Achieve

Report

Out of Many, One: Toward Rigorous Common Core Standards From the Ground Up

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All students should graduate from high school prepared for the demands of postsecondary education, meaningful careers and effective citizenship.

For the first time in the history of American education, educators and policymakers are setting their sights on reaching this goal. Achieving the goal will require states to address the twin challenges of graduating more students and graduating them ready for college, career and citizenship.

Achieve, Inc., the Education Trust, the Thomas B. Fordham Foundation and the National Alliance of Business launched the American Diploma Project (ADP) in 2001 to help states prepare all students for success. In 2004, we published a landmark report, *Ready or Not: Creating a High School Diploma That Counts*, found that all students, whether they are heading to college or embarking on a meaningful career, need the same level of knowledge in the foundational subjects of English and mathematics. The ADP English and mathematics benchmarks reflect the knowledge and skills all students should gain in high school to ensure that they are prepared to enter and succeed in credit-bearing college courses or to gain entry-level positions in high-paying careers that offer opportunities to advance.

In 2005, Achieve launched the ADP Network to help states align standards with real-world demands and adopt policies to increase student success. Participating in the ADP Network helps states chart their own path to college and career readiness.

Why ADP? Too many students across the country meet state standards, pass state tests and complete state-required courses only to be placed into remedial courses once they enroll in college or find they are unqualified for training programs and skilled employment in the modern workplace. They may be *proficient*, but they are obviously not *prepared*. Using the ADP benchmarks, Achieve helps state policymakers collaborate with K-12 public educators, postsecondary faculty, the business community and other partners in their states to identify the knowledge and skills required for their graduates to succeed after high school.

Before the ADP benchmarks identified what students need to know to succeed post-high school graduation, state standards reflected a consensus among subject matter experts about what would be desirable or

important for young people to learn. They did not take into account what postsecondary institutions, training programs and employers expected of high school graduates.

Since 2005, states have made rapid progress in raising standards to align with the real-world expectations of employers and postsecondary faculty in the increasingly competitive global marketplace. To date, 21 states have aligned their high school standards with these real-world goals. To get there, each state convened employers and postsecondary faculty, along with K-12 educators, to articulate what students need to know and be able to do to succeed after high school.

This report presents an analysis of the college- and career-ready standards for English in 12 states and for mathematics in 16 states. [1]

What have we learned from the work of these leading states?

- Whether students are headed directly to work or to postsecondary education, employers and faculty agree that high school graduates need increasingly similar levels of rigor.
- When states take the lead, and use college and career readiness as their goal, they will develop rigorous standards that prepare all students for success.
- A critical mass of states has arrived at a *common core* of standards in English and mathematics as a byproduct of their deliberate, voluntary efforts to align their high school standards with the demands of college and careers.

Each state is responsible for setting their own academic standards, consistent with their constitutional responsibilities. Federal efforts to influence—let alone direct or determine—state standards have met with stiff and effective political resistance. This report demonstrates that state education policymakers—focusing on their own goals, working with their own constituents and on their own timetables—will put in place rigorous, competitive standards that prepare all students for college and careers.

Voluntary, state led alignment efforts that have resulted in a common core should not be confused with calls for the federal government to set national standards. The common core discussed in this report came about organically, through action by each individual state, working in their states to identify what their high school graduates need to know. The common core reflects the reality of the world—that there is fundamental knowledge in English and mathematics that all graduates must know to succeed and that is not bound by state lines—but the common core also respects the traditional role of state decision making in education.

With the necessary and intentional leadership from states, there is every reason to think that a common core of college- and career-ready expectations can—and should—be reflected in virtually every state. Getting standards right is not just an academic exercise. Rigorous state standards anchored in real world demands can and should drive the rest of the states' education reform agenda—including graduation requirements, assessments, accountability and data systems. Only then can the gap between students being proficient and being truly prepared be closed.

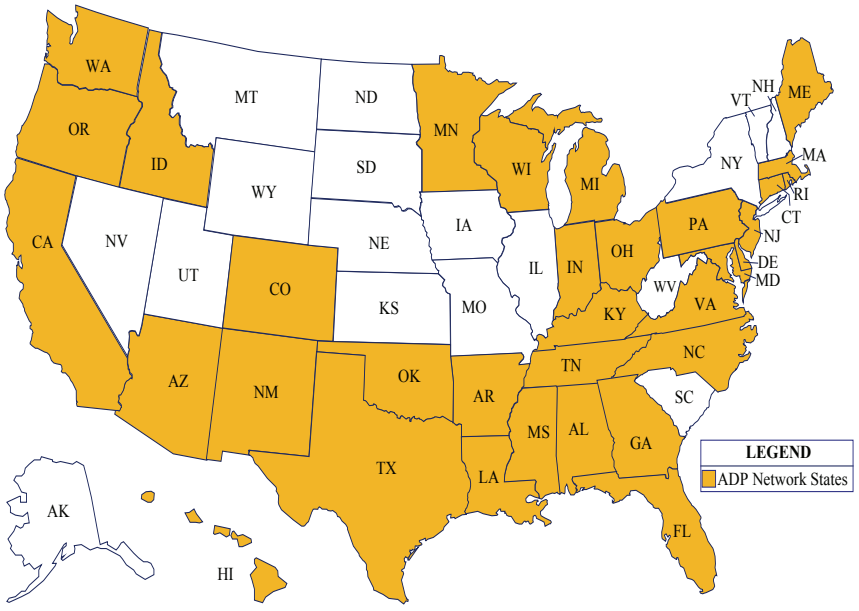
The American Diploma Project Network

The states that have led this effort are members of the American Diploma Project (ADP) Network. In 2005, Achieve and 13 states created the ADP Network to help states close the significant gap between what students need to know for postsecondary success and what states require them to demonstrate in order to earn a high school diploma. Supported by research that has identified the knowledge and skills in English and mathematics all students need to succeed in postsecondary education and good jobs, the governors, chief state school officers, and postsecondary and business leaders in the network states have committed to work together to:

- Align high school standards with the demands of postsecondary education and the workplace;
- Require students to complete a college- and career-ready curriculum to earn a high school diploma;
- Build college-and career -ready measures into statewide high school assessment systems, and
- Hold high schools and postsecondary institutions accountable for student preparation and success.

Three years later, the ADP Network has grown to 33 states—collectively educating 80 percent of the nation's public school students—committed to enacting this policy agenda as part of a broader effort to improve preparation for postsecondary education and careers. Through the ADP Network, Achieve has worked closely with states to help them align their high school academic content standards. Achieve's work with states replicates the process developed during the research phase of the American Diploma Project—research that produced the ADP college- and career-ready benchmarks against which Achieve now evaluates state high school standards in English and mathematics.

The American Diploma Project Network States



The ADP Network states have made considerable progress. Whereas only three states reported that they had aligned their high school standards with college and workplace demands before the Network was formed, today 21 states report that they have done so for English and mathematics. Eleven other states are planning to do so this year. Whereas by the end of 2004, only two states had adopted policies that required students to complete a rigorous college- and career-prep curriculum in order to graduate, today 20 states and the District of Columbia have enacted such policies.

The American Diploma Project Benchmarks

From 2002 to 2004, in partnership with the Education Trust, the Thomas B. Fordham Foundation, and the National Alliance of Business, Achieve worked closely with representatives from the K–12, postsecondary and business communities in Indiana, Kentucky, Massachusetts, Nevada and Texas to identify the English and mathematics knowledge and skills high school graduates need for success in college and careers. As the first step of the project, economists analyzed labor market projections to identify the most promising jobs—those that pay enough to support a family and provide real potential for career advancement—and reviewed high school transcripts and other longitudinal education data to determine the preparation workers in those occupations had received in high school.[2] ADP partners with postsecondary faculty from two- and four-year broad-access institutions in the five partner states to determine the prerequisite English and mathematics knowledge and skills required for success in entry-level, credit-bearing courses in English, mathematics, the physical sciences, the social sciences and the humanities.

An ambitious set of academic content standards reflecting the convergence of both employer and postsecondary expectations, the ADP benchmarks, emerged from this research.[3] These college- and career-ready benchmarks define the knowledge and skills in English and mathematics that all students must acquire in high school if they are to be prepared to meet the challenges that await them on college campuses and in the workplace.

In **English**, the ADP benchmarks focus not only on literature and writing but also explicitly on reasoning, logic and communication skills. The English benchmarks demand strong oral and written communication skills because these skills are staples in college classrooms and 21st century jobs. They also contain analytical and reasoning skills that formerly were associated with advanced or honors courses in high school offered to a select few. Today, however, colleges and employers agree that all high school graduates need these essential skills to be prepared.

In **mathematics**, the ADP benchmarks include number sense and numerical operations; algebra; geometry; data interpretation, statistics and probability; and mathematical reasoning. The mathematics benchmarks equate roughly to the body of knowledge and skills students should encounter in a four-year high school mathematics program that includes content typically taught in Algebra I, Geometry and Algebra II, as well as data analysis, statistics and probability. [4] A fourth year of meaningful mathematics is considered critical by college faculty and employers alike so that students continue to develop and hone their facility with mathematics.

ADP Benchmarks: Cross-Disciplinary Proficiencies

The increasing demands of the global economy require that American high school students graduate with the knowledge and skills to succeed. To achieve success in college, the workplace and life, American students must not only master important content, they must also be adept problem solvers and critical thinkers who can contribute and apply their knowledge and skills in novel contexts and unforeseen situations. They must be able to read complex texts, use writing and research in sophisticated ways, and be mathematically and technologically fluent. High school graduates must also be able to work collegially in teams and be keenly aware of the rapidly changing world around them.

Students need a strong content foundation in order to master these sophisticated cross-disciplinary proficiencies. Cross-disciplinary proficiencies are, therefore, best taught in the context of rigorous courses in the foundational disciplines. The ADP benchmarks in English and mathematics include these critical proficiencies and provide the foundation for their development. Specifically, the ADP benchmarks include the following cross-disciplinary proficiencies:

Research and Evidence Gathering. The ADP benchmarks call on students to be able to conduct research and to utilize the research process to describe, summarize and synthesize information or to solve problems. In college and in the workplace, young adults will be asked to sift through information and make choices on a wide range of issues. The ability to conduct an inquiry and engage in a focused examination of information is critical.

Critical Thinking and Decision Making. Whether interpreting a graph or a piece of informational text, high school graduates must be able to employ abstract and concrete reasoning to make and assess logical inferences, conclusions and predictions. The ADP benchmarks foster the ability to analyze evidence and data to build arguments and strategize about possible solutions. They also call on students to learn to make sound decisions that acknowledge and evaluate probability, uncertainty and risk.

Communication and Teamwork. Today's employers and postsecondary institutions need high school graduates with a diverse set of communications skills. The ability to listen critically, make oral presentations and write complex reports is key. The ADP benchmarks focus on developing the skills to articulate and translate ideas and information with precision and coherence. Postsecondary classrooms and workplaces are also increasingly global meeting places where high school graduates must be able to work, learn and collaborate with diverse individuals from various cultures and religions. The ADP benchmarks call for self-directed students with the ability to listen and learn from others in order to reach common goals while respecting differences. They include a focus on understanding different viewpoints to reach consensus and work productively in teams.

Media and Technology. A sophisticated workforce of lifelong learners must continuously adapt to technology that is advancing every year and be able to recognize how best to utilize technology efficiently and effectively. The ADP benchmarks call on students to be able to use the appropriate information and communications technologies to enhance comprehension, creativity and productivity. They call on students to learn to assess and employ a variety of media and formats to evaluate, create and distribute information.

The ADP Core

During the original ADP research, college faculty and employers highlighted two categories of critical shortcomings in the preparation of many recent high school graduates. The first was deficiency in the specific and narrow foundational skills typically taught in middle school. The other was a lack of complex and conceptual competencies acquired late in high school that take students several years to develop. While helping states align their standards to college- and career-ready expectations, Achieve has heard these same concerns echoed across the country.

Based on these insights and Achieve's extensive experience evaluating state standards, Achieve content experts have identified within the ADP benchmarks a core set of essential understandings that states must include in their standards if they are to address these critical gaps and ensure that their graduates are well prepared for college and careers. Although a well-prepared high school graduate will have mastered *all* of the knowledge and skills found in the ADP benchmarks, the "ADP Core" contained within the benchmarks represent a vital subset of college- and career-ready expectations and form the basis for the analysis in this report.

There are 22 ADP Core **English** Benchmarks that cut across the eight strands of the ADP Benchmarks: language, communication, writing, research, logic, informational text, media and literature. The ADP Core in English includes important foundational skills such as using proper grammar, punctuation and spelling. In addition, it covers traditional expectations such as interpreting significant works from various genres of literature and informational materials. It also includes critical skills such as developing an argument, discerning the nuances of an issue by analyzing information gleaned from multiple sources, and participating productively in self-directed work teams, all of which professors and employers cite as critical for success in college and good jobs.

There are 34 ADP Core **Mathematics** Benchmarks that cut across the five ADP strands: number sense and numerical operations; algebra; geometry; data interpretation, statistics, and probability; and mathematical reasoning. The ADP Core in mathematics calls for students to master the foundational computational skills and to recognize and solve problems that can be represented by various types of equations. The ADP Core extends beyond the expectation of fluent procedural skills by emphasizing the importance of students being able to identify real world problems that can be solved mathematically, translate these problems into mathematical models, apply appropriate techniques to solve them, and interpret a solution in the context of the problem. The mathematical reasoning inherent in applying geometric properties to solve problems, prove theorems, and perform constructions is also emphasized, as are key concepts in data interpretation, statistics, and probability.

TABLE 1: ADP CORE IN ENGLISH

There are 22 ADP Core English Benchmarks that cut across the eight strands of the ADP Benchmarks: language, communication, writing, research, logic, informational text, media and literature. The ADP Core in English includes important foundational skills such as using proper grammar, punctuation and spelling. In addition, it covers traditional expectations such as interpreting significant works from various genres of literature and informational materials. It also includes critical skills such as developing an argument, discerning the nuances of an issue by analyzing information gleaned from multiple sources, and participating productively in self-directed work teams, all of which professors and employers cite as critical for success in college and good jobs.

A. Language
A1. Demonstrate control of standard English through the use of grammar, punctuation, capitalization and spelling.
A6. Recognize nuances in the meanings of words; choose words precisely to enhance communication.
A7. Comprehend and communicate quantitative, technical and mathematical information.
B. Communication
B4. Identify the thesis of a speech and determine the essential elements that elaborate it.
B6. Make oral presentations.
B7. Participate productively in self-directed work teams for a particular purpose.
C. Writing
C2. Select and use formal, informal, literary or technical language appropriate for the purpose, audience and context of the communication.
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.
C9. Write an academic essay.
C10. Produce work-related texts.
D. Research
D5. Write an extended research essay (approximately six to 10 pages), building on primary and secondary sources.
E. Logic
E1. Distinguish among facts and opinions, evidence and inferences.
E4. Evaluate the range and quality of evidence used to support or oppose an argument.
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).
F. Informational Text
F2. Identify the main ideas of informational text and determine the essential elements that elaborate them.
F5. Interpret and use information in maps, charts, graphs, time lines, tables and diagrams.
F7. Synthesize information from multiple informational and technical sources.
G. Media
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.
G4. Apply and adapt the principles of written composition to create coherent media productions.
H. Literature
H3. Interpret significant works from various forms of literature.
H8. Analyze the moral dilemmas in works of literature, as revealed by characters' motivation and behavior.

TABLE 2: ADP CORE IN MATHEMATICS

There are 34 ADP Core Mathematics Benchmarks that cut across the five ADP strands: number sense and numerical operations; algebra; geometry; data interpretation, statistics, and probability; and mathematical reasoning. The ADP Core in mathematics calls for students to master the foundational computational skills and to recognize and solve problems that can be represented by various types of equations. The ADP Core extends beyond the expectation of fluent procedural skills by emphasizing the importance of students being able to identify real world problems that can be solved mathematically, translate these problems into mathematical models, apply appropriate techniques to solve them, and interpret a solution in the context of a problem. The mathematical reasoning inherent in applying geometric properties to solve problems, prove theorems, and perform constructions is also emphasized, as are key concepts in data interpretation, statistics, and probability.

I. Number Sense and Numerical Operations
I1.1. Add, subtract, multiply and divide integers, fractions and decimals.
I1.3. Use the correct order of operations to evaluate arithmetic expressions, including those containing parentheses.
I2. Recognize and apply magnitude (absolute value) and ordering of real numbers.
I4.1. Use calculators appropriately and make estimations without a calculator regularly to detect potential errors.
J. Algebra
J1.1. Understand the properties of integer exponents and roots and apply these properties to simplify algebraic expressions.
J2.3. Understand functional notation and evaluate a function at a specified point in its domain.
J3.1 Solve linear equations and inequalities in one variable including those involving the absolute value of a linear function.
J3.3. Solve systems of two linear equations in two variables.
J3.5. Solve quadratic equations in one variable.
J4.1. Graph a linear equation and demonstrate that it has a constant rate of change.
J4.5. Graph a quadratic function and understand the relationship between its real zeros and the x-intercepts of its graph.
J4.7. Graph exponential functions and identify their key characteristics.
J4.8. Read information and draw conclusions from graphs; identify properties of a graph that provide useful information about the original problem.
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.
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.
J5.4. Recognize and solve problems that can be modeled using an exponential function, such as compound interest problems.

TABLE 2 (CONTINUED): ADP CORE IN MATHEMATICS

K. Geometry
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.
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.
K3. Know the basic theorems about congruent and similar triangles and use them to prove additional theorems and solve problems.
K7. Know about the similarity of figures and use the scale factor to solve problems.
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; and convert a measurement using one unit of measurement to another unit of measurement.
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.
K10. Represent geometric objects and figures algebraically using coordinates: use algebra to solve geometric problems.
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.
L. Data Interpretation, Statistics and Probability
L1.1. Organize and display data using appropriate methods (including spreadsheets) to detect patterns and departures from patterns.
L1.2. Read and interpret tables, charts and graphs.
L1.3. Compute and explain summary statistics for distributions of data including measures of center (mean, median) and spread (range, percentiles, variance, standard deviation).
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 data are analyzed and displayed.
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.
L4.5. Apply probability concepts to practical situations to make informed decisions.
MR. Mathematical Reasoning
MR3. Understanding the role of definitions, proofs and counterexamples in mathematical reasoning; constructing simple proofs.
MR4. Using the special symbols of mathematics correctly and precisely.
MR8. When solving problems, thinking ahead about strategy, testing ideas with special cases, trying different approaches, checking for errors and reasonableness of solutions as a regular part of routine work, and devising independent ways to verify results.

Helping States Align Their Standards to College and Career Readiness

Many states have begun to align standards with college and career readiness. Five states, among the first to get started, worked with relatively little assistance from Achieve. Each of these states brought together high school and postsecondary faculty, and employers and/or the workforce development community to define academic standards for college and career readiness and to align their high school standards with these knowledge and skills. Before presenting their new standards to the appropriate governing body for adoption, the states asked Achieve to conduct a detailed review of their revised high school standards to determine how well they align to the ADP benchmarks.

In response to other states that requested deeper and more sustained support, Achieve has organized a series of Alignment Institutes to provide states with tools, training and technical assistance to align high school standards in English and mathematics with the demands of postsecondary education and careers. Achieve supports the joint work of the stakeholders from K-12, higher education and business to prepare and adopt revised college- and career-ready standards that reflect postsecondary and business community expectations for success.

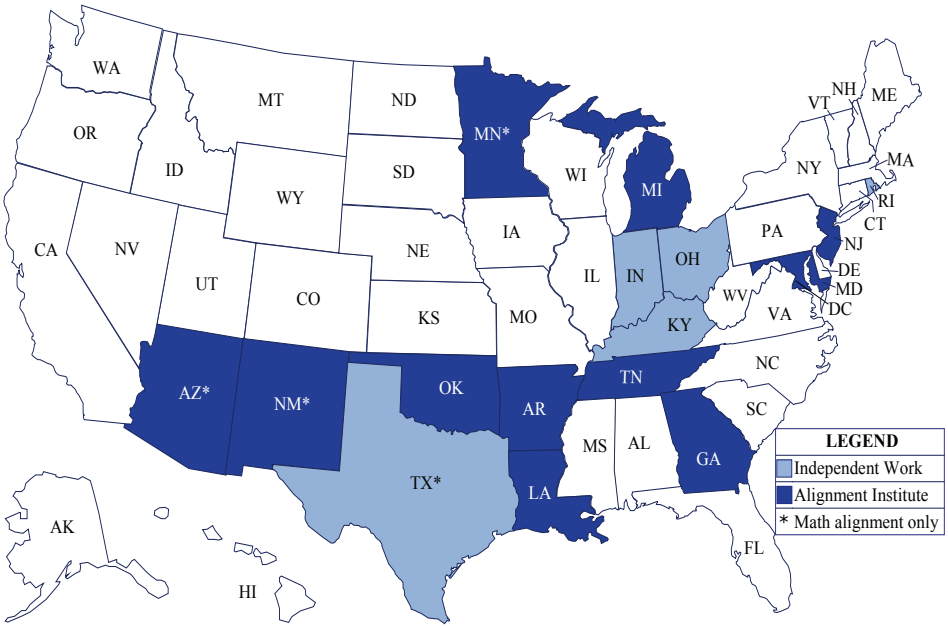
States participating in the Alignment Institutes send teams of high school and postsecondary faculty, key K-12 state education and higher education staff, and representatives from the business and/or workforce development communities to cross-state work sessions with peers. At the Institute sessions, Achieve provides state teams with examples of college- ready standards (e.g., the ACT's "Standards for Transition," College Board's "Spring Board" standards, as well as the ADP benchmarks). Achieve also provides states with national—and where available—relevant state data related to the college- and career-readiness of recent high school graduates, including data that shows the relationship between school course-taking, achievement and postsecondary success. Finally, Achieve provides states with assistance developing and executing work plans.

Throughout the Alignment Institute process, Achieve provides states with three separate analyses of their standards: first, a baseline review of the existing high school standards, then a review of draft revisions, and a final review of the revised standards to be submitted to the appropriate governing body for adoption. Achieve's analysis addresses the alignment of state standards with the ADP benchmarks—especially with the ADP Core—taking into account the many characteristics of quality standards: their rigor, coherence, focus, specificity, clarity and accessibility, and measurability.

Early Adopters

This report highlights results of the standards revision process of 16 ADP states that together educate 38 percent of public school students in the United States.[5] Eleven of these states—Arizona, Arkansas, Georgia, Louisiana, Maryland, Michigan, Minnesota, New Jersey, New Mexico, Oklahoma and Tennessee—participated in the Alignment Institute process described above. The remaining five—Indiana, Kentucky, Ohio, Rhode Island and Texas—did not participate in the Achieve Alignment Institute but instead worked independently to revise their standards.

Early Adopters



In the first section of the findings, we explore how well 12 states' college- and career-ready standards in English and 16 in mathematics align with the ADP Core of the ADP benchmarks—including a "before and after" comparison of the standards from states working with Achieve through the Alignment Institute process.[6] In the second section, we evaluate the extent to which the ADP Core is, in fact, common across the states. In the final section of the report, we discuss the key implications of this emerging common core.

THE ALIGNMENT OF STATE STANDARDS TO THE ADP CORE

Methodology

Achieve reviewed the new state college- and career-ready standards to determine how well they align to the ADP benchmarks in general and the ADP Core in particular. Included in the analysis are the mathematics standards from 16 states and the English standards from 12. The remaining four states have not yet aligned their English standards.

In conducting each standards review, three to four recognized content experts used professional judgment to respond to a set of guiding questions focused around the issue of alignment. Achieve's content experts rated the strength of the "match" of each state standard statement to the best fit in the ADP Core. For each individual standard reviewed, Achieve reconciled any discrepancies among the ratings assigned by the individual content experts to produce a consensus rating.

RATING SCALE

Standard Aligned	**3 = Excellent alignment between the state standard and at least one ADP benchmark**
	2 = Good alignment, but elements of the ADP benchmark are not addressed
Standard Not Aligned	**1 = Weak match; the two statements may be related in only a very general manner**
	0 = No match for the ADP benchmark was found

Achieve then produced an average rating for all of the state standards collectively to calculate the overall strength of their alignment to the ADP Core, an average rating for each set of state standards, and an average rating for each content strand. See Tables 3 and 4 for these ratings.

For the Alignment Institute states, a "baseline" rating indicates the strength of a state's standards alignment to the ADP Core prior to beginning the Alignment Institute; the "final" rating describes the strength of alignment after the alignment process. Because the five states that worked independently of Achieve did not complete the Alignment Institute process, no baseline analysis was done; only their "final" alignment ratings are included in this report.

Alignment by Content Area

English

Overall, the alignment of the English standards to the ADP Core is quite strong. On average, the alignment rating across all 12 state standards included in this report is 2.60, indicating that they are well aligned. Among the strands, Writing and Informational Text have the strongest alignment to college- and career-ready expectations, with average ratings of 2.90 and 2.81 respectively. The average rating for the Communications strand—good at 2.18—is the lowest among the English strands.

The Alignment Institute states increased the rigor of their English standards from their baseline ratings to their final ratings, especially in the areas of Literature and Informational Text. In the baseline review their average alignment rating across all strands was 2.08. By the end of the Alignment Institute process, their average rating had increased to 2.75, an improvement of two-thirds of a point. Maryland and New Jersey saw the greatest increases—nearly 1.25 points each. Georgia and Tennessee emerged with the highest overall alignment ratings of 2.96 and 3.00 respectively, reflecting the fact that both sets of new college- and career-ready standards include all of the ADP Core.

The English standards of the Alignment Institute states are on average more aligned to the ADP Core than those of the four states that worked independently—a difference of roughly half a point (.45). The most pronounced difference in the alignment ratings between these two groups of states is in the Communications strand. There is almost no difference in the average alignment ratings between the two groups of states in the Writing and Informational Text strands.

TABLE 3: ALIGNMENT RATINGS FOR ENGLISH BY STRAND◊

Strand	A. Language		B. Communication		C. Writing		D. Research		E. Logic		F. Informational Text		G. Media		H. Literature		Average	
ALIGNMENT INSTITUTE STATES																		
States	Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final
AR †	2.00	2.00	1.00	2.00	2.75	3.00	1.00	1.00	2.25	2.50	1.67	2.67	2.50	2.50	1.50	1.50	1.83	2.15
GA	3.00	3.00	2.33	3.00	3.00	3.00	3.00	3.00	3.00	3.00	2.67	2.67	3.00	3.00	1.50	3.00	2.69	2.96
LA	2.00	2.67	2.67	3.00	2.75	3.00	3.00	3.00	1.50	2.00	1.67	3.00	1.50	3.00	1.50	3.00	2.07	2.83
MD	2.00	3.00	1.00	3.00	2.00	2.75	2.00	3.00	2.25	3.00	1.67	2.67	1.00	2.50	1.00	3.00	1.62	2.86
MI	1.67	3.00	3.00	3.00	2.50	2.50	3.00	3.00	2.25	3.00	1.67	3.00	3.00	3.00	3.00	3.00	2.51	2.94
NJ	1.67	3.00	2.33	2.67	2.00	2.50	1.00	2.00	1.50	2.50	1.00	3.00	0.50	2.50	1.00	3.00	1.38	2.65
OK	3.00	3.00	1.00	1.00	3.00	3.00	3.00	3.00	2.50	2.50	2.67	2.67	3.00	3.00	2.50	2.50	2.58	2.58
TN	2.67	3.00	1.33	3.00	2.75	3.00	2.00	3.00	1.50	3.00	2.00	3.00	3.00	3.00	0.50	3.00	1.97	3.00
Average	2.25	2.83	1.83	2.58	2.59	2.84	2.25	2.63	2.09	2.69	1.88	2.83	2.19	2.81	1.56	2.75	2.08	2.75
STATES THAT WORKED INDEPENDENTLY																		
States	Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final
IN	*	1.50	*	3.00	*	3.00	*	3.00	*	3.00	*	3.00	*	2.33	*	3.00	*	2.73
KY	*	3.00	*	2.50	*	3.00	*	2.00	*	1.00	*	2.50	*	2.33	*	2.00	*	2.29
OH	*	3.00	*	0.00	*	3.00	*	2.50	*	3.00	*	2.75	*	2.00	*	1.67	*	2.24
RI	*	1.50	*	0.00	*	3.00	*	1.75	*	1.00	*	2.75	*	2.67	*	3.00	*	1.96
Average	*	2.25	*	1.38	*	3.00	*	2.31	*	2.00	*	2.75	*	2.33	*	2.42	*	2.30
AVERAGE ALIGNMENT RATING FOR ALL TWELVE STATES																		
Overall Average	*	2.64	*	2.18	*	2.90	*	2.52	*	2.46	*	2.81	*	2.65	*	2.64	*	2.60

◊ While there are differences in alignment strand scores and overall average scores within and across states, Achieve found the standards in all of the states reviewed to be "well aligned" or "well aligned with minor exceptions" to the ADP benchmarks.

* Achieve did not conduct a baseline review for state that did not participate in the Alignment Institute.

† Because Arkansas conducted its standards review midcycle, it was limited in the extent to which it could make revisions. The next revision is scheduled for 2010. Nevertheless, Achieve found Arkansas' English and mathematics standards to be "well aligned with minor exceptions" to the ADP benchmarks.

Mathematics

Overall, the alignment of the mathematics standards to the ADP Core is quite strong. The average alignment rating across the 16 state standards in mathematics is 2.63. The Algebra and Geometry strands earned the highest alignment ratings of 2.85 and 2.79 respectively. The Mathematical Reasoning strand—with an average rating of 2.19—is the lowest among the mathematics strands.

The Alignment Institute states increased the rigor of their mathematics standards, especially in the Geometry strand where they strengthened their treatment of geometric proofs. The baseline rating across the states was 2.28. This increased to 2.69 for the revised state standards. The five states that worked independently developed standards with an overall alignment rating of 2.51, only slightly lower (.18) than that of the states that participated in the Alignment Institute. Tennessee showed the greatest improvement and the strongest alignment to the ADP Core in mathematics after completing the Alignment Institute.

TABLE 4: ALIGNMENT RATINGS FOR MATHEMATICS BY STRAND ◊

Strand	I. Number Sense & Numerical Operations		J. Algebra		K. Geometry		L. Data Interpretation, Statistics & Probability		MR. Mathematical Reasoning		Average	
ALIGNMENT INSTITUTE STATES												
States	Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final
AZ	2.50	2.75	1.83	3.00	2.25	2.78	2.50	3.00	2.33	2.67	2.28	2.84
AR †	2.13	3.00	2.92	3.00	2.08	3.00	2.33	2.50	0.00	1.33	1.89	2.57
GA	2.63	2.63	2.92	2.92	2.78	2.89	2.33	2.50	3.00	3.00	2.73	2.79
LA	2.13	2.50	3.00	3.00	2.17	2.53	2.17	2.17	0.67	3.00	2.03	2.64
MD	2.38	2.88	2.17	2.83	2.31	2.89	2.00	2.83	2.33	1.67	2.24	2.62
MI	2.25	2.25	2.92	2.83	2.67	2.67	3.00	3.00	1.00	1.00	2.37	2.35
MN	2.50	3.00	2.58	3.00	2.03	3.00	2.50	3.00	1.67	2.00	2.26	2.80
NJ	2.38	3.00	2.33	2.67	1.81	2.44	2.83	3.00	2.67	2.33	2.40	2.69
NM	2.50	2.75	2.67	3.00	2.25	2.89	3.00	3.00	2.67	2.67	2.62	2.86
OK	2.00	2.25	2.42	2.67	2.14	2.64	1.83	2.00	2.00	2.67	2.08	2.45
TN	2.75	3.00	2.00	3.00	2.22	3.00	2.00	3.00	2.00	3.00	2.19	3.00
Average	2.38	2.73	2.52	2.90	2.25	2.79	2.41	2.73	1.85	2.30	2.28	2.69
STATES THAT WORKED INDEPENDENTLY												
States	Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final
IN	*	2.25	*	2.75	*	2.56	*	2.50	*	3.00	*	2.61
KY	*	2.25	*	3.00	*	2.33	*	1.50	*	0.00	*	1.82
OH	*	2.75	*	2.67	*	3.00	*	3.00	*	3.00	*	2.88
RI	*	2.63	*	2.67	*	3.00	*	2.67	*	0.67	*	2.33
TX	*	2.88	*	2.58	*	3.00	*	3.00	*	3.00	*	2.89
Average	*	2.55	*	2.73	*	2.78	*	2.53	*	1.93	*	2.51
AVERAGE ALIGNMENT RATING FOR ALL SIXTEEN STATES												
Overall Average		2.67		2.85		2.79		2.67		2.19		2.63

◊ While there are differences in alignment strand scores and overall average scores within and across states, Achieve found the standards in all of the states reviewed to be "well aligned" or "well aligned with minor exceptions" to the ADP benchmarks.

* Achieve did not conduct a baseline review for states that did not participate in the Alignment Institute.

† Because Arkansas conducted its standards review midcycle, it was limited in the extent to which it could make revisions. The next revision is scheduled for 2010. Nevertheless, Achieve found Arkansas' English and mathematics standards to be "well aligned with minor exceptions" to the ADP benchmarks.

THE ADP CORE IS THE COMMON CORE

The ADP Core has become the "common core" as a byproduct of the alignment work in each of the states. An ADP Core benchmark is defined as "common" if at least 75 percent of the states include it in their standards with an alignment rating of 2.00—i.e., "good" alignment—or better. The common core reflects the reality that the knowledge and skills needed for success in postsecondary education and 21st century careers are defined by global competition, not by state boundaries.

English

All but one of the 22 ADP Core benchmarks in English meets the criteria for the common core. They are included in at least nine of the 12 sets of state English standards with good or excellent alignment to college- and career-ready expectations. The ADP Core benchmark that did not meet the criteria for the common core involves working in teams. Only seven of the 12 states (58 percent) include working in teams in their standards, including only one of the four states working independently. This is a critically important skill for postsecondary and workplace success.

This common core of standards means that these states share rigorous expectations anchored in the real world for all students. They expect students to graduate from high school with strong research and writing skills, with the ability to reason logically and to communicate complex ideas in a variety of ways. They expect students to develop a tolerance for ambiguity, read and use information contained in complex technical texts as well as consider moral dilemmas encountered in literature.

Mathematics

All but three of the 34 ADP Core benchmarks in mathematics are included in the standards of at least 12 of the 16 states included in this report and are found to be well aligned (rated 2.00 or better). The three benchmarks not included in the common core are found in 11 sets of state standards. One of these benchmarks expects students to improvise problem-solving strategies and devise independent ways to verify their results. Another calls for students to evaluate data reported in the media, a skill that will enable them to understand whether reports are fair and accurate, or contain misrepresentations and incomplete data. The third deals with a key aspect of geometric proofs—specifically with perpendicular lines—critical to the development of a student's logical reasoning skills.

States that incorporate this common core into their standards set a high bar for their students. Students who graduate from high school will have procedural fluency in the foundational computational skills. They will possess a solid understanding of the mathematical principles they encounter in the classroom. They will be able to reason quantitatively and apply what they learn in the classroom to solve real world problems.

TABLE 5: COMMON ADP CORE IN ENGLISH

#	ADP Core	Total	Alignment Institute States	Non-Alignment Institute States
A1	Demonstrate control of standard English through the use of grammar, punctuation, capitalization and spelling.	100%	100%	100%
B6	Make oral presentations.	100%	100%	100%
C2	Select and use formal, informal, literary or technical language appropriate for the purpose, audience and context of the communication.	100%	100%	100%
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.	100%	100%	100%
C9	Write an academic essay.	100%	100%	100%
E4	Evaluate the range and quality of evidence used to support or oppose an argument.	100%	100%	100%
F2	Identify the main ideas of informational text and determine the essential elements that elaborate them.	100%	100%	100%
F5	Interpret and use information in maps, charts, graphs, time lines, tables and diagrams.	100%	100%	100%
F7	Synthesize information from multiple informational and technical sources.	100%	100%	100%
H3	Interpret significant works from various forms of literature.	100%	100%	100%
A6	Recognize nuances in the meanings of words; choose words precisely to enhance communication.	92%	100%	75%
E1	Distinguish among facts and opinions, evidence and inferences.	92%	100%	75%
E9	Construct arguments (both orally and in writing).	92%	100%	75%
B4	Identify the thesis of a speech and determine the essential elements that elaborate it.	92%	88%	100%
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.	83%	100%	50%
G4	Apply and adapt the principles of written composition to create coherent media productions.	83%	100%	50%
A7	Comprehend and communicate quantitative, technical and mathematical information.	83%	88%	75%
E8	Analyze two or more texts addressing the same topic to determine how authors reach similar or different conclusions.	83%	75%	100%
D5	Write an extended research essay (approximately six to 10 pages), building on primary and secondary sources.	75%	88%	50%
H8	Analyze the moral dilemmas in works of literature, as revealed by characters' motivation and behavior.	75%	88%	50%
C10	Produce work-related texts.	75%	75%	75%
B7	Participate productively in self-directed work teams for a particular purpose.	58%	75%	25%

TABLE 6: COMMON ADP CORE IN MATHEMATICS

#	ADP Core	Total	Alignment Institute States	Non-Alignment Institute States
I1.1	Add, subtract, multiply and divide integers, fractions and decimals.	100%	100%	100%
J1.1	Understand the properties of integer exponents and roots and apply these properties to simplify algebraic expressions.	100%	100%	100%
J2.3	Understand functional notation and evaluate a function at a specified point in its domain.	100%	100%	100%
J3.1	Solve linear equations and inequalities in one variable including those involving the absolute value of a linear function.	100%	100%	100%
J3.3	Solve systems of two linear equations in two variables.	100%	100%	100%
J3.5	Solve quadratic equations in one variable.	100%	100%	100%
J4.5	Graph a quadratic function and understand the relationship between its real zeros and the x-intercepts of its graph.	100%	100%	100%
J4.7	Graph exponential functions and identify their key characteristics.	100%	100%	100%
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.	100%	100%	100%
K3	Know the basic theorems about congruent and similar triangles and use them to prove additional theorems and solve problems.	100%	100%	100%
K7	Know about the similarity of figures and use the scale factor to solve problems.	100%	100%	100%
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; and convert a measurement using one unit of measurement to another unit of measurement.	100%	100%	100%
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.	100%	100%	100%
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.	100%	100%	100%
L1.1	Organize and display data using appropriate methods (including spreadsheets) to detect patterns and departures from patterns.	100%	100%	100%
L1.2	Read and interpret tables, charts and graphs.	100%	100%	100%
L1.3	Compute and explain summary statistics for distributions of data including measures of center (mean, median) and spread (range, percentiles, variance, standard deviation).	100%	100%	100%
J4.8	Read information and draw conclusions from graphs; identify properties of a graph that provide useful information about the original problem.	94%	100%	80%

TABLE 6 (CONTINUED): COMMON ADP CORE IN MATHEMATICS

#	ADP Core	Total	Alignment Institute States	Non-Alignment Institute States
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.	94%	100%	80%
J5.4	Recognize and solve problems that can be modeled using an exponential function, such as compound interest problems.	94%	100%	80%
L4.5	Apply probability concepts to practical situations to make informed decisions.	94%	100%	80%
I1.3	Use the correct order of operations to evaluate arithmetic expressions, including those containing parentheses.	94%	91%	100%
I2	Recognize and apply magnitude (absolute value) and ordering of real numbers.	94%	91%	100%
J4.1	Graph a linear equation and demonstrate that it has a constant rate of change.	94%	91%	100%
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.	94%	91%	100%
K10	Represent geometric objects and figures algebraically using coordinates: use algebra to solve geometric problems.	94%	91%	100%
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.	88%	100%	60%
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.	88%	91%	80%
MR3	Understanding the role of definitions, proofs and counterexamples in mathematical reasoning; constructing simple proofs.	88%	91%	80%
I4.1	Use calculators appropriately and make estimations without a calculator regularly to detect potential errors.	81%	91%	60%
MR4	Using the special symbols of mathematics correctly and precisely.	75%	82%	60%
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.	69%	73%	60%
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 data are analyzed and displayed.	69%	73%	60%
MR8	When solving problems, thinking ahead about strategy, testing ideas with special cases, trying different approaches, checking for errors and reasonableness of solutions as a regular part of routine work, and devising independent ways to verify results.	69%	73%	60%

Common does not mean identical state standards

While state standards from these states share a common core, they are not identical. The ADP Core forms a foundation of college- and career-ready expectations, but does not necessarily constitute four full years of content in English and mathematics. How states choose to construct a rich classroom experience for all four years of high school varies from state to state. A number of states include content in their standards that are outside the scope of, or more rigorous than, the ADP benchmarks. For example, a number of states include in their mathematics standards rigorous content that is particularly important for students interested in pursuing further education and careers in Science, Technology, Engineering or Mathematics (STEM) fields.

States also differ with respect to the organization of their standards, their level of specificity and the amount of detail provided. Most states organize secondary level standards into courses or course sequences (e.g., Algebra I, Geometry and Algebra II; American Literature, British Literature and World Literature) while a few others organize the standards into grade spans (e.g., grades 9-10, 11-12). Standards for grade bands 9-10 and 11-12 tend to identify and focus on the most significant knowledge and skills students must acquire by the end of each band. In contrast, course descriptions will of necessity be more comprehensive as they will—and should—include the supporting skills that must be developed in each course on the way to learning the most essential knowledge and skills.

KEY IMPLICATIONS

The states in the ADP Network have a common, specific policy agenda. Their policy goals go well beyond developing college- and career-ready standards. While revising their standards is a critical step in accomplishing the broader policy goal of improving preparation for postsecondary education and 21st century jobs, they joined the Network because they recognized the value of working together on difficult policy issues. The fact that a growing number of states' standards now share a common core is an important accomplishment. There are a number of key lessons that are important for other states, and for the ongoing discussion about rigorous expectations.

A state-led movement for common core standards is feasible

In the past, there has been remarkably little state-to-state consistency in curriculum standards. However, today nearly a third of the states, which collectively educate nearly 40 percent of the U.S. public school population, have embraced college- and career-ready standards. These states have demonstrated the feasibility of ensuring that there is a common core of expectations in English and mathematics among states while preserving the ability of each state to set its own standards without federal involvement. *Further, they accomplished this by increasing the rigor of their standards, not by finding the lowest common denominator.*

Their goal was to graduate better prepared students who would experience smoother and more successful transitions from high school to college and careers. A key step for each was to align their own high school standards with the demands of postsecondary education and the workplace. That their end-of-high school English and mathematics standards form a common core is a byproduct of their individual efforts. This outcome is the result of a number of factors. Chief among them are:

Unified State Leadership. It takes a sustained and coordinated effort to develop college- and career-ready standards. The K-12 system can't do it alone; the postsecondary and business communities must be deeply involved in order to ensure that the resulting standards reflect their expectations and are accepted by them. Mobilizing and coordinating these sectors and keeping the work on track requires the shared commitment and sustained attention of leaders in each sector. This is especially important in states that lack a history of joint efforts or have fragmented governance arrangements, particularly in postsecondary education. In every state, there is always the risk that the press of other business will divert attention over time.

States that developed college- and career-ready standards had at least one and often several key leaders who were personally committed to this effort, including a governor, who made it a priority, and a deadline for its completion. State leaders worked together to make the case to educators and the public alike that more rigorous standards are necessary and achievable. In contrast, states that have not yet been able to bring their work to a successful conclusion often lack the leadership necessary to make this work a high priority or to build broad-based support for it.

External Tools and Assistance. All of the states in this report benefited from college- and career-ready benchmarks and external assistance. More specifically, each of the states received a detailed analysis of their existing and/or draft standards compared with the ADP benchmarks (and in some cases with other benchmarks as well). States that participated in the ADP Alignment Institute also received considerable process assistance and the opportunity to network with other states that were also developing college- and career-ready standards.

This stands in sharp contrast to previous efforts in the 1990s to base state standards on national standards. While some states then made detailed and specific use of national models, there was no external review and validation. The result was widely varying expectations among the states, while the result now is a common core.

Establishing college and career-ready standards is only the first step

It is essential that states anchor standards in real world expectations. This led Achieve and the ADP states to focus initially on what students must know and be able to do when they complete high school. States must now follow through and review and revise, as necessary, their K-8 standards to create a focused, clear and rigorous set of grade-by-grade standards that provide a clear progression toward high school. At the secondary level, states must also articulate the standards into course descriptions, especially for required courses. Doing so will help ensure that content standards are consistently incorporated into high school courses statewide. Achieve is prepared to work with states collectively on this task, with the expectation that doing so will help further reinforce the emerging common core of K-12 state standards in English and mathematics.

Real world standards must be dynamic, not static

The knowledge and skills required for postsecondary success will continue to evolve as the global economy changes, technology advances, and new societal challenges and opportunities emerge. Our understanding of these knowledge and skill demands grows through new research, including international benchmarking of standards in high performing countries and other countries with whom we compete. Standards help translate our understanding of those evolving requirements into the curriculum and so must be updated periodically.

States therefore must establish regular schedules for reviewing and updating their standards. They must also strengthen ongoing efforts to build data systems that can follow cohorts of students through the K-12 system into postsecondary education and the labor market. Systems that can relate student course taking patterns, academic performance and educational attainment to postsecondary success will provide important state-specific and national information to help update standards and improve student preparation.

States do not revise their standards at the same time and so can—and should—learn from those who precede them. The result will be not only an evolution of standards in individual states, but also a common core of college- and career-ready standards among the states.

A common core of standards will enable collaborative development of other critical tools and strategies

Increasing student achievement requires coherent systems of curriculum, instructional materials, formative and summative assessments, professional development and teacher preparation aligned with state standards. It is difficult and expensive for states to create these tools, and often they don't, leaving local school districts to fend for themselves. The existence of a common core of standards across states enables states, or districts in different states, to pool their financial and intellectual resources to develop common, high quality tools at lower cost than they could working independently.

Two such examples of multi-state cooperation currently exist with respect to common assessments, which offer the advantage of allowing for performance comparisons across states and a way to evaluate the

effectiveness of different improvement strategies. Through the New England Common Assessment Program (NECAP) Rhode Island, Vermont and New Hampshire have developed common English and mathematics standards for grades 3-8 and grades 9-10, as well as common assessments for those grades.

Fourteen states have collaborated on the development of the ADP Algebra II test, an end-of-course test anchored in the ADP benchmarks. In spring 2008 the test was administered for the first time to nearly 100,000 students in 12 states in a pencil-and-paper format. Starting next fall, it will be administered in an online format as well. The test will have common performance standards set under Achieve's leadership to reflect the level of performance students must meet in order to have a strong likelihood of succeeding in credit-bearing college-level mathematics courses.

Both of these efforts are beginning to provide valuable lessons for how best to organize and support common tool development across multiple states. More such efforts are needed, including but not limited to summative assessments in different subject areas, courses and grade levels. The existence of common standards offers opportunities for collaborative efforts to develop tools such as engaging curriculum and instructional materials, professional development materials. They also offer opportunities for the private sector and foundations to make investments in high quality tools that are aligned with a core set of standards, rather than with 50 different standards.

CONCLUSION

States have demonstrated leadership in developing rigorous standards in mathematics and English that will prepare all high school graduates for college, career and life. When states use college and career readiness as their goal, not only does the rigor of their individual state standards increase, but a common core of English and mathematics among the states emerges. This common core reflects the demands of the real world in which high school graduates will find themselves, a world of ever-increasing complexity and expectation that is not bound by state lines.

The common core does not mean that every state has identical standards but it does reflect the reality that there is a fundamental core of knowledge in English and mathematics that all graduates must know to succeed in college and careers. State leadership has demonstrated that a voluntary, state-led effort towards a common core for all students is possible—and desirable—and well within reach.

APPENDIX: BASELINE AND FINAL STANDARDS DOCUMENTS REVIEWED

State	Mathematics	Year Published	English	Year Published
ALIGNMENT INSTITUTE STATES				
Arizona	Baseline Arizona Academic Content Standards for High School Mathematics	2003	Not included in this report	
	Final Arizona Academic Content Standards for High School Mathematics	2008	Not included in this report	
Arkansas	Baseline Arkansas Mathematics Curriculum Framework	2004	Baseline Arkansas English Language Arts Curriculum Framework	2003
	Final Arkansas Mathematics Curriculum Framework	2006 amended	Final Arkansas English Language Arts Curriculum Framework	2006 amended
Georgia	Baseline Georgia College and Work Readiness Standards in Mathematics	2006	Baseline Georgia College and Work Readiness Standards in English	2006
	Final Georgia College and Work Readiness Standards in Mathematics	2007	Final Georgia College and Work Readiness Standards in English	2007
Louisiana	Baseline Louisiana Mathematics Grade Level Expectations for grades 9, 10, and 11-12	2005-06	Baseline Louisiana English Language Arts Grade Level Expectations for grades 9, 10, and 11-12	2005-2006
	Final Mathematics Academic Standards for Postsecondary Education and Careers	2007	Final English and Language Arts Academic Standards for College and Work	2007

State	Mathematics	Year Published	English	Year Published
Michigan	Baseline Michigan's Content Expectations	2005	Baseline Michigan's Content Expectations	2005
	Final Michigan's High School Content Expectations	2006	Final Michigan's High School Content Expectations	2006
Minnesota	Baseline Expectations for College and Workforce Readiness in Mathematics	2006 draft	Not included in this report	
	Minnesota Academic Standards for Mathematics (K-12)	2005	Not included in this report	
	Final Minnesota K-12 Academic Standards in Mathematics Revision	2007	Not included in this report	
New Jersey	Baseline New Jersey Core Curriculum Content Standards for Mathematics	2002	Baseline New Jersey Core Curriculum Content Standards for Language Arts Literacy	2004 revised
	Final New Jersey Core Curriculum Content Standards for Mathematics	2008 revised	Final New Jersey Core Curriculum Content Standards for Language Arts Literacy	2008 revised
New Mexico	Baseline New Mexico Mathematics Content Standards, Benchmarks, and Performance Standards	2002	Not included in this report	
	Final New Mexico Mathematics Content Standards, Benchmarks, and Performance Standards Grade 9-12 Math Standards	2008 (pending final legislative action)	Not included in this report	

State	Mathematics	Year Published	English	Year Published
Oklahoma	Baseline Oklahoma Priority Academic Student Skills for Mathematics	2006 update	Baseline Oklahoma Priority Academic Student Skills for Language Arts	2005
	Final Oklahoma Priority Academic Student Skills for Mathematics	2007 updated	Final Oklahoma Priority Academic Student Skills for Language Arts	2007 updated
Tennessee	Baseline Tennessee Curriculum Standards (Secondary Mathematics Framework)	2007 draft	Baseline Tennessee Curriculum Standards English I, II, III, and IV	2004 updated
	Final Tennessee Curriculum Standards (Secondary Mathematics Framework)	2008	Final Tennessee Curriculum Standards English I and II	2008
STATES THAT WORKED INDEPENDENTLY				
Indiana	Final Indiana's Academic Standards—Mathematics	2006 Updated	Final Indiana's Academic Standards —English/Language Arts	2006 updated
Kentucky	Final Kentucky Statewide College Readiness Standards in Mathematics	2004	Final Kentucky Statewide College Readiness Standards in English	2004
Ohio	Final Ohio's Mathematics College Readiness Expectations	2007	Final Ohio's English College Readiness Expectations	2007
Rhode Island	Final Rhode Island Mathematics Grade Span Expectations	2007	Final Rhode Island Reading and Writing Grade Span Expectations	2007
Texas	Final Texas College Readiness Standards in Mathematics	2008 (pending final adoption)	Not included in this report	

Endnotes

1 Twenty-one states have adopted college- and career-ready standards. Achieve has formally reviewed the English and mathematics standards in 12 states—Arkansas, Georgia, Indiana, Kentucky, Louisiana, Maryland, Michigan, New Jersey, Ohio, Oklahoma, Rhode Island and Tennessee—and the mathematics standards only in an additional two—Arizona and Minnesota. For the final two states included in this report—New Mexico and Texas—Achieve has reviewed the revised New Mexico "Mathematics Content Standard, Benchmarks, and Performance Standards" for grades 9-12 (state board adopted, awaiting final legislative action) and the new Texas "College Readiness Standards" in mathematics (awaiting state board adoption). Achieve has not formally reviewed the standards in the remaining seven states: California, Delaware, Maine, Mississippi, Nebraska, New York and West Virginia.

2 *Connecting Education Standards and Employment: Course-taking Patterns of Young Workers*, Anthony P. Carnevale and Donna M. Desrochers, Educational Testing Service, 2002 (available online at http://www.achieve.org/node/88).

3 The American Diploma Project benchmarks may found online at http://www.achieve.org/node/175. The final ADP report, *Ready or Not: Creating a High School Diploma That Counts*, may be found online at http://www.achieve.org/node/552.

4 Some states and districts are developing an integrated approach to high school mathematics that addresses the knowledge and skills comparable to the traditional sequence of Algebra I, Geometry and Algebra II.

5 Achieve has worked with additional states, but the 16 states included in this report are the only ones for which Achieve has analyzed the newly aligned college- and career-ready standards against the ADP benchmarks and the ADP Core.

6 The 12 states with English standards are Arkansas, Georgia, Indiana, Kentucky, Louisiana, Maryland, Michigan, New Jersey, Ohio, Oklahoma, Rhode Island and Tennessee. The 16 states with mathematics standards are Arizona, Arkansas, Georgia, Indiana, Kentucky, Louisiana, Maryland, Michigan, Minnesota, New Jersey, New Mexico, Ohio, Oklahoma, Rhode Island, Tennessee and Texas.

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Christine Tell, senior associate, oversaw the American Diploma Project Alignment Institutes, through which state teams developed their college and career ready standards. Senior associates JoAnne Eresh and Kaye Forgione provided technical assistance to states in English and mathematics, respectively, and led the teams of content experts who reviewed the state standards. The content experts in English were Jerome Halpern, Sally Hampton, Elizabeth Haydel, Sandra Murphy, Sue Pimentel, George Pullman and Eugene Young. In mathematics, they were Melanie Alkire, Andrew Chen, Susan Eddins, Donald King, Fabio Milner, Mary Lynn Raith and James Sellers.

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Michael Cohen
President
Achieve

ABOUT ACHIEVE

Created by the nation's governors and business leaders, Achieve is a bipartisan, non-profit organization that helps states raise academic standards, improve assessments and strengthen accountability to prepare all young people for postsecondary education, careers and citizenship. Achieve has helped more than half the states benchmark their academic standards, tests and accountability systems against the best examples in the United States and around the world. Achieve also serves as a significant national voice for quality in standards-based education reform and regularly convenes governors, CEOs and other influential leaders at National Education Summits to sustain support for higher standards and achievement for all of America's schoolchildren.

In 2005, Achieve co-sponsored the National Education Summit on High Schools. Forty-five governors attended the Summit along with corporate CEOs and K–12 and postsecondary leaders. The Summit was successful in making the case to the governors and business and education leaders that our schools are not adequately preparing students for college and 21st-century jobs and that aggressive action will be needed to address the preparation gap. As a result of the Summit, 33 states have since joined with Achieve to form the American Diploma Project Network—a coalition of states committed to aligning high school standards, assessments, graduation requirements and accountability systems with the demands of college and the workplace.

For more information, visit Achieve's website at www.achieve.org.

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