



# Policy Brief

## High School

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### Ensuring Rigor in the High School Curriculum: What States Are Doing

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*“While truth-in-labeling practices in the food industry ensure that orange drink cannot be labeled orange juice without legal ramifications, schools have no such safeguards in place. Algebra I can be placed on any child’s transcript without any guarantee about the content taught or learned.”*

– Jean Rutherford, National Center for Educational Accountability

#### Orange Juice or Orange Drink?

In an effort to ensure that students graduate from high school better prepared for college and the workplace, a growing number of states have made one or both of the following policy changes in recent years:

- Raising the number of Carnegie units required to earn a diploma
- Specifying certain courses, including higher-level science and math, in which students must earn credits.

But increased graduation requirements do not necessarily translate into a more rigorous and challenging curriculum. Various indicators suggest that far too many high school students are being sold orange drink under the label of orange juice. For example:

- Michael Kirst leads Stanford University’s Bridge Project, a program tracking high school to postsecondary transitions. He noted in a recent Webcast that a substantial number of high school students who had completed California’s “A-G curriculum” – which is aligned with entrance requirements for the state’s two university systems – required remediation in English and/or math in their first year of college.
- At ECS’ National Forum on Education Policy last July, Jean Rutherford of the National Center for Educational Accountability reported that in Texas, 57% of Hispanics, 65% of African Americans and 60% of low-income students who had credit on their transcripts for both geometry and Algebra II failed the state test covering Algebra I.
- In its most recent annual survey of American youth, the Horatio Alger Association found that nearly 60% of high school students felt only “moderately” or “somewhat” challenged in their coursework, and an additional 12% felt expectations were “low.” Similarly, Achieve’s February 2005 report *Rising to the Challenge: Are High School Graduates Prepared for College and Work?* stated that nearly half of recent high school graduates who had gone on to college – and 58% of those who had gone directly into the workforce – felt they were not well prepared, or only somewhat well prepared, for expectations after high school. A striking 86% of those who had enrolled in college acknowledged a gap in their preparation in at least one knowledge or skill area.
- In a 2005 national survey by the Higher Education Research Institute, just 36% of postsecondary faculty (from four- and two-year institutions, both public and private) said they felt that most students are well prepared academically for college. Forty-one percent of all survey respondents – and 65% of faculty at public two-year colleges – said that most of the students they taught lacked the basic skills needed for college-level coursework.<sup>1</sup>

- In a recent report to state legislators, University of Arkansas at Fayetteville professor Sean Mulvenon said that when graduating seniors' grade-point averages were compared to their ACT scores, significant levels of grade inflation were evident in the Classes of 2002 through 2004. Nearly one in three entering Arkansas freshmen with a high school GPA of 3.0 or higher was required to take remedial coursework.

Clearly, improving the rigor and relevance of the high school curriculum entails considerably more than raising diploma and/or coursework requirements. It also requires:

- Developing versatile, dynamic and efficient assessment systems that both reflect and reinforce higher standards of teaching and learning
- Ensuring that teachers have the resources, training and support they need to transform their classrooms into richer, more challenging learning environments
- Making greater efforts to identify and provide assistance to academically struggling students before they fall too far behind.

This policy brief provides a look at some of the strategies states are using to address these three challenges, including: replacing conventional high-school exit exams with more rigorous end-of-course assessments; encouraging greater use of diagnostic and formative assessments; working with school districts to develop assessments and other measures to gauge student proficiency in content areas; creating an infrastructure of support for struggling students; and expanding teachers' access to high-quality professional development, training and enrichment programs.

## End-of-course Exams

End-of-course exams (EOCs) are used to assess students' mastery of the content and skills addressed in specified high school courses (e.g., English 9, Biology 1). In recent years, some states have moved to make EOCs mandatory, rather than optional, for all students, or to use EOCs instead of minimum-competency exit exams or subject-area tests that, while generally given in grades 10 or 11, often test content and skills geared to the grade 8 or 9 level.

EOCs that are not used as exit exams may hold other consequences for students – such as factoring into a student's grade in a course – or may simply serve to help teacher, student, parent and state gauge how a student measures up on a state-set benchmark.

Here are a few examples:

- **Tennessee's** longstanding minimum-competency exit exams in language arts and math were replaced with the state's Gateway Tests – end-of-course exams in Algebra I, English II and Biology I – effective with the Class of 2005.
- **Maryland**, which adopted the minimum-competency Maryland Functional Test as a graduation requirement for the Class of 1989, has approved the development of EOCs to replace the Maryland Functional Test. But following a series of debates in 2003 and 2004, state officials decided not to make passing the more challenging assessments a graduation requirement until the Class of 2009.
- **New York** has, since 1865, required students who wanted to receive a Regents diploma – rather than the regular “local diploma” – to pass end-of-course Regents exams. Effective with the Class of 2000, the state began to phase in a requirement that students earning the local diploma also pass Regents exams for certain courses – with the number and types of courses evolving over the next several years. Effective with the Class of 2005, the local diploma is no longer offered. The Regents diploma and the Advanced Regents diploma are now the only options for high school students in the state.
- In **Indiana**, completing the challenging Core 40 high school curriculum and passing EOCs in algebra and English have been requirements for admission to the state's public and independent four-year colleges and universities since 1998. Legislation enacted in 2005 mandates that all students, effective with the Class of 2011, complete the Core 40 curriculum unless the student, the student's parent and the school counselor agree that the student “will achieve greater educational benefits by ... continuing in the general curriculum.”

## Diagnostic and Formative Assessments

Diagnostic assessments are used to identify, *prior to instruction*, a student's level of knowledge and skills in a particular subject area. Formative assessments are used *during the course of instruction* to help teachers identify what students have learned and what they have yet to learn. Both diagnostic and formative assessments are typically low-stakes, serving as sources of feedback for teachers rather than of potential negative consequences for students.

While such assessments are commonly used in the elementary and middle grades, states have done little to encourage or mandate their use at the secondary level. This is unfortunate, since formative assessments, in particular, can serve as a valuable tool for ensuring rigor in the curriculum, as well as identifying and providing support for struggling students before they fall too far behind.

Two notable exceptions are:

- **Rhode Island**, where work is under way to develop a proficiency-based graduation assessment system designed, among other things, "to foster the use of formal and informal formative assessment to guide curricula and instruction"<sup>2</sup> Under this system, to be fully implemented effective with the Class of 2008, districts may use portfolios as a formative assessment to measure student progress toward a school's proficiency-based graduation requirements.
- **Indiana**, where Core 40 curriculum, in addition to the end-of-course exams discussed above, offers voluntary classroom assessments in English 9, English 12, Geometry, Algebra II, Biology I, Chemistry I, Physics I, U.S. Government and U.S. History. According to the Indiana Department of Education Web site, while the optional classroom assessments are "designed to serve as comprehensive final exams, [they] are provided for local use only, and scores will not be reported to the Department of Education."

## "Proficiency" in Addition to Seat Time

Rather than relying on Carnegie units alone to determine students' readiness for the next grade or for high school graduation, some states are encouraging or requiring students to demonstrate proficiency in specific content areas and skills via performance assessments, projects, exhibitions and portfolios of student work. States are setting guidelines for local determinations of proficiency and establishing monitoring procedures to ensure consistency across districts.

- **Rhode Island** high school graduates, effective with the Class of 2008, will be required to complete "multiple measures of graduation by proficiency"<sup>3</sup> in six core areas, in addition to 20 Carnegie units. Districts must identify at least two of the following proficiency-based graduation requirements that apply to all students entering grade 9 and 10 in fall 2005: departmental end-of-course exams (which can include industry certification tests), a "certificate of initial mastery," digital portfolios, extended "capstone" projects and public exhibitions.

Districts' performance-based graduation requirements must be consistent with the Rhode Island Common Core of Learning for a New Century, national content and performance standards, and the New England Compact Grade Level Expectations. In addition, districts must "eliminate the differences in requirements, if any, between college-preparatory and non-college preparatory programs," and they are encouraged to ensure that math requirements address geometry and Algebra II-level content.

Beginning in May 2004, all district graduation requirements must be submitted to the state commissioner for approval once every two years, and must be submitted to the department annually. While the system is not yet fully implemented, it shows promise as a method of ensuring rigor through a locally driven proficiency-based system.

- **Wyoming**, effective with the Class of 2006, offers three levels of high school diplomas -- advanced endorsement, comprehensive endorsement and general endorsement -- based on a student's demonstration of "proficient performance" in language arts, math, science, social studies, health, physical education, foreign language, fine and performing arts and

career/vocational education. An advanced endorsement means a student has shown advanced performance in a majority of these areas and proficient performance in the rest. A comprehensive endorsement, the standard level in the state, means a student has demonstrated proficient performance in all nine areas; and a general endorsement signifies that the student has demonstrated proficient performance in a majority of the nine areas. Districts must determine proficient performance through a body of evidence approved by the local board. Every district's "body of evidence assessment system" must be reviewed annually by a committee of peers -- Wyoming educators who have gone through the state department of education's peer-review training process. The district must annually submit to the committee numerous forms of evidence supporting the validity of the local system. The committee in turn must recommend to the state superintendent "the district's status regarding its body of evidence system" (WCWR 005-000-031).

## **Teacher Professional Development and Support for Struggling Students**

Diagnostic and formative assessments can serve to identify students struggling to complete more challenging coursework, but high-quality, targeted remediation supports need to be in place to help students with the specific obstacles they face. At the same time, efforts to improve the rigor and relevance of high school coursework cannot succeed without greater attention to the professional development and learning needs of teachers.

To address these two issues, **Kentucky** has launched several initiatives that may serve as a useful model for other states. They include:

### **Kentucky Mathematics Achievement Fund**

Recent legislation established a fund to support programs and services designed to help students reach proficiency in mathematics. Funds may be used to develop and implement diagnostic and intervention services, provide release time for teachers to serve as coaches and mentors, hire substitute teachers to support math teachers, purchase materials needed to modify instruction, and to cover other costs deemed appropriate by the state board.

The fund will provide: (1) funding for the Kentucky Center for Mathematics and the costs of training selected teachers in the diagnostic assessment and intervention skills needed to assist struggling students in the primary program and other grade levels, (2) renewable, two-year local grants to school districts and (3) operating funds for the Kentucky Committee for Mathematics Achievement. Funds designated to support the Center for Mathematics will be appropriated to the state council on postsecondary education and distributed to the university administering the Center.

For the 2005-06 fiscal year, the Kentucky Legislature provided \$3.9 million for the Mathematics Achievement Fund, which includes \$400,000 for the Center for Mathematics' operating expenses and \$500,000 for teacher training at the Center.

### **Committee for Mathematics Achievement**

The 25-member Committee for Mathematics Achievement was established to develop "a multifaceted strategic plan to improve student achievement in mathematics at all levels of schooling, pre-kindergarten through postsecondary and adult." At a minimum, the plan must address:

- Challenging curriculum that is aligned pre-kindergarten through postsecondary, and reflects consensus among high school teachers and postsecondary education faculty about expectations, curriculum and assessment
- Teachers' knowledge of, and attitudes and beliefs about, mathematics
- Diagnostic assessment, intervention services and instructional strategies
- Shortages of teachers of mathematics, including incentives to attract strong candidates to mathematics teaching

- Statewide institutes that prepare cadres of mathematics leaders in local school districts, which may include highly skilled retired teachers, to serve as coaches and mentors in districts and schools
- Cohesive continuing education options for experienced mathematics classroom teachers
- Closing the student achievement gap among various student subpopulations
- Curriculum expectations and assessments of students at the pre-kindergarten, primary, elementary, middle and high school levels
- Content standards for adult education centers providing mathematics curricula
- Introductory postsecondary education mathematics courses that are appropriate to the wide array of academic programs and majors
- Research to further analyze the issues of transition from high school or GED programs to postsecondary education mathematics.

In addition, the committee must “design a statewide professional development program that includes summer mathematics institutes at colleges and universities, follow-up and school-based support services, beginning no later than June 1, 2006, to prepare teams of teachers as coaches and mentors of mathematics at all school levels to improve student achievement.”

The legislation also mandates that schools and districts approved to have participants in the mathematics leader institutes provide assurances that:

- The district and schools have, or will develop, mathematics curricula and assessments aligned with state standards
- There is a local commitment to build a cadre of mathematics leaders within the district
- The district and participating schools will provide in-school support for coaching and mentoring activities
- The mathematics teachers are willing to develop classroom assessments that align with state assessments
- Students who need modified instructional and intervention services will have access to such services beyond the regular school day, week or year.

The committee must present the strategic plan for improving mathematics achievement to the Interim Joint Committee on Education by July 15, 2006, including recommendations for legislative action, and submit a final written report to both the interim committee and the Legislative Research Commission by December 2006.

### **Kentucky Center for Mathematics**

The Kentucky Center for Mathematics – to be located at a public university – is intended to make available professional development for teachers in reliable, research-based diagnostic assessment and intervention strategies, coaching and mentoring models and other programs in mathematics. The center will:

- Serve as a clearinghouse for information about professional development programs for teachers that address mathematics diagnostic assessment, intervention programs, coaching and mentoring programs and other instructional strategies to address students' needs
- Collaborate with Kentucky's other public and private postsecondary institutions to develop teachers' mathematical knowledge needed for teaching and help teachers improve students' mathematical concepts, thinking, problem-solving and skills, with an emphasis on diagnostic assessment and intervention programs for students in the primary program
- Provide training to develop teacher leaders and teaching specialists in primary programs who have skills in diagnostic assessment and intervention services to assist struggling students or those who are at risk of failure in mathematics. The Center may contract for services in order to carry out this responsibility.
- Maintain a demonstration and training site for mathematics located at each of the public universities
- Advise the Kentucky Department of Education and Kentucky Board of Education.

It should be added that, while most if not all states offer remediation to struggling high school students, few states conduct evaluations of remediation programs, rendering it difficult to offer conclusions or recommendations on the most effective state remediation initiatives.

## Standards Review and Curriculum Definition

One final element of ensuring rigor in the high school curriculum is the question of the standards and curriculum themselves – even when well delivered and learned by students, are they challenging enough to prepare students for college and the workforce? A handful of states have recently launched efforts-- either within the state or with the assistance of such outside organizations as Achieve, Inc – to determine the potential of state standards to prepare young people for tomorrow's challenges. More information on Achieve's work in this area can be found at [http://www.achieve.org/achieve.nsf/StateServices\\_Standards?openform](http://www.achieve.org/achieve.nsf/StateServices_Standards?openform).

States also have recently begun to convene state-level working groups of secondary and postsecondary educators to determine what constitutes a "college and work-ready" curriculum. For example, legislation enacted in Minnesota in 2005 requires the Higher Education Advisory Council to call together "a working group to develop standards describing the skills and knowledge a high school graduate must have at entry into postsecondary education in order to successfully graduate from college," to be submitted to the state commissioner of education by January 15, 2006. By mid-March 2006, the commissioner must provide legislative leaders with recommendations on changes that must be made to the state standards to ensure that high school graduates achieve the council's college readiness standards.

## Conclusion

While it is laudable that states are raising the number of units students must complete and identifying specific higher-level courses needed to fulfill those unit requirements, such efforts do not guarantee that students are completing a curriculum rigorous enough to prepare them for living, learning and working in a changing world. States must make it their goal to ensure that students are being served not orange drink, but the orange juice that will help ensure their success after high school graduation.

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## *Helping State Leaders Shape Education Policy*

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### Endnotes

<sup>1</sup> "The American College Teacher: National Norms for the 2004-2005 HERI Faculty Survey," Higher Education Research Institute, University of California, Los Angeles, September 2005.

<sup>2</sup> Initial Guidance for the Graduation by Proficiency Component of the Regulations of the Board of Regents for Elementary and Secondary Education Regarding Public High School Students and Ensuring Literacy for Students Entering High School, Rhode Island Department of Education, Final Version 2.11, Last Revised February 4, 2004

<sup>3</sup> Ibid.