or
18 deficiencies.
19 (e) If the chartering authority of a local school
20 board is revoked, the State Board of Education shall assume
21 the role of authorizer for any existing charter contracts held
22 by the local school board for the remainder of the charter
23 term.
24 (f) If the chartering authority of a local school
25 board is reinstated, the State Board of Education may transfer
26 back to the local school board any existing charter contracts

1 assumed by the State Board of Education pursuant to subsection
2 (e).
3 Section 18. (a) An authorizer shall continually
4 monitor the performance and legal compliance of the charter
5 schools under its purview. Monitoring shall include, but not
6 be limited to, collecting and analyzing data to support
7 ongoing evaluation according to the charter contract. An
8 authorizer may conduct oversight activities that enable the
9 authorizer to fulfill responsibilities under this act. The
10 activities shall include, but not be limited to, conducting
11 appropriate inquiries and performing investigations. Any
12 monitoring and oversight activities conducted by an authorizer
13 pursuant to this section shall adhere to the terms of the
14 charter contract, not unduly inhibit the autonomy granted to
15 the charter school, and be consistent with the intent of this
16 act.
17 (b) An authorizer shall annually publish and
18 provide, as part of its annual report to the department, a
19 performance report for each charter school under its purview,
20 in accordance with the performance framework contained in the
21 charter contract and this act. An authorizer may require each
22 charter school under its purview to submit to the authorizer
23 an annual report to assist the authorizer in gathering
24 complete information about each charter school.
25 (c) If the performance or legal compliance of a
26 charter school appears substandard, the authorizer shall
27 promptly notify the charter school of any perceived problems

1 and shall provide reasonable opportunity for the charter
2 school to remedy the problems. If the problems warrant
3 revocation, specific revocation time frames shall apply.
4 (d) An authorizer may take any appropriate
5 corrective action, including sanctions and excluding
6 revocation, against a charter school in response to apparent
7 deficiencies in performance or legal compliance. Such actions
8 or sanctions may include requiring the charter school to
9 develop and execute a corrective action plan within a
10 specified time frame.
11 Section 19. (a) A charter may be renewed for
12 successive five-year terms of duration. An authorizer may vary
13 the term based on the performance, demonstrated capacities,
14 and particular circumstances of the charter school. An
15 authorizer may also impose certain conditions for renewal,
16 such as making necessary improvements at the charter school.
17 (b) An authorizer shall issue a charter school
18 performance report and provide charter renewal application
19 guidance to any charter school with a charter scheduled to
20 expire the following year. The performance report shall
21 summarize the performance record of the charter school to
22 date, based on the data required by this act and the charter
23 contract, and shall provide notice to the charter school of
24 any weakness or other concern that may jeopardize renewal of
25 the charter school. The charter school shall reply to the
26 performance report and shall correct or clarify any
27 information provided in the report.

1 (c) At a minimum, renewal application guidance shall
2 provide an opportunity for the charter school to do all of the
3 following:
4 (1) Present additional evidence, beyond the data
5 contained in the performance report, supporting charter
6 renewal.
7 (2) Describe any improvements undertaken or planned
8 for the charter school.
9 (3) Detail the plans for the next charter term.
10 (d) Renewal application guidance shall include or
11 explicitly refer to the criteria the authorizer shall use to
12 make a renewal decision. The criteria shall be based on the
13 performance framework contained in the charter contract and
14 consistent with this act.
15 (e) The governing board of a charter school seeking
16 renewal shall submit a renewal application to the authorizer
17 pursuant to renewal application guidance issued by the
18 authorizer. The authorizer, by resolution, shall rule on the
19 renewal application not later than 30 days after submission of
20 the renewal application.
21 (f) In making a charter renewal decision, an
22 authorizer shall do all of the following:
23 (1) Base any decision on evidence of the performance
24 of the charter school, over the term of the charter contract,
25 in accordance with the performance framework provided in the
26 charter contract.

1 (2) Ensure that all data used in making a renewal
2 decision is available to the charter school and the public.
3 (3) Provide a public report summarizing the basis
4 for each decision.
5 (g) An authorizer, at any time, may revoke or not
6 renew a charter contract if the authorizer determines that the
7 charter school has failed to comply with this act or does any
8 of the following:
9 (1) Commits a material or substantial violation of
10 any of the terms, conditions, standards, or procedures
11 required by this act or the charter contract.
12 (2) Fails to meet or make sufficient progress toward
13 the performance expectations contained in the charter
14 contract.
15 (3) Fails to meet generally accepted standards of
16 fiscal management.
17 (4) Substantially violates any material provision of
18 law that applies to the charter school.
19 (h) An authorizer shall develop revocation and
20 nonrenewal processes that satisfy all of the following:
21 (1) Provide the holder of the charter with timely
22 notification of potential revocation or nonrenewal and of the
23 reasons for possible closure.
24 (2) Grant the holder of the charter a reasonable
25 amount of time in which to prepare a response.
26 (3) Provide the holder of the charter with an
27 opportunity to submit documents and give testimony,

1 challenging closure and supporting continuation of the charter
2 school, at an orderly proceeding held for that purpose.
3 (4) Allow the holder of the charter to be
4 represented by counsel and to call witnesses.
5 (5) Permit the recording of proceedings.
6 (6) After a reasonable time period for deliberation,
7 require a final determination to be made and conveyed in
8 writing to the holder of the charter.
9 (i) If an authorizer revokes or does not renew a
10 charter, the reasons for the revocation or nonrenewal shall be
11 clearly stated in a resolution adopted by the governing board
12 of the authorizer.
13 (j) An authorizer shall immediately submit a written
14 report of any action to renew, not renew, or revoke a charter
15 to the department. A copy of the report shall also be provided
16 by the authorizer to the charter school at the same time that
17 the report is submitted to the department. The report shall
18 include a copy of the resolution adopted by the governing
19 board pursuant subsection (i), stating the action taken,
20 reasons supporting the decision, and assurances as to
21 compliance with the requirements of this act.
22 Section 20. (a) An authorizer shall develop a
23 charter school closure protocol. The protocol shall specify
24 tasks, time lines, and responsible parties and shall delineate
25 the respective duties of the charter school and the
26 authorizer. The protocol shall include all of the following
27 elements:

1 (1) Timely notification to parents.
2 (2) Orderly transition of students and student
3 records to new charter schools or non-charter public schools.
4 (3) Proper disposition of charter school funds,
5 property, and assets in accordance with this act.
6 (b) In the event of a charter school closure, the
7 authorizer shall oversee and work with the closing charter
8 school to ensure a smooth and orderly closure and transition
9 for students and parents pursuant to closure protocol.
10 (c) Upon closure of a charter school, the assets of
11 the charter school shall be distributed first to satisfy
12 outstanding payroll obligations for employees of the charter
13 school, next to satisfy creditors of the charter school, and
14 last to the local school board. If the assets of the charter
15 school are insufficient to pay all parties owed,
16 prioritization of the distribution of assets may be determined
17 by court order.
18 Section 21. Transfer of a charter contract and
19 oversight of a charter school from one authorizer to another
20 before the expiration of a charter term is prohibited except
21 upon special petition to the department by the charter school
22 or its authorizer. The department shall review petitions for
23 transfer on a case-by-case basis and may grant a transfer
24 request in response to special circumstances and evidence that
25 the transfer would serve the best interests of the students
26 enrolled in the charter school.

1 Section 22. The department shall annually issue to
2 the Governor, the Legislature, and the public a report on the
3 status of charter schools in the state. The report shall
4 include information provided in the annual reports submitted
5 by the authorizers and any additional relevant data compiled
6 by the department for the school year ending in that calendar
7 year. The annual report shall compare the performance of
8 charter school students with the performance of academically,
9 ethnically, and economically comparable students in
10 non-charter public schools. The annual report shall also
11 include an assessment by the department of the successes,
12 challenges, and areas needing improvement under this act,
13 including an assessment of the sufficiency of funding for
14 charter schools, the efficacy of any adopted fee for
15 authorizer funding, and any suggested changes in state law or
16 policy necessary to strengthen charter schools.
17 Section 23. (a)(1) A charter school is a nonprofit
18 educational organization.
19 (2) A charter school is subject to all federal laws
20 and authorities enumerated in this act or in a charter
21 contract, where the contract is consistent with applicable
22 laws, rules, and regulations.
23 (3) Except as provided in this act, a charter school
24 is not subject to state education law or any state or local
25 rule, regulation, policy, or procedure relating to non-charter
26 public schools.

1 (4) A charter contract may apply to one or more
2 charter schools, to the extent approved by the authorizer and
3 consistent with applicable law. Each charter school covered by
4 a charter contract shall be separate and distinct from any
5 other charter school.
6 (5) A single governing board may hold one or more
7 charter contracts.
8 (b) The local school district in which a charter
9 school is located is the local educational agency (LEA) for
10 the charter school and shall retain responsibility for special
11 education and shall serve students in applicable charter
12 schools in a manner consistent with local school district
13 obligations under applicable federal, state, and local law.
14 Section 24. A charter school shall have all powers
15 necessary for carrying out the terms of its charter contract,
16 including all of the following powers:
17 (1) To receive and disburse funds for charter school
18 purposes.
19 (2) To secure appropriate insurance and to enter
20 into contracts and leases.
21 (3) To contract with an education service provider
22 for the management and operation of the charter school, with
23 the governing board of the charter school retaining oversight
24 authority over the charter school.
25 (4) To incur debt in reasonable anticipation of the
26 receipt of public or private funds.

1 (5) To pledge, assign, or encumber its assets to be
2 used as collateral for loans or extensions of credit.
3 (6) To solicit and accept any gifts or grants for
4 charter school purposes subject to applicable laws and the
5 terms of the charter contract.
6 (7) To acquire real property for use as a facility
7 or facilities, from public or private sources.
8 (8) To sue and be sued in its own name.
9 Section 25. (a) A charter school may not
10 discriminate against any person on the basis of race, creed,
11 color, sex, disability, national origin, limited English
12 proficiency, or any other category that would be unlawful if
13 done by a non-charter public school.
14 (b) A charter school shall be nonsectarian in its
15 educational programs, admissions, employment policies, and
16 operations.
17 (c) Consistent with federal civil rights laws, a
18 charter school shall provide students of limited English
19 proficiency with appropriate services designed to teach the
20 student English and the general curriculum.
21 (d) A charter school may not charge tuition and may
22 only charge such fees as may be imposed by non-charter public
23 schools.
24 (e) The powers, obligations, and responsibilities
25 contained in a charter contract may not be delegated or
26 assigned by the charter school or the authorizer.

1 Section 26. (a) A charter school is subject to the
2 same civil rights, health, and safety requirements applicable
3 to a non-charter public school, except as otherwise
4 specifically provided in this act.
5 (b) A charter school is subject to the same state
6 content standards and student assessment and accountability
7 requirements as are applicable to non-charter public schools.
8 Nothing in this act shall preclude a charter school from
9 establishing additional student assessment or performance
10 measures with the approval of the authorizer.
11 (c) A charter school shall provide, at a minimum,
12 the same number of instructional days required by law for a
13 non-charter public school.
14 (d) A charter school is subject to the same
15 competitive bid requirements as a non-charter public school.
16 (e) A charter school governing board is subject to
17 and shall comply with state open meetings and state open
18 records laws.
19 Section 27. (a) A charter school shall comply with
20 all applicable federal laws, rules, and regulations regarding
21 the qualification of teachers and other instructional staff.
22 At least 75 percent of the teaching faculty of a charter
23 school shall be certified by the department.
24 (b) Charter school employees shall participate in
25 the Teachers' Retirement System of Alabama and the Public
26 Education Employees' Health Insurance Plan.

1 (c) A charter school is not subject to any minimum
2 salary schedule established by the state or local school
3 district and shall compensate employees based on policies set
4 by the governing board of the charter school.
5 (d) A charter contract shall guarantee due process
6 for employees of the charter school pursuant to procedures
7 adopted by the governing board of the charter school.
8 (e) Teachers, employees, and members of the
9 governing board of a charter school shall be subject to
10 criminal history background checks and fingerprinting
11 requirements applicable to non-charter public schools pursuant
12 to the Alabama Child Protection Act of 1999, Chapter 22A,
13 Title 16.
14 Section 28. (a) A charter school is eligible for
15 state-sponsored or district-sponsored interscholastic leagues,
16 competitions, awards, scholarships, and recognition programs
17 for students, educators, administrators, and schools to the
18 same extent as non-charter public schools.
19 (b) Charter school students shall satisfy the same
20 eligibility or participation requirements as non-charter
21 public school students.
22 Section 29. (a) The enrollment of students attending
23 a charter school shall be included in the enrollment,
24 attendance, and, if applicable, count of students with
25 disabilities of the local school district in which the student
26 resides. The charter school shall report all such data to the
27 local school district of residence in a timely manner. Each

1 local school district shall report enrollment, attendance, and
2 count of students with disabilities to the department.
3 (b) The local school district where the charter
4 school is located shall pay directly to the charter school,
5 for each student enrolled in the charter school who resides in
6 the local school district, an amount for that student equal to
7 100 percent of the amount calculated pursuant to the state
8 funding formula for local school districts, notwithstanding
9 any oversight fee reductions made pursuant to this act. A
10 local school board may allocate funding generated at the local
11 level to a charter school.
12 (c) Payments made pursuant to this section shall be
13 made by a local school district in 12 substantially equal
14 installments each year beginning on the first business day of
15 November, and every month thereafter. Amounts payable under
16 this section shall be determined by the department. Amounts
17 payable to a charter school in its first year of operation
18 shall be based on the projections of initial year enrollment
19 as provided in the charter contract. Such projections shall be
20 reconciled with actual enrollment at the end of the first year
21 of operation of the charter school, and any necessary
22 adjustments shall be made to payments during the second year
23 of operation of the charter school.
24 (d) In the event of the failure of a local school
25 district to make payments required by this section, the
26 department shall deduct from any state funds which become due
27 to the local school district an amount equal to the unpaid

1 obligation. The department shall pay over such sum to the
2 charter school upon certification by the department.
3 (e) A local school district shall direct the
4 proportionate share of monies generated under federal and
5 state categorical aid programs to those charter schools
6 serving students eligible for such aid. Each charter school
7 that serves students who may be eligible to receive services
8 provided through such programs shall comply with all reporting
9 requirements to receive the aid.
10 (f)(1) The local school district shall provide
11 special education services to students enrolled in charter
12 schools on the same basis as such services are provided to
13 students enrolled in non-charter public schools in the local
14 school district.
15 (2) The local school district shall retain any
16 federal or state aid attributable to a student with a
17 disability attending a charter school in the same proportion
18 to the level of services for such student with a disability
19 that the local school district provides directly or
20 indirectly.
21 (3) Upon request of either party, the charter school
22 and the local school district may negotiate and include in a
23 contract alternate arrangements for the provision of and
24 payment for special education services. If the charter school
25 and the local school district negotiate to allow the charter
26 school to provide special education services, the
27 proportionate share of state and federal resources generated

1 by such students shall be directed by the local school
2 district to the charter school enrolling such students.
3 (g)(1) A charter school shall adhere to generally
4 accepted accounting principles.
5 (2) A charter school shall annually employ an
6 independent external auditor to perform an independent audit
7 of charter school finances. A copy of the audit report and
8 accompanying management letter shall be filed with the
9 authorizer.
10 (h)(1) The department shall disburse state
11 transportation funding to a local school district for each
12 charter school student residing in the local school district
13 on the same basis and in the same manner as is paid to local
14 school districts. A local school district shall disburse state
15 transportation funding to a charter school in proportion to
16 the amount generated by the students of the charter school who
17 reside in the local school district.
18 (2) A charter school may enter into a contract with
19 a local school district or private provider to provide
20 transportation to charter school students.
21 (i) Any monies received by a charter school from any
22 source and remaining in the accounts of the charter school at
23 the end of any budget year shall remain in the accounts of the
24 charter school for use by the charter school during subsequent
25 budget years.
26 (j) Nothing in this act shall be construed to
27 prohibit any person or organization from providing funding or

1 other assistance to the establishment or operation of a
2 charter school. The governing board of a charter school may
3 accept gifts, donations, and grants of any kind made to the
4 charter school and may expend or use such gifts, donations,
5 and grants in accordance with the conditions prescribed by the
6 donor. No gift, donation, or grant may be accepted if subject
7 to a condition that is contrary to law or the charter
8 contract.
9 Section 30. (a)(1) A charter school may receive
10 funding from the Alabama Public School and College Authority.
11 (2) A charter school is subject to the same building
12 codes as a non-charter public school.
13 (b) A charter school shall have a right of first
14 refusal to purchase or lease, at or below fair market value, a
15 closed non-charter public school facility or property or
16 unused portions of a non-charter public school facility or
17 property located in a local school district from which the
18 charter school enrolls students, if the local school district
19 decides to sell or lease the facility or property. Nothing in
20 this act shall affect the distribution of revenues derived
21 from sixteenth section or indemnity school lands.
22 (c) A charter school may negotiate and contract with
23 a local school district, the governing board of a state
24 college or university or public community college, or any
25 other public or for-profit or nonprofit private entity, at or
26 below fair market value, for the use of a facility for a
27 school building.

1 (d) Library, community service, museum, performing
2 arts, theatre, cinema, church, community college, college, and
3 university facilities may provide space to a charter school
4 within their facilities under preexisting zoning and land use
5 designations.
6 (e)(1) Any facility, or portion thereof, used to
7 house a charter school is exempt from ad valorem taxes.
8 (2) Charter school facilities are exempt from the
9 assessment of fees for building permits, fees for building and
10 occupational licenses, impact fees, service availability fees,
11 and assessments for special benefits to the same extent as
12 non-charter public schools are exempt.
13 Section 31. The State Board of Education shall
14 promulgate necessary rules and regulations consistent with the
15 requirements and intent of this act regarding the
16 implementation and operation of this act. The State
17 Superintendent of Education shall interpret the intent and
18 meaning of this act and shall decide controversies and
19 disputes involving the proper administration of this act.
20 Section 32. To the extent that any provision of this
21 act is inconsistent with any other state or local law, rule,
22 or regulation, the provisions of this act shall govern and be
23 controlling.
24 Section 33. The provisions of this act are
25 severable. If any part of this act is declared invalid or
26 unconstitutional, that declaration shall not affect the part
27 which remains.

1 Section 34. Although this bill would have as its
2 purpose or effect the requirement of a new or increased
3 expenditure of local funds, the bill is excluded from further
4 requirements and application under Amendment 621 because the
5 bill requires expenditures only by a school board.
6 Section 35. This act shall become effective
7 immediately following its passage and approval by the
8 Governor, or its otherwise becoming law.

Action Item No._____
Alabama State Board of Education
May 27, 2010

RESOLUTION FOR
INNOVATION SCHOOL SYSTEMS

WHEREAS, the Alabama State Board of Education wishes to allow local education agencies (LEAs) the ability to request increased flexibility from certain state rules, regulations and/or policies in exchange for increased accountability and defined consequences through a contractual agreement with the State Board of Education; and

WHEREAS, these LEAs will be known as Innovation School Systems; and

WHEREAS, the Alabama Department of Education shall develop guidance materials related to the accountability, flexibility, and consequences of the contract submission process; and

WHEREAS, the Alabama Department of Education shall develop the necessary guidelines that will include, among other things, a submission timeline and shall annually notify all LEAs regarding the dates for application, review, and approval; and

WHEREAS, the Alabama Department of Education shall establish a process and procedure for the review of all LEA contracts; and

WHEREAS, contract terms shall be negotiated between the LEA and the Alabama Department of Education so once the parties have agreed, the final contract may be subsequently adopted and executed by both the LEA and the Alabama State Board of Education; and

WHEREAS, all initial contracts shall be for a term of five (5) years and the Alabama Department of Education may, upon request of the LEA, extend the contract if the LEA successfully meets the terms of the contract for at least two of three of the last five years; and

WHEREAS, an LEA seeking increased flexibility provisions shall complete a contract template provided by the Alabama Department of Education that shall include at least the following:

(i) Grade levels served for each school in the LEA;
(ii) Student demographic data for the LEA and each school;
(iii) Most current AYP results for the LEA and its schools, by subgroup;
(iv) Teacher and principal evaluation results;
(v) School improvement plans and achievement goals for the LEA and each school by subgroup; and
(vi) Specific accountability measures that will be used to monitor and evaluate the progress of the LEA and its schools for the term of the contract; and

WHEREAS, in exchange for the increased flexibility the LEA is requesting, the specific contract proposal must include accountability provisions (i.e., indicators and measures) that meet or exceed the accountability provisions established by the *Elementary and Secondary Education Act of 1965* and the Alabama Department of Education; and

WHEREAS, an LEA with schools designated as in need of improvement at the initiation of the contract may participate but must provide indicators and measures as to how these schools in improvement will work toward first achieving and then maintaining and improving within the five-year contract period. Indicators and measures for schools in this situation shall focus on student-defined subgroups that will help propel the school into a status of not in need of improvement; and

WHEREAS, an LEA shall propose and negotiate with the Alabama Department of Education at least one (1) accountability measure for each school in the LEA that will participate in the flexibility contract, the number of accountability measures must be proportional to the amount of flexibility being requested, and greater numbers of accountability measures will be required as the request for flexibility increases. The Alabama Department of Education shall ensure that all accountability measures are appropriate to a school's academic and operational environment and that they are sufficiently rigorous. The LEA's contract must include at least one or more of the accountability measures listed below:

(i) High school graduation rates;
(ii) SAT or ACT performance;
(iii) State standardized test data;
(iv) Teacher and principal effectiveness data;
(v) Advanced Placement or International Baccalaureate participation and performance;
(vi) Other measures identified by the LEA and agreed upon in the contract by the State Board of Education; and

WHEREAS, all contract proposals received from an LEA and all contracts approved by the local board of education and submitted to the Alabama State Board of Education for approval must clearly, whether for one or all schools in the system, state the following:

(i) The minimum number of accountability measures for each school;
(ii) The specific rules, regulations and/or policies the LEA is seeking to waive as provided;
(iii) The specific consequences and sanctions for failure to meet the terms of the contract;
(iv) Any other provisions determined necessary to comply with federal and state laws, rules, regulations, guidelines, or guidance by the Alabama Department of Education; and

WHEREAS, the Alabama State Board of Education shall not be authorized to waive or approve variances on any federal, state, or local rules, regulations, court orders, and statutes relating to civil rights; insurance; the protection of the physical health and safety of school students, employees, and visitors; conflicting interest transactions; the prevention of unlawful conduct; any laws relating to unlawful conduct in or near a public school; or any reporting requirements. An LEA that has received a waiver or variance shall remain subject to the following provisions: the requirement that it shall not charge tuition or fees to its students and shall remain open to enrollment in the same manner as before the waiver request; and

WHEREAS, before the local board of education approves the complete local plan for formal submission to the Alabama State Board of Education, the LEA must:

(i) Submit a letter of intent to the Alabama Department of Education that shall be accompanied by a local board of education resolution supporting the LEA's intent to pursue such contract;
(ii) Notify the public regarding the LEA's intent to seek such a contract with the state at a regularly scheduled local board of education meeting before local-state negotiations begin; and

(iii) Schedule and hold a public hearing for the purpose of providing an opportunity for full discussion and public input on the strategic plan and proposed contract including formal, written comments, or suggestions regarding the LEA's flexibility requests and performance goals and their impact on each school. The public hearing shall be advertised in a local newspaper of general circulation which shall be the same newspaper in which other legal announcements of the local board of education are advertised; and

WHEREAS, public hearing notices shall be published on the LEA's Web site for at least five consecutive calendar days prior to a scheduled hearing. Additionally, public hearing notices shall be published in accordance with the state's Open Meetings law; and shall be held at a time convenient to the public; and

WHEREAS, the LEA's draft plan and the parts therein shall be made available to the general public. For those stakeholders that may not have access to the Internet, the LEA shall make copies available upon request in accordance with the state's Open Records law. If the plan or any parts of the plan are to be presented, discussed, or acted upon at a public hearing, the specific documents must be made available to the public at least five calendar days prior to the publicly announced meeting date; and

WHEREAS, annual state progress reports are required and must be presented to the LEA's local board of education at a regularly scheduled public meeting and published on the LEA's Web site for the duration of the contract. For those stakeholders that may not have access to the Internet, the LEA shall make copies available upon request in accordance with the state's Open Records law; and

WHEREAS, in the event the LEA chooses to amend the terms of an existing contract or seek additional flexibility, the LEA shall:

(i) Submit a letter of intent to the Alabama Department of Education that shall be accompanied by a local board of education resolution supporting the LEA's intent to amend the existing contract;
(ii) Schedule and hold a public hearing for the purpose of providing an opportunity for full discussion and public input on the strategic plan and proposed contract, including formal, written comments, or suggestions regarding the local board of education's flexibility requests and performance goals and their impact on each school. The public hearing shall be advertised in a local newspaper of general circulation which shall be the same newspaper in which other legal announcements of the local board of education are advertised; and shall be done in the same manner as the original plan; and

WHEREAS, acceptable performance targets for each accountability measure shall be negotiated between the LEA and the Alabama Department of Education and be based on the state's data as produced and verified by the Alabama Department of Education; and

WHEREAS, the Alabama Department of Education shall make a recommendation to the Alabama State Board of Education whether the proposed terms of the contract should be approved by the Alabama State Board of Education; and

WHEREAS, for a finalized contract to be in full effect, it must be approved by the both the local board of education and the Alabama State Board of Education; and

WHEREAS, the Alabama State Board of Education shall have final authority for the acceptance and approval of accountability measures, flexibility, and consequences; and

WHEREAS, the terms of the contract may be amended only if warranted due to unforeseen circumstances determined by the Alabama State Board of Education and upon approval of the Alabama State Board of Education and the local board of education; and

WHEREAS, as required, the Alabama State Department of Education shall:

(i) Monitor each LEA and its schools annually with regards to its progress toward meeting the intermediate and five-year performance goals in its contract;
(ii) Notify the LEA if it is not in compliance with those goals;
(iii) Present annual written progress reports to the Alabama State Board of Education for each Innovation School System contract:

NOW, THEREFORE, BE IT RESOLVED, That this resolution is to allow LEAs to request increased flexibility from certain state rules, regulations and/or policies in exchange for increased accountability and defined consequences through a contractual agreement with the State Board of Education; and

BE IT FURTHER RESOLVED, That the Alabama State Board of Education does hereby announce the creation of a process to identify, launch, and support Innovation School Systems and there shall be appointed a working committee of practitioners, representatives from business and industry, parents and other representative groups to advise the State Department of Education on the process.

Done this 27th day of May 2010

ALABAMA READING INITIATIVE

NATIONAL REPORT PRAISES TEACHERS AND ALABAMA READING INITIATIVE (*June 12, 2006)*

The Alabama Reading Initiative has successfully improved the teaching and learning of reading in the state, and a new report documents this success as a model for other states to follow. "Lessons and Recommendations from the Alabama Reading Initiative: Sustaining Focus on Secondary Reading" was produced by the American Institutes for Research (AIR) and funded by the Carnegie Corporation of New York. The report praised the efforts of middle and high school teachers for their steady commitment to student achievement. It pointed to teachers' creativity and resourcefulness in looking for strategies to improve reading levels for all students. This commitment is seen not only in English instructors; faculty members in all subjects are required to participate in ARI and expand their lessons to include ARI instructional practices.

The report found that ARI has positively impacted the achievement levels of secondary school students and made several recommendations based on its study of the ARI model. AIR found that the ARI's flexible approach towards professional development for secondary school teachers and its K-12 continuum of literacy development resource material are key elements for successful reading programs. State Superintendent Dr. Joe Morton commented that the report "validates Alabama as a national leader, if not the leader, of reading in the nation."

NEWS RELEASE – For Immediate Release
March 24, 2010

Contact: Communications
334-242-9950
comm@alsde.edu

ALABAMA READING ASSESSMENT SCORES HOLDING STRONG

Alabama's 8th Grade Reading scores improve significantly while 4th Grade Reading scores keep historic pace despite more difficult Reading standards

Montgomery, Ala. - In 2007, Alabama made an indelible footprint in National Assessment of Educational Progress (NAEP) history by making higher gains in 4th Grade Reading than any other state in the nation and in the history of NAEP's state-level Reading assessment. Now, the recently issued NAEP report indicates Alabama's 4th Grade readers are maintaining the gains previously made in Reading advancements and 8th Graders are continuing to improve. The 2009 NAEP report shows Alabama's eight-point gain in Grade 4 from 208 in 2005 to 216 in 2007 remains steady in spite of the changes made to the Reading assessment. *(March 24, 2010)*

Highlights of National Acclaim for Alabama Reading Initiative:

1999	***NEA*** invited ARI to contribute an article ("Transforming Research into Practice" to *Teaching and Change,* Winter, 1999)
2002	***Invited Participant,*** *"Back-to-School" press conference* at the White House featuring five states that had started implementing No Child Left Behind.
2002	***State Innovation Award***, presented to the state of Alabama by the Education Commission of the States for exemplary state policy related to literacy.
2002	Alabama was awarded one of the first three **Reading First Grants** in July, 2002, due in large part to the literacy foundation of Alabama Reading Initiative.
2002	Featured in the US Department of Education publication, ***The Achiever*** (November, 2002)
2004	***Model Staff Development Site,*** recognized by the NSDC and the NEA
2007	The **RMC Research Corporation** under contract with the U.S. Department of Education published a booklet entitled ***Alabama: How Reading First Helps a State Make the Grade.*** This booklet details how the Alabama Reading Initiative has set the stage for statewide reading reform. (*available on the alsde Website*)
2008	Assistant State Superintendent Sherrill W. Parris invited to speak at ***American Youth Policy Forum*** in Washington, D.C.
2009	***American Youth Policy Forum*** brings policymakers from five states to Alabama to learn from Alabama's adolescent literacy initiative.
2009	State Superintendent Joseph B. Morton invited to speak about ARI at the ***National Reading First Conference*** and at Indiana's statewide literacy conference.

- For ten years, **outside evaluators** have testified to the effectiveness of the Alabama Reading Initiative program in raising schools' student test scores. It has been a model for other states, including Massachusetts, Florida, Connecticut, and more recently Louisiana and South Carolina.

Throughout the decade, other states have modeled their literacy initiatives after the AlabamaReading Initiative. Those states include Florida, Massachusetts, Louisiana

ALABAMA MATH, SCIENCE, & TECHNOLOGY INITIATIVE

AMSTI has been recognized by many leading groups and organizations as an effective model for reform as indicated below:

- Hugh Downs: National Education Report-*"On the Edge"* – Leading Networks during Prime Time and on 355 PBS Stations
- *Fortune 500* CEO's chose AMSTI as one of only 35 official "Programs that Work" from across the nation
- American Museum of Natural History Summit/Goldman Sachs –*Science Generation: A National Imperative* – State model used to highlight how science reform can be addressed successfully
- National Governors Association – Effective model program
- The Smithsonian/National Academies of Science/National Science Resource Center – Model state initiative
- National Conference of State Legislatures – Leading model for reforming math and science education
- *Education Week* – Four articles highlighting the comprehensiveness and effectiveness of the initiative
- Great Britain – Highlighted in the *Teacher Training Resource Bank* "Ambitious and exciting initiative…substantial empirical data"
- AMSTI was also filmed for spotlighting on the ***National Education Report with Hugh Downs.*** The camera crew spent two days in the AMSTI-USA region, taping AMSTI in five schools and at the AMSTI site.
- AMSTI was identified as one of only "35 Programs that Work" (and the only math and science initiative) by Fortune 500 CEO's.
- In 2009, AMSTI was highlighted at the National Conference of State Legislators and at the National Science Resource Center at the Smithsonian/National Academies of Science.

AMSTI gets national recognition

Posted: Apr 30, 2010 10:39 AM CDT Updated: May 02, 2010 3:38 PM CDT

MONTGOMERY, AL (WBRC) - The Center for Excellence in Education has recognized the Alabama Math, Science and Technology Initiative(AMSTI) as an exemplary model of laboratory education in the United States.

At the National Lab Skills Symposium on April 9th, the honor was given to AMSTI.

AMSTI and five other programs were showcased as examples of the "best practices" in laboratory education programs out of 100 major programs. The CEE says they were looking for U.S. programs that included cost-effective, replicable, sustainable, assessed, virtual,

and/or hands-on laboratory models and integrated public/private partnerships, and had strategies for maximizing lab skills training.

"This prestigious recognition is a testimony that AMSTI is successfully teaching students to meet the new challenges of a math, science and technology-based world," said Dr. Joe Morton, State Superintendent of Education.

In 2008 AMSTI was honored by being highlighted as the only state initiative at *Science Generation: A National Imperative* summit held the American Museum of Natural History (AMNH) and addressing "What Works and Why." Speakers at the event looked like a "Who's Who" from academia, policy, and media. Speakers included Tom Brokaw and Frank Luntz of NBC, Former Speaker of the House Newt Gingrich, Ellen V. Futter, President, American Museum of Natural History, Tim Geithner, President, New York Federal Reserve, Dr. Michael Novacek, Senior Vice President and Provost of Science, AMNH, Dr. Vartan Gregorian, President, Carnegie Corporation of New York, Dr. Neil DeGrasse Tyson, American Museum of Natural History, Governor James B. Hunt, Chairman, James B. Hunt Jr. Institute for Educational Leadership and Policy, Miles O'Brien, Chief Technology and Environment Correspondent, CNN, Charles Phillips, President, Oracle, Nicholas Negroponte, Chairman Emeritus, MIT Media Lab; Founder and Chairman, One Laptop per Child, Dr. Robert D. Hormats, Vice Chairman, Goldman Sachs, and others. AMSTI also participatedn at the Baltimore Maryland conference *Success in Title I Schools: Lessons Learned from the National Math Panel.*

STATE OF ALABAMA
DEPARTMENT OF EDUCATION

Joseph B. Morton
State Superintendent
of Education

Alabama
State Board
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Joseph B. Morton
Secretary and
Executive Officer

NEWS RELEASE
April 15, 2010

Contact: Communication
334-242-9950
comm@alsde.edu

ALABAMA MATH, SCIENCE AND TECHNOLOGY INITIATIVE RECOGNIZED AS A TOP LABORATORY MODEL PROGRAM

Montgomery, Ala. – The Center for Excellence in Education (CEE), a national think tank, recently recognized the Alabama Math, Science and Technology Initiative (AMSTI) as a "an exemplary model of laboratory education" in the United States. AMSTI received the honor at the National Lab Skills Symposium in Washington D.C. on April 9.

"This prestigious recognition is a testimony that AMSTI is successfully teaching students to meet the new challenges of a math, science and technology-based world," said Dr. Joe Morton, State Superintendent of Education.

The CEE examined programs throughout the United States that included cost-effective, replicable, sustainable, assessed, virtual, and/or hands-on laboratory models and integrated public/private partnerships, and had strategies for maximizing lab skills training. AMSTI and five others in the nation were showcased at the National Lab Skills Symposium as examples of "best practices" in laboratory education programs. Over 100 major programs were reviewed before six were narrowed down for the award.

"It was an honor for Alabama to be recognized for leading the way in preparing students for the workforce in math and science," said Steve Ricks, AMSTI Director at the Alabama Department of Education. Through AMSTI and its high school science component, Alabama Science in Motion, Alabama students have access to some of the most state of the art science equipment available. The initiative also provides extensive professional development for teachers on how to best instruct students using such technology.

The Lab Skills Symposium was held to determine ways in which high school teachers throughout the U.S. can use best practices for the teaching of laboratory skills to students for success in STEM (Science, Technology, Engineering, and Math) careers. The Lab Skills Initiative will level the playing field for all students to successfully complete STEM studies with the requisite laboratory training in secondary schools. AMSTI's best practice guidelines will be used to help create the Lab Skills Initiative distributed by the CEE.

-more-

ALABAMA MATH, SCIENCE AND TECHNOLOGY INITIATIVE RECOGNIZED AS A TOP LABORATORY MODEL PROGRAM
April 15, 2010

The CEE strives to address the challenges of laboratory instruction and learning in the nation's science, technology, engineering and math (STEM) classrooms to assure a future talented and diverse U.S. workforce.

For more information on the event or the Center for Excellence in Education, please visit http://www.cee.org/. For information about AMSTI visit www.amsti.org.

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INTRODUCTION

For the first time in the history of American education, the U.S. Department of Education is awarding $4 billion in a one-time Race to the Top (RTT) competition among states to improve public education. RTT will provide millions of dollars to select states that have demonstrated educational improvement and have the determination and ability to establish a statewide public school system that would be a model for the nation. This is truly a once in a lifetime opportunity for a state to catapult itself into the lead of educational excellence. Alabama fits this description perfectly with the implementation and expansion of the Advanced Placement Training and Incentive Program (APTIP) and its foundation element Laying the Foundation (LTF), which prepares students in the K-12 pipeline to be prepared for success in rigorous high school math and science courses. Alabama has also taken some steps toward implementing a successful UTeach teacher preparation program.

The APTIP program is being successfully implemented through A+ College Ready in partnership with the National Math and Science Initiative (NMSI). A successful RTT application will serve as a catalyst for full statewide implementation of this innovative initiative focused on teacher preparation and remarkable gains in student achievement in math, science, computer science and engineering.

The RTT application includes a Competitive Preference Priority that will allow states to improve their competitive standing by enhancing science, technology, engineering, and mathematics (STEM) education. NMSI has scaled the successful APTIP to six states and has brought the UTeach STEM teacher preparation program to 15 universities. These components, along with the Alabama Math, Science, and Technology Initiative (AMSTI), Alabama Connecting Classrooms, Educators, and Students Statewide (ACCESS) and the First Choice Diploma Initiative provide a comprehensive and highly competitive STEM education strategy for the state.

ADVANCED PLACEMENT TRAINING AND INCENTIVE PROGRAM

The APTIP increases participation and performance of public high school students in rigorous college-level work in math, science, and English Advanced Placement (AP) exams, and expands access to college-level courses for traditionally under-represented students. This program is a comprehensive approach that increases teacher effectiveness and student achievement through content training, teacher and student support, vertical alignment of teachers, expanded open enrollment, and incentives.

The overall goals of these training and incentive programs are to:

- Increase the number of students taking AP tests;
- Increase the number of students passing AP tests; and
- Increase the number of students attending and graduating from college.

The APTIP is a faithful replication of the highly successful and nationally acclaimed AP Strategies Program originally implemented in the Dallas Independent School District and now in 67 Texas districts to date. This program produced dramatic annual increases in the number of students passing rigorous AP math, science and English exams, and the program has sustained those increases for over a decade. Further, results for African American and Hispanic students outstripped those of majority students, thereby closing the achievement gap at the most rigorous level.

In a state-wide Texas study by the National Center for Education Accountability, the success of high school students on AP exams correlated with much greater success in college. In other words, students who take and pass an AP exam are more likely to graduate from college than students who do not take an AP exam. For example, six-year college graduation rates rose from 15 percent for African-American and Hispanic students to 60 percent and higher if they scored a three or higher on at least one AP exam. In another demonstration of the importance of AP exams in increasing student achievement, students who had taken the AP Calculus exam ranked first in the world in advanced mathematics, regardless of their score on the AP Calculus exam, as compared to the otherwise below-average U.S. ranking on the international trends in International Math and Science Study (TIMSS).

Key Elements of Success for Scaling and Implementing the APTIP

1. **Open Enrollment for math, science and English AP courses** – It is critical to change the culture of the school from one of exclusivity with regard to who may take AP courses to an inclusive culture that encourages reluctant students to enroll in rigorous courses. Too often, students must prove their way into challenging courses, thereby limiting enrollment to just a few top students. This policy reinforces stereotypes about what AP students "look like." In most high schools, there are many more students who could succeed in math, science and English AP courses if encouraged to enroll and if given exceptional quality instruction and support. A strong culture of high expectations is critical to success as it demonstrates to students that adults believe they can achieve at the most demanding levels and are willing to help them do so.

2. **Teacher mentoring and vertical teaming** – Research in professional development shows that, to be effective, professional development must also include continuous support at the school level. Accordingly, each APTIP teacher is assigned a lead teacher who provides guidance, feedback, training, and other support to help the APTIP teacher reach his or her full potential and the full potential of the students. The lead teacher also guides a team of same-subject content teachers across vertical grade levels so the middle school instructors can learn how to prepare students for rigorous AP courses at the junior and senior grades. This creates a crucial and continuous pipeline of students who have received the requisite background that will allow them to succeed in AP math and science.

3. **High quality, content-focused teacher training** – Most of today's high school teachers do not have the level of content knowledge required to successfully teach a rigorous AP math or AP science course. It is critical that intensive training be provided to build this capacity. The College Board provides national quality control for this teacher preparation by approving professional development instructors who have demonstrated and met high standards of performance in teaching rigorous AP courses. Several consecutive summers of AP teacher training plus additional classes during the year provide teachers with deepened content knowledge and the pedagogy required to provide the highest quality instruction.

4. **Incentives for teacher and student performance** – Offering incentives for performance and extra pay for extra work sends a message to students and teachers that expansion of and success in rigorous AP courses are important. It realigns a cultural misconception that has long viewed AP as an exclusive program. Incentives also send the message that the goal is passing a

nationally recognized benchmark of performance rather than just obtaining a grade in a course. They set the stage for a continuous focus toward meeting a very high standard and getting recognition for that achievement. It also encourages teachers to consider taking the training necessary to teach more rigorous courses, because not only students, but teachers also take a risk when it comes to teaching more rigorous courses. Financial awards for adding extra work to their schedules effectively encourages them to take that risk.

Building the Pipeline – The Laying the Foundation Component

LTF is a component of APTIP that provides quality teacher training, rigorous classroom materials, and web-based resources to improve the quality of mathematics, science and English instruction at the middle school levels and 9th and 10th grade high school levels. LTF thus enhances APTIP by building a pipeline of students who have the preparation and skills necessary to succeed at the AP levels of those subjects.

LTF accomplishes its purpose primarily through providing intense professional development and support services to the existing teacher corps, thereby strengthening the instructional content knowledge and pedagogical skills. LTF provides math, science, and English teachers in grades 6-10 with the content knowledge, teaching strategies, vertically aligned materials, and assessments required to emulate the rigor of AP-level coursework in lower grades. Critical strands from AP calculus, statistics, chemistry, biology, physics, and English have been carefully analyzed to develop lessons, labs, tests, and teaching strategies that prepare students for what they will encounter in 11th and 12th grades. In alignment with a main tenant of the APTIP program that all students can succeed in rigorous academic environments, LTF exposes all students to more rigorous and engaging coursework in lower grades, which is critical to preparing them for and giving them confidence that they can master the higher-level work they will undertake in later grades and in college, especially in the STEM fields.

LTF programs are designed to work in any school system that is actively preparing students for college or higher education, is seeking to infuse rigor back into classrooms, and needs to grow AP capacity by training new teachers to prepare students in earlier grades.

Key LTF program elements include:

1. *Teacher Training* - Experienced classroom "master" teachers provide training for Pre-AP math, science, and English teachers in grades 6-10 through the LTF Pre-AP Teacher Training Program. The LTF Pre-AP training requires a three-year teacher commitment to complete four training days each year, for a total of 12 training days. Each LTF session trains up to 30 teachers per discipline or course.

2. *Administrator Orientation* - This training is specifically designed for district and campus level administrators who need to understand the LTF program and how it fits into the existing curriculum and professional development program. This training models the proper environment necessary for linking middle school Pre-AP to high school Pre-AP and AP classes.

3. *Materials* - The teachers' guides and bound materials provided at training sessions (which are also available both online and on CDs provided at training), are provided at no cost to the teachers or school districts. A variety of ancillary materials and resources for Pre-AP and AP teachers are also available from LTF.

4. *Measurement and Testing* - Online diagnostic test questions and actual student free-response samples and scoring guides are available to teachers enrolled in training. The LTF Post Test is a low-cost, low-stakes assessment offered to students in grades 6-10 that emulates the timed structure and rigor of an AP test. The unique Post Test measures student retention of complex concepts critical for taking and passing AP courses in higher grades. The Post Test can be administered by any teacher, regardless of previous LTF training.

5. *"Train the Trainer"* - LTF trainers are either LTF employees or contractors who have been approved and trained by LTF. After consulting with other training companies that have scaled similar operations, LTF adopted a "Train the Trainer" approach that includes a total of 17 days of intense training for teachers hoping to become certified LTF trainers. Teachers apply to attend a summer training institute where they receive instruction in LTF principles and teaching strategies and are then required to demonstrate lesson instruction. Teachers meeting LTF standards for knowledge, teaching and training skills, and professionalism are certified as LTF contractors and scheduled, as available, into teacher preparation sessions throughout the year. The "Train the Trainer" approach not only builds capacity but also creates pockets of excellence across any state or district. Once LTF certifies teachers as LTF trainers or "lead" instructors, those teachers are responsible for promoting standards for quality teacher training wherever they go. LTF monitors and audits these trainers by collecting surveys and regularly visiting training classes hosted by these teachers to observe. *In Alabama, each of the Lead Teachers selected by the Partner Districts and schools has committed to participating in this training and becoming LTF trainers. They in turn provide the LTF training for the participating middle and high schools in their District and oversee implementation of LTF in their content area through vertical team and feeder pattern work.*

6. *Mentoring* - LTF is developing a program effectiveness measurement system that will utilize mentoring, lesson modeling and classroom observation over the course of teachers' training commitments. Participating teachers will receive peer mentoring to ensure they feel comfortable implementing the knowledge and resources gained during training. They will also have opportunities to design original lessons and develop their own teaching portfolios in order to reinforce strategies and techniques communicated during training. LTF training allows teachers to truly put what they learn to use, and LTF is committed to supporting educators after they leave the training sessions.

The LTF component of APTIP addresses each of the four reform areas highlighted by the RTT Notice of Proposed Priorities. First, LTF increases student achievement standards by preparing teachers to instruct at a more rigorous level that will allow students to succeed at the internationally-benchmarked AP level. Second, the main purpose and mission of LTF is to fulfill the second reform area, that of recruiting, developing, retaining, and rewarding effective teachers and principals. LTF-trained teachers work across grades to align lessons and share knowledge, and they share their best practices with colleagues, whose students' scores consequently improve. Thus, LTF creates a positive impact both

vertically across grades, and horizontally through peer-level colleagues. Through training sessions and support services, LTF is increasing the number of highly-qualified teachers who can nurture students to reach their highest potentials. Further, by tracking and gathering data on these trained teachers, LTF also supports the reform area that requires states to build statewide longitudinal data systems. Access to these data through NMSI will assist any state in strengthening their information collection and analysis. Finally, the LTF/APTIP structure can play an integral role in turning around struggling schools by not only providing teachers with enhanced professional development, but also by strengthening the instruction that students receive from middle through high school. These components of APTIP create highly qualified teachers who can then help students realize that they can succeed at higher standards. With increased teacher effectiveness and student confidence, a school can begin to reform or strengthen its existing efforts.

APTIP Program Implementation

The NMSI is currently replicating APTIP in six states: Alabama, Arkansas, Connecticut, Kentucky, Massachusetts, and Virginia. NMSI state affiliates achieved extraordinary results in their partnerships with 67 public high schools in 49 local school districts. In collaboration with our state partners, NMSI trained 478 AP teachers in curriculum development, pedagogy, and content in the following subjects: biology, environmental science, physics, chemistry, computer science, calculus, English language, English literature, and statistics.

Results from the first full year of replication across six states are nothing short of impressive. These strong results demonstrate, not only that the program is effective, but that this new, rigorous, and methodical method of replication management can thrive. By identifying the elements of success that must be in place to realize gains in student achievement and by establishing milestones for their implementation, NMSI has demonstrated that the dramatic results of a pilot program can be successfully scaled to wide range of states, communities, and schools. The charts below illustrate the program's overall achievements in the first year of operation.

APTIP's Proven Success In Texas

The APTIP model has 14 years of proven success in its original schools. Since then, APTIP has been expanded to 40 additional schools in Texas.

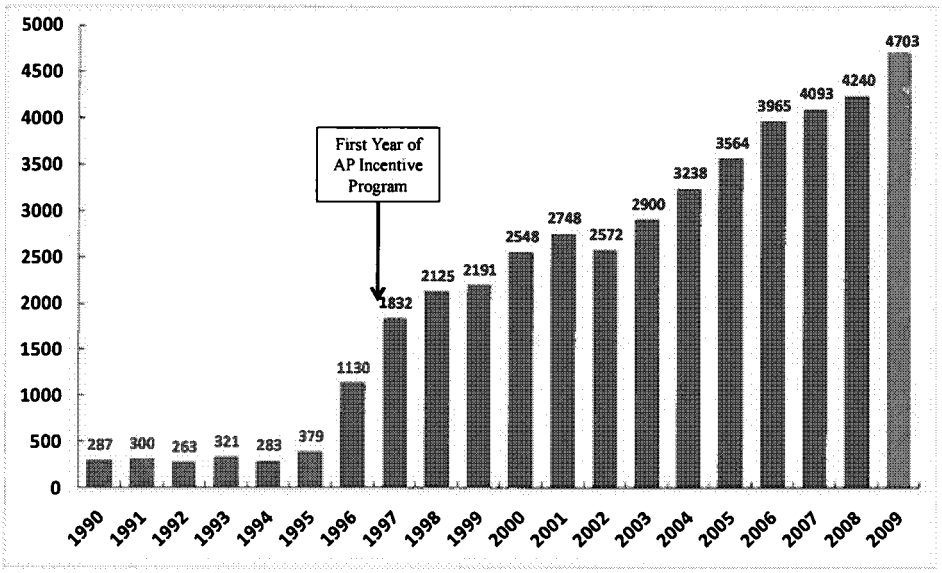
ADVANCED PLACEMENT STRATEGIES, INC.

AP Exams Taken

Math, Science, and English

in 10 Dallas ISD Incentive Schools

2009 Results are Preliminary



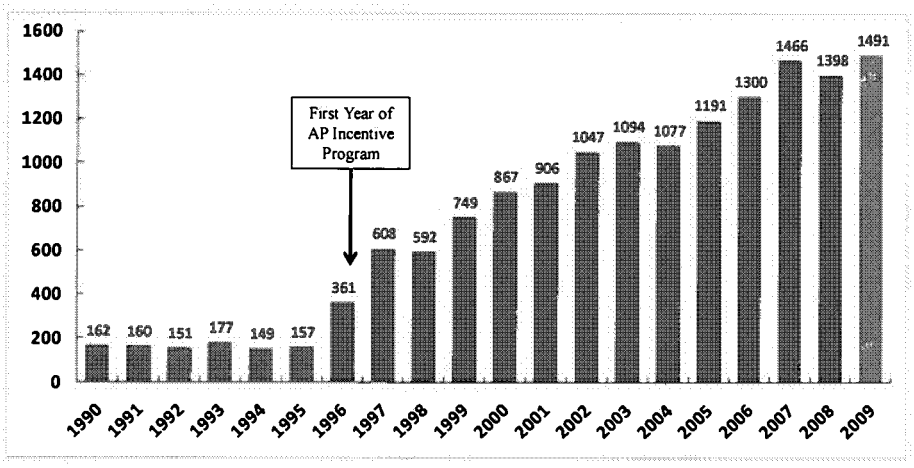
Source: The College Board

1

ADVANCED PLACEMENT STRATEGIES, INC.

AP Exams Passed

Math, Science, and English
in 10 Dallas ISD Incentive Schools
2009 Results are Preliminary

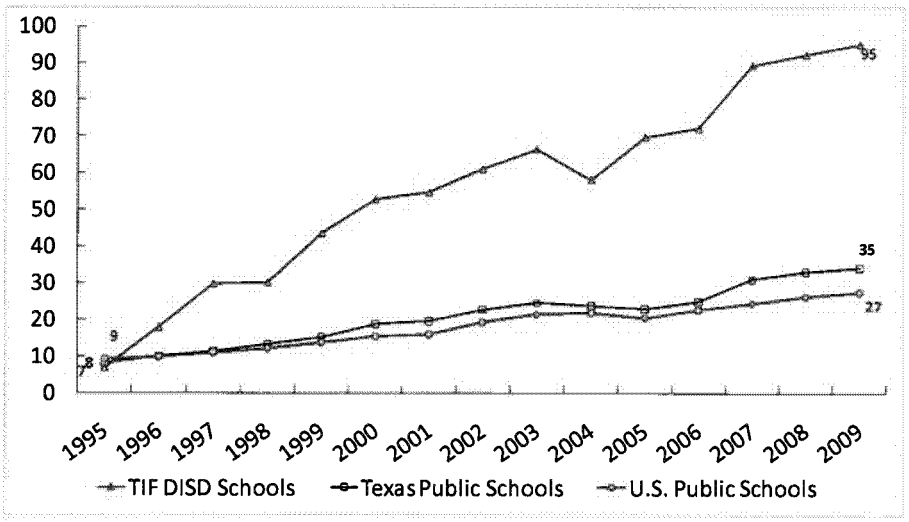


Source: The College Board

2

AP Exams Passed

per 1000 Jrs & Srs in Math, Science, and English
African Americans and Hispanics
in 10 Dallas ISD Schools, Texas, and U.S.
2009 Results are Preliminary



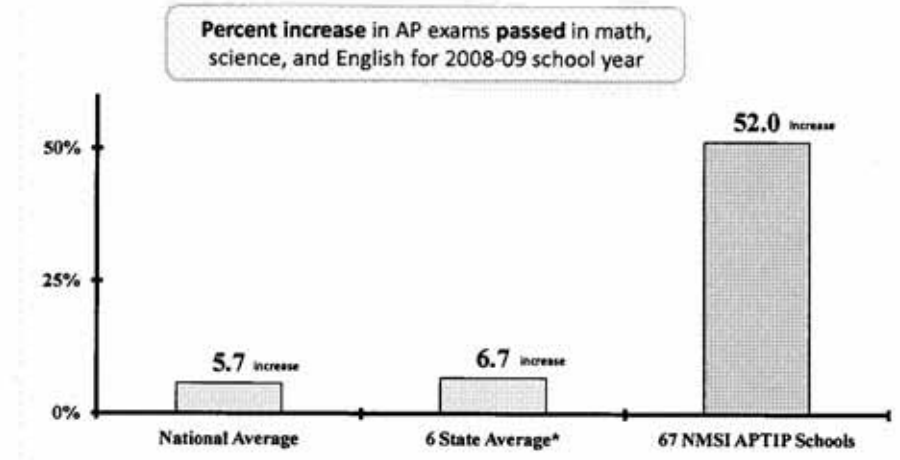
Source: The College Board, Texas Education Agency, U.S. Department of Education (2007 for U.S. enrollment is estimated)

5

First Year Results in Six States*

(b)(6)

Student performance in NMSI program schools demonstrates the untapped student potential across NMSI program states.

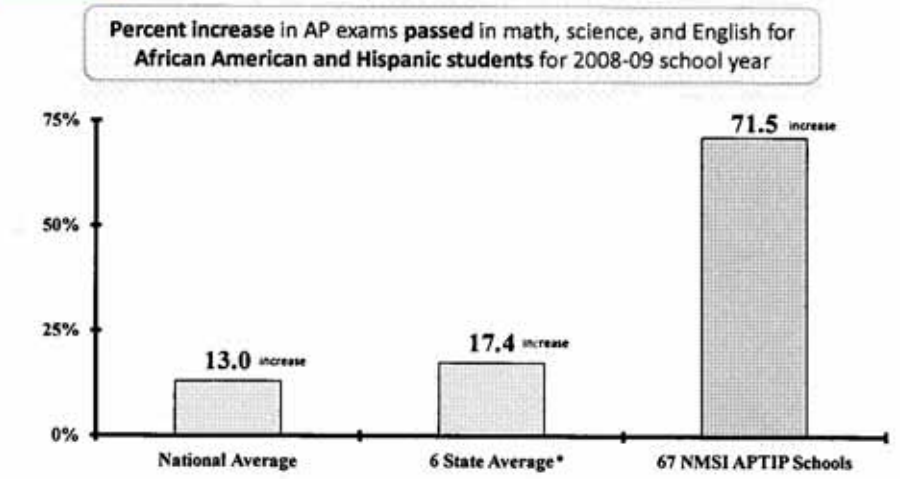


Source: College Board. National average is for public schools only.
*NMSI is funding replication of the APTIP program in 6 states: AL, AR, CT, KY, MA, and VA.

*Including 12 pilot schools in Alabama

(b)(6)

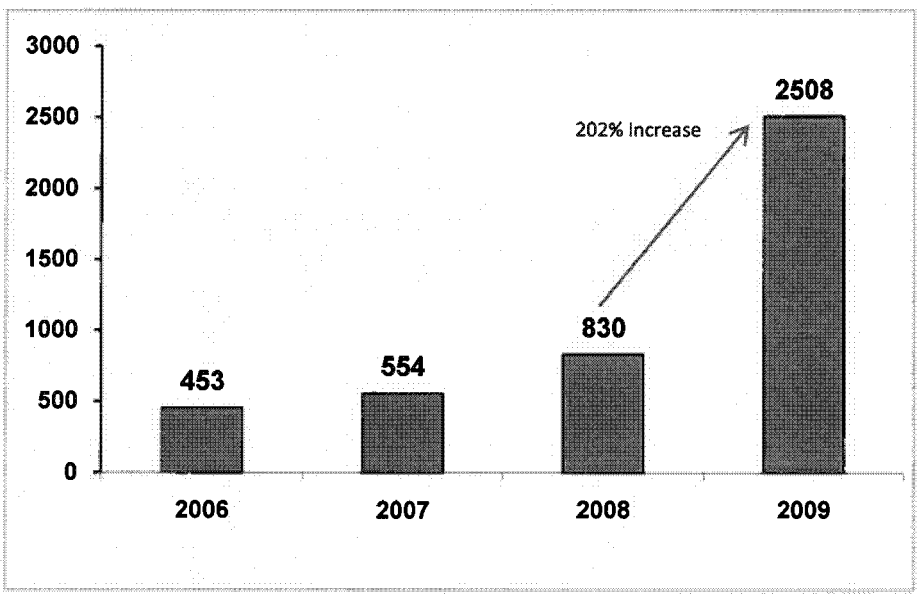
APTIP is closing the achievement gap in math and science for African American and Hispanic students.



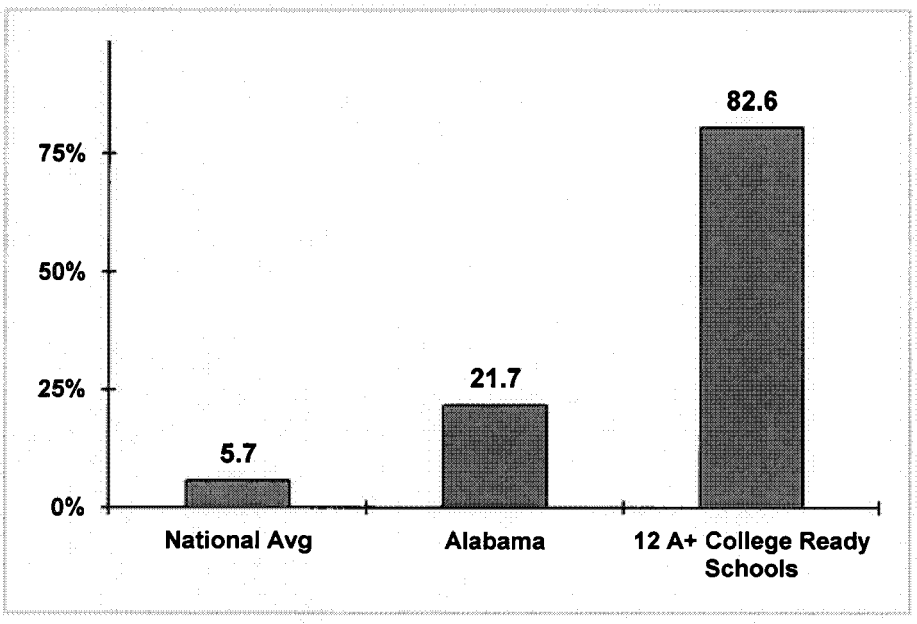
Source: College Board. National average is for public schools only.
*NMSI is funding replication of the APTIP program in 6 states: AL, AR, CT, KY, MA, and VA.

First year Results in Alabama

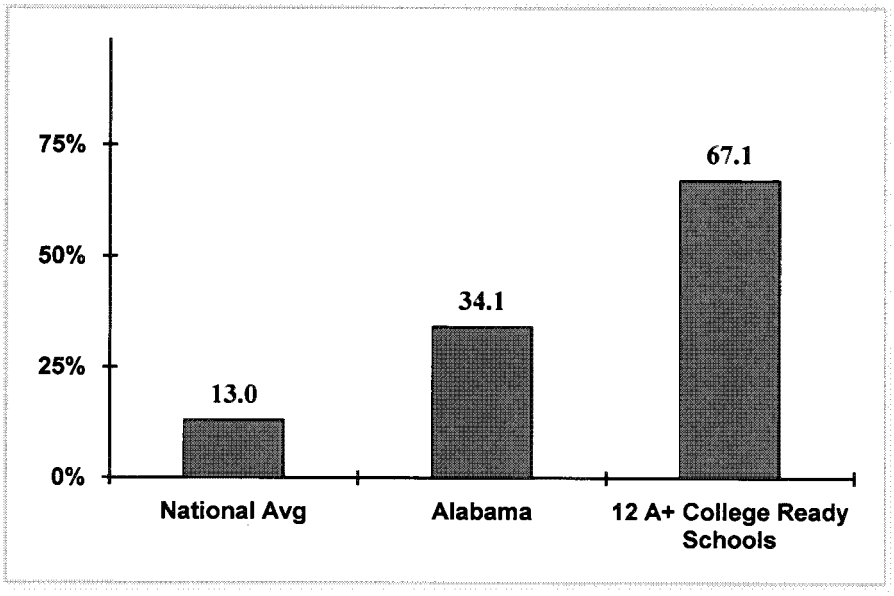
AP Exams Taken in Math, Science, and English in 12 A+ College Ready Schools



Percent Increase in AP Exams Passed in Math, Science, and English



Percent Increase in AP Exams Passed
By African American and Hispanic Students



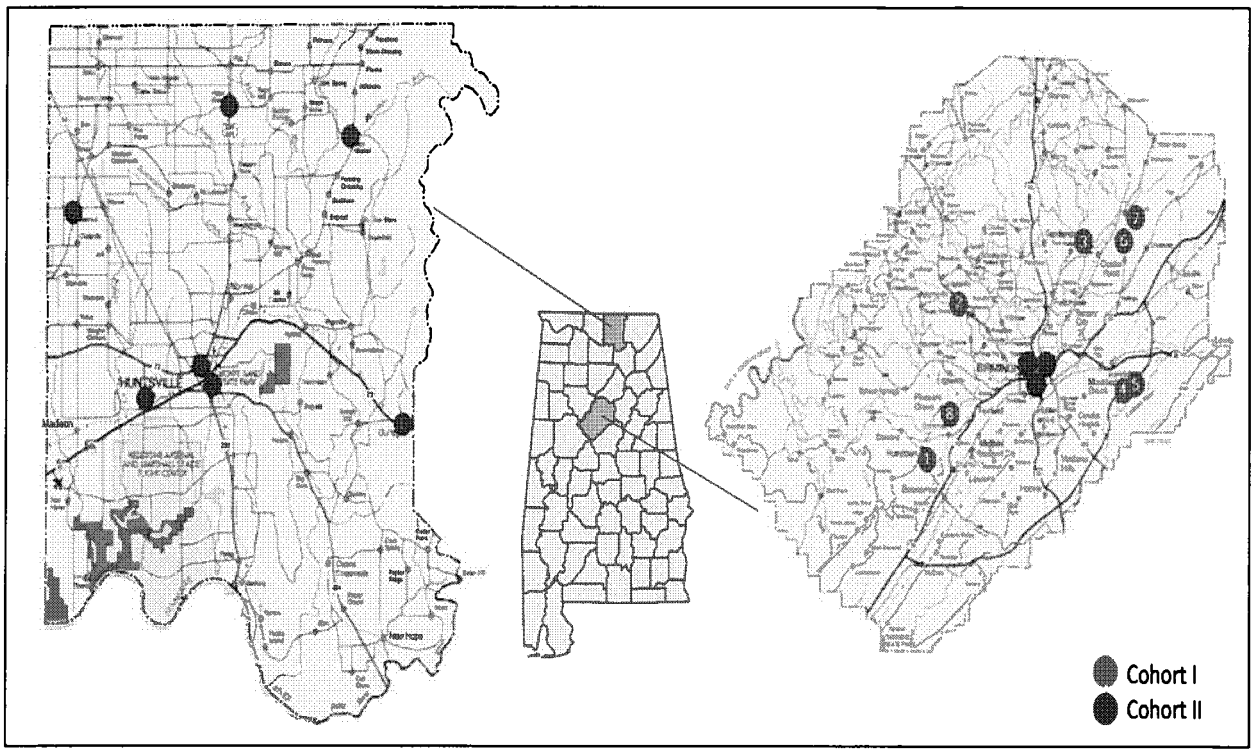
In Alabama's first year of implementing the APTIP, its partner schools increased the number of students taking AP tests by 202%. The number of students passing the tests increased by 83%; for the nation as a whole, there was only a 5.7% increase. The state has also made much progress supporting AP participation and success among African American and Hispanic students, with a 67% increase in passing among this group; the national increase was only 13%.

Clearly, Alabama has seen significant increase in AP success because it started out behind the national average. But the state has demonstrated its will to succeed by making more progress in participation and scores than *any other state in the nation* over this one-year period.

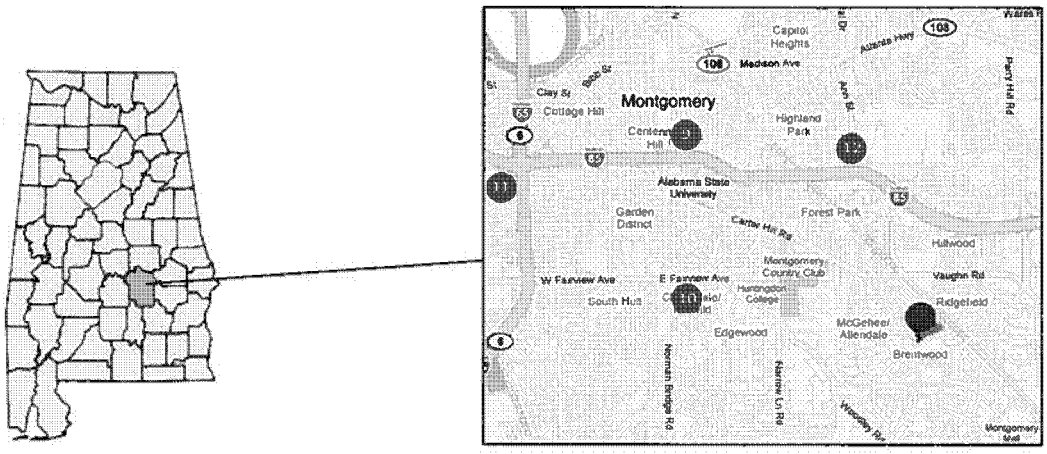
The twelve schools in Cohort 1 have been joined by 11 more schools in the 2009-2010 school year.

- Jefferson County: Clay-Chalkville High School, Gardendale High School, Shades Valley High School, Hueytown High School, Minor High School, Jefferson County International Baccalaureate High School, Pinson Valley High School, Pleasant Grove High School
- Montgomery County: Brewbaker Technology Magnet High School, Lee High School, Loveless Academic Magnet Program High School, Booker T. Washington Magnet High School, Jefferson Davis High School
- Birmingham City: Huffman High School, Ramsay High School , Wenonah High School
- Huntsville City: Huntsville High School, Columbia High School, Lee High School
- Madison County: Sparkman High School, Buckhorn High School, Hazel Green High School. Madison County High School

Madison County / Huntsville City and Jefferson County / Birmingham City Program Schools



Montgomery County Program Schools



Additionally, 3 schools are currently participating in LTF only, in order to build capacity to become full APTIP program schools.

- Madison County: New Hope High School
- Huntsville City: J.O. Johnson High School, Butler High School

Finally, in early 2010 an additional 20 high schools will be selected to become APTIP Program Schools in Cohort 111 with a scale up to 80 program high schools by the 2012-2013 school year.

A+ College Ready has a wide range of public- and private-sector partnerships in the state.

- State Partners: Governor Bob Riley, the Alabama Department of Education, Alabama Mathematics, Science, and Technology Education Coalition (AMSTEC), Alabama Connecting Classrooms, Educators and Students Statewide (ACCESS), Alabama Reading Initiative (ARI), Alabama Math, Science and Technology Initiative (AMSTI), State Advanced Placement Initiative & Federal AP Fee Replacement Program
- University Partners: Auburn University, Huntingdon College, University of Alabama, University of Alabama at Birmingham main.uab.edu/
- Private Sector Partners: The Alabama Power Foundation, Regions Bank, Boeing Corporation, Exxon Mobil and many others

Impressed with the first-year gains in AP participation and success, the Alabama Department of Education recently agreed to a unique partnership with A+ College Ready whereby the state's Advanced Placement budget of about $1.4 Million per year will be managed jointly by the State and A+ College Ready which brings NMSI grant funds to the table. While this grant partnership with NMSI is set to expire in 2013, the rapid expansion of A+ College Ready's role in Alabama's education agenda demands sustained support after the grant period ends. RTT funding would allow this unique, successful, and innovative partnership to continue.

THE UTEACH PROGRAM MODEL

The UTeach Program was initiated at The University of Texas at Austin in 1997 by the Dean of the College of Natural Sciences, Dr. Mary Ann Rankin, in response to the realization that the University's current system was not inspiring a significant number of mathematics and science students to teach. Dean Rankin convened a group of outstanding high school teachers and administrators, who essentially started with a blank slate to design the "dream teacher-preparation program." New cross-disciplinary partnerships with the College of Education and the College of Liberal Arts were created. Motivated professors from all three colleges worked to completely reengineer and streamline the mathematics and science teacher-preparation curriculum. This collaboration and dedication formulated challenging goals and produced systemic change that has led to dramatic results.

Before the UTeach program was created, students who wanted to be certified as mathematics or science teachers had to meet uncoordinated requirements in the Colleges of Natural Sciences and Education. Many waited until after completing their degrees to begin courses required for certification, typically amounting to a 5-year endeavor. Under UTeach, because the curriculum is integrated and streamlined, it is possible for a student to obtain a teaching certificate and graduate in four years. The first introductory course began with 28 students in the fall of 1997, and by 2003 the number of students obtaining secondary certification in mathematics and science had doubled. Thus, UTeach shattered the myth that mathematics and science majors have no interest in becoming teachers.

Program Design

An essential feature of the UTeach program is the active recruitment of entering freshmen who have declared an interest in mathematics or science. The first two introductory UTeach courses, Step I and Step II, are offered free of charge. In these courses, students get immediate field experience in elementary and middle school classrooms to inspire a genuinely self-informed pursuit of teaching science or mathematics. Students who continue with UTeach learn to teach effectively using a variety of instructional strategies and extensive field experiences that develop classroom management and critical thinking skills. Students are exposed to the latest research on learning and effective methods of teaching to students with different kinds of learning skills. UTeach students receive personal attention and guidance from highly experienced and successful master public school teachers who are part of the UTeach faculty.

The philosophy underlying the design of the UTeach instructional program is that by combining extensive individualized coaching, frequent teaching opportunities, and relevant pedagogy, students' knowledge and skills can be developed at an accelerated rate. This approach translates into a streamlined, field-intensive education curriculum that is integrated with and reinforces a strong math or science major and does not require additional university time and expense.

Because the UTeach-specific curriculum is streamlined, it is also possible for students to enter the program as more advanced students and, in most cases, still graduate on time. For example, a mathematics junior who decides to explore teaching is able to take advantage of degree plan options that allow flexible entry into the program with suggested paths for completing the required UTeach coursework and apprentice teaching in the minimum amount of time. This is especially important to students who have limited financial resources. In addition, several financial support options are available, including scholarships and paid internships at schools, museums, and other education-related organizations.

Hallmarks of the UTeach Program

- Collaboration between the Colleges of Natural Sciences, Education, and Liberal Arts.
- Active recruitment of science and mathematics majors to take the two initial, one-hour UTeach courses free of charge.
- Early and intensive field experiences throughout the program.
- Compact degree plans that allow most students to graduate with a degree and certification in four years.
- A focus on developing a deep understanding of the subject material and incorporating effective approaches using technology in teaching.
- Guidance and inspiration provided by faculty and highly experienced public school teachers who serve as master teachers in the program.
- Courses taught by faculty who are actively engaged in research in mathematics and science and in the teaching and learning of mathematics and science.
- Integrated professional development courses that focus on teaching both mathematics and science and are based on recent research in science and mathematics teaching and learning.

Advantages of Adopting the UTeach model as the primary method for Training STEM Teachers

The RTT competition provides states with a unique opportunity to implement a proven state model for replicating the success of the nationally recognized UTeach STEM teacher preparation program.

- UTeach is an established and successful program that is being replicated at universities across the country. Preliminary results show that the model translates well to other institutions and has the potential to significantly increase the number of science and math teachers.

- UTeach replication is affordable—approximately $2.2 million dollars of RTT funding provides a university with five years of funding to launch a UTeach program and comprehensive support and evaluation services from the UTeach Institute. (Note: Total program implementation costs are greater because UTeach replication requires matching university funds)
- State partnerships with the (NMSI) and the UTeach Institute ensure significant and sustainable reform. Both organizations have proven experience providing fiscal accountability, implementation, and evaluation support through well-established tools and services.
- Universities implementing the UTeach model benefit from the experiences of a growing national network of existing replication programs all engaged in strengthening STEM initiatives (13 currently; adding 4-8 in the fall of 2009).
- The timeline for implementing UTeach with RTT funds includes a statewide competition for UTeach grants followed by closely supervised program implementation. The UTeach Institute has created an implementation schedule that allows for the UTeach program to be fully adopted by universities, resulting in institutional change and measureable impact, in five years.

As partners, the UTeach Institute and NMSI have created a comprehensive approach to replicating the UTeach STEM teacher preparation program in universities across the nation. NMSI and the Institute complement one another so that together, they provide comprehensive oversight and support to the university partners. The Institute provides implementation support and program evaluation while NMSI provides fiscal management and accountability.

The UTeach Institute Services

To promote program fidelity and long-term sustainability, the UTeach Institute has developed a comprehensive approach in line with research on program replication and expansion.[1] The approach emphasizes clear articulation of program elements, comprehensive planning with qualified sites; intensive implementation support; and ongoing progress evaluation.

Once a site has been selected for UTeach Replication, the UTeach Institute provides program content, implementation support and evaluation services to institutions implementing the UTeach model. Through its well-defined approach to replication, well-developed products and services, and experience successfully supporting the 13 universities currently implementing the UTeach program, the Institute is properly positioned to guide immediate adoption of the UTeach program at universities funded with RTT grants while ensuring fidelity to the UTeach model and reforms. The Institute provides each university partner with a site coordinator who is a personal contact for support from day one. The Institute also supplies partner universities with immediate access to a wealth of resources to guide implementation of the UTeach program, including a comprehensive UTeach Operations Manual (including a five-year implementation plan) and the complete UTeach curriculum and course resources. The Institute's evaluation plan provides university partners with immediate and current programmatic data, which they can use to continuously improve their UTeach program. Program faculty and staff have direct access to

[1] Glennan, T. K. Jr., Bodilly, S. J., Galegher, Kerr, K. A. (2004). *Expanding the Reach of Education Reforms: Perspectives from Leaders in the Scale-Up of Educational Interventions*. Santa Monica, CA: Rand Corporation.

their program's student demographics, enrollment, retention, number of graduates, and retention of teachers in the field. By gathering and analyzing data based on the progress and outcomes at each university partner, the Institute provides those universities with a crucial tool that allows them to regularly gauge their own progress, identify any implementation difficulties, and improve their UTeach program. The Institute regularly prepares individual progress reports as well as cross-site analyses to (1) assist with identifying local program technical assistance needs, (2) document implementation progress, and (3) identify trends related to program implementation across all universities. These reports are used by NMSI to assess progress on established benchmarks in order to trigger future funding.

Additionally, the Institute provides the following operational and instructional support services: (1) online and face-to-face support events, beginning with a program launch meeting; (2) program design and start-up consultation; (3) Web-based data collection and reporting; (4) on-site consultation and data collection through multi-day, regularly scheduled site-visits; and (5) centralized support for community-building and professional networking among master teachers, co-directors, faculty, and students at replication sites across the country. These resources and services all contribute to advancing the Institute's mission of supporting replication of the highly successful UTeach teacher preparation program at other universities and to lead efforts toward continuous improvement of the program model.

The National Math and Science Initiative Services

NMSI provides government relations, fiscal oversight, public relations and other strategic support services to sustain UTeach program replication for the long-term and to advance the broad-based teacher preparation reform efforts of our partners. NMSI provides a fiscal and data management system to ensure effective implementation and faithful replication of the UTeach programs it scales. The fiscal management system is keyed to performance benchmarks that are determined by the Institute and that guide the partner universities' implementation progress. The data reporting system provides frequent, real-time feedback to program participants, partners, funders and third parties (such as policy makers or local governments). This system is essential for assistance in successful implementation and for performance accountability. Partner universities are required to reach pre-determined benchmarks in order to receive each distribution of funds.

NMSI's web-based financial data management system provides real-time monitoring and reporting at both the individual university program level as well as across all universities. At the individual program level, immediate feedback is available to help guide planning and implementation decisions. From a management standpoint, technical assistance is immediately deployed when problems are detected. Perhaps most useful, however, is the potential to perform fiscal analyses across all replication sites to identify trends and generate statistics on teacher preparation programs across the country.

Statewide Competition for UTeach Replication Grants

In the first year of the RTT grant (2010-2011), states will partner with the UTeach Institute and NMSI to plan and release a statewide competitive Request for Proposals (RFP) for UTeach replication grants. To begin with, the Institute and NMSI will facilitate planning meetings with state officials to prepare for and customize the RFP and its release in the state. To ensure a strong response to the RFP, the Institute and NMSI will help state officials build awareness and promote the UTeach STEM teacher preparation

program to universities throughout the state. This may include workshops on the UTeach program, UTeach replication, and the RFP process. Finally, the Institute and NMSI will provide support to universities as they engage in the proposal development process including weekly conference calls and email/phone technical assistance.

Promoting long-term sustainability of the UTeach program begins with the process of selecting replication sites. Universities interested in adopting the UTeach model must engage in an intensive RFP process to compete for grants to implement the program locally. Prospective sites begin by submitting profiles of their universities. The Institute carefully weighs the environment and capabilities of each applicant against the conditions necessary for successful implementation of the UTeach model. These conditions include the number of STEM majors, qualifications of the faculty and staff who will operate the program, strength of the institution's relationships with local school districts, and institutional support for the program at all levels. Universities subsequently invited to prepare full proposals must engage in a substantial amount of cross-college discussion and preparation, with input from administrators, faculty, and staff.

The Institute places a high priority on the development of long-term funding capacity for each local program. Replication sites are required to adopt a funding model where grant funds decrease as a percentage of the total program budget each year, allowing time for the program to become sustained. Thus, proposals must demonstrate commitment and ability on the part of university administration to integrate the program as part of the university's instructional budget and also to create a perpetual income resource such as an endowment. Through this careful proposal development and planning process, the Institute and the prospective replication sites begin cultivating the necessary conditions for success.

Following the recommendations of the UTeach Institute, Alabama has begun paving the way for qualified universities to become UTeach partners. A+ College Ready has been in contact with a number of universities that appear to meet the necessary criteria and they have expressed interest in submitting an RFP to the UTeach Institute so that preliminary capacity-building can take place before an RFP's release. The University of Alabama system consists of several interested university candidates and about 75% of the students matriculating at them are from in-state so capacity would be built for a stronger math/science trained teacher work force in Alabama

THE NMSI CONNECTION

By expanding the APTIP and establishing at least one UTeach University, Alabama will provide access to a unique collaboration and management structure to expand its reach beyond what its resources might otherwise permit. This public-private partnership allows state and federal support to generate significant and sustainable reform: encouraging a new method that is based on proven success of preparing exceptional teachers, increasing student achievement, and closing the achievement gap.

In addition to cost-effectiveness, NMSI brings the unique and significant advantage of documented experience in providing both accountability and implementation expertise through well-established tools and services. NMSI's web-based financial data management system provides real-time monitoring and reporting at both the individual program level as well as across all schools and school districts implementing APTIP and across all universities implementing UTeach. At the individual program level,

immediate feedback is available to help guide planning and implementation decisions. From a management standpoint, technical assistance is immediately deployed when problems are detected. Perhaps most useful, however, is the potential to perform analyses across all replication sites to identify trends and generate statistics on teacher training and student achievement across the country.

NMSI's financial data monitoring works hand-in-hand with its program evaluation and ongoing program implementation data collection and analyses. NMSI prepares regular individual progress reports as well as cross-site analyses to: (1) assist with identifying local program technical assistance needs; (2) document implementation progress; and (3) identify trends related to program implementation both between states and within states, and across school districts. Our experience and expertise ensures successful program implementation, accountability for results and fiscal responsibility.

Finally, NMSI and Alabama will enhance collaboration with and connection to the other six states that are also successfully implementing the APTIP program and with the strong cohort of 15 universities implementing the UTeach program. Because NMSI serves as the managing partner and key implementation supporter for all of these endeavors, NMSI is in the unique position to bring large groups of education reformers and practitioners together. For example, NMSI works with the UTeach Institute and the University of Texas at Austin each year to coordinate a conference between all of the universities that implement the UTeach program and a large cadre of universities and groups active in the STEM reform movement. This conference provides all attendees with a chance to learn from each other, support each others' education endeavors, and participate in a larger community that makes educational improvement its first priority.

NMSI also organizes regular meetings for the Presidents of the non-profit groups who implement the APTIP program in each state. These conferences allow each state to share best practices, to advise each other on suggested solutions to any obstacles, and to support each other as they carry on their programs. In addition to these formal gatherings, NMSI also provides opportunities for each implementer to share information via frequent (sometimes weekly) conference calls and webinars. Because of the expansive network of participants who can provide near-constant feedback and support, NMSI can and will generate immediate, positive impact for Alabama in a manner that includes national collaboration.

Finally, NMSI is active in the national STEM movement, networking and collaborating with the College Board, corporations, philanthropic foundations, business associations, education associations, and not for profits making a difference in STEM education. NMSI will help Alabama immediately join hands with others to add coordination and synergy to meeting the national STEM challenge.

AN APPLICATION FOR RACE TO THE TOP FUNDS TO STRENGTHEN 160 MIDDLE SCHOOLS IN THE FEEDER PATTERNS OF ALABAMA'S 80 ADVANCED PLACEMENT TRAINING AND INCENTIVE PROGRAM HIGH SCHOOLS

Alabama in partnership with A+ College Ready and the National Math and Science Initiative (NMSI) has made remarkable strides through its Advanced Placement Teacher Training and Incentive Program (APTIP) and plans to expand the program to 80 high schools throughout the state with Race to the Top or other funds. This companion application seeks funding to replicate many aspects of this successful program in the middle school feeder patterns of the APTIP Program High schools. The result will be almost 250 schools that are engaged in building a pipeline of measurably better prepared, successful students in the STEM disciplines.

One of the first partners A+ College Ready brought into the APTIP initiative was Laying the Foundation, a 501-c -3 corporation, that provides key components critical to our success - quality teacher training, rigorous classroom materials, and web-based resources to improve the quality of mathematics, science and English instruction at the middle school levels and 9th and 10th grade high school levels. LTF significantly enhances the APTIP by building a pipeline of students who have the preparation and skills necessary to succeed at the AP level.

LTF training strengthens teacher content knowledge and teaching strategies in math science and English, and offers vertically aligned materials, and assessments required to emulate the rigor of AP-level coursework in lower grades. Critical strands from AP calculus, statistics, chemistry, biology, physics, and English have been carefully analyzed to develop lessons, labs, tests, and teaching strategies that prepare students in grades 6-10 for what they will encounter in 11th and 12th grades. The grant Alabama received from the National Math and Science Initiative provides funding for LTF training for Pre-AP high school teachers only. And, our high school Pre AP and AP teacher training is more comprehensive and effective by the inclusion of other key program components funded by NMSI: a managed program with rigorous achievement goals; lead teacher support; incentives for teachers and administrators based on results; vertical team meetings aimed at curriculum alignment; classroom material and equipment purchases; and much more.

Unfortunately, NMSI funding has not covered the cost of LTF training for Pre AP middle school teachers nor are there NMSI funds for the other key program components listed above for the feeder middle schools. To address this deficit, each one of our partner districts has placed such value on the Laying the Foundation training and resources for their 6th -8th grade middle school teachers that they have actively secured funds for its implementation from their Local Education Foundations, their own professional development funds, or local community supporters. It is widely understood at the District and State level, that through this excellent teacher training and resource program, middle grade students will be exposed to more rigorous and engaging coursework which is critical to preparing them for and giving them the confidence needed to master the higher-level work they will encounter in AP courses and college.

LTF is an excellent and comprehensive teacher training program designed to improve the effectiveness of the teacher corps, raise the level of instructional rigor, and increase the number of students prepared for the rigor of Advanced Placement Courses and success on AP Exams. Teachers and students in Alabama have benefited from the training and resources provided through Laying the Foundation. However, any training and resource program is only effective if completely embraced and fully implemented by teachers - and deeply supported by school and district administrators.

We seek Race to the Top Funds for this purpose. As a first step, we will bring Laying the Foundation training and resources to every middle school that feeds the 80 Program High Schools. Those LTF resources are described in great detail in the pages that follow. But it is equally important that we implement the comprehensive set of program components that have been critical to the sustained success of Alabama's AP Training and Incentive Program. In fact these are the same program components that lead to the sustained AP and pre-AP student success Texas has seen over the last 18 years - inspiring NMSI to fund it replication in 6 states.

If the following program components are implemented comprehensively in the APTIP feeder middle schools, Alabama will see systemic and sustained measurable changes in approximately 250 schools over the next five years.

- Comprehensive LTF Training for 12 full days over 3 years for all 6-8 grade Pre AP teachers in the middle schools that feed the 80 APTIP Program High schools.

- Lead Teachers in the three content areas of math science and English who would be subject matter experts in LTF, provide training and support for

other Pre-AP teachers in their discipline, analyze teacher and student data and provide feedback to district and school administrators.

- Administrator Training for the Principal and a Guidance Counselor of each feeder middle school on the LTF Program, Data analysis and Vertical Team strategies with the expectation that they develop and support Pre- AP Course guidelines and assessments

- Established Benchmarks for success based on student achievement gains. A Threshold Bonus for each Middle school based on full program implementation, meeting Pre-AP student enrollment and achievement goals and teacher participation in training and vertical teams.

- Threshold Bonuses for Pre AP teachers based on student results that incent them to incorporate the more rigorous LTF lessons into their Pre-AP classrooms

- Outside analysis of standardized achievement tests, LTF diagnostics and End of Course tests to measure student achievement gains and program success

- Vertical teams of middle and high school teachers by MSE content area - led by Lead Teachers in partnership with their counterparts at the Program High school.

- Classroom materials equipment and technology for Pre AP classrooms in grades 6-8.

A per school budget of approximately $25,000 per year for 3 years is needed to implement this plan in all feeder middle schools of the APTIP Program schools. A program description and a budget breakdown that will serve as a signed letter of commitment from the school and the District are attached. Based on the assumption that each of the 80 program High schools has an average of 2 feeder middle schools, the total Race to the Top funds needed for 160 Middle schools is $12,000,000.

A comprehensive Description of Laying the Foundation

BUILDING ACADEMIC EXCELLENCE IN MIDDLE SCHOOLS

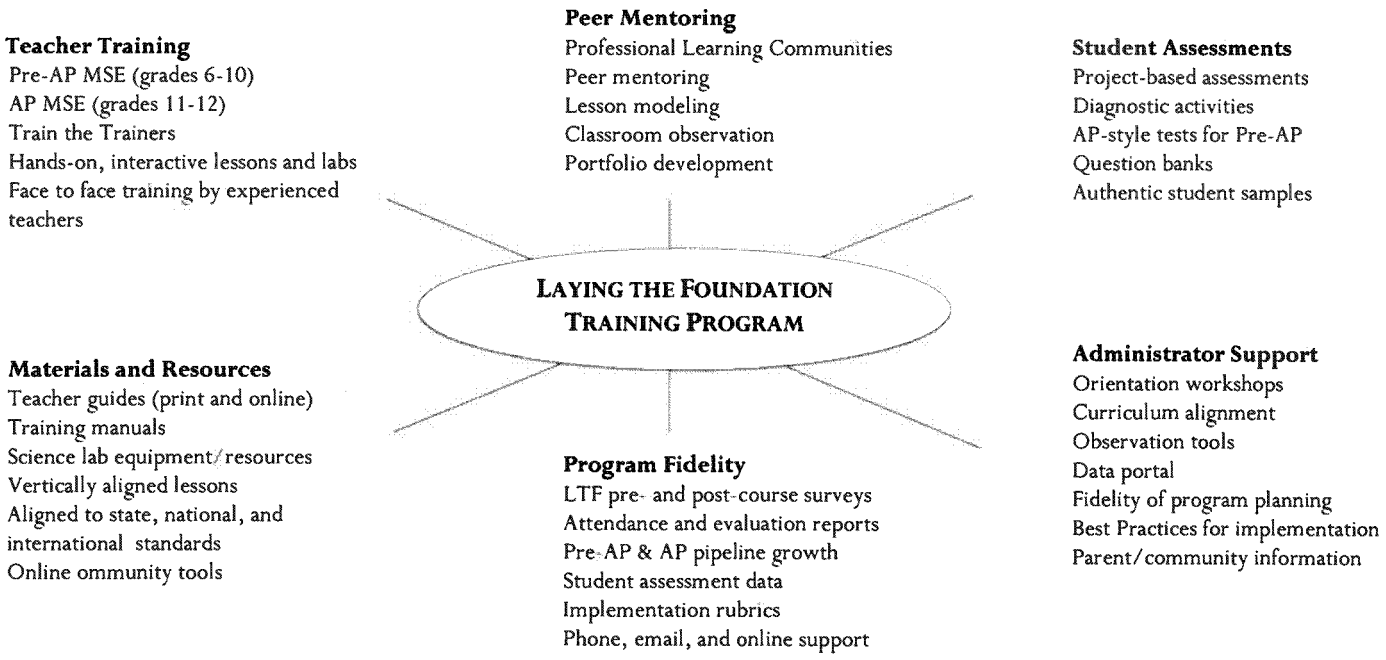
The LTF approach begins with empowering teachers. *Highly qualified* teachers are critical for efforts aimed at increasing student college and career readiness. According to Bill Gates' 2009 Annual Letter, "*If you want your child to get the best education possible, it is actually more*

important to get him assigned to a great teacher than to a great school." Currently universities in several states are offering graduate credit for teachers who participate in LTF training. A+ College Ready will discuss this certification and credit option with the University of Alabama System. LTF's commitment to training, mentoring, and empowering the teacher corps answers recommendations from the National Academy of Math and Sciences, and aligns with the priorities for federal Race to the Top grants.

The LTF program is designed to work in any school system that is actively preparing students for college or higher education, is seeking to infuse rigor back into its classrooms, and is striving to grow AP teacher capacity by training new teachers. Because LTF is not a curriculum, it can be infused into a schools existing curriculum and aligned with the Alabama Course of Study. Schools and Districts can use LTF lessons to develop Pre-AP Courses in math science and English.

COMPONENTS OF THE LTF TRAINING PROGRAM

The LTF training program consists of six core components: Teacher Training, Peer Mentoring, Student Assessments, Administrative Support, Program Fidelity, and Materials and Resources.



TEACHER TRAINING

Pre-AP Teacher Training

Experienced classroom teachers provide training for grades 6-10 Pre-AP Math, Science, and English teachers through the LTF Training Program. LTF training requires a three-year teacher commitment to complete four training days each year, for a total of twelve training days. Each LTF training class holds up to 30 teachers per discipline or course and one fixed daily rate includes training manuals and all trainer fees and travel.

Districts have three options when considering how to train teachers:

- Directly at a school within the district,
- At a regional service or support center that can support multiple districts,
- At summer institutes on college campuses in major cities within the state. This will be A+ College Ready's preferred strategy in Alabama.

LTF maintains quality control of teacher training through annual live audits of teacher training sessions.

Train the Trainer

LTF trainers are either LTF employees or contractors that have been approved and trained by LTF. Teachers apply to attend a summer institute where they learn LTF principles, teaching strategies, and the tenets of effective adult education. Trainer candidates are then required to demonstrate their abilities as a teacher trainer through presentations during the course of the week. Teachers meeting LTF standards for professionalism, knowledge, teaching and training skills are certified as LTF Trainers and scheduled, as available, into teacher training sessions throughout the year. Trainers must attend training for 5 more days a year for two years to be fully certified. LTF monitors and audits these trainers by collecting surveys, evaluations, and regularly visiting training classes hosted by these teachers to observe.

The "Train the Trainer" approach not only builds capacity but also creates pockets of excellence across the state and in the district. Once a teacher is certified as a LTF trainer, that teacher is equipped to serve as an LTF mentor within their district. Districts may elect to send highly qualified teachers as candidates to Train the Trainers with the goal of developing a cadre of mentors within the district. Alabama has trained over 35 people as LTF trainers and most are serving as trainers for the first 2 cohorts of high schools in the A+ College Ready Program and their feeder middle schools. The 15 Lead teachers in each of the 5 Districts we currently serve are LTF trainers along with District Curriculum leaders and AMSTI staff and trainers.

PEER MENTORING THROUGH LEAD TEACHERS

The Lead Teachers in Alabama will serve as peer mentors to others in their discipline. In addition, the LTF organization provides mentoring options and support for teachers during and after training.

LTF Professional Learning Communities

All Alabama teachers that receive LTF training can become a member of the online LTF Professional Learning Community. In these small learning communities, teachers are guided by a group mentor to collaborate over lessons, share best practices, and discuss student assessment and performance.

LTF Effective Teacher Network

Some Alabama Teachers may choose to participate in the Effective Teacher Network and strive to develop a professional teaching portfolio following guidelines established by LTF. Teachers create, share, and critique student products, strategies, and lessons as they build their portfolios. Each group is composed of no more than 15 teachers from a specific course or grade level. This option will not be funded by the Race to the Top grant but can be pursued by teachers on their own.

LTF Peer Mentoring

Excellent Pre-AP teachers will be chosen by Districts to serve as lead teachers in middle schools. They will become experienced LTF trainers and will work with groups of teachers

within a school or district as Mentors to model lessons, observe classrooms, and assist teachers with planning and incorporating LTF lessons and assessments.

STUDENT ASSESSMENTS

Embedded Assessments

LTF Guides and online lessons contain a variety of embedded assessments including project-based assessments.

Diagnostic Activities

A variety of diagnostic activities are provided on the LTF website including AP and SAT-style multiple choice questions, short answer, and free response questions with student samples. These activities are available to download and print for classroom use at a teacher's discretion. A variety of multiple choice diagnostic tests are also available for students to take online with immediate results provided to students and teachers.

AP Style Tests

LTF Pre- and Post-tests are low-cost, low-stakes assessments offered for students in grades 6 – 10. These assessments emulate the timed structure and rigor of an AP test. These unique tests measure student understanding of complex concepts critical to AP courses in higher grades and provide immediate feedback to teachers.

Question Banks

LTF question banks will also be available for teachers to create their own assessments for classroom or online testing. Districts may also be licensed to access a question bank for use in developing campus or district level assessments.

ADMINISTRATOR SUPPORT

Administrator Orientation

This training is specifically designed for district and campus level administrators and counselors to provide information about the LTF program philosophy and resources. Administrators learn how LTF fits into the campus and district plan for creating a cadre of highly effective teachers. This session also models the proper environment necessary for linking middle school Pre-AP to high school AP classes and training on how to effectively use assessments and data.

Tools for Administrators

Campus and district administrators have access to a variety of tools to aid in infusing LTF philosophy and materials into the campus or district culture and curriculum. Resources to ensure the fidelity of the program as well as access to data driven reports are available through the administrator portal.

PROGRAM FIDELITY

Laying the Foundation provides a variety of tools including goal planning forms, equipment and technology checklists, implementation rubrics, and observation forms to assist districts in maintaining the fidelity of the LTF program. The online learning communities, plus the teacher and administrator self-reflection and evaluation tools, help districts evaluate the implementation of the training program. Additionally, LTF staff is always available to teachers or administrators via email or through the toll-free phone number.

Districts are also provided with Pre- and Post-survey data related to teacher attitude, content, and pedagogy knowledge, as well as attendance and evaluation reports. Schools

utilizing online assessments also receive data on student performance.

MATERIALS AND RESOURCES

All LTF lessons, projects, and labs are linked to state and national standards. Because LTF is not a curriculum, LTF materials may be infused into any existing curriculum to raise the level of instructional rigor.

Teacher Planning and Resource Guides

Created by master AP and Pre-AP teachers, the 15 Laying the Foundation Teacher Planning and Resource Guides provide teachers with the content information and pedagogy necessary to prepare students for success in AP. Guides contain model lessons, assessments, syllabi, and other resources for immediate use in the classroom. Each guide contains a CD of all student lessons for ease in duplication. The majority of the guide lessons are also available for download from the LTF website.

Training Manuals

Teachers receive a spiral bound training manual for each day of LTF training. Training manuals include the lessons and resources addressed in the training day. Lessons are also available for download from the website.

Science Equipment and Lab Kits

LTF provides lists of laboratory equipment, technology, and resources necessary for Pre-AP and AP science labs to assist campuses in determining if they have the necessary resources. For training in a district, a list of required school-provided equipment is supplied. Lab kits containing elements such as chemicals, hardware, and consumable items are also ordered by LTF based on the needs of each training day. Lab kits become the property of the district after training.

Alabama Training and Incentive Program:
For Middle School Pre-AP Teachers

1. Alabama Training and Incentive program middle schools will be required to create 9 Pre-AP courses (listed below) for the 2009-10 school year. Enrollment targets are 30% of students/grade/school by the second program year and 50% after that. While individual schools' targets will be based on current advanced course participation levels, for budgeting purposes an average of 695 students per middle school in the state suggests roughly 150 students/school in year 1, 210 students/school in Year 2 and 350 in Year 3 and beyond.
    - Pre- AP English 6
    - Pre-AP English 7
    - Pre-AP English 8
    - Pre AP Math 6
    - Pre-AP Math 7
    - Algebra 1 (8th grade)
    - Pre- AP science 6
    - Pre AP Science 7
    - Pre AP Science 8
2. Each of the courses will be taught by an Laying the Foundation(LTF) trained teacher who will be required to:
    - attend and actively participate in all LTF Training offered in the first three program years (during summer at Alabama universities)
    - attend the Advanced Placement Training and Incentive Program Vertical Team meetings with other program schools in the district
    - administer LTF Diagnostics 4 times/year to all students in their Pre-AP class(es) and monitor areas of strength and weakness
3. Three middle school lead teachers in math, science, and English (MSE) will mentor the Pre-AP classroom teachers and will be provided a stipend to do so. Lead teacher responsibilities include:
    - Vertical teaming/organization with high school AP teachers and elementary schools
    - Provide LTF training and support classroom implementation of Pre-AP skills and strategies in the district
    - Teach at least one Pre-AP course
4. Required attendance for the principal and the guidance counselor at LTF/Vertical Team/Data Analysis training
5. Stipends and incentives will be established for each Pre-AP classroom teacher based on:
    - Attendance and active participation in LTF and Vertical Team training
    - Administration of LTF Diagnostics throughout the year
    - 75% rate of student matriculation to the next Pre-AP/AP course
    - Teacher incentives in 2rd year and beyond will be based on student achievement results
6. A+ College Ready, in collaboration with PARCA and LTF, will provide assessments using achievement data from standardized tests and LTF Diagnostics
7. Equipment funds of $2500 will be provided to each school each year
8. All elementary schools that feed these schools will be invited to participate in two vertical team meetings each year organized by the district and lead teachers
9. Classroom and student achievement data will be provided upon request to A+ College Ready

ESTIMATED BUDGET	Year 1	Year 2	Year 3	Totals	Assumptions
Training					
Pre-AP/LTF Training	$4,050	$4,050	$4,050	$12,150	Up to 9 Pre-AP teachers per school will be enrolled in LTF training ($450/teacher including materials)
LTF, Vertical Team and data analysis Training for Principal and Guidance Counselor	$750	$750	$750	$2,250	$350 registration plus 400 expenses for one day training
Total training	**$4,800**	**$4,800**	**$4,800**	**$14,400**	
Stipends & Incentives					
Threshold Bonus for Pre-AP teachers	$3,375	$3,375	$3,375	$10,125	Up to 9 Pre-AP teachers will earn bonuses of $500 based on incentive guidelines laid out in Section 5. Assumption is that ¾ of teachers will receive the $500 Bonus.
Threshold Bonus for School for Development of Pre-AP program	$2,000	$2,000	$2,000	$6,000	Schools will earn bonuses of $2000 based on enrollment goals met, teacher participation goals met, diagnostics used. Future year thresholds based on EOC results. Assumption is that $2000 bonus will be obtained.
Stipend for summer LTF training	$3,600	$3,600	$3,600	$10,800	Up to 9 Pre-AP teachers will be paid $400 stipends to attend 4 days of summer LTF Training ($100/day).
Total stipends and incentives	**$8,975**	**$8,975**	**$8,975**	**$26,925**	
Lead Teachers					
LTF "Train-the-Trainer" costs	$1,000	$1,000	$1,000	$3,000	Lead teacher training costs based on $2000/teacher for 3 Lead Teachers per district based on 6 ms per district
Lead teacher stipends	$1,500	$1,500	$1,500	$4,500	$3,000 Stipend for each of 3 Lead Teacher/mentors in a district to support other Pre-AP teachers in the district. Lead teachers also teach Pre-AP Courses. Based on 6 ms district
Total lead teacher costs	**$2,500**	**$2,500**	**$2,500**	**$7,500**	
Assessment					
Analysis of standardized achievement tests	$2,000	$2,000	$2,000	$6,000	Based on PARCA providing district, school and classroom level assessments of student data on standardized tests
LTF Online diagnostics and multiple choice Pre and post tests	$750	$1050	$1800	$3,600	$5 per student with 150 students in year 1, 210 students in year 2 and 350 students in year 3
Total Assessments	**$2,750**	**$3,050**	**$3,800**	**$9,600**	
Materials and Resources					
LTF Teacher Guides	$450	$150	$150	$750	9 teachers trained at $50/guide - reduce by 1/3 after year 1
LTF Science Kits	$300	$300	$300	$900	2 per school @$150 each
Pre-AP Classroom Technology/Equipment	$2,500	$2,500	$2,500	$7,500	$2500 per school;
Total materials and resources	**$3,250**	**$2,950**	**$2,950**	**$9,150**	
Total program costs per school	**$22,275**	**$22,275**	**$23,025**	**$67,575**	Assumption is commitment of 3 years
A+ College Ready management fee	$2228	$2228	$2302	$6758	Based on 10% of total Program costs to school
Total program and management costs per school					

IN WITNESS WHEREOF, the parties have caused this Agreement to be executed on the dates set forth below.

A+ College Ready	**System Superintendent**
Signature: _____	**Signature:** _____
Print Name: _____	**Print Name:** _____
Title: _____	**Title:** _____
Date: _____	**Date:** _____

School Principal

Signature _____

Print Name: _____

Title: _____

Date: _____

Budget Part II: Project-Level Budget Table

Instructions:
For each project the State has proposed in its Budget Summary Narrative, the State should submit a Project-Level Budget Table that includes the budget for the project, for each budget category and each year of the grant.

Budget Part II: Project-Level Budget Table
Project Name: [fill in the project name the State has assigned to this work]
Associated with Criteria: [fill in the designations of the criteria associated with this project]
(Evidence for selection criterion (A)(2)(i)(d))

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					
4. Equipment					
5. Supplies					
6. Contractual	$987,500	$1,675,000	$2,362,500	$3,075,000	$8,100,000
7. Training Stipends					
8. Other					
9. Total Direct Costs (lines 1-8)	$987,500	$1,675,000	$2,362,500	$3,075,000	$8,100,000
10. Indirect Costs*					
11.Funding for Involved LEAs	$812,500	$1,625,000	$2,437,500	$1,625,000	$6,500,000
12. Supplemental Funding for Participating LEAs					
13. Total Costs (lines 9-12)	$1,800,000	$3,300,000	$4,800,000	$4,700,000	$14,600,000

All applicants must provide a break-down by the applicable budget categories shown in lines 1-15.
Columns (a) through (d): For each project year for which funding is requested, show the total amount requested for each applicable budget category.
Column (e): Show the total amount requested for all project years.
*If you plan to request reimbursement for indirect costs, complete the Indirect Cost Information form at the end of this Budget section. Note that indirect costs are not allocated to lines 11-12.

BUDGET PART II: PROJECT-LEVEL BUDGET NARRATIVE

Instructions:
For each project the State has proposed in its Budget Summary Narrative, the Department strongly recommends that the State submits the following information for each budget category.

Contractual

Provide:

- The products to be acquired and/or the professional services to be provided.
- The estimated cost per expected procurement.
- For professional services contracts, the amounts of time to be devoted to the project, including the costs to be charged to this proposed grant award.
- A brief statement that the State has followed the procedures for procurement under 34 CFR Parts 74.40 - 74.48 and Part 80.36.
- Any additional basis for cost estimates or computations.

Explain:

- The purpose and relation to the project.

Note: Because grantees must use appropriate procurement procedures to select contractors, applicants should not include information in their grant applications about specific contractors that may be used to provide services or goods for the proposed project if a grant is awarded.

NOTE: NMSI suggestions are based on adding 20 schools per year, for 3 years (cohorts 3, 4, and 5). RTT funds do not reduce NMSI amounts. We welcome suggestions for improvements!

RTT funds pay for 100% of grantee match in RTT application for cohorts 3 and 4. A+ will have to raise funds for last year of cohort 5, since RTT only allows 4 years and since the last year of cohort 5 is in the 5th year. We also added money for operations.

The trick with the application is to come up with at least 50% of the program funds that the local LEAs manage. Due to the operations cost, we didn't get to the 50%, but the below details how we split it up. If you want the entire amount to go to A+, simply shift total costs in line 13 above to line 6 above and delete line 11 above.

Grantee manages the following amounts through RTT funds:

1) **Cost for operations. $300,000 for the 1st 3 years (NMSI covers the other $500,000. And $1,700,000 for the 4th year - $800,000 in current operations plus $900,000 for $15,000 for 60 schools.**
2) **LTF training. Since many of you have special financial relationships LTF, we thought it best that those funds are not turned over directly to the schools– enough money to account for feeder middle schools.**
3) **Threshold awards to AP teachers**
4) **Student study sessions**
5) **Incentives for AP teachers (5%)**

Local LEA manages the following amounts through RTT funds:

1) **Stipends for AP teachers and for AP Lead Teachers**
2) **APSIs**
3) **½ the AP Exam Fees**
4) **Equipment**
5) **Student incentives**

Grantee manages the following amounts through RTT funds:

6) **LTF training. Since many of you have special financial relationships LTF, we thought it best that those funds are not turned over directly to the schools– enough money to account for feeder middle schools.**
7) **Threshold awards to AP teachers**
8) **Student study sessions**
9) **Incentives for AP teachers (5%)**

Contractual services for the AP Training and Incentive Program will be given to *A+*. *A+* has received a grant from the National Math and Science Initiative (NMSI) to implement the program and this RTT request will allow *A+* to implement the program in an additional 60 schools. In addition to the $14,600,000 request in this application, NMSI has agreed to fund $4,400,000 that will be specifically allocated to these additional 60 Schools for project/content managers and other costs as detailed in the tables below. In addition to the $4,400,000 for these 60 schools, NMSI funding pays for *A+*'s operations, which allows *Alabama* to have limited overhead for funds requested in this proposal. *A+* is the choice for contractual services for this important program due to their experience and success in implementing the NMSI grant. In addition to being able to access NMSI funding if *A+* implements our APTIP, *A+* has access to NMSI services and expertise.

Activity	Purpose	Cost	# LEAs involved	Total
Operational Costs for A+	To provide operation costs necessary to implement the program in the schools	$800,000 per year for all 4 years. NMSI pays $500,000 for the first 3 years, so request is $300,000 per year for first 3 years. In 4th year, additional$900,000 is requested to cover the $15,000 per school overhead (NMSI picks up those costs the first 3 years	20 – year 1	$300,000 – year 1
			40 – year 2	
			60 – year 3	$300,000 – year 2
				$300,000 – year 3
				$1,700,000 – year 4
				TOTAL - $2,600,000

Activity	Purpose	Cost	# LEAs involved	Total
Laying The Foundation Training for Pre-AP	Provide the highest quality Pre-AP training available for math, science, and English teachers	$833 per teacher per year x 2,400 teachers. 15 Pre-AP teachers per school (includes feeder patterns) 300 teachers –year 1 600 teachers –year 2 900 teachers – year 3 600 teachers – year 4	20 – year 1 40 – year 2 60 – year 3 40 – year 4	$250,000 – year 1 $500,000 – year 2 $750,000 – year 3 $500,000 – year 4 TOTAL - $2,000,000

Activity	Purpose	Cost	# LEAs involved	Total
Threshold awards for AP Teachers	To reward AP teachers in math, science, and English teachers if they have significant increases in the number of students passing AP Exams	Historical average of $1000 per teacher per year x 1000 teachers. Historical average 6 ¼ AP teachers math, science English teachers per school. 125 teachers –year 1 250 teachers –year 2 375 teachers – year 3 250 teachers – year 4	20 – year 1 40 – year 2 60 – year 3 40 – year 4	$125,000 – year 1 $250,000 – year 2 $375,000 – year 3 $250,000 – year 4 Total - $1,000,000

Activity	Purpose	Cost	# LEAs involved	Total
Conduct Student Study Sessions on Saturdays	To provide more time on task for students with industry experts for 3 Saturdays	Historical average of 250 students per school for a total of 40,000 students. Average Cost is for consultant is $750 - fee ($500) + travel/expenses ($250) for every 20 students. RTT funds pays for travel costs; NMSI funds pay for consultant fee. Food/prizes is $12.50 per student ($4.17 per session 5000 students –year 1 10000 students –year 2 15000 students – year 3 10000 students – year 4	20 – year 1 40 – year 2 60 – year 3 40 – year 4	$250,000 – year 1 $500,000 – year 2 $750,000 – year 3 $500,000 – year 4 TOTAL - $2,000,000

Activity	Purpose	Cost	# LEAs involved	Total
Incentive awards for AP Teachers	To reward AP teachers in math, science, and English teachers $100 for every student they have that passes an AP Exam.	Historical average of $100 per teacher per year x 1000 teachers. Historical average 6 ¼ AP teachers math, science English teachers per school. RTT funds pay for $50 per teacher, while NMSI funds pays for the other $50. 125 teachers –year 1 250 teachers –year 2 375 teachers – year 3 250 teachers – year 4	20 – year 1 40 – year 2 60 – year 3 40 – year 4	$62,500 – year 1 $125,000 – year 2 $187,500 – year 3 $125,000 – year 4 Total - $500,000

11) Funding for Involved LEAs

Provide:

- The specific activities to be done by involved LEAs (as defined in this notice).
- The estimated cost of each activity.
- The approximate number of LEAs involved in each activity.
- The total cost of each activity (across all involved LEAs).
- Any additional basis for cost estimates or computations.

Explain:

- The purpose of each activity.

Activity	Purpose	Cost	# LEAs involved	Total
Incentive awards for AP Students	To reward AP teachers in math, science, and English students $100 for every Exam they pass	$100 per student 1250 students –year 1 2500 students –year 2 3750 students – year 3 2500 students – year 4	20 – year 1 40 – year 2 60 – year 3 40 – year 4	$125,000 – year 1 $250,000 – year 2 $375,000 – year 3 $250,000 – year 4 Total - $1000,000

Activity	Purpose	Cost	# LEAs involved	Total
Provide Stipends to AP teachers to attend extra professional development and to provide stipends to Lead Teachers who train AP and Pre-AP teachers in the district	To reward AP and Lead teachers in math, science, and English teachers to attend extra training in order to implement more rigorous AP standards	$500 per teacher per year x 1000 teachers. Historical average 6 ¼ AP teachers math, science English teachers per school. Historical average of 1/5 of all teachers are Leads at an average of $2,500 per Lead 125 teachers –year 1 250 teachers –year 2 375 teachers – year 3 250 teachers – year 4 25 Lead teachers –year 1 50 Lead teachers –year 2 75 Lead teachers – year 3 50 Lead teachers – year 4	20 – year 1 40 – year 2 60 – year 3 40 – year 4	$125,000 – year 1 $250,000 – year 2 $375,000 – year 3 $250,000 – year 4 Total - $1,000,000

Activity	Purpose	Cost	# LEAs involved	Total
Pay for AP teachers to attend weeklong College Board Summer Institutes	To have AP math, science, and English teachers to attend extra training in order to implement more rigorous AP standards	1000 teachers to attend AP Summer Institute at $1200 per institute (includes travel costs if applicable) 125 teachers –year 1 250 teachers –year 2 375 teachers – year 3 250 teachers – year 4	20 – year 1 40 – year 2 60 – year 3 40 – year 4	$150,000 – year 1 $300,000 – year 2 $450,000 – year 3 $300,000 – year 4 Total - $1,200,000

Activity	Purpose	Cost	# LEAs involved	Total
Pay for ½ AP exam for math, science, and English students	To remove the cost barrier for students to take the AP Exam	Historical average of 250 students per school for a total of 40,000 students. ½ Cost for AP Exam is $43; however, historical average cost when including F&L students is approximately $37.50 per student 5000 students –year 1 10000 students –year 2 15000 students – year 3 10000 students – year 4	20 – year 1 40 – year 2 60 – year 3 40 – year 4	$187,500 – year 1 $375,000 – year 2 $562,500 – year 3 $375,000 – year 4 TOTAL - $1,500,000

Activity	Purpose	Cost	# LEAs involved	Total
Pay for necessary equipment needed to conduct AP classes (i.e Physics probes, graphing calculators…)	To equip teachers with the best possible tools to be able to teach the newest technological methods	Average of $11,250 per campus ($5000 +$25 for each enrolled student) 5000 students –year 1 10000 students –year 2 15000 students – year 3 10000 students – year 4	20 – year 1 40 – year 2 60 – year 3 40 – year 4	$225,000 – year 1 $450,000 – year 2 $675,000 – year 3 $450,000 – year 4 Total - $1,800,000

Report on the Mobile Mathematics Initiative and Engaging Youth in Engineering for Alabama's Revised Race to the Top Proposal

Submitted by Dr. James Van Haneghan
Director of Assessment and Evaluation
University of South Alabama

1. Can you provide us with any evaluation data that will show your initiatives' success

Mobile/Maysville Mathematics

There were three impacts of the Mobile Mathematics Initiative

a. The work in Maysville indicated that there were significant gains in student performance for the Maysville schools where there was implementation and strong leadership in place. Van Haneghan, Pruet, and Bamberger (2004), report in a quasi-experimental study with two similar comparison schools effect sizes of one-third to one-half a standard deviation in project-based assessments and SAT-9 scores. The later impact of the Mobile Mathematics Initiative on achievement was attenuated in Mobile and other sites by the shift in focus from inquiry-based teaching to direct instruction that focused on preparation for criterion referenced tests each quarter and standardized state tests. In spite of these issues, there were still some small to moderate effects on the interview assessment developed by the project for some sites and grade levels.
b. A second impact of the Mobile Mathematics Initiative has been to provide a laboratory for the development of support systems for Mathematics professional development. For example, part of the group that helped in the professional development for the Mobile Mathematics Initiative were instrumental in helping to develop curriculum and training for the AMSTI mathematics curriculum. The Mobile Mathematics Initiative also developed training models for mathematics coaches and leaders that had an impact on over 20,000 students in Mobile, Decatur, and Hoover. Across the years, they trained approximately 50 mathematic leaders. The development of these leaders should help in the expansion of AMSTI and other reformed initiatives in that these individuals were trained in how to work with teachers to develop and sustain reform efforts.
c. A third impact of the Mobile Mathematics Initiative is that it has brought innovative practices to Alabama. Along with the inquiry-based curriculum developed as part of the project, it has brought in other curricula and professional development that has had an impact. One example of this is the implementation of the Vermont Mathematics Initiative's On-going Assessment Project (OGAP) that uses formative assessments to capture student misconceptions about multiplicative reasoning, fractions and proportional reasoning to help teachers tailor instruction for students. Where it has been implemented, there have been improvements in district based criterion reference tests in Mobile

Engaging Youth in Engineering (EYE)

Engaging Youth in Engineering is started in 2007-2008 and is designed as workforce development initiative. The goal is to increase the numbers of students choosing science, technology, engineering, and mathematics (STEM) related fields by providing students with experiences with engineering design challenges that involve applying mathematics, science, and technology concepts. The approach involves creating a pipeline of opportunities that start out with elementary school engineering science clubs and camps, moves to providing all middle school students in the targeted schools with a series of 9 engineering design challenges. It culminates in the opportunity for students to pursue an engineering oriented curriculum in high school as part of the EPIC program at Davidson High School in Mobile. In

September of 2009, the development of the design challenges for middle schools was given a boost by the funding of an National Science Foundation grant to study and support further development of the design challenges and test out their impact longitudinally on students' course taking in high school, their interest in STEM careers, and their achievement in STEM areas. . Hence, data on the effectiveness long term impact of this strategy awaits the longitudinal analysis of the effect of the completed middle school curriculum.

While long term evidence is still being collected, we have some short term evidence that we could argue is promising for the impact of the middle school design challenges and the EPIC program.

1. Students in the Middle school where EYE has been implemented have shown evidence of more knowledge of what engineers do. When asked a series of questions about engineers, students at the EYE middle school were more likely than students from a matched comparison school to know whether engineers engaged in particular activities. For example, when asked to agree, disagree, or indicate that they did not know to the statement, "engineers mainly work with other people to solve problems", the students from the EYE school were more likely to agree with the statement and less likely to say they do not know, than students from the matched comparison school.
2. Students in the middle school where EYE has been implemented report that they are more confident that they can communicate with team members on a group task, and they report they are more confident that they will continue to learn new things that will help them to succeed in the 21st Century workplace.

3. While the link to EYE cannot be clearly established since the Alabama Science Assessment did not begin until school year 2007-2008, the EYE school had a larger percentage of students scoring at Levels 3 and 4 on the seventh grade Alabama Science Assessment than the comparison school and the district during 2007-2008 and 2008-2009. The data are below.

Percentage at Level 3 and Level 4 (Criterion Levels) for the Seventh Grade Alabama Science Assessment			
2008	Level 3	Level 4	Levels 3 and 4 Combined
District	34.24	26.57	60.81
EYE	37.69	30.22	67.91
Comparison	30.93	14.93	45.86
2009			
District	37.43	35.6	73.03
EYE	47.3	33.78	81.08
Comparison	44.82	21.57	66.39

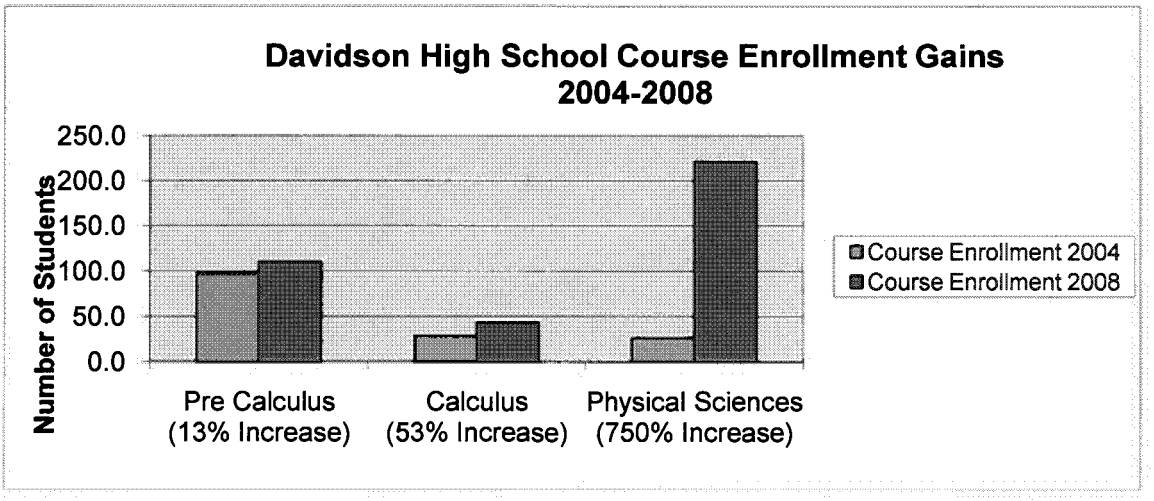
4. Students from the EYE middle school have increased in numbers as part of the EPIC engineering themed high school course of study. The numbers from 2006 to 2009 more than doubled, suggesting that students may be gaining interest in EPIC through their experiences with EYE. The only other school to show as large an increase is a high achieving magnet school with a college preparatory curriculum. The EYE middle school was not a magnet or special school. The other regular middle schools had little in the way of enrollment in EPIC.

EPIC

The EPIC program is a curriculum offered at Davidson High School that integrates engineering into the classes of students in the program. Students take a course called "Engineering the Future" in their freshman year, and then have engineering applications integrated in their science and mathematics courses they take throughout their high school career. Given the newness of the program, there has not been much research on its impact. However, there are promising data surrounding increasing enrollment of students into the program. As can be seen in the table below, EPIC enrollment has over doubled since its beginning in 2005-06.

	2005-06	2006-07	2007-08	2008-09	2009-10
EPIC Enrollment	40	67	116	99	97

Further, course taking in more advanced math and physical sciences has increased as the table below shows between 2004 (before EPIC) and 2008 (after EPIC).



Additionally, data on the ACT scores of EPIC graduates so far indicate that they average around 24 overall and in mathematics. Hence, their ACT scores are generally a bit above average. Additionally, there is a significant number of girls who are part of the EPIC program, the gender split nearly equal in the EPIC program.

2. What are your expansion plans?

MMI has no further expansion plans at this time. As the economy declined impacting funding sources for education, the SDE decided to use NCLB Title II,V grants to support their in-house initiatives instead of continuing to fund external initiatives such as MMI. The hope is that the state mathematics and science initiative, AMSTI, will draw on the capacity built through MMI to sustain, enrich, and expand its efforts.

EYE's expansion plans are three fold: 1) the development and implementation of MCPSS STEM (using engineering to bring relevance and rigor to the current science and mathematics) standards that would draw on the best practices and curriculum unite emerging from EYE; 2) the subsequent and parallel impact on the SDE STEM curriculum, including the incorporation of the EYE course, Engineering the Future, into the state science course of study and 3) the replication of the K-12 EYE economic and workforce development model in other districts that want to increase the number of high school students

pursuing post-secondary STEM careers and/or academics, e.g., in the feeder patterns leading to each of the state's engineering academies.

3. Are there any other success factors we should know about?
An important element to successful programs has been committed leaders who have "bought in" to the projects and have worked hard to see them succeed. This has been true for Mobile Mathematics, EYE, and EPIC. A second feature of the successes has been connecting the initiatives with the community. This has been especially true for EYE and EPIC. Both EYE and EPIC have engaged many volunteers from the engineering community. Both individuals from private business and industry, as well as engineering faculty and administrators from the University of South Alabama have been engaged in these projects. Over the last two school years we have had over 40 different volunteers from the following companies and organizations serving as "extra pairs of hands" during the EYE engineering labs in the EYE middle schools:

Alabama Power
Airbus
Mobile Area Water and Sewer System
University of South Alabama (including 15 engineering students)
Barry Steam Plant
US Army Corps of Engineers
Mobile County Board of School Commissioners
Mobile Area Education Foundation
CQ Group LLC (an engineering firm)

Hence, the initiative in engaging the community so that children have access to role models for STEM careers.

4. What else can you share about your initiatives' success?
One of the greatest difficulties in carrying out Mobile Math was that the focus on standardized testing engendered by No Child Left Behind, made it very difficult for teachers to buy into the program. While the program valued inquiry-based learning, the district valued following the pacing guide and preparing for quarterly tests and state assessments. This initiative clash diluted the potential impact that the initiative could have.

A second point is that these initiatives have always been ahead of the curve in reform and have influenced subsequent state and district reform. For example, AMSTI is currently developing coaching methods and mentoring models. Mobile Math began those in 2001. The EYE middle school design challenges have the potential for having a national impact. And, as a direct result of the success of EYE in the Mobile schools, the MCPSS has formed a STEM Improvement Task Force to explore the development of engineering education standards and has hired Bob Foley, retired Assistant Dean of Engineering at the USA and Co-Principal Investigator on EYE's NSF grant, to lead these efforts for the district. There is a great deal of interest and emphasis now on engineering education in p-12. EYE is at the forefront of this interest and the project should contribute not only to local, but national reform in the future.

HudsonAlpha's K-12 Educational Programming in Genetics and Biotechnology

Using our life-science expertise and extensive educational collaborations, the HudsonAlpha Institute for Biotechnology is working to excite students about science and inspire them to seek careers in biotechnology and related fields. By partnering with educators, policy makers and civic groups to develop appropriate school curricula and interactive student experiences, we connect academic learning with real-world application. Over the last three years, we have developed and implemented hands-on, inquiry-based activities for students, hosted in-class and online discussions, provided summer camps and intern opportunities, and offered professional development sessions for educators. During the 2008-2009 academic year HudsonAlpha reached over 20,000 Alabama students and teachers through these activities. We are building on these efforts to create an expanded set of opportunities for students and educators across the state.

Partnership with the Alabama Math, Science and Technology Initiative (AMSTI)

Middle School Module

In 2007, HudsonAlpha partnered with the Alabama Department of Education to develop activities for the Alabama Math, Science, and Technology Initiative (AMSTI). AMSTI is the only statewide program of it's kind and aims to improve math and science teaching across Alabama. Through an extensive training and equipment distribution program, AMSTI provides three key services—professional development, equipment and materials, and on-site support – to all participating teachers. HudsonAlpha developed an eight-lesson module, "Genetics and Biotechnology", for seventh grade students. The module blends hands-on lab techniques with state curriculum requirements. Students extract DNA from fruits, craft DNA and RNA models, explore the role of biotechnology in transforming various industries, examine the influence of genetics on health and disease and research a career in biotechnology to present to their fellow students.

The module was successfully piloted in 10 North Alabama schools during the fall of 2007 and was incorporated into the statewide 7th grade AMSTI training program during the 2008-09 school year. The funds needed for program development, piloting and the initial incorporation into the AMSTI structure were provided entirely by HudsonAlpha, an amount in excess of $60,000. HudsonAlpha received national exposure with a 2009 Education Week article highlighting their support of AMSTI through the genetics module. Very preliminary evidence on the impact of the module is promising. One local school has reported results of standardized tests for 2007-08 (prior to using the module) and 2008-09 (with module). As shown in the table below, the increase in percentage of students achieving mastery on the content standards targeted by the module is encouraging.

	mean % correct	
Content Standard	2007-08 pre-module	2008-09 post-module
Identify Mendel's laws of genetics	30%	71%
Identify differences between deoxyribonucleic acid (DNA) and ribonucleic acid (RNA)	48%	67%

As a result of this finding, HudsonAlpha is currently providing additional materials to each AMSTI hubsite, quadrupling the number of available modules for classroom use. This

$125,000 expansion will allow more than 30,000 7th grade students to work with the module each year. A formal assessment of this module will be based on end-of-year standardized tests taken by Alabama students. This includes specific questions addressing objectives related to DNA and RNA, the function of cells, chromosomes and genes and the mechanisms of genetic inheritance. We are working with the Alabama State Department of Education to compare these objective-based scores at AMSTI schools the year before the refined module is utilized versus the year following incorporation.

High School Lab Kits

Alabama Science in Motion (ASIM) is the high school component of AMSTI. It is a statewide initiative to provide high-tech laboratory experiences for students and effective professional development for teachers.

During 2008 and 2009, HudsonAlpha partnered with the biology component of ASIM to develop laboratory activity kits for grades 9-12. Each activity meets state-mandated course of study requirements for multiple classes – for example, an introductory ninth grade biology class, an eleventh grade genetics course and a senior level AP biology group. There are also links to anatomy and physiology, environmental science and forensics.

Five lab activities were developed and incorporated into the Science in Motion program:

1. Expanded DNA Extraction – an inquiry-based activity where students create and test an extraction buffer to isolate DNA from a number of food sources.
2. Disorder Detectives – a module where students identify the chromosome compositions of various genetic disorders to determine which chromosome, or part of chromosome, is altered.
3. HNPCC – an activity that deals with cancer identification and pedigree creation. This lab includes both cooperative group discussion and hands-on laboratory experience in loading and interpreting DNA electrophoresis gels.
4. GMOD – an in-depth lab aimed at identifying the presence of genetically modified corn and soybean among widely available processed foods. This activity exposes students to the concepts of DNA extraction, PCR amplification and DNA detection by gel electrophoresis.
5. Genes and ConSEQUENCES – an activity that reinforces the central dogma of biology and introduces students to the many databases used by researchers across the globe to identify genetic sequences and associated genetic diseases.

Funding from a US Department of Labor WIRED grant was used to create and pilot these activities and to supply equipment and reagents to the three Science in Motion hub sites within the grant's target region. HudsonAlpha used funds from its education budget to provide equipment and materials to the other eight hub sites across Alabama. These labs were introduced to teachers during summer training at the hub sites and all lab activities are currently available to trained teachers through ASIM. This past year, HudsonAlpha educators traveled the state, leading trainer workshops as well as embedded teacher training. Educators were shown how to use the kits and incorporate them into class. To date, over 130 educators have received training, and more than 6,500 students have experienced one or more of the activities. Feedback has been overwhelmingly positive, with teachers expressing

appreciation for the ability to expose their students to these types of hands-on activities, especially in such a challenging economic climate.

The total cost for kit development, piloting of the activities, procuring equipment for each ASIM site and educator training was nearly $200,000. An additional $20,000 in funding has been secured to provide an ongoing supply of these kits during the next two years, reaching 31,000 high school students statewide.

Teacher Training and Professional Development

The HudsonAlpha educational outreach program has developed an educator workshop – Genetic Technologies for Alabama Classrooms (GTAC) – that will be offered for the first time this summer to eighteen (18) high school life science educators from across Alabama. This two-week immersive experience will provide training in both pedagogy (i.e. the practice of teaching) and content, using hands-on modules to incorporate genetic concepts into the biology classroom. During the academy, educators will be housed in apartment-style dormitories on the nearby University of Alabama at Huntsville campus, will receive a stipend and be provided a daily allowance for food expenses.

The goal for GTAC is to help an educator become comfortable discussing genetic concepts and terminology with his or her students, as well as the ethical, social and legal issues associated with these concepts. The educator can then reinforce those concepts through hands-on laboratory modules. All activities will link to state course of study standards for high school life science courses - highlighting biology but also including genetics, forensics, anatomy and physiology and environmental science. In this way, teachers can build the foundation students need to understand genetics and it's bioscience applications. By incorporating hands-on activities, students gain the skills required to succeed in the global marketplace for careers in research, healthcare, agriculture, defense and information technology. Historically, such skill acquisition has been missing across the state.

At the beginning of the workshop, teachers will be introduced to the common misconceptions students bring into a classroom regarding genetics. Research on student learning suggests that misconceptions serve as barriers to student achievement and can only be overcome if the learning experience is able to show that the student's explanation is insufficient and an alternative explanation is more viable. With these misconceptions in mind, teachers will examine key genetic concepts and recent scientific findings.

Educators will be supplied with a genetics and biotechnology "toolkit" including a number of hands-on laboratory activities (DNA extractions, DNA modeling, family pedigrees and genetic testing and the use of bioinformatic databases) as well as supporting resources such as video clips, animations and other online activities related to genetics. Each educator will also be given a training notebook with presentation helps and relevant web-links to take back to the classroom. Teachers will receive a complimentary one-year membership to the National Association of Biology Teachers (a leading network for high school life science teaching) and the Alabama Science Teachers Association.

GTAC will be primarily taught within the educational spaces at HudsonAlpha, and will include extensive time in our teaching lab, plus tours of research laboratories and biotechnology companies. The program will be led by members of the HudsonAlpha educational outreach team, but will also include opportunities to meet with world-class research scientists, entrepreneurs and industry personnel.

Sustained contact with educators will occur throughout the twelve-month period following the academy, helping teachers assimilate the concepts and activities into their plans of instruction. This is a key component of GTAC and increases the likelihood of true classroom change. Such communication will primarily occur through online meetings and presentations, social networking, and one-on-one discussions between educators and the co-directors of GTAC academy. During subsequent summers, we envision sharing vignettes and success stories from previous academy participants.

Digital Education - iCell

Discussions with Alabama educators suggest that cell structure and the differences between the various types of cells are two of the leading science concepts with which Alabama students struggle. Although it is difficult to visualize a three-dimensional cell using two-dimensional drawings, cell structure is primarily taught using the flat pages of a textbook. This unfortunately leads to a number of student misconceptions, such as the idea that cells resemble pancakes. In response to this challenge, HudsonAlpha has developed an interactive computer program known as iCell. iCell can be viewed over the internet (www.hudsonalpha.org/education/digitaleducation/icell) or on a mobile device like an iPhone or iPad. Using techniques found in video gaming, iCell allows viewers to interact with plant, animal and bacteria cells by double clicking to zoom, clicking and dragging to rotate, and performing a simple mouse-over for annotations of cell structures.

iCell transforms the flat images from a book into the visual realm, embraced by today's students. The program is freely available and runs in any web browser using the Unity 3-D web player, which is free to download. Descriptions of cell components can be viewed using multiple levels of complexity, making it useful in elementary, middle or high school classrooms. This means iCell can be used in a number of settings across the United States to help students understand and explore the complexities of single and multicellular organisms.

THE GREATER BIRMINGHAM MATHEMATICS PARTNERSHIP: PHASE II RESEARCH

OVERVIEW

The Greater Birmingham Mathematics Partnership (GBMP) is a targeted MSP initially funded in 2004 to study the impact of a comprehensive professional development model on student achievement in grades 5-8 mathematics. The model involves all the stakeholders in the community, i.e., administrators, teachers, parents and the public, in the work of improving mathematics education. A central component of the model is a series of nine-day, in-depth mathematics content courses offered in the summer. Data from the *Content Knowledge for Teaching Mathematics* (CKTM) pre- and post-tests, surveys, and course portfolios showed improved content knowledge, pedagogical content knowledge, and mathematical dispositions.

The summer courses are unique professional development in that teachers participate as learners of mathematics themselves in an inquiry-based environment. Teachers report the experience to be "transformative," making statements such as, *"I have been teaching public school for 25 consecutive years now. Taking the GBMP classes has completely changed for the better my own conceptual mathematical abilities and these courses have completely transformed how I teach math to my students. I am so much more of a confident, knowledgeable, and effective problem solver and teacher now than I have ever been before in my life!"*

Many teachers who have taken GBMP courses had not had the opportunity to be learners of mathematics in a long time, and most had never experienced learning mathematics for understanding in an inquiry-based environment. Many teachers reported feeling mathematically empowered for the first time, and over and over again expressed a desire to provide this kind of experience for their students. When teachers provided an inquiry-based environment for their students, the effects on student achievement were significant. Students whose teachers provided a high level of implementation of inquiry-based pedagogy showed significantly more gains in student achievement in mathematics on the SAT-10 than students whose teachers provided a moderate or low level of implementation of inquiry-based instruction (details in next section). These findings were consistent across diverse school districts. The results were analyzed for each grade. Figure 1 shows the results from grades 5 to 6 and Figure 2 shows the results combining all targeted grades.

Figure 1

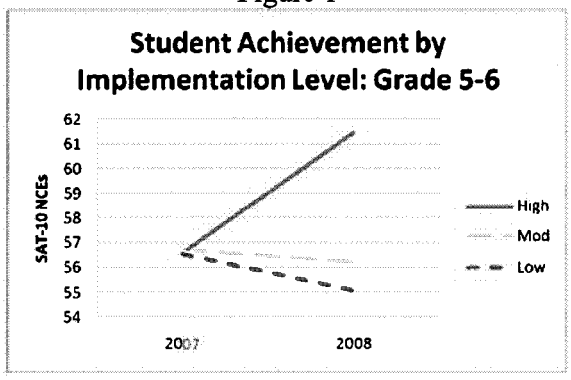
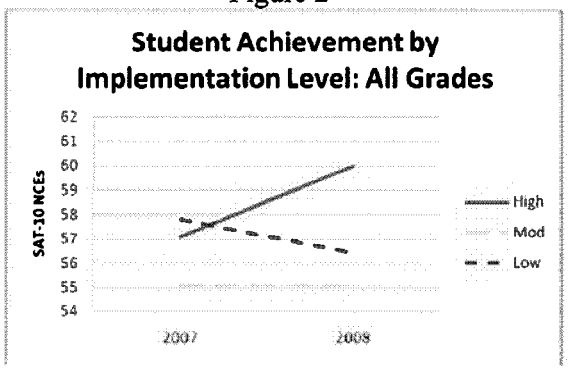


Figure 2



In Phase I, despite our notable success in high implementation schools, we identified several barriers to implementation. Accordingly, in Phase II we seek to study whether we can continue to improve student achievement by overcoming these barriers and bringing high implementation to scale.

RESULTS FROM PHASE I NSF SUPPORT

IMPROVEMENT IN STUDENT ACHIEVEMENT

In order to study the association between classroom environment and student achievement, we first classified each grade (5-8) in each GBMP school as a high, moderate, or low implementing grade. The classification was based on classroom observations (N=150) using the Reformed Teaching Observation Protocol (RTOP) and the percent of teachers in the school at the given grade level who had participated in GBMP courses. To be classified as a high implementing grade within a school, 100% of teachers at that grade level must have participated in at least one GBMP course and the RTOP scores at that grade level must have been 12.5 or above out of a possible 20 on each subscale. In this way, each grade within each school was assigned to one of three groups: low implementing, moderate implementing, or high implementing. Since grade, not school, is the basic unit of analysis, it is possible for some grades in a school to be high implementing and others to be moderate or low implementing.

To assess student achievement, we used normal curve equivalents (NCEs) on the mathematics portion of the Stanford Achievement Test (SAT-10). From 2007 to 2008, SAT-10 NCE scores were compared from grades 4 to 5, 5 to 6, 6 to 7, and 7 to 8 for matched students (N=24,026) in GBMP schools for which data were available. Six of nine systems have been analyzed to date, including the three largest districts in the partnership. The students in these six districts are diverse in terms of race, ethnicity and socio-economic status (SES). This process of comparing matched student SAT-10 NCE scores was also used for 2006 to 2007.

We have found that students in high implementing grades within schools showed more growth in scores than students in moderate or low implementing grades. Table 1 shows the data for 2007 to 2008 (see also Figure 2 above). Table 2 shows the data excluding high SES grades. These changes in students' scores were statistically significant ($p \leq 0.05$). There was a statistically significant interaction for scores and group. Student scores were matched across time points and a repeated measures analysis of variance was conducted to assess differences on the factor of group. The TIME main effect and TIME * GROUP interaction effect were tested using the multivariate criterion of Wilks' Lambda.

Table 1

All Grades (5-8) SAT-10 NCEs					
Implementation Level	Mean 2007	St Dev	Mean 2008	St Dev	*N*
High	57.1	21.1	60.0	21.0	3305
Moderate	55.1	20.8	55.1	20.9	6215
Low	57.8	20.8	56.4	20.9	14506
Total	57.0	20.9	56.5	21.0	24026

Table 2

All Grades (5-8) except high SES					
Level	Mean 2007	St Dev	Mean 2008	St Dev	*N*
High	54.4	20.4	57.1	20.2	2886
Mod	54.5	20.6	54.5	20.6	6070
Low	56.6	20.4	55.2	20.4	13811
Total	55.8	20.5	55.3	20.4	22767

These data show that gains in student achievement in high implementing classrooms occurred regardless of socio-economic status. Results for 2006 to 2007 also showed a statistically significant increase for students in high implementing classrooms at all grade levels (5-8). This evidence of increased student achievement for high implementing grades within schools was a major outcome of Phase I. Additional evidence of success from our Phase I research follows.

INCREASED DEPTH OF DISCIPLINARY CONTENT KNOWLEDGE BY TEACHERS

The intensive nine-day (54 contact hours plus homework) mathematics content courses (total enrollment of 964) had a positive impact on teacher content knowledge. For each of the courses offered to date, teachers were scored on a pre-post performance assessment task using an adapted version of the six-point Oregon Department of Education scoring rubric for performance assessments in mathematics. For each of the courses, the median score increased two points on most rubric dimensions. A Wilcoxon Signed Ranks Test showed the increases from pre-assessment to post-assessment on each dimension to be statistically significant ($p \leq 0.05$).

In addition to the performance assessment, a modified version of the Learning Mathematics for Teaching Project's *Test of Content Knowledge for Teaching Mathematics-Patterns* (CKTM-*Patterns*) was administered to teachers at the beginning and end of the two-week *Patterns* course (N=258). The CKTM-*Geometry* test was administered pre- and post- to teachers in the *Geometry* course (N=106). On both tests, there was a 3-point mean score increase (out of 31 items on the *Patterns* test and 23 items on the *Geometry* test) from pre- to post- administration, which yielded a 0.5 effect size. The CKTM-*Patterns* was administered longitudinally to a sample of teachers (N=20) following a second or third course (whose content was unrelated to *Patterns*). There was a pre-post mean increase of 3 points, and a pre-post longitudinal mean increase of 5 points. More data will be available after summer 2009, but this suggests that content acquired in the *Patterns* course is sustained, even improved, over time.

CHANGES IN TEACHERS' BELIEFS ABOUT MATHEMATICS

In addition to improved content knowledge, teachers demonstrated changes in mathematical dispositions and beliefs about mathematics. Qualitative analysis of teachers' comments on post-course surveys (N=953) and in follow-up focus groups and interviews suggests that the summer courses dramatically transformed their thinking about mathematics in general, about themselves as learners of mathematics, about themselves as teachers of mathematics, and about how mathematics should be taught. For example, before they took summer courses, many teachers reported believing that there was only one way to solve a mathematics problem, that mathematics involved employing a series of algorithms to numbers, and that the best way to teach mathematics was to lecture and give examples. After summer courses, teachers reported feeling empowered as learners of mathematics and believing in the power of providing a challenging, inquiry-based learning environment for students in mathematics.

To assess changes in mathematical disposition, a behavioral checklist was developed by the Center for Educational Accountability (CEA), the external evaluation team. Using this checklist, evaluators noted the incidence of positive behaviors associated with challenging courses and curricula (CCC) as defined by the project. GBMP has defined challenging courses and curricula as those that are focused on: (1) big mathematical ideas; (2) inquiry and reflection; (3) oral and written communication; and (4) developing productive disposition [CCC3]. In developing this definition, the partnership drew on a number of sources including [NRC], [CA], [CCC1], [CCC2], [NCSM], [NCTM], [NRC2], [NRC3], [P], [WP1], and [WP2]. A small random sample of teachers (N=15) was observed at three times during the *Patterns* course—day 1, day 4, and day 8. Only 3 of the 12 defined behaviors were displayed at all on the first day, and those were evident in only four participants. However, on the last day, all 12 behaviors were observed, and almost all behaviors were observed in the vast majority of participants. For example, 0% of teachers showed evidence of "persist[ing] when the answer is not known," on day 1, while 87% demonstrated this behavior on day 8 of the course. Likewise, 20% "ask[ed] probing questions" on day 1 while 93% exhibited this behavior on day 8.

GROWTH IN TEACHERS' INSTRUCTIONAL PRACTICE

Teachers demonstrated improved classroom practice after participating in summer mathematics courses. Repeated observations of teachers using the *Reformed Teaching Observation Protocol* (RTOP) showed a median increase of 7-10 points on each of the five subscales (20-point maximum on each subscale) from baseline to Year 4. At baseline, evaluators observed whole-group, didactic instruction followed by worksheets for homework, whereas in Year 3 and beyond, the evaluators observed use of challenging problems, divergent modes of questioning, and increased student interaction. During focus groups, teachers described specific ways in which the summer courses influenced their approach to teaching including their choice of problems, encouraging communication among students, and developing their listening and questioning techniques.

ADDITIONAL EVIDENCE-BASED RESULTS

- Impact on STEM Disciplinary Faculty

  (1) After experiencing the power of the learning environment in the courses for in-service teachers, STEM and education faculty members revised five courses—one at Birmingham-Southern College (BSC) and four at the University of Alabama at Birmingham (UAB)—to include reformed pedagogy using an inquiry-based approach. Median RTOP scores for instructors (N=8) using reformed pedagogy in these and other courses were between 11 and 18 out of a possible 20 on each of the five subscales. By comparison, median RTOP scores for STEM faculty members not using reformed pedagogy were between 0 and 3 on the same subscales [CMM]. (2) STEM faculty participated actively in the summer courses as fellow students with in-service and pre-service teachers. Subsequently, they contributed significantly to revision and mathematical strengthening of the summer courses. (3) A study using quasi-experimental design showed that students in a STEM course in Finite Mathematics taken by many pre-service teachers that included an inquiry component outperformed those with a lecture component in terms of problem-solving ability and communication skills [GBMP2]. In the overarching context of computer-assisted instruction, two pedagogical treatments in the one class meeting per week were compared: inquiry-based group work on open-ended problems with no prior instruction (modeled on successful GBMP summer courses) versus a summary lecture with graduated examples on the topics to be covered in computer-assisted instruction later. As a result of this study, all sections of finite mathematics are now being taught using the inquiry-based component.
- Programmatic Changes at the Institutes of Higher Education (IHE) Level
  To better prepare future teachers at the middle school level, the University of Alabama at Birmingham (UAB) developed a track of the mathematics major appropriate for pre-service middle school teachers. UAB also successfully negotiated the arduous process of gaining state approval of a new teaching certification program for grades 4-8 mathematics.
- Policy Changes at the K-12 and IHE Levels
  Two partnership districts have added a full-time math coach. Both districts acknowledge the influence of GBMP in deciding to invest funds in these positions. At Birmingham-Southern College (BSC), a new policy articulated the definition of scholarly work required for tenure and promotion in mathematics to include research in mathematics education on the same level as research in mathematics.
- Bridges Built between K-12 and IHE
  Prior to GBMP, connections existed between IHE colleges of education and K-12 districts, but through GBMP, strong bridges have been built between K-12 and IHE STEM faculty. District liaisons have said that the accessibility to IHE STEM faculty and the ongoing relationships that have resulted are powerful outcomes of this partnership.
- Growth in Parents' Understanding of How Children Learn Mathematics

To inform parents about and build support for inquiry-based instruction, GBMP hosted 12 Community Mathematics Nights per year. Attendance reached surprisingly high levels with 5,400 in attendance, over five times the number expected. These sessions appear to be transforming the way parents and community members think about mathematics as evidenced by changes in pre- and post-responses on a forced-choice survey of beliefs about how mathematics should be taught.

- Development of Mathematics Support Teams (Teacher-Leaders)
  Two cohorts of Mathematics Support Team teachers (N=67) participated in leadership development. A majority of MSTs proactively seized leadership opportunities such as demonstrating lessons for colleagues, delivering sessions for parents at their schools, hosting pre-service teachers, and serving on textbook adoption and course of study review committees.
- Noyce Master Teacher Program
  GBMP received a supplemental award for a Noyce Master Teacher professional development program for 16 teachers in high needs schools who either possess or are working toward a master's degree.
- Phase I work is documented in [CCC3], [CMM], [GBMP1], [GBMP2], [GBMP3], [GBMP4], [MFM], [SMC]. The partnership also disseminated work through 30 conference presentations.

LESSONS LEARNED

Most teachers found experiencing a challenging, inquiry-based learning environment first-hand to be a transformational experience and reported the desire to radically change their own classrooms to provide this type of experience for their students. However, after they returned to their schools, teachers faced many obstacles. Participants identified specific barriers to implementation, including a lack of curricular materials aligned with inquiry-based pedagogy, lack of understanding of the specifics of how to implement inquiry in their course of study, administrators who do not actively support inquiry, concerns that parents would react negatively to change, and the pressure to cover material associated with high stakes testing. Most of these factors—curricular materials and administrator and parent support—are barriers outside of the teacher's total control. However, understanding how to implement inquiry-based instruction is an internal barrier. A fundamental lesson learned is that if internal barriers are not removed, addressing external barriers will not be sufficient. A comprehensive list of lessons learned and how they have informed Phase II work follows.

- Instructional Practice
  (1) We realize that shifting the collaborative professional culture is critical to making institutional change within a school. In the final year of Phase I, twelve Mathematics Support Team (MST) teachers began facilitating school-based professional learning communities (PLCs). These PLCs have been studying articles, books and video clips to facilitate professional conversations focused on improving mathematics instruction in their schools. Teachers with a desire to provide an inquiry-based learning environment to their students need opportunities to learn the nuts and bolts of how to implement such instruction in daily practice. In addition, they recognize the need for assessment practices to become more aligned with inquiry-based instruction. The Phase II professional learning communities will address this need by focusing on implementing inquiry-based instruction and performance assessments. (2) In addition, teachers need quality curriculum. The state-wide textbook adoption was held just before GBMP was funded. As a result, partnership districts had adopted a variety of curricula that were often not consistent with GBMP pedagogy. In Phase II, participating schools must ensure that inquiry-based curricular materials are implemented.
- Partner Commitments
  (1) Involving nine school districts (with 33 middle schools and additional schools housing grades 5 and 6) with the attendant teacher, principal and superintendent turnover somewhat diluted the potential impact of GBMP. In Phase II, we narrow and intensify our work to involve fewer schools (12 middle schools) while scaling up the level of participation within each school. This model will better support our research design. (2) Initial buy-in from the partners at all levels is important. In the

pilot and planning stages, GBMP had commitments from superintendents, central office personnel and classroom teachers. However, we came to realize that we also needed concrete initial commitments from building-level administrators. For Phase II, building level administrators have been involved in the planning stages and have formally committed to partnership responsibilities along with superintendents and IHE partners. (3) The commitment from the districts must include making student-level data available for research. Most districts have been willing to provide the data, but some do not have the capability to do so. Phase II districts have given an up-front commitment to provide student-level data. GBMP will provide technical support for districts that need help accessing the data.

- Building Common Vision and Working Relationships
  (1) It takes years for a partnership to gel and work efficiently and effectively together. GBMP had the advantage of a history of informal partnership prior to the NSF award, but saw significantly more growth over the five years of joint effort. This puts GBMP in a position to work even more effectively in Phase II. (2) It also takes time to build trust between project evaluators and classroom teachers. Initially, many teachers were reluctant to permit classroom observations and administer performance-based assessments which hampered data collection. Trust has now been established. In addition, the letters of commitment from districts and principals clearly delineate commitments to facilitate data collection at the classroom level.

PHASE II: RESEARCH FRAMEWORK

Phase I produced compelling evidence that challenging, inquiry-based instruction results in improved student achievement. In Phase II, we expect to show that the gains in student achievement previously seen in highly implementing grade levels can be brought to scale in all participating schools. Our first research question focuses on generating additional evidence to support this hypothesis. Phase I also produced compelling evidence that the summer courses were effective in increasing teacher content knowledge and the desire to provide a challenging, inquiry-based learning environment for their students [GBMP1]. The focus of the additional research questions is to investigate whether systemic attention to teacher content knowledge and pedagogical knowledge accompanied by removing internal and external barriers to implementation results in higher levels of implementation of inquiry-based instruction.

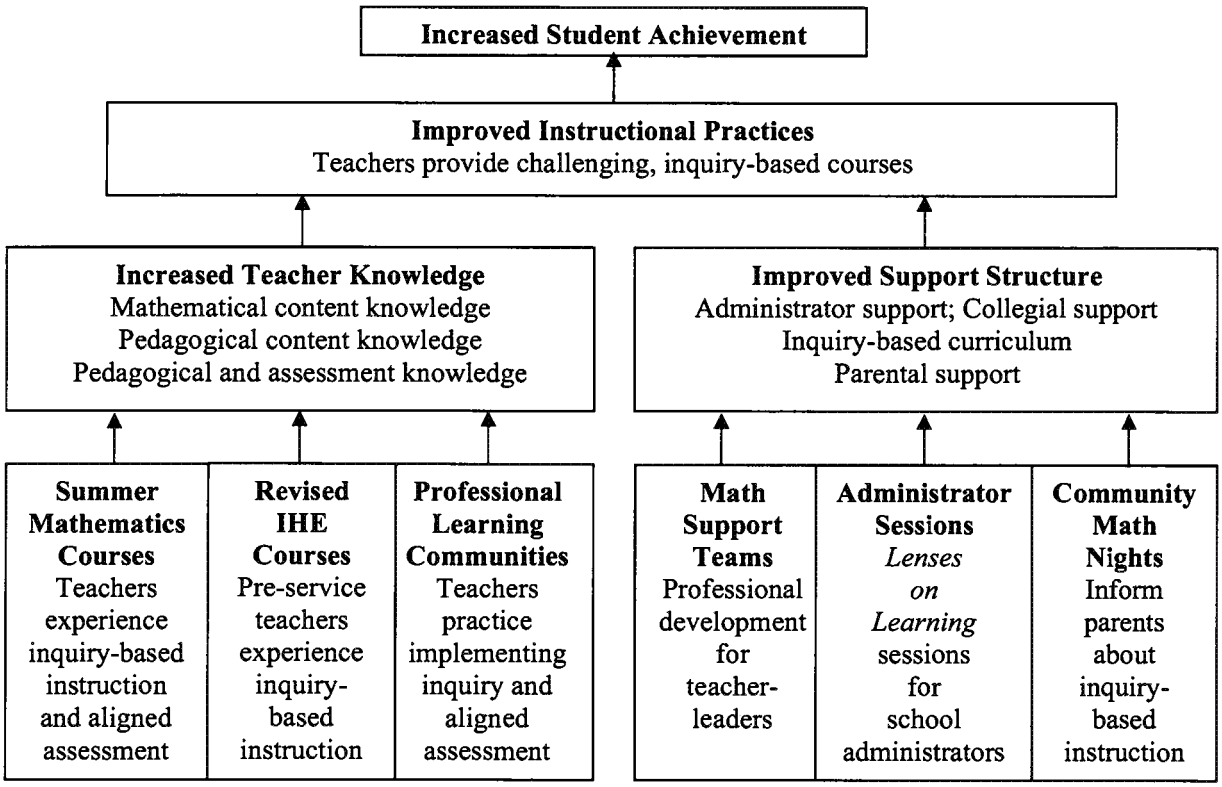
Our work is informed by current research in teaching and learning. The MSP Knowledge Management and Dissemination (KMD) project (http://www.mspkmd.net/index.php) has been a great asset in reviewing the state of current research about to what extent teacher content knowledge, pedagogical content knowledge, experience of inquiry-based pedagogy as a learner, and support structures including professional learning communities impact student learning. However, only two studies ([HRB], [MMW]) were indentified as meeting the empirical evidentiary standards quantifiably linking teacher content knowledge to student learning, and these were both at elementary grade levels. Of 18 studies identified linking teacher content knowledge in mathematics to instructional practice, only four ([C], [SPAS], [TT1], [TT2], [Wlsn]) were primarily at middle grades, and of those only one [SPAS] included a quantitative measure of content knowledge. Our research design is intended to overcome such limitations.

A limitation that we identified in GBMP Phase I was the weak link between deepening teacher content knowledge with improved mathematical disposition and the implementation of inquiry-based curriculum. One study ([M], [MG1], [MG2]) at the middle grades level showed that content knowledge significantly influences curriculum implementation in case studies, but generalizability is questionable. Our research design is intended to detect this influence at scale in entire schools across diverse populations, based upon direct observation of classrooms.

Deepening content knowledge and improving mathematical disposition by exposing teachers to challenging mathematics is a goal of much recent professional development, particularly that fostered by

MSPs. The six research studies identified by KMD ([BM], [CS], [GG], [Geer], [SPAS], [Sw1], [Sw2]) are all in middle grades (4-10), but lack comparison groups of teachers. Because our intervention in Phase II will focus on only some of the middle schools in the seven districts involved in Phase II, we will have comparison populations available. Figure 3 provides an overview of the research framework.

Figure 3



RESEARCH QUESTIONS: STUDENT ACHIEVEMENT

(1) How does the achievement of students in classrooms with a high level of implementation of inquiry-based instruction compare with the achievement of students in classrooms with a moderate or low level of implementation of inquiry-based instruction?

(2) To what degree does exposure to a high level of implementation of inquiry-based instruction reduce discrepancies in disaggregated student achievement data?

RESEARCH QUESTIONS: BRINGING IMPLEMENTATION TO SCALE

(3) To what degree does active participation in Professional Learning Communities that focus on the implementation of inquiry-based pedagogy and aligned assessment affect instruction and assessment in the classroom?

(4) To what degree does a support structure that includes an inquiry-based curriculum and the support of administrators, colleagues, and parents affect the extent and depth of implementation of inquiry-based instruction within a middle school?

(5) To what extent can implementation of inquiry-based instruction be brought to scale across middle schools with diverse demographic variables?

RESEARCH QUESTION: PRE-SERVICE

(6) How do the performance and dispositions of students in IHE mathematics courses that include an inquiry-based component compare with the performance and dispositions of students in courses without an inquiry-based component?

RESEARCH TEAM AND RESEARCH METHODOLOGIES

The research program will be directed by Rachel Cochran, Center for Educational Accountability (CEA), and John Mayer, University of Alabama at Birmingham (UAB-Mathematics). The CEA is housed at UAB but is a separate unit (with separate budget) that is external to the partnership. The CEA currently manages over $1,000,000 in national, regional, and state contracts per year, including federally funded statewide school evaluation and research initiatives in Alabama, Louisiana, Mississippi, Tennessee, and Illinois. Rachel Cochran will be responsible for the day-to-day operations of the research program. She was the lead evaluator for Phase I of GBMP and has 15 years of experience in the field of educational research and evaluation. John Mayer has numerous publications and served as investigator on two large-scale, multi-year educational reform and research efforts. He has been PI of Phase I of GBMP and has co-authored papers and made presentations at national meetings during the course of Phase I. The research team also includes Jason Fulmore (CEA), Tommy Smith (UAB), Bernie Mullins (BSC), and Ann Dominick (Hoover City Schools). Major project components to be studied and measures employed to study them are summarized below.

Domain	Measures	Instruments
Middle School Student Achievement	Students' engagement in challenging courses and curricula (CCC), achievement in mathematics as a result of level of exposure to CCC, and ability to solve challenging mathematics problems as related to exposure to CCC longitudinally from baseline	• Balanced Assessment • Student Behavioral Checklist • ARMT scaled scores across years for matched students • NCEs on SAT-10 across years for matched students
Teacher Instructional Practice	Teachers' use of CCC in their classrooms longitudinally from baseline	• RTOP • Teacher Behavioral Checklist • Classroom Lessons and Assessments • Teacher Surveys • Interviews • Focus Groups
Teacher Content Knowledge, Pedagogical Content Knowledge, Pedagogical Knowledge	Understanding as a result of teachers' exposure to challenging courses and curriculum (CCC) in summer courses	• CKTM • Performance Assessment • Teacher Portfolio • Behavioral Checklist • Post-course Surveys • Interviews • Focus Groups
Support Structure	Effectiveness of administrator sessions, MST sessions, PLCs, and CMNs and changes in classrooms, grade levels, and schools resulting from participation	• Teacher Surveys, Interviews, Focus Groups • MST Surveys, Interviews, Focus Groups • Administrator Surveys, Interviews, Focus Groups • Parent Surveys
IHE Student Achievement	Student understanding, communication skills, problem-solving ability, and mathematical self-efficacy	• Pre- and post- performance assessment • Pre- and post- survey of self-efficacy [BH] • Focus groups • Student course evaluations (IDEA system) [ID]

QUANTITATIVE BENCHMARKS AND QUALITATIVE OUTCOMES

- Student Outcomes
  Students in high implementing classrooms will show significantly more growth in student achievement than students in moderate and low implementing classrooms. Within each participating school, gaps in disaggregated data will be reduced by a statistically significant amount. Students in classrooms whose teachers are active participants in PLCs show significant growth during the academic year from pre- to post- on Balanced Assessment items. On the Student Behavioral Checklist, students in high implementing classrooms will demonstrate growth in the incidence of positive behaviors associated with challenging courses and curriculum.
- Teacher Enhancement
  100% of participating mathematics teachers will have completed at least two summer courses by the end of Year 3. For the performance assessment, 90% of participating teachers will demonstrate gains of one level or more on one or more rubric dimensions during *Patterns* and 75% of participating teachers will score at Level 4 (proficient) or higher on all dimensions at post-test. For the CKTM, participant gains from pre- to post-testing will result in an effect size of at least 0.5. Gains will be maintained in longitudinal testing. For teacher-generated portfolios, 75% will be at the proficient level on the portfolio rubric. On the Teacher Behavioral Checklist, teachers in summer courses will demonstrate growth in the incidence of positive behaviors associated with challenging courses and curriculum. Surveys, interviews and focus groups will indicate that, after completing two summer courses and actively participating in PLC meetings, a majority of teachers are convinced of the value of inquiry-based instruction and feel ready to implement it themselves.
- Implementation of Challenging Courses and Curricula
  At least 30% of teachers who have completed one summer course and actively participated in PLC meetings will have moderate or high implementing classrooms. At least 60% of teachers who have completed two summer courses and actively participated in PLC meetings will have moderate or high implementing classrooms.
- Improved Support Structures for Challenging Courses and Curricula
  100% of participating schools will have an administrator who participates in the Administrator Sessions. At least one Mathematics Support Team (MST) teacher will be identified in each participating school after the first year of summer courses. 50% of participating schools will have an active PLC in the academic year following the first year of summer courses. 100% of participating schools will have an active PLC in the academic year following the second year of summer courses. In each school, 75% of participating teachers will attend 8-12 PLC meetings per year. 75% of teachers report that their administrators actively support inquiry-based instruction. Attendance at community mathematics nights will exceed 1,200 by the end of Year 3 and 85% of survey respondents will rate the session as informative or highly informative.
- Policy Changes at the Middle School Level
  Each PLC will document the way in which their PLC is integrated into the school's on-going professional development plan and/or continuous improvement plan. In the final year, each PLC will document how the work of their PLC will continue after the end of the Phase II award.
- Programmatic Changes at the IHE Level
  At each IHE, at least one course that serves pre-service teachers will be revised to model GBMP's definition of CCC by the end of Year 1 and be offered by the end of Year 2.
- Impact on STEM Disciplinary Faculty
  75% of participating STEM disciplinary faculty will have scores of 12.5 or above out of a possible 20 points on each subscale of RTOP by the end of Year 3.

PHASE II: IMPLEMENTATION FRAMEWORK

PARTNERSHIP MEMBERS

Phase II includes the following core partner school systems and IHEs: Fairfield City Schools, Homewood City Schools, Hoover City Schools, Jefferson County Schools, Shelby County Schools, Tarrant City Schools, Trussville City Schools, the University of Alabama at Birmingham (UAB), and Birmingham-Southern College (BSC). All were core partners in Phase I with the exception of Tarrant City Schools. The rationale for including Tarrant City Schools is to investigate whether the GBMP professional development model can be successfully implemented at scale in another high needs district. In addition, the Mathematics Education Collaborative is a supporting partner. Using a partnership-driven approach, we defined the requirements for participation which are described in detail under Institutional Change and Sustainability below.

PARTNERSHIP ACTIVITIES

GBMP will focus on strategies that proved successful in Phase I and extend our work to improve support structures around implementation of inquiry-based instruction in order to bring previously observed gains in student achievement to scale. Our model involves providing sustained professional development for grade 6-8 teachers focused on deepening teacher content knowledge, supporting the implementation of inquiry-based curriculum, developing cadres of teacher-leaders, supporting professional learning communities, informing parents about quality mathematics instruction and engaging administrators in the collaborative effort to improve mathematics education. The major components of this effort are described below.

1. Summer Courses (teacher quality, quantity and diversity; challenging courses and curricula)
GBMP will offer the following seven courses which focus on mathematics content knowledge for teachers while modeling a challenging, inquiry-based learning environment: *Patterns I: The Foundations of Algebraic Reasoning*; *Patterns II: Further Explorations in the Foundations of Algebraic Reasoning*; *Numerical Reasoning*; *Geometry and Proportional Reasoning*; *Probability; Extending Algebraic Reasoning I*; and *Extending Algebraic Reasoning II*. Participants pursue challenging mathematics as learners, read articles about pedagogy, and engage in discussion about both mathematics content and the pedagogy modeled in class and described in the literature. The courses employ a multi-representational approach including graphical, geometrical, numerical, verbal, and algebraic representations. All courses make use of appropriate manipulatives and *Extending Algebraic Reasoning I* and *II* include extensive use of graphing calculator technology.

Because of the emphasis on both content knowledge and pedagogy, the manner in which the courses are taught is of critical importance. It is therefore vital that the instructors of the courses (whether from a K-12 or IHE background) have excellent pedagogical and mathematical knowledge. The courses will be taught by instructors who have completed a qualification process that involves first participating in a course, then serving as an intern in the course under the guidance of an experienced Mathematics Education Collaborative (MEC) instructor, followed by teaching or co-teaching the course. MEC-qualified instructors include Birmingham area IHE or K-12 faculty members (Dominick, Mayer, Mullins, Parrish, Smith) who completed this process during Phase I of our MSP. Additional IHE STEM faculty members will take summer courses as participants to facilitate their revision of IHE STEM courses.

2. Professional Learning Communities (supporting challenging courses and curricula)
Each participating school will have a school-embedded Professional Learning Community (PLC). Each PLC will meet 8-12 times per year either during the school day or after school. The focus of the PLCs will be on learning to implement inquiry-based instruction and aligned assessment. The PLCs will study articles, books and video clips to facilitate professional conversations focused on improving mathematics instruction in their schools. Support materials include *Making Sense: Teaching and Learning*

Mathematics with Understanding [HCF], *Young Mathematicians at Work: Constructing Fractions, Decimals, and Percents* [FD], *Mathematical Power: Lessons from the Classroom* [P2], *Adding It Up: Helping Children Learn Mathematics* [NRC], *Assessment for Learning around the World* [DHM], *Learning and Teaching Linear Functions* [S], *Assessing Mathematics Understandings and Skills Effectively*, [Sc], *Connecting Mathematical Ideas* [HB].

3. Mathematics Support Teams (supporting challenging courses and curricula)
GBMP will offer additional professional development opportunities to separate cadres of Mathematics Support Team teachers (teacher-leaders). The cohort of Math Support Team teachers (MSTs) who completed the four-year leadership development program during Phase I will continue their leadership roles in Phase II. The cohort of MSTs who completed two years of the leadership development program during Phase I will complete the program in Phase II. A new cohort of teachers with leadership potential will be selected after the first year of summer courses (at the end of Year 1). These MSTs will be chosen using the selection criteria established by the partnership in Phase I (documented in the GBMP Strategic Plan). To build these leadership skills, GBMP will engage these MST's in a professional development program to extend their understanding of mathematics, enhance their personal mathematical dispositions, expand their abilities to teach mathematics, and build both the willingness and skills necessary to take on leadership roles within their school systems. The model was informed by *Assessing the Prospects for Teacher Leadership* [L], *Professional Development for Teachers of Science and Mathematics* [LH1], and *Continuing to Learn: A Guidebook for Teacher Development* [LH2]. In order to minimize the number of days MSTs must be out of their classrooms (a lesson learned from Phase I), two days will be held prior to the beginning of the school year with four additional days during the academic year. The new cohort of MSTs will take on leadership roles after one year in the program. Leadership roles include:

- Offering parent sessions at their schools.
- Facilitating school embedded Professional Learning Communities.
- Participating in the GBMP Classroom Observation Network. MSTs may sign up to make their classrooms available to other teachers who want to observe inquiry-based instruction.
- Hosting GBMP pre-service teachers in their classrooms for field experiences and internships.
- Participating in and making presentations at professional conferences.

4. Administrator Sessions (supporting challenging courses and curricula)
In order for administrators to become instructional leaders in mathematics, they need opportunities to learn how to recognize and support quality mathematics education in their schools. GBMP will offer professional development for administrators that (1) engages them in doing mathematics so they experience first-hand what it means to know and understand mathematics; (2) engages them in a professional learning community of administrators where they study ways to support teachers in implementing inquiry-based mathematics; (3) prepares them to communicate more effectively with parents and the public; and (4) builds a sense of partnership between administrators and teachers who work together to advance mathematics teaching and learning in their schools. While classroom teachers attend a nine-day mathematics content course in Year 1 of the project, one administrator from each participating school will attend a two-day institute where they will: experience what algebraic reasoning looks like across grades 6-8; study what to look for in a mathematics classroom that models GBMP's characteristics of CCC; learn to use an implementation survey to collect data during mathematics classroom observations; and attend the final day of a nine-day summer course in which their teachers are participating. During the academic year, the participating administrator from each school will attend *Lenses on Learning* sessions co-facilitated by a local administrator and a project co-director.

5. Community Mathematics Nights (supporting challenging courses and curricula)
GBMP will offer twelve Community Mathematics Nights per year. Research from Phase I shows that these sessions are effective in terms of informing parents and community members about issues in

mathematics education. The sessions are: *Mathematics and Your Child's Future: The Basics and Beyond, The Power of Multiplicative Reasoning, How to Help Your Child with Math at Home, More Ideas for Helping Your Child at Home,* and *Algebra: Preparation for Success.* [P]

6. Revised STEM Courses (teacher quality, quantity, and diversity; challenging courses and curricula)
Each participating IHE has committed to revising at least one mathematics course (whose audience includes pre-service teachers) in keeping with the GBMP definition of Challenging Courses and Curriculum [CCC3]. At UAB, the courses to be revised include Basic Algebra (MA 098), Intermediate Algebra (MA 102) and further revision of Pre-Calculus Algebra (MA 105). Currently, these courses are based on computer-assisted instruction with two meetings per week in a computer lab and one meeting per week in a lecture format. The revised sections will replace the lectures with inquiry-based group work sessions. The research design to study the comparative effective of lecture and group work was described above. The UAB team includes Mayer, Johnson, Stansell, Dixon, and Land, all of whom were involved in Phase I. At BSC, a new Interim (January term) course will be developed to focus on problem solving and numerical reasoning. Mullins (who was involved in Phase I) will develop and seek approval for the course in Year 1 and it will be taught in Year 2.

7. Pre-service Teacher Recruitment (teacher quality, quantity and diversity)
GBMP will intentionally recruit pre-service teachers at the upper-elementary and middle school levels. Through improved course offering for pre-service teachers at partnership IHEs, students will experience first-hand an engaging inquiry-based learning environment. GBMP's established network of MSTs and experienced GBMP teachers provide ample sites for pre-service teachers to complete their teaching internship in classrooms that model challenging courses and curricula. Many graduates of partnership IHEs accept positions in partnership schools after graduation where they will begin their teaching careers in a supportive environment with a community of learners and additional opportunities for professional development.

8. Dissemination of Research Results (evidenced-based outcomes)
GBMP will submit articles to peer-reviewed journals on the following topics: (1) the relationship between challenging, inquiry-based instruction and student achievement; (2) overcoming barriers to implementing challenging courses in middle schools; and (3) the relationship between challenging, inquiry-based instruction and IHE student problem-solving ability and communication skills. GBMP will submit abstracts to the following national conferences: Joint Mathematics Meetings, Research on Undergraduate Mathematics Education, National Council of Teachers of Mathematics, and the MSP Learning Network Conference. GBMP has a track-record of multiple accepted abstracts at each of these conferences in Phase I. GBMP also has a substantial track record of presentations at regional and local conferences (MAA-Southeast, AACTM, NCTM).

PHASE II: EVALUATION PLAN

The Evaluation Team is external to the partnership and is comprised of staff from the Center for Educational Accountability (CEA) under the direction of Scott Snyder. Excellent communication between GBMP and the CEA during Phase I facilitated the continuous refinement of the project through responses to formative feedback. The qualifications of the CEA staff were noted above.

The project's evaluation design is based on the belief that mathematics education reform occurs at three levels: the individual level at which teachers are learners of mathematics, the classroom level at which teachers are teachers of mathematics, and the school level at which teachers are members of a reform community. For meaningful change to occur at the school level, there must be support systems in place to promote organized, school-wide transformation. Therefore, the impact of the project must be assessed at all three levels.

The evaluation logic model is a traditional context, input, process and outcome system that will be supplemented by research based on principles and theories of learning and development. *Context evaluation* will involve a description of participating schools, students, parents, higher education faculty, pre-service students, teachers, and school administrators. We will continue to document disaggregated data in the MSP Management Information System. *Input evaluation* will focus on the range of grant and non-grant resources (fiscal, human, material) that are used and expended for project activities. Context and input evaluation data provide mediating information and allow the evaluators and project management to understand differences in implementation of processes and differential outcomes.

Process evaluation will involve ongoing documentation of implementation of project activities, modifications based on formative feedback, and achievement of benchmarks according to timeliness, quality, and criteria. The *outcome evaluation* objectives and strategies are summarized in Appendix 2. This appendix includes both intermediate and final outcomes. To the extent possible, outcome evaluation data will be tied to context, input, and process evaluation data according to the logic model in order to aid in understanding of factors and features related to differential levels of success.

The majority of evaluation activities will focus on gathering and reporting data for the formative purpose of improving intermediate outcomes. Formative evaluation will provide the project leadership with information that can be used to improve the long-term effectiveness and final outcomes of the project. The process and outcome evaluation efforts will be conducted in a manner to support data-based program improvements during the course of the project. The evaluation team will work closely with the management team and school faculties to facilitate prompt and accurate feedback to decision-makers and stakeholders.

Program evaluation efforts will involve cross-sectional descriptive methods, cross-sectional comparative methods, and longitudinal descriptive and comparative methods. The majority of evaluation efforts will focus on describing activities and outcomes for a single group (summer institute participants, classroom teachers, 6-8 mathematics students, IHE faculty, parents) at a specific time (e.g., Year 2). Longitudinal trend analysis will be conducted using both qualitative and quantitative data for select intermediate and final outcomes.

A portion of the evaluation in Phase II will focus on collecting and analyzing longitudinal data regarding teacher content knowledge and instructional practice. Many teachers in Phase II schools have already taken at least one summer course and some have taken two or more. Many of those teachers completed a pre- and post-course CKTM and have been observed using the Reformed Teaching Observation Protocol. Preliminary pilot data from a longitudinal administration of the CKTM suggest that CKTM gains are maintained, if not strengthened, over time. A small sample of RTOP data from repeated observations suggests that instructional practice improves as teachers participate in more GBMP summer courses. The evaluation team will continue to gather longitudinal CKTM and RTOP data to better understand long-term gains in content knowledge and changes in instructional practice as a result of participation in GBMP.

PHASE II: PARTNERSHIP MANAGEMENT/GOVERNANCE PLAN

The Management Plan is a continuation of the management structure of Phase I, with revisions informed by lessons learned. All school systems and IHEs are core partners and the Mathematics Education Collaborative (MEC) is a supporting partner. The Management Team includes the PI, Co-PIs, Co-directors, a district liaison from each school district, and a representative from each IHE department. This is the decision-making body of the partnership and is responsible for overall management of the project, facilitating the research program, contributing to MSP-MIS, generating annual reports, and disseminating evidence-based results. With the exception of the representative of Tarrant City Schools, all Management

Team members have been involved in GBMP since the beginning and have demonstrated the capacity to successfully manage the scope of work proposed in Phase II. The Management Team meets quarterly as a whole and subgroups meet additionally as needed to fulfill their responsibilities (clearly delineated in the strategic plan). All partners are directly involved in management of the project, have regular input into decision-making, are responsive to formative evaluation, and share accountability for project outcomes.

The Design Team includes the members of the Management Team together with all other individuals involved in the planning, design, and execution of the work of the partnership. GBMP is supported by a Project Manager to carry out day-to-day operations of the GBMP central office. GBMP will continue to benefit from the wisdom of our National Advisory Board comprised of experts in mathematics, education, and assessment. This body has given excellent guidance to GBMP throughout Phase I.

PHASE II: INSTITUTIONAL CHANGE AND SUSTAINABILITY

We specify below partnership commitments to ensure institutional change and sustainability of the project beyond Phase II support. The K-12 Partner commitments are attested to in the letters from districts, signed by superintendents and principals, in Appendix 5.

K-12 Partner Commitments

1. Districts will designate a District Liaison who will participate in quarterly Management Team meetings and oversee the active involvement of the district in the partnership.
2. In each participating school, 75% of mathematics teachers will commit to completing at least two GBMP summer courses over three years (2010-2012). Teachers who have already completed four GBMP courses are not required to take additional courses but may elect to do so. Special education teachers who teach mathematics are not required to participate, but may elect to do so.
3. Participating teachers will administer two 15-minute performance-based assessment tasks to their students each year and will allow one classroom observation per year by the GBMP Evaluation Team.
4. Participating schools will commit to having a Professional Learning Community (PLC) which will meet 8-12 times during the academic year. If meetings are held after school, GBMP will provide funds for teachers to participate.
5. Each Professional Learning Community (PLC) will document the way in which their PLC is integrated into the school's on-going professional development plan and/or continuous improvement plan. In the final year, each PLC will document how the work of their PLC will continue after the end of the Phase II award.
6. Participating schools will ensure that inquiry-based curricular materials are available and implemented.
7. One designated administrator in each participating school will commit to: participate in the administrator sessions; attend the Community Mathematics Nights designated for their school; send a letter to teachers reminding them to attend the Community Mathematics Night and to encourage the parents to attend; and contact teachers each year reminding them to register for summer courses.
8. The superintendent of each participating district will commit to: attend the Community Mathematics Nights held in their district; contact administrators reminding them to attend the administrator sessions; and keep the Board of Education informed about the work of GBMP in their district.
9. Districts will provide data, documentation, and reports for annual reports, the Management Information System, and to support the GBMP research and dissemination plan.
10. Districts will annually provide disaggregated student-level achievement data. Data will be reported in an aggregate form with no system, school, or teacher identifiers.
11. Districts are responsible for in-kind contributions such as sites for Community Mathematics Nights, Summer Courses, School-embedded Professional Learning Communities, and Math Support Team Sessions.

12. Districts will allow MSTs to participate in the four MST Sessions that are held on school days (the other two sessions are held during the summer).
13. To help sustain an environment that values an evidence-based approach, partners will annually review the results of the partnership in terms of student outcomes, teacher enhancement, and implementing challenging courses and curricula. All partners are directly involved in the management of the project, have regular input into decision-making, are responsive to formative evaluation, and share accountability for project outcomes.

IHE Partner Commitments

1. All STEM faculty members must be directly involved in work with in-service or pre-service teachers through revising or teaching summer courses or IHE STEM courses.
2. Each IHE must commit to revising at least one mathematics course to model the GBMP definition of challenging courses and curricula, seeking approval from the appropriate curriculum oversight body at the IHE, offering the course in the year following course approval, and documenting a plan for offering the course beyond the support of Phase II.
3. Each IHE must provide data, documentation and reports for annual reports, the Management Information System, and participate in the GBMP research and dissemination plans.
4. The co-investigators commit to co-authoring articles describing the evidenced-based results of the proposed research.
5. To help sustain an environment that values an evidence-based approach, partners will annually review the results of the partnership in terms of student outcomes, teacher enhancement, and implementing challenging courses and curricula. All partners are directly involved in the management of the project, have regular input into decision-making, are responsive to formative evaluation, and share accountability for project outcomes.