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# THE EXPECTATIONS GAP

## A 50-STATE REVIEW OF HIGH SCHOOL GRADUATION REQUIREMENTS

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**About Achieve**

Created by the nation's governors and business leaders, Achieve, Inc., 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, work and citizenship. Achieve has helped nearly half the states benchmark their standards and tests against the best examples in this country and abroad and work in partnership to improve teaching and learning. Achieve serves as a significant national voice for quality in standards-based reform and regularly convenes governors, CEOs and other influential leaders at National Education Summits and other gatherings to sustain support for higher standards and achievement for all of America's schoolchildren.



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Earlier this year, the American Diploma Project (ADP) — created by Achieve, The Education Trust and the Thomas B. Fordham Foundation — found that shockingly few of the nation's high school students gain the knowledge and skills they need to succeed in college and the workforce. In this new report, Achieve provides one important explanation for this phenomenon: **No state requires its graduates to take the courses that reflect the real-world demands of work and postsecondary education.**

To be prepared for the challenges they will face after graduation, every high school student should take four years of rigorous math, including Algebra I, Geometry and Algebra II, as well as data analysis and statistics. Every student also should take four years of grade-level English, with courses that include literature, writing, reasoning, logic and communication skills.

No state currently requires every high school student to take a college- and work-preparatory curriculum to earn a diploma. While some states offer students the option to pursue a truly rigorous course of study, a less rigorous set of course requirements remains the standard in almost every state. Only Arkansas, Indiana and Texas have made or will soon make a college-preparatory curriculum the norm.

*In math,* 13 states require two years, 24 states and the District of Columbia require three years and just five states — Alabama, Arkansas, Mississippi, South Carolina and West Virginia — require all students to complete four math courses for graduation. Nonetheless, nearly half the states (22) do not specify which math courses students need to take. Of those that do, only Arkansas, Indiana and Texas now or soon will require Algebra I, Geometry and Algebra II.

*In English,* 36 states and the District of Columbia require all students to take at least four English courses to graduate, and six states require three courses. Only six states — Alabama, Arkansas, Kentucky, North Carolina, Texas and West Virginia — specify four years of grade-level English. Across states, course descriptions in English are inconsistent and ill defined, making it very difficult to ensure they are rigorous.

To close the expectations gap, Achieve recommends that states:

- **Require all students to take a common college- and work-preparatory curriculum in math and English.** Arkansas, Indiana and Texas are leading the way, requiring students to opt out of a college- and work-preparatory curriculum, rather than opt in.
- **Pay attention to content, not just course titles.** State standards must clearly describe the level, rigor and content expected of required courses to ensure that educators have a common understanding of what is essential for students to learn.
- **Align academic standards in high school with the knowledge and skills required for college and workplace success.** States must work with postsecondary officials and employers to define the knowledge and skills necessary for graduates to successfully perform in college and the workplace without the need for remediation.
- **Provide clear guidance on essential courses and allow flexibility for instructional approaches.** To ensure greater consistency and equity, states should articulate what is most important for students to learn and give local educators the flexibility to decide upon specific approaches for delivering that content.
- **Encourage students to go beyond the core.** States should encourage all students — particularly low-achieving students — to pursue accelerated options for earning postsecondary credit while in high school.
- **Monitor results.** States should track student achievement from K–12 through postsecondary education and use data to help improve the rigor of course offerings and instruction in high school.

# INTRODUCTION

*Earlier this year, Achieve, The Education Trust and the Thomas B. Fordham Foundation issued a groundbreaking report from the American Diploma Project (ADP),* Ready or Not: Creating a High School Diploma That Counts, *which laid out a set of recommendations for strengthening the preparation of high school graduates and restoring value to the American high school diploma. A core recommendation was that states align their high school graduation requirements with the knowledge and skills students need to do credit-bearing coursework in college or to start career-track positions in high-growth, high-performance industries.*

The report marked the culmination of more than two years of intensive research. Its findings were remarkable, showing a clear convergence today between what college professors *and* employers say students need to know and be able to do to succeed in college or the workplace. This finding is in stark contrast to the realities of an earlier era when students bound for college needed more academic training than those bound for work.

Since issuing the ADP report, Achieve has studied high school graduation requirements in states around the country to better understand how well they align with college- and work-ready standards. In June, Achieve released a report on six states' high school graduation exams, *Do Graduation Tests Measure Up? A Closer Look at State High School Exit Exams,* which revealed a sizeable gap between the skills students must demonstrate to pass these tests and the skills they need to succeed in college or work. In fact, the study found that the majority of the questions on the tests reflect material that most students study early in their high school careers, if not in middle school. In math, for example, the tests place a heavier emphasis on prealgebra concepts than on content associated with high school algebra. In English, the tests are a better measure of basic reading comprehension skills than of the more advanced critical reading and analysis skills that students will need in college and the jobs of the new economy.

Although graduation exams play a pivotal role in setting a standard for high school graduation in about half the states, the most commonly used criterion for awarding a high school diploma in the United States today is course-taking. Nearly every state requires students to study specific subjects for a certain number of years or take specific courses to graduate. This may come as a surprise to some people, given that K–12 education has been moving steadily toward a standards-based system, in which performance should matter more than seat time. Yet despite states' attention to defining measurable outcomes, high schools are still organized largely on the basis of course requirements, or Carnegie units.

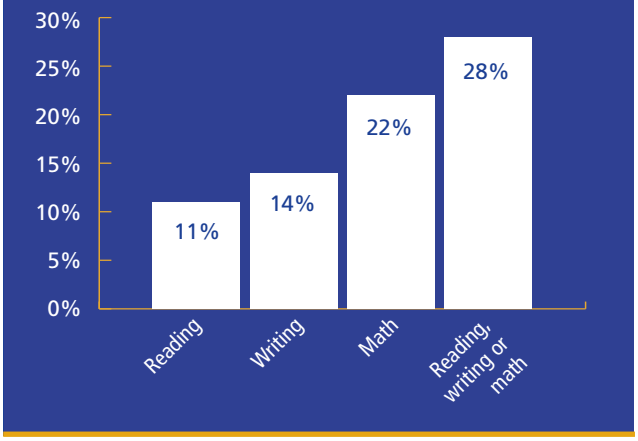
As part of a continuing effort to understand how graduation requirements relate to the real-world demands students face after high school, Achieve launched a review of high school course requirements in all 50 states and the District of Columbia. In spring 2004, Achieve collected detailed data from every state education agency on the course-taking requirements for earning a high school diploma. The goal was to compare those requirements with what students need to be successful in college or the workplace. This report summarizes Achieve's findings across the states.

# HOW WELL PREPARED ARE TODAY'S HIGH SCHOOL GRADUATES?

Although students and their parents believe that a high school diploma reflects adequate preparation for the intellectual demands of adult life, the reality is that across the United States, students can earn one without mastering the knowledge and skills they need to succeed after graduation. As a result, too many American youth leave high school with a diploma in hand but largely unprepared for the opportunities and challenges that await them in college and the workplace.

The statistics are alarming. One study estimates that, nationwide, only 32 percent of students who enter 9th grade and graduate four years later have mastered basic literacy skills and have completed the coursework necessary to succeed in a four-year college. For African Americans, this figure is 20 percent, and for Latinos it is just 16 percent.[1]

**Chart 1: Percentage of first-year college students in two-year and four-year institutions requiring remediation**




Source: National Center for Education Statistics, *Remedial Education at Degree-Granting Postsecondary Institutions in Fall 2000,* 2003.

Yet three-quarters of high school graduates go on to postsecondary education within two years of leaving high school. The result: Nearly 30 percent of college freshmen are immediately placed into remedial courses that cover material they should have learned in high school (see chart 1). In fact, over the course of their college careers, more than 40 percent of postsecondary students will take at least one remedial course.[2]

Although these courses are designed to help students catch up, students who require remediation are generally less successful in college and are less likely to earn degrees than their peers who do not require remediation. Three-quarters (76 percent) of students who require remediation in reading and nearly two-thirds (63 percent) of those who require one or two remedial math courses fail to earn degrees. In contrast, nearly two-thirds (65 percent) of students who do not require remediation complete associate's degrees or bachelor's degrees.[3]

Unprepared graduates who enter the workforce directly after high school face similar challenges. Employers report that a majority of high school graduates are inadequately prepared to succeed in an increasingly competitive economy. In a 2002 study, more than 60 percent of employers reported that recent graduates had poor math skills, while nearly 75 percent pointed to a deficiency in grammar and writing skills (see chart 2).[4] Unqualified and untrainable, these high school graduates are likely to become trapped in unskilled, low-paying jobs that do not support a family well above the poverty level, provide benefits or offer a clear pathway for advancement.

According to a wide range of economic, education and business experts, good jobs require more math and English than ever before, and workers will need some postsecondary education or training — whether it is in the form of two- or four-year college coursework, apprenticeships, or the military — to meet the needs of the high-performance workplace. If U.S.

workers cannot meet the demand, many of the highly skilled jobs may go to workers in other countries, such as China and India, which will have a significant impact on U.S. competitiveness in the global economy.

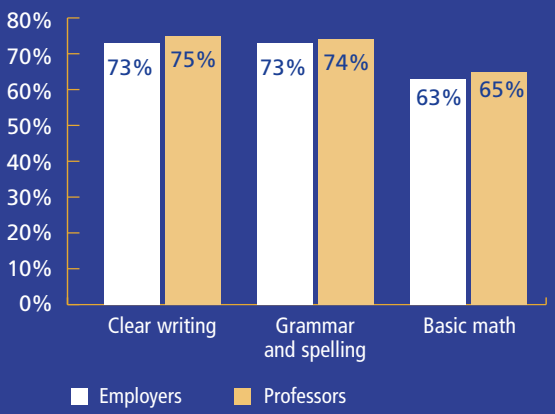
### *Course-taking patterns matter*

Preparing for college and work requires taking the right courses. This is particularly true when it comes to math, where data show a strong correlation between taking higher-level courses in high school and achieving success in college and employment in high-growth, high-performance jobs.

In his 1999 study, Clifford Adelman found that "of all the components of curriculum intensity and quality, none has such an obvious and powerful relationship to ultimate completion of degrees as the highest level of mathematics one studies in high school."[5] Indeed, Adelman reports that the higher the level of math students take in high school, the more likely they are to earn bachelor's degrees and that the threshold is a substantive course beyond Algebra II.[6]

Further studies show that high school course-taking in math and English also is an indication of students' opportunity for success in the high-performance workplace. A report by Educational Testing Service researchers Anthony P. Carnevale and Donna M. Desrochers found that 84 percent of those who currently hold highly paid professional jobs had taken Algebra II or higher as their last high school math course. Among those who hold well-paid, white-collar, skilled jobs, 67 percent had taken Algebra II or a higher-level math course, and 84 percent had taken at least Geometry. In English, the vast majority of workers in good jobs had taken "four years of English that is at least at grade level."[7]

**Chart 2: Percentage of professors and employers who rate graduates' skills as "fair" or "poor"**

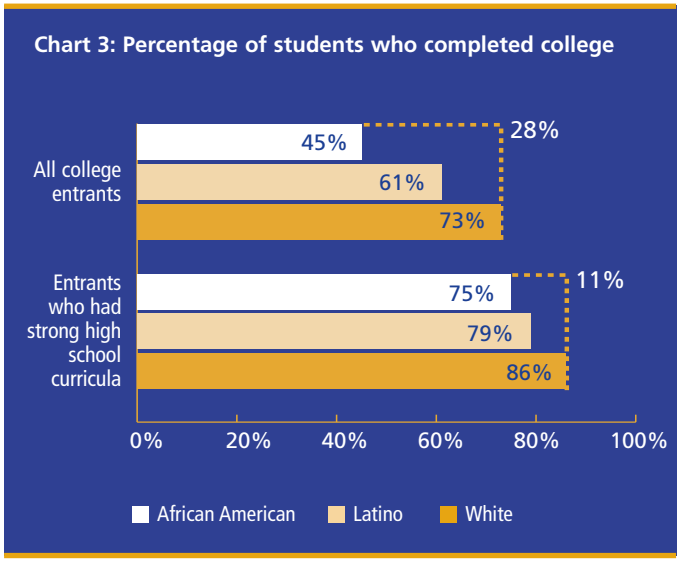



Source: Public Agenda, *Reality Check 2002,* 2002.

In its October 2004 report, *Crisis at the Core: Preparing All Students for College and Work,* ACT further underscores that taking challenging courses in high school pays off. ACT analyzed how students did in their freshman college courses and then looked back at the courses they had taken in high school. ACT reports that students taking Algebra I, Geometry, Algebra II and one additional higher-level course are much more likely to succeed in college than those who take a less rigorous sequence of courses (i.e., they have a 75 percent chance of earning a C or better and a 50 percent chance of earning a B or better in credit-bearing college courses).[8]

What courses they take matters for all students, but it is particularly important for students from disadvantaged backgrounds. Taking a rigorous high school curriculum that includes math at least through Algebra II cuts the gap in college completion rates between white students and African American and Latino students in half (see chart 3).[9]

Unfortunately, minority youngsters are significantly less likely to take rigorous, college- and work-preparatory curricula than are Asian and white students. Of the graduating class of 2000, fewer than one-third of American Indian (29 percent), Latino (31 percent) and African American (32 percent) students took a math course beyond Algebra II, compared with nearly half of white students (47 percent) and more than two-thirds of Asian students (69 percent) who did.[10]




Source: Adapted from Adelman, *Answers in the Toolbox: Academic Intensity, Attendance Patterns, and Bachelor's Degree Attainment,* June 1999, Office of Educational Research and Improvement, U.S. Department of Education.

In places where a college-preparatory curriculum is an option rather than a requirement, disadvantaged students are less likely to be in schools that offer enough college-preparatory courses, may not know which courses they must take to be prepared for college, and may require the approval of a guidance counselor or other school official to enroll in more challenging courses. Each of these factors can be an obstacle to many students who could benefit from taking challenging, college-preparatory courses.

Yet when minority students are required to take rigorous college-preparatory curricula, they rise to the challenge. For example, the San Jose Unified School District in California recently showed dramatic results after it required all students to take the A–G curriculum required for admission to the University of California system. Between 1998 and 2002, test scores of African American 11th graders increased nearly seven times as much as those of African American students across the state. What's more, the more rigorous requirements have not resulted in the increase in dropout rates that some had predicted.[11]

**What does readiness for college require? And what does it mean to be "ready" to enter the high-performance workplace that increasingly will be the source of the most promising jobs for high school graduates?**

To answer these questions, Achieve's American Diploma Project (ADP) worked closely with K–12, postsecondary and business leaders in five states (Indiana, Kentucky, Massachusetts, Nevada and Texas) to develop a set of readiness benchmarks that will give high school students the widest possible range of opportunities — for work or further education and training — upon graduation.

As a first step, leading economists examined labor market projections for the most promising jobs — those that pay enough to support a small family and provide real potential for career advancement — to pinpoint the academic knowledge and skills required for success in those occupations. ADP then surveyed officials from 22 occupations, ranging from manufacturing to financial services, about the high school-level skills they believe are most useful for their employees to bring to the job. Following those conversations, ADP worked closely with two- and four-year postsecondary leaders in the partner states to determine the prerequisite English and math knowledge and skills required for success in entry-level, credit-bearing courses in English, math, the sciences and the humanities.

The resulting ADP benchmarks are ambitious, reflecting an unprecedented convergence in what these employers and postsecondary faculty need from new employees and entering freshmen. In math, they reflect a rigorous four-year course sequence that includes content typically taught in Algebra I, Geometry and Algebra II, as well as some data analysis and statistics. The English benchmarks demand strong oral and written communication skills because they are staples in college classrooms and most 21st century jobs. They also contain analytic and reasoning skills that formerly were associated with advanced or honors courses in high school. Today, however, colleges and employers agree that all high school graduates need these essential skills. Students who meet these standards should be prepared for success, whatever path they choose to pursue after high school.

## ■ English

*The ADP college and workplace readiness benchmarks for English are organized into eight strands: Language, Communication, Writing, Research, Logic, Informational Text, Media and Literature.*

**Language:** Employers and college faculty cite correct grammar, usage, punctuation, capitalization and spelling as essential to success. The ADP benchmarks require students to demonstrate control of standard English. They also emphasize the importance of recognizing nuances in the meanings of words and choosing words precisely to enhance communication.

**Communication:** Strong communication and listening skills are essential to success in college and on the job. High school graduates should be able to make effective presentations — and be able to interpret and judge the effectiveness of others' presentations and speeches.

**Writing:** Strong writing skills have become increasingly important. High school graduates must be prepared to write quickly and clearly on demand for a variety of purposes — whether in the workplace or in college classrooms (e.g., to interpret literature, analyze the results of a scientific experiment or communicate a new bank policy for granting loans).

**Research:** In the workplace, employees must be able to produce and evaluate the credibility of research to establish, reject or refine products and services. In college, students must be able to write research papers that draw on a number of sources to marshal evidence in support of a clear thesis.

**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 must be able to judge the credibility of sources, evaluate arguments, and distin-

guish among facts and opinions. For example, they should have experience analyzing two or more texts addressing the same topic to determine how authors reach similar or different conclusions.

**Informational Text:** Whether on the job or in college, high school graduates will be faced with a wide range of reference materials (e.g., periodicals, memoranda, reviews and technical manuals) that they will need to interpret, synthesize and use to inform decisions or draw conclusions. From these multiple informational and technical sources, graduates also must be equipped to identify interrelationships among ideas and compare and contrast texts.

**Media:** Colleges and employers say that high school graduates must be able to evaluate auditory, visual and written images and other effects used in television, radio, film and the Internet. These interpretive skills can help them recognize potential bias in media — and help them become savvy media consumers.

**Literature:** Strong analytic skills are critical to success in college and on the job. Practice in interpreting complex literary texts — and providing evidence to support those interpretations — fosters the skill of reading any text closely and teaches students to think logically and coherently — priority skills identified by employers and postsecondary faculty. The benchmarks include sample reading lists to illustrate the quality and complexity of texts that students should read.

## ■ Math

*The ADP college and workplace readiness benchmarks for math are organized into four domains of math: Number Sense and Numerical Operations; Algebra; Geometry; and Data Interpretation, Statistics and Probability.*

*In addition to procedural math skills, college students and employees also must be equipped with critical thinking and reasoning skills that professors and employers say are critical for success. When solving problems, graduates must be able to think strategically about what problem needs to be solved, make judgments about which operations and procedures to apply, try different approaches if necessary, and check for the reasonableness of solutions. These essential skills are woven throughout the ADP math benchmarks.*

**Number Sense and Numerical Operations:** Number sense is the cornerstone of math 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. High school graduates must be able to understand the relationships between numbers; be able to add, subtract, multiply and divide with and without a calculator; and be equipped to make reasonable estimations and mental computations.

**Algebra:** Colleges and employers need high school graduates who are well versed in algebra — and can apply their knowledge to everyday problems. For example, graduates should be able to predict savings based on a rate of interest, project business revenues and estimate future populations based on known population growth rates.

**Geometry:** Geometric measurement is the basis by which we quantify the world. Employers and professors say that graduates should be well versed in working with two- and three-dimensional shapes and figures — and should understand the logic of geometric proofs and theorems. In everyday life, graduates need to understand spatial relations to solve basic problems, such as resolving the best way to fit an oversized object through a door or deciding how to design a house for maximum living space with minimal timber costs.

**Data Interpretation, Statistics and Probability:** Graduates must be able to interpret, analyze and describe data quickly and accurately. Visual representations of data (e.g., charts, graphs and diagrams) are abundant, and employers and professors want graduates who can make predictions and develop and evaluate inferences from these data.

# COURSE REQUIREMENTS: HOW DO THEY MEASURE UP?

Achieve's analysis reveals that no state *requires* every student to take a college- and work-preparatory curriculum to earn a diploma. In *every* state, a student can take all of the courses necessary to graduate and still leave high school unprepared for work and postsecondary education.

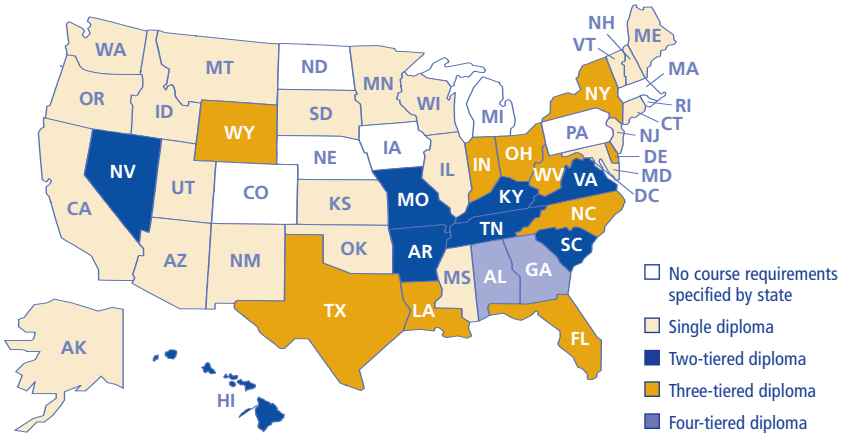
However, Achieve did find several states that are making progress toward requiring all students to complete course sequences that prepare them for college or work. Of particular note are Arkansas, Indiana and Texas, where all students soon will be automatically enrolled in a "default" course of study that is intended to align with college- and work-ready expectations. While students may still *opt out* of this course of study with permission from parents and school administration, this method is preferable to the traditional one in which students and their parents have to *opt in* to rigorous courses, often creating barriers to participation.

## *Overview of state course requirements*

Forty-two states and the District of Columbia define course-taking requirements for earning a high school diploma, whereas eight states leave this decision up to local school boards. States that define high school course-taking requirements do so in two different ways: The majority of states require students to complete *a number* of courses in math and English to graduate, but they do not specify *which* courses students must take. Other states specify *both* the number and level of required courses, which helps to clarify expectations and make the diploma more meaningful. In math, for example, it is more useful to require students to take Algebra I, Geometry and Algebra II than simply three years of math.

Most states offer only one diploma, and all students must meet the same requirements to earn it. Some states also offer higher-level diplomas, but they are not required for all students. These "tiered" diplomas provide students with different paths to graduation and different skill sets upon completion.

**State Diploma Systems Vary**




Source: Achieve survey/research, 2004.

To earn a general diploma students typically must take about 20 courses during their high school careers, including four in English, three in math, three in social studies, and two and a half in science. In states with tiered diplomas, students earning the higher-level diplomas commonly must take 24 courses to graduate — an extra course per year beyond the requirements for the general diploma.[12]

## *A closer look at math requirements*

College professors and employers agree that to be successful beyond high school, graduates should have mastered the content typically taught in a rigorous four-year course sequence of Algebra I, Geometry and Algebra II, as well as data analysis and statistics. There is a growing consensus that students should take math during their senior year in high school — preferably a course beyond

## MOVING TOWARD A COLLEGE- AND WORK-READY "DEFAULT CURRICULUM"

**Both Arkansas and Texas have established rigorous default curricula that are designed to prepare all students for success in work and postsecondary education. Indiana is in the process of adopting its Core 40 curriculum as its default. A default curriculum is one that students are automatically enrolled in unless they, together with their parents and counselors, "opt out."**

**The table below illustrates Arkansas', Indiana's and Texas' math course requirements, which meet or approach the college- and work-ready expectations outlined in the ADP study. For the full set of course requirements in these states, see Appendix.**

| | Course Requirements in Math That Meet College- and Work-Ready Expectations | Arkansas Smart Core *(in effect for class of 2010)* | Indiana Core 40 Curriculum *(proposed for class of 2011)* | Texas Recommended High School Program *(in effect for class of 2008)* | Typical Course Requirements in Math |
|---|---|---|---|---|---|
| **Total Number of Years Required** | **4** | **4** | **3** | **3** | **3** |
| **Algebra I** | **X** | **X** | **X** | **X** | **X*** |
| **Geometry** | **X** | **X** | **X** | **X** | |
| **Algebra II** | **X** | **X** | **X** | **X** | |
| **Other** | **Coursework in data analysis and statistics** | **An additional course beyond Algebra II** | | | |

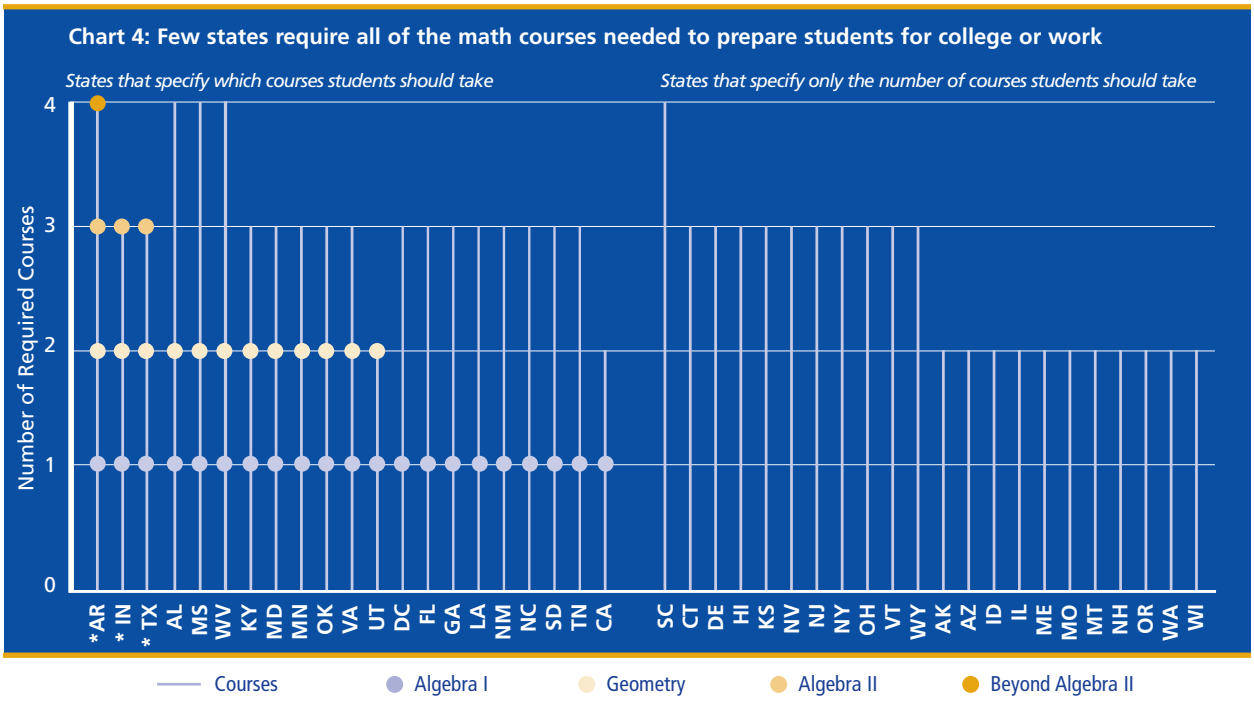
* Twenty states and the District of Columbia specify required courses. Algebra I is the only course common to all.

Algebra II — to ensure that they continue to strengthen their knowledge and skills.

Twenty-nine states and the District of Columbia require students to complete three or more years of math, but 13 states only require two years. Twenty states and the District of Columbia specify not only the number of courses but also which ones students must take. In these states, Algebra I is the most common requirement, although a growing number of states also are requiring Geometry. Few go beyond Algebra I and Geometry (see chart 4).

*How many math courses do states require for a general diploma?* Thirteen states require two, 24 states and the District of Columbia require three, and five states — Alabama, Arkansas, Mississippi, South Carolina and West Virginia — require all students to complete four math courses to graduate.

*Which math courses do states require for a general diploma?* Twenty-two states do not specify which math courses students must take to graduate from high school.[13] Of the states that do specify courses, eight states and the District of Columbia require only Algebra I, and nine states require both Algebra




*Default Curriculum
Source: Achieve survey/research, 2004.

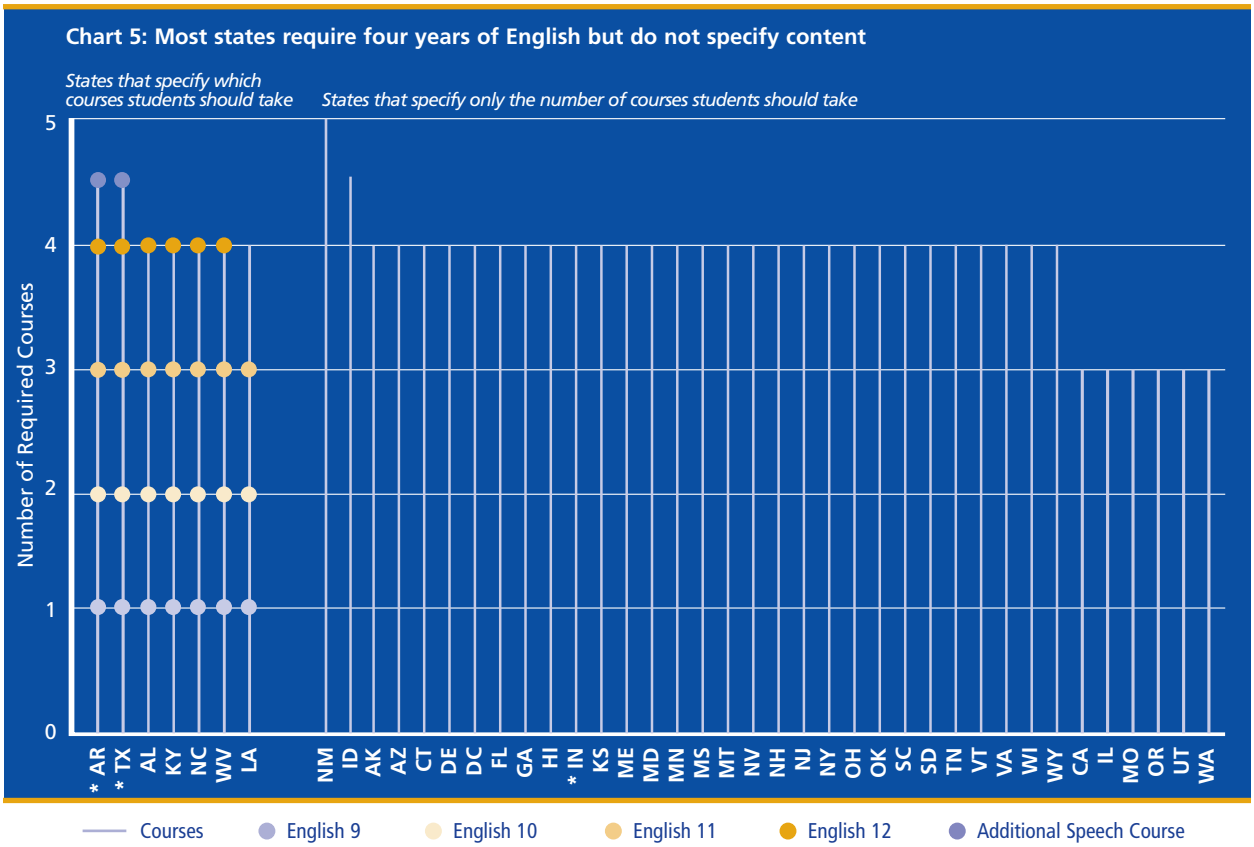
I and Geometry. Arkansas, Indiana and Texas require Algebra I, Geometry and Algebra II (with Arkansas requiring an additional course beyond Algebra II) as part of their default programs of study.

*Which states have math requirements for a general diploma that are aligned with college- and work-ready expectations?* Currently, no state requires four years of math through at least Algebra II for all students. However, Arkansas, Indiana and Texas come very close, requiring students to enroll in a course of study defined by the state as college- and work-preparatory and requiring students and parents to explicitly assume responsibility for the consequences of selecting a less rigorous option. Texas' "default diploma," which is in effect for the class of 2008, requires Algebra I, Geometry and Algebra II, and Indiana's requirement for the same sequence of courses should go into effect for the class of 2011. Only Arkansas requires a four-year sequence that includes at least one course beyond Algebra II; this goes into effect for the class of 2010. In all three states, parents who would prefer to have their children move from this curriculum to a different, less challenging one must opt out. This opt-out requirement is a dramatic departure from the practices in other states.

*Do any states with tiered diplomas have math requirements that are aligned with college- and work-ready expectations?* The top-tier diploma in 13 states — Alabama, Arkansas, Florida, Georgia, Indiana, Kentucky, Louisiana, Missouri, North Carolina, Ohio, Tennessee, Texas and Virginia — specifies a sequence that includes at least Algebra I, Geometry and Algebra II (or their equivalents). In five of these states — Alabama, Arkansas, Georgia, Indiana and North Carolina — the top-tier diploma requires courses beyond Algebra II, reaching the level that Achieve considers aligned with college and work.[14]

## A closer look at English requirements

To be successful in college and well-paying jobs, high school graduates must have strong oral and




*Default Curriculum
Source: Achieve survey/research, 2004.

written communication skills. In addition, college professors and employers agree that all graduates must have analytic and reasoning skills that have traditionally been associated with advanced or honors high school courses.

How do states' course requirements measure up? It is hard to tell. To a large extent, this is due to the imprecise nature of the English curriculum. Whereas in math there is a sequential set of courses students traditionally take in high school (e.g., Algebra I, Geometry, Algebra II) and a common understanding of the content associated with each course, there is no such common currency in high school English courses. As students progress through the grades, they presumably read more complex texts and build their writing skills. However, there is no common understanding in the discipline of what should be taught at each grade level, nor is there agreement on a specific body of knowledge associated with specific English courses (e.g., English 10, American Literature). This lack of clarity makes it very difficult to discern anything conclusive from state English requirements (see chart 5).

*How many English courses do states require for a general diploma?* Thirty-two states and the District of Columbia require all students to take four English courses to graduate with a general diploma. Six other states require three courses. The four remaining states — Arkansas, Idaho, New Mexico and Texas — require students to take more than four English courses, typically an additional course in speech.

*Which English courses do states require for a general diploma?* Very few states specify through course names or content descriptions what topics should be covered in the required courses. Six states —

Alabama, Arkansas, Kentucky, North Carolina, Texas and West Virginia — require four years of grade-level English or a four-year sequence of courses (i.e., English I–IV), yet none of the six indicates what topics these courses should cover. Arkansas and Texas also require an additional semester of speech or oral communication. A dozen states provide a list of topics to be covered (e.g., reading, composition and writing) or a list of topical units (e.g., *x* units of American Literature), but these lists do not convey a four-year progression of English knowledge and skills culminating in college readiness by the end of 12th grade.

The result is a fuzzy picture of what high school students are expected to learn in English. Contrast this with the vivid picture employers and colleges paint of the importance of reading, writing and communicating — and the mismatch becomes clear.

## BEYOND MATH AND ENGLISH

**Although this report focuses on math and English, it also is important for high school graduates to have learned the natural and social sciences and foreign languages. Each state's course-taking requirements in those subjects should be sufficient to provide students with the opportunity to attend college. As the following overview indicates, course requirements vary across the states.**

### ■ Social Studies

Requirements in social studies can include a range of courses: U.S. history, U.S. government, state history and government, world history or civilizations, geography, and economics. On average, states require three social studies courses, and all but seven states specify at least the equivalent of one full course that students must take. Thirty-four states and the District of Columbia require students to study U.S. history, 32 states and the District of Columbia require U.S. government, and seven states and the District of Columbia require state or local history or government. Twenty-one states and the District of Columbia require students to study world history or civilizations, and 19 states and the District of Columbia require world geography. Nineteen states require students to study economics, whether economics is included among the social studies course requirements or listed as a separate area of study.

### ■ Science

All 42 states with general diplomas and the District of Columbia require students to take science courses to graduate. Most commonly, students are required to take two or three science courses. In contrast, Illinois requires only one science course, while Alabama alone requires four. Twenty states and the District of Columbia do not specify which science courses students must take. Of the states that do specify courses, 15 require Biology and either an integrated physical science course or separate Chemistry and Physics courses; two require simply a Biology course. Six states require a course in earth, space or environmental science. Four additional states — Arkansas, Utah, Virginia and Washington — allow students to choose from a list of specified courses to satisfy the graduation course requirements in science.

### ■ Foreign Language

The study of a foreign language is a more common requirement for college admissions than for high school graduation. Accordingly, only three states and the District of Columbia require that all students take a foreign language in high school. New Jersey and New York require only one year of a foreign language, while the District of Columbia and Texas require two years.

## RECOMMENDATIONS FOR STATE POLICY LEADERS

There is ample evidence that there is a *performance* gap in American education — too many young people graduate from high school poorly prepared for college and work. Achieve's review of high school graduation requirements makes clear that there also is an *expectations* gap. Because state expectations, as defined by high school graduation requirements, reflect an economy and society that no longer exist, students who do precisely what is expected of them are not likely to be prepared for college and work. Today's students deserve much better than that.

The problems of inadequate preparation and weak postsecondary performance cannot be addressed unless the expectations problem is addressed as well. Officials in 42 states and the District of Columbia set high school graduation requirements; in the remaining states, responsibility is delegated to local school boards. Together, those adults have the primary responsibility for setting the right expectations for our nation's youth.

It is time to finish the work of standards-based reform begun some 15 years ago. Every state must set standards for what students should learn by the time they complete high school, not just by the end of 10th grade. Every state should make sure these standards clearly reflect the real-world demands of work and postsecondary education. And every state should make these standards consequential — not just aspirational — by incorporating them into the courses and exams that students must take and pass to earn high school diplomas.

### ■ Require all students to take a common college- and work-preparatory curriculum in math and English.

Success in postsecondary education and well-paying jobs requires a common and rigorous set of skills in math and English. Therefore, states must require *all* students to take and pass a common college- and work-preparatory course of study to earn high school diplomas. This course of study should include four years of rigorous math, including Algebra I, Geometry and Algebra II, as well as data analysis and statistics. It also should include four years of grade-level English, with courses that include literature, writing, reasoning, logic and communication skills.

To accomplish this, most states will need to increase the number of required math courses and also specify the particular courses students must take. In addition, some states will need to abandon outmoded tiered diploma systems that award some students college-preparatory diplomas and permit others to earn diplomas without college- and work-ready foundations. Such diplomas were appropriate in an era when large numbers of students went directly to well-paying, blue-collar jobs right out of high school. That era is behind us, and those diplomas should be as well.

Arkansas and Texas have taken the greatest strides in this direction by making a college- and work-preparatory curriculum the default, and Indiana is poised to do the same through its Core 40 program. While technically not a requirement for *all* students, this approach has a number of virtues. It sets and communicates a very clear expectation for what courses students should take to be prepared for life after high school. It removes obstacles students frequently encounter in gaining access to a rigorous curriculum, while simultaneously underscoring the ultimate responsibility of students and their parents for taking advantage of the opportunity. By providing an alternative for what hopefully will be a small number of students and their families who wish to pursue a less rigorous program, it does not let the perfect become the enemy of the good. As these states and others gain experience with this approach, they will be able to monitor the number of students who opt out of the core curriculum and determine if adjustments are needed.

**Indiana and Texas are going beyond aligning high school expectations with the demands of college and the workforce. Both states have set a rigorous curriculum as the default for every student, and both are implementing college admissions/placement and financial aid policies that reinforce their high school graduation course requirements. These two states are well on their way to ending the mixed messages inherent in a system that has one set of expectations for leaving high school and another for entry into postsecondary education.**

## ■ Texas

Texas is the first state to make a rigorous curriculum the default for all students. Beginning with this year's freshman class, all high school students will be placed in the Texas Recommended High School Program unless their parents specifically ask that they take a less rigorous course sequence. This default course of study includes three years of math through Algebra II, four years of grade-level English, three years of science, four years of social studies and two years of a foreign language. Students who take these courses meet or exceed the course requirements for admissions in public colleges and universities in Texas, and they are eligible for grants from the Texas Higher Education Coordinating Board that offset the cost of tuition.

In addition, Texas has worked to align high school and postsecondary expectations by using the same assessment — the 11th grade Texas Assessment of Knowledge and Skills (TAKS) — as both the high school graduation test and a college placement exam. Students must earn a certain score to receive a high school diploma, but if they reach a higher cut score they are considered ready for credit-bearing courses in state institutions of higher education and are not required to take a separate placement test. Texas is currently the only state that has combined its graduation and placement tests in this way.

## ■ Indiana

Indiana also has made considerable progress in aligning high school and postsecondary standards. The Indiana Education Roundtable — led by the governor and state superintendent of instruction — has recommended that, beginning with the graduating class of 2011, all students should be required to take the "Core 40" curriculum unless they formally opt out.

As in Texas, the Indiana Core 40 includes three years of math through Algebra II, four years of English, three years of science and three years of social studies. The Roundtable has recommended that, beginning with the class of 2011, completion of the Core 40 curriculum should be required for admission to state four-year institutions of higher education and encouraged for admission to state two-year institutions.

To provide an additional, powerful incentive for students, the Roundtable also has recommended that completion of the Core 40 curriculum be required for state financial aid eligibility at four-year institutions.

New requirements cannot be implemented overnight, nor should they be. There must be enough lead time to provide students with the necessary academic preparation and to recruit and prepare teachers to teach the more rigorous courses. This will be particularly important in urban and rural districts already facing shortages of teachers with the necessary subject matter expertise in math.

### ■ Align academic standards in high school with the knowledge and skills required for college and workplace success.

State standards provide the framework for state assessments and local curriculum. If the standards do not reflect the knowledge and skills most essential for young people to learn by the time they complete high school, the curriculum or the assessments are not likely to either. Every state should have standards that define what students need to learn through the 12th grade — and these standards must be anchored in the real-world demands of postsecondary education and work.

Unfortunately, states rarely validate their standards with employers and postsecondary faculty to ensure that they are aligned with the knowledge and skills required for success in the workplace and college. Remedying this situation will require the joint efforts of state postsecondary and K–12 leaders. For example, in Ohio, the postsecondary system is defining a common, "remediation-free" standard that spells out the knowledge and skills necessary to take credit-bearing courses in two- and four-year institutions throughout the state postsecondary system. Postsecondary and K–12 educators then will work together to revise the high school standards so that they become more tightly aligned with these expectations.

### ■ Pay attention to content — not just course titles.

Course titles, although important, are not sufficient. Content standards must clearly describe the level, rigor and content of courses to ensure that the expectations for all students are transparent and comparable. Too often, state standards do not do this, leaving too much open to interpretation. The likely result is that what is taught in these courses throughout the state will vary considerably.

In kindergarten through grade 8, state standards typically articulate the content that should be covered each year. Why should it be any different in high school? As course-taking patterns become much more diverse, standards should be even clearer, so teachers have a common understanding of what is essential for students to learn and so parents have assurance that the courses their children are taking are preparing them for college and work. In addition, standards should be organized primarily around the set of courses that states require for graduation from high school. Four states — Alabama, Kentucky, North Carolina and Texas — have taken this approach, articulating the course standards in English and math for at least the top-level or default diploma.

### ■ Provide guidance but allow flexibility.

In addition to standards, states and districts should help ensure that school curricula reflect the content that students need to succeed in college and work. While it is neither desirable nor feasible for states to mandate a statewide curriculum or monitor each school's course syllabi, they should provide clear guidance about what is most important for students to learn. This is important for the sake of equity across schools and districts. It also is extremely useful in addressing the widespread problem of student mobility within states, as well as in providing guidance for students who participate in applied learning through internships or work-based learning experiences. The point is for states to be clear about the

content they expect students to learn, while leaving plenty of room for local educators to deliver the content in varied ways appropriate for the needs of students and schools.

One way states can approach this challenge is by establishing a model state curriculum that districts and schools can opt to use. In 2003, in response to educators who wanted more guidance about what to teach, Maryland developed the Voluntary State Curriculum, which defines what students need to know and be able to do in math, English, science and social studies at each grade level from prekindergarten through grade 8 and in high school. Although it is still too early to measure its effect, this strategy holds much promise.

States also may want to consider developing monitoring tools that will enable districts and schools to analyze course syllabi. California has taken this approach with its A–G college entrance requirements, which provide a framework for courses that the University of California requires for entry, a checklist of topics to be covered within each course and sample syllabi. These documents are available on the state Web site so that the requirements are public and transparent (see www.ucop.edu/doorways/guide/).

Teacher professional development that is closely tied to standards and course content is another critical means of providing guidance around what is most important to teach — and ensuring that teachers have the skills to do so. Districts should provide ongoing course-based professional development for teachers within and across schools to ensure a common understanding of the content they teach. In addition, they should provide professional development for cross-grade teams of teachers to help them develop a common vision of how core content develops through the grades.

States also can participate in the State Scholars Initiative, a business-led effort to provide incentives to students who complete a college- and work-ready curriculum that includes three years of math (Algebra I, Algebra II and Geometry); three years of science (Biology, Chemistry and Physics); four years of English; three and a half years of social studies, including economics; and two years of foreign language. Evidence from the past decade indicates that the program is having success in preparing more students to complete a college degree — and ultimately to earn a higher wage in the years after high school.[15]

### ■ Encourage students to go beyond the core.

Although all students should be required to take a core college- and work-ready curriculum, they also should be strongly encouraged to go beyond the core. Students should be encouraged to earn postsecondary credit while in high school through Advanced Placement courses and dual-enrollment programs or through early college high schools that aim to help students earn two years of college credit while also earning a high school diploma. These accelerated options should not be reserved for the most advanced or advantaged students. Lower-achieving students can benefit from participation in college-level courses, particularly if the courses are combined with extended academic supports, such as intensive assistance with math and literacy skills.

Interested students also should be encouraged to pursue rigorous career and technical programs. As an addition to, not a substitute for, rigorous core curricula, career and technical programs can provide students with interesting and engaging content, help them apply academic skills in real-world contexts, and help them develop and refine career aspirations.

### ■ Monitor results.

While ensuring that students take rigorous courses is important, it is equally important that states have mechanisms for determining whether students learn what is in those courses. As states strengthen high

school course-taking requirements, they also must build better data and assessment systems for monitoring student achievement.

To track student achievement and course-taking through K–12 and into postsecondary education, states should develop data systems with individual student identifiers. Colleges and universities then can report back on student performance in their math and English courses, so states and districts can make necessary adjustments to their course offerings and/or instruction. Colleges and universities also should report back to districts on the remediation, persistence and completion rates of their graduates so that schools and districts know how prepared their own graduates are for postsecondary education.

In Oregon, for example, every high school principal and counselor receives an annual report from the Oregon University System that describes the performance of their school's graduates (compared with all Oregon graduates) on college entry requirements, including the SAT and the state high school assessments. This *Freshman Profile Report* then details students' subsequent performance in their first year of college and their persistence to a second year. A Web site allows educators and the public to compare two years of *Freshman Profile Report* data for students from any high school in the state (see http://pass.ous.edu/).

States also should consider using end-of-course exams to ensure that course content is consistent and students across the state are learning the same material. Not only do such measures help make sure all students have equal opportunities, but if well constructed, they can allow states to assess more advanced content than is typically found on state exit exams. Some districts count students' scores on the end-of-course exams toward their final grades or report them on student transcripts, which can provide incentive for students — and their teachers — to take the tests seriously. But end-of-course exams do not need to have high stakes attached to be useful. North Carolina and Indiana use them to provide information to schools and districts across the state regarding the extent to which students are learning the critical knowledge and skills they will need after high school.

Exit exams are yet another piece of a comprehensive assessment system. They establish a floor of performance that all students must meet to earn a diploma. As Achieve found in a recent study of six states' exit tests, most measure content that students study early in their high school careers — only a fraction of the knowledge and skills that colleges and employers say is essential. However, when strengthened and used in concert with end-of-course tests that assess higher-level content, exit exams can effectively establish a foundation of achievement for all students. (For more information on Achieve's exit exam study, go to www.achieve.org.)

The world that high school graduates enter today is very different from the one their parents faced decades ago. The economy has changed and so have the skills that are needed to be successful. Yet as the demands in the workplace and postsecondary institutions have grown, the expectations we have for high school graduates have not kept pace. The result is that the American high school diploma has lost its currency.

It is time to bring high school graduation requirements into the 21st century. All students deserve to take a challenging sequence of courses in high school, and earning a diploma should signify that students are ready for college or work. Most states have a long way to go to align their course-taking requirements with postsecondary demands, but the goal is within reach. States such as Arkansas, Indiana and Texas are illustrating what is possible when policymakers make a commitment to better preparing their graduates for success after high school. We hope that more states will follow their lead.

# APPENDIX

**Included in this appendix are the full set of course requirements for the Arkansas Smart Core, the Indiana Core 40 and the Texas Recommended High School Program. Students in these states are automatically enrolled in these "default curricula" unless they, along with their parents, decide to "opt out." Also included is the "opt-out" form that will be used in Arkansas.**

**For comparative purposes, note that one full year of study is equivalent to one unit in Arkansas, two credits in Indiana and one credit in Texas.**

## ARKANSAS STATE GRADUATION REQUIREMENTS *(Applies to students entering grade 9 in 2006.)*

| Discipline | Arkansas Smart Core |
|---|---|
| English | **4 units (years)** • English 9th grade • English 10th grade • English 11th grade • English 12th grade |
| Oral communication | **1/2 unit (1/2 year)** |
| Mathematics | **4 units (years)** • Algebra I or Algebra A and B (Grades 7–8 or 8–9) • Geometry or Investigating Geometry or Geometry A and B • Algebra II • Choice of: Transitions to College Math, Precalculus, Calculus, Trigonometry, Statistics, Computer Math, Algebra III or an Advanced Placement mathematics *(Comparable concurrent credit college courses may be substituted where applicable.)* |
| Natural science | **3 units (years) with lab experience** chosen from • Physical Science • Biology or Applied Biology/Chemistry • Chemistry • Physics or Principles of Technology I and II or PIC Physics |
| Social studies | **3 units (years)** • Civics or Civics/American Government • World History • U.S. History |
| Physical education | **1/2 unit (1/2 year)** |
| Health and safety | **1/2 unit (1/2 year)** |
| Fine arts | **1/2 unit (1/2 year)** |
| Career focus | **6 units** |
| **Total state credits required** | **22** |

## Smart Core Informed Consent Form

Name of Student

Name of Parent/Guardian

School

School Address

District

I have been informed of the Smart Core curriculum and the required course of study for graduation as well as the optional Common Core curriculum and course of study for graduation. This document indicates my choice of curriculum and course of study for graduation for the above named student.

**Failure to complete the Smart Core curriculum for graduation *may* result in negative consequences such as conditional admission to college and ineligibility for scholarship programs.**

### Mark the choice selected with a checkmark:

❑ **I select Smart Core (22 units)**

**English — 4 units (years)**
- English 9th grade
- English 10th grade
- English 11th grade
- English 12th grade

**Oral Communications — 1/2 unit (1/2 year)**

**Mathematics — 4 units (years)**
- Algebra I or Algebra A and B (Grades 7–8 or 8–9)
- Geometry or Investigating Geometry or Geometry A and B
- Algebra II
- Choice of: Transitions to College Math, Precalculus, Calculus, Trigonometry, Statistics, Computer Math, Algebra III or an Advanced Placement mathematics (Comparable concurrent credit college courses may be substituted where applicable.)

**Natural Science — 3 units (years) with lab experience chosen from**
- Physical Science
- Biology or Applied Biology/Chemistry
- Chemistry
- Physics or Principles of Technology I and II or PIC Physics

**Social Studies — 3 units (years)**
- Civics or Civics/American Government
- World History
- U.S. History

**Physical Education — 1/2 unit (1/2 year)**

**Health and Safety — 1/2 unit (1/2 year)**

**Fine Arts — 1/2 unit (1/2 year)**

**Career Focus — 6 units**

❑ **I select Common Core (22 units)**

**English — 4 units (years)**
- English 9th grade
- English 10th grade
- English 11th grade
- English 12th grade

**Oral Communications — 1/2 unit**

**Mathematics — 4 units (years)**
- Algebra or its equivalent* 1 unit
- Geometry or its equivalent.* 1 unit
- All math units must build on the base of algebra and geometry knowledge and skills.
- Comparable concurrent credit college courses may be substituted where applicable.

*A two-year algebra equivalent or a two-year geometry equivalent may each be counted as two units of the four (4) unit requirement.

**Science — 3 units (years)**
- At least one (1) unit of Biology
- A Physical Science

**Social Studies — 3 units (years)**
- Civics or government, 1/2 unit
- World history 1 unit
- U.S. history 1 unit

**Physical Education — 1/2 unit (1/2 year)**

**Health and Safety — 1/2 unit (1/2 year)**

**Fine Arts — 1/2 unit (1/2 year)**

**Career Focus — 6 units**

Parent/Guardian Signature Date

School Official Signature Date

## INDIANA STATE GRADUATION REQUIREMENTS *(Proposed for students beginning with the class of 2011.)*

| Discipline | Indiana Core 40 Curriculum | |
|---|---|---|
| English/language arts | **8 credits**<br>Credits must include literature, composition and speech. | |
| Mathematics | **6 credits** | • Algebra I* (2 credits)<br>• Geometry* (2 credits)<br>• Algebra II* (2 credits)<br>**or complete Integrated Math series I, II and III for 6 credits* |
| Science | **6 credits** | • Biology I (2 credits)<br>• Chemistry I or Physics I or Integrated Chemistry-Physics (2 credits)<br>• any Core 40 science course (2 credits) |
| Social studies | **6 credits** | • U.S. History (2 credits)<br>• U.S. Government (1 credit)<br>• Economics (1 credit)<br>• World History/Civilization or Geography/History of the World (2 credits) |
| Flex credits | **5 credits** | • World Languages<br>• Fine Arts<br>• Career/Technical |
| Physical education | **2 credits** | |
| Health | **1 credit** | |
| Electives** | **6 credits** (Career Academic Sequence Recommended) | |
| **Total state credits required** | **40** | |

***This specifies the number of electives required by the state. High school schedules provide time for many more electives during the high school years. All students are strongly encouraged to complete a Career Academic Sequence (selecting electives in a deliberate manner) to take full advantage of career exploration and preparation opportunities.*

*Local schools may have additional requirements.*

*(State Board of Education final action anticipated 2/05)*

## TEXAS STATE GRADUATION REQUIREMENTS *(Applies to students entering grade 9 in 2004.)*

| Discipline | Texas Recommended High School Program |
|---|---|
| English language arts* | **Four credits:** • English I, II, III and IV.<br>• English I and II for Speakers of Other Languages may be substituted for English I and II only for immigrant students with limited English proficiency. |
| Mathematics* | **Three credits** must consist of: • Algebra I, Algebra II and Geometry. |
| Science* | **Three credits.** One credit must be a biology credit (Biology, AP Biology or IB Biology). Must choose the remaining two credits from the following areas. Not more than one credit may be chosen from each of the areas to satisfy this requirement.<br>• Integrated Physics and Chemistry;<br>• Chemistry, AP Chemistry or IB Chemistry;<br>• Physics, Principles of Technology I, AP Physics or IB Physics.<br>*Students are encouraged to take classes in biology, chemistry and physics.* |
| Social studies* | **Three and one-half credits** must consist of:<br>• World History Studies (one credit);<br>• World Geography Studies (one credit);<br>• U.S. History Studies Since Reconstruction (one credit), and<br>• U.S. Government (one-half credit). |
| Economics with emphasis on the free enterprise system and its benefits* | **One-half credit** |
| Physical education | **One and one-half credits** to include Foundations of Personal Fitness (one-half credit). (Limit two credits.)<br>Can substitute: drill team, marching band, cheerleading, ROTC, athletics, Dance I–IV, approved private programs, or certain career and technology education courses. |
| Languages other than English* | **Two credits** must consist of Level I and Level II in the same language. |
| Health education | **One-half credit** or Health Science Technology (one credit). |
| Technology applications* | **One credit**<br>For courses to satisfy this requirement, see §74.53 relating to Recommended High School Program for details. |
| Fine arts* | **One credit,** which may be satisfied by any course found in 19 TAC, Chapter 117. |
| Speech | **One-half credit:** • Communication Applications |
| **Program credits excluding electives** | **20** |
| Additional components* (elective courses) | **Three and one-half credits** from:<br>• the list of courses approved by the SBOE for grades 9–12 (relating to Essential Knowledge and Skills),<br>• state-approved innovative courses,<br>• JROTC (one to four credits), or<br>• Driver Education (one-half credit). |
| **Total program and elective credits** | **24** |

**College Board Advanced Placement and International Baccalaureate courses may be substituted for requirements in appropriate areas.*

# ENDNOTES

[1] Greene and Forster, *Public High School Graduation and College Readiness Rates in the United States,* Center for Civic Innovation, Manhattan Institute, Education Working Paper, No. 3: September 2003. Appendix Table 9.

[2] National Center for Education Statistics, *Access to Postsecondary Education for the 1992 High School Graduates,* October 1997, Table 2. NCES, *Remedial Education at Degree-Granting Postsecondary Institutions in Fall 2000,* November 2003, Table 4. NCES, *Condition of Education 2004,* Indicator 18, Supplemental Table 18-1.

[3] National Center for Education Statistics, *Condition of Education 2004,* Indicator 18.

[4] Public Agenda, *Reality Check 2002,* 2002.

[5] Adelman, *Answers in the Tool Box: Academic Intensity, Attendance Patterns, and Bachelor's Degree Attainment,* June 1999, Office of Educational Research and Improvement, U.S. Department of Education.

[6] Adelman, et al., *Postsecondary Attainment, Attendance, Curriculum, and Performance: Selected Results From the NELS:88/2000 Postsecondary Education Transcript Study (PETS), 2000,* September 2003, Table 11.

[7] Carnevale and Desrochers, Educational Testing Service, *Connecting Education Standards and Employment: Course-Taking Patterns of Young Workers,* American Diploma Project: Workplace Study, 2002.

[8] ACT, *Crisis at the Core: Preparing All Students for College and Work,* October 2004.

[9] Adelman, *Answers in the Tool Box,* June 1999.

[10] National Center for Education Statistics, *Condition of Education 2004,* Indicator 22, Supplemental Table 22-2.

[11] Education Trust–West, *The A–G Curriculum: College-Prep? Work-Prep? Life-Prep. Understanding and Implementing a Rigorous Core Curriculum for All,* 2004.

[12] Eight states have diploma systems with two tiers, another eight states have three tiers and two have four tiers. Two additional three-tier diploma states — Delaware and Wyoming — differentiate their multiple diplomas not by more rigorous course requirements, but by different levels of student performance on state tests. Consequently, Delaware and Wyoming are not included in the course-related discussion of multidiploma states in this report.

[13] The New York State Regents diploma requires no specific math courses, but student must pass the Math A end-of-course exam, which covers the first half of an integrated course sequence roughly equivalent to Algebra I and Geometry.

[14] In Arkansas, the Smart Core diploma is both the default program of study and the top-tier diploma. In Indiana, the Core 40 is the default program of study, while the more rigorous Academic Honors diploma is the top-tier diploma.

[15] Center for State Scholars, "Prepared High School Students Needed to Head Off Looming Skill and Labor Shortage," January 2004.

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