

From Competing to Leading:
**AN INTERNATIONAL
BENCHMARKING
BLUEPRINT**



Education Commission
of the **S t a t e s**

By January 2009, ECS will create and disseminate an International Benchmarking Toolkit to assist policymakers and education leaders. The Toolkit will contain the policy elements and strategies of the Blueprint, and provide an enhanced, user-friendly guide for benchmarking to international standards.

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Theme: Align State Policies to World-Class Performance

The United States once enjoyed the position of global leader in education and now is struggling to compete. In measuring progress, most states compare themselves to other states rather than to international benchmarks. Because of the nation's diminished international standing, continuing to engage in inter-state comparisons risks perpetuating regionally low standards and achievement, and ignores the necessity to adequately prepare a workforce that is mobile across both state and national boundaries. To move from competing to leading, states should spend less time comparing to one another and spend more time comparing to high-performing countries.

A necessary foundation in this move is leadership. Committed and capable leadership for public education has always been critical. Effective leadership sets the tone and conditions for schools to serve students well. Social, technological and workforce changes are producing unparalleled challenges. Today, it may be more important than at any other time in history to address challenges facing states, districts and schools. Navigating such change requires leaders who are willing to examine their existing education systems and continuously improve them for the future. To that end, ECS encourages its constituents to consider, adopt and/or adapt the International Benchmarking Blueprint.

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International benchmarking is the alignment of standards, instruction, professional development and assessment to those of the highest-performing countries. The Blueprint serves as an action guide, recommending essential policy components that would enable states, districts and schools to craft new and adjust existing policies proven to demonstrate world-class performance. Performance refers to students' ability to compete internationally. Standards are policy indicators in core content areas. Assessment includes both statewide and local measurements.

The focus of the Blueprint is on how to assist states, districts and schools to benchmark to international standards. We recognize that there is a role for other agency contributions and we look forward to the national collaborative engaging Achieve, the Council of Chief State School Officers and the National Governors Association. We anticipate their subsequent report later in 2008 that analyzes K-12 math, science and literary standards in high-performing countries.¹

Action Plan: This Blueprint and ECS' subsequent work are intended to help states, districts and schools align to global competencies and build an education system for the 21st century. Specifically, ECS will:

- A. *Phase One:* Create and disseminate an International Benchmarking Blueprint for policymakers and education leaders to generate awareness and understanding about benchmarking to international standards (July 2, 2008).
- B. *Phase Two:* Create and disseminate an International Benchmarking Toolkit that provides specific strategies for adoption and adaption of the Blueprint (January 2009).
- C. *Phase Three:* Create a bank of international standards of high-performing nations for states, districts and schools to compare, contrast and/or utilize (December 2009).

The ECS International Benchmarking Blueprint

The proffered International Benchmarking Blueprint assists policymakers and education leaders in designing a world-class education system by:

- Outlining aspects of education that must be addressed to achieve a world-class system
- Describing and offering policy recommendations in four critical areas that must be embraced and aligned: international standards, quality instruction, professional development and assessment
- Highlighting characteristics of high-performing nations and states that have systems accessible to all students regardless of socioeconomic status
- Addressing the perceptions and realities facing education leaders and policymakers in adopting and adapting the Blueprint.

The International Benchmarking Blueprint is based on two broad principles: (1) U.S. students can and must succeed and achieve in a knowledge-based global society and economy; (2) the United States can and must lead again. Yet, many challenges and barriers exist in developing a world-class education system and implementing an International Benchmarking Blueprint. For example, the perceived political and monetary costs associated with benchmarking may present one obstacle. Another obstacle is the misnomer that the United States cannot and should not emulate other countries that are unlike our own. The Blueprint does not suggest emulation, rather it suggests flexible adaptation thereby meeting the needs of diverse districts and schools across the country. A final example is the fear that it will require more testing of our youth. These and others challenges are addressed in the International Benchmarking Blueprint.

In short, benchmarking to international standards may seem like a difficult, overwhelming task. Yet, policymakers and education leaders have a moral and economic imperative to prepare students and schools for a global society and economy. The United States is at a turning point. Either the country moves its education system into the global arena, in which it not only competes but also leads; or, the country risks falling further behind the developed world and some developing nations. Given this choice, ECS recognizes the rich diversity of state education systems and offers the following Blueprint to assist policymakers and education leaders in moving toward preparing students for global success and achievement.

The International Benchmarking Blueprint is not about merely building awareness in ECS constituents, but increasing their knowledge, skills and will to adopt a strategy and advocate for quality education systems driven by policies that benchmark to international standards. The Blueprint:

- Aligns education policy with international performance
- Articulates both context and content to sustain an education system focused on world class achievement and success
- Maps to and builds upon standards, instruction, professional development and assessment for adoption and adaptation by states, districts and schools.

Either the country moves its education system into the global arena, in which it not only competes but also leads; or, the country risks falling further behind the developed world and some developing nations.

Finally, this Blueprint can be adopted by a wide range of users. The Blueprint is designed to assist all states, districts and schools in aligning to international standards regardless of current readiness.

The Benchmarking Framework

The following strategies and policy framework are essential to achieve a world-class education system.

Strategies for World-Class Performance

In addressing the moral and economic imperative facing our schools, education leaders and policymakers should consider the following four strategies for sustainable and equitable change. The identified strategies also help to evolve education systems to reflect deeper knowledge, skills and competencies, accountability and accessibility for all students, regardless of socioeconomic status. Moreover, this process begins with the recognition that the Blueprint can and should be adaptable by a wide-range of diverse states, districts and schools.

- **Embrace diversity and flexibility across systems: One-size does not fit all**
Many states and countries enjoy a great deal of diversity across districts and schools. This Blueprint can and should be adapted as appropriate across diverse states, districts and schools. Diversity is exemplified in size, structure, culture, ethnicity, socioeconomics, composition and environmental setting.
- **Deliver accessibility for all students regardless of socioeconomics**
The recommendations and characteristics outlined in this Blueprint are consistent with high-performing countries and states that have demonstrated student success and achievement, regardless of socioeconomic status. This is both the aim and intent of the Blueprint. The nations and states identified in Characteristics of High-Performers on page 13 reflect those with accessible systems.
- **Focus on learning outcomes and results**
By focusing on the progressive learning outcomes, states, districts and schools can assess theoretical knowledge, practical and technical skills, and the ability to use knowledge and skills in social, professional and personal settings. In so doing, states, districts and schools become both student-focused and competency-focused.
- **Lead effectively by raising expectations**
Common to most high-performing education systems is an intentional effort to raise student and teacher expectations and levels of performance. Education leaders and policymakers must embed aspirations for high performance in policy. Specifically, high-level expectations should be connected to incentive processes for all levels of employees (from teacher to administrator), professional development and assessments.

Four Essential Policy Components

As states, districts and schools begin to and/or further develop a policy framework, there exists at least four necessary and integrally related components that should be addressed and continuously improved: instruction, standards, assessment and professional development. Instruction should link to and align with standards. Assessments should accurately measure student proficiency of the standards and instruction. Professional development should link to and align with results of student performance on assessments. Creating a system in which these components are aligned and linked would allow us to close the gap on teacher preparedness and student performance.

Notwithstanding the need to simultaneously incorporate and align all four policy components to international benchmarks, states, districts and schools can begin with any policy component and align accordingly. If states, districts and schools can begin to align their existing policies to international benchmarks, they are making marked improvements, and starting to prepare their students for a global economy and society. The caution here is to alert education leaders and policymakers that beginning with one policy component is sufficient, so long as they intend to and ultimately align the additional components to international benchmarks.

Policy-makers and education leaders must support universal, high standards that will raise the qualifications and competencies of all students.

A. International Standards

Policymakers and education leaders must support universal, high standards that will raise the qualifications and competencies of all students. These standards should also align with that of a knowledge-base economy and society to ensure greater mobility of workers. Mathematics, science and language literacy examples follow.

Sample policies:

1. Mathematics

- *Year 9*
 - a. Distinguish the different roles played by letter symbols in equations, identities, formulae and functions
 - b. Use index notation for integer powers and simple instances of the index laws (United Kingdom)
- *Year 10*
 - c. Know and use the index laws in generalized form for multiplication and division of integer powers
 - d. Square a linear expression; expand the product of two linear expressions of the form $x \pm n$ and simplify the corresponding quadratic expression; establish identities such as $a^2 - b^2 = (a + b)(a - b)$ (United Kingdom)²

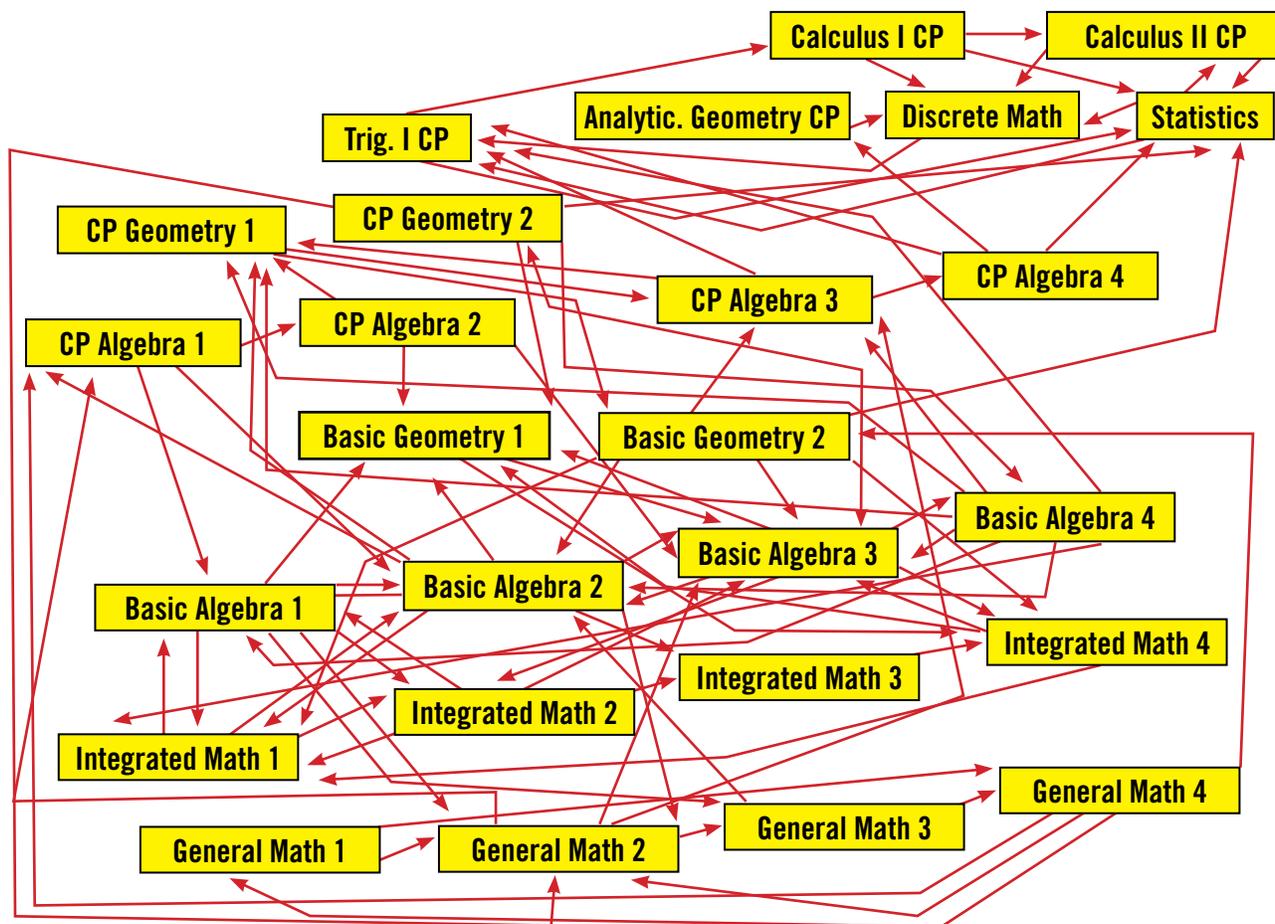
One way of comparing U.S. mathematics to top achieving countries is to examine the following two tables.³ The first demonstrates the curricular coherence, focus and rigor. The second table illustrates the seemingly random nature of course offerings currently existing in many U.S. school districts.

Top Achieving Countries' Mathematics Curriculum

TOPIC	GRADE							
	1	2	3	4	5	6	7	8
Whole Number: Meaning	■	■	■	●	●			
Whole Number: Operations	■	■	■	■	●			
Measurement Units	▲	■	■	■	■	■	●	
Common Fractions			▲	■	■	■	●	
Equations & Formulas			▲	●	●	●	■	■
Data Representation & Analysis			▲	▲	●	●		▲
2-D Geometry: Basics			▲	●	●	●	■	■
2-D Geometry: Polygons & Circles				▲	●	●	■	■
Measurement: Perimeter, Area & Volume				●	●	●	●	▲
Rounding & Significant Figures				●	●	■		
Estimating Computations				●	●	●		
Whole Numbers: Properties of Operations				●	●	■		
Estimating Quantity & Size				▲	▲			
Decimal Fractions				●	■	●		
Relation of Common & Decimal Fractions				■	■	●		
Properties of Common & Decimal Fractions				●	●			
Percentages					●	●	●	▲
Proportionality Concepts					●	●	●	▲
Proportionality Problems					●	●	■	■
2-D Geometry: Coordinate Geometry					▲	▲	●	●
Geometry: Transformations						●	●	●
Negative Numbers, Integers & Their Properties						▲		
Number Theory							●	■
Exponents, Roots & Radicals							●	●
Exponents & Orders of Magnitude							▲	▲
Measurement: Estimation & Errors							▲	■
Constructions Using Straightedge & Compass							■	▲
3-D Geometry							●	■
Geometry: Congruence & Similarity								■
Rational Numbers & Their Properties								▲
Patterns, Relations & Functions								▲
Proportionality: Slope & Trigonometry								▲

- ▲ Intended by 4 out of the 6 top-achieving countries
- Intended by all but *one* of the top-achieving countries (5 out of 6)
- Intended by *all* of the top-achieving countries

Diagram of Mathematics Course-Taking Sequences in District F



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To avoid standards that reflect Table 2, the following examples from high-performing countries suggest successful policies align to international standards and also focus on curricular coherence and rigor.

- “Mathematical concepts cover numerical, algebraic, geometrical, statistical, probabilistic and analytical concepts.” (Singapore)
- “Students should develop and explore the mathematics ideas in depth, and see that mathematics is an integrated whole, not merely isolated piece of knowledge.” (Singapore)
- “They should be given a variety of learning experiences to help them develop a deep understanding of mathematical concepts, and to make sense of various mathematical ideas, as well as their connections and applications, in order to participate actively in learning mathematics and to become more confident in exploring and applying mathematics. The use of manipulatives (concrete materials), practical work and use of technological aids should be part of the learning experiences of the students.” (Singapore)

2. Language Literacy

- “Integrate listening, viewing, speaking, reading and writing skills for multiple purposes and in varied contexts. An example is using all the language arts to complete and present a multimedia project on a national or international issue.” (Michigan)

3. Science

- "...describe three broad categories of activities that are common in scientifically literate individuals: Using scientific knowledge; constructing new scientific knowledge and reflecting on scientific knowledge." The following example is taken from the first strand, using scientific knowledge." (Michigan)

To effectively adapt and implement international standards, education leaders and policymakers should align curricula from pre-kindergarten through higher education and work force development.

To effectively adapt and implement international standards, education leaders and policymakers should align curricula from pre-kindergarten through higher education and work force development. They should place a particular emphasis on science, language literacy and mathematics as well as other subjects and methods that enhance creativity and problem-solving skills. ECS' International Benchmarking Blueprint does not suggest that mathematics, science and language literacy are the sole skills necessary for the 21st century. Whereas these core academic areas are essential, they are offered as examples.

B. Quality Instruction

"The quality of an education system cannot exceed the quality of its teachers."⁴ To enhance student learning and competencies, it is instrumental for teachers to possess greater knowledge and skills, and effective teaching and learning methods. Quality instruction policies must:

1. Build deeper teacher knowledge and skills in mathematics, reading and science
2. Ensure teacher understanding and application of effective teaching and learning methods
3. Develop strategies and support mechanisms for selecting, recruiting and retaining the most globally competent teachers
4. Link directly to practice that provides teachers time and support for professional learning and instruction-focused interaction with their colleagues aimed at continuous improvement
5. Develop support strategies and programs such as target instruction to student need, and early intervention to ensure higher achievement within schools
6. Align knowledge, skills and instruction to global competencies.

Sample policies:

- Align teacher competency to international standards
- Revise requirements for licensure to promote competencies aligned to international standards
- Establish criteria for excellence and awareness of quality teacher-preparation programs in the state
- Ensure adequate non-instructional time for teacher collaborative and other professional learning
- Ensure that leaders are truly instructional leaders and receive the training, support, and coaching, etc. to perform that role
- Promote and support learning communities for professional development and instructional improvement, group problem solving, etc.
- Institute a proven mentoring, coaching for administrators and teachers
- Adopt teacher (and administrator) placement policies that ensure the most skilled professionals work where they are most needed.

Moreover, school leaders should periodically review personnel policies and practices relating to recruitment, selection, evaluation and promotion of personnel based on teachers' capacity to teach to international standards.

C. Professional Development

Professional development should ensure the continuous improvement of teacher knowledge and skills, assessment results and quality instruction. Teacher quality and assessment should be reviewed and aligned with international standards. Policies that promote professional development:

1. Improve teacher preparation programs to deepen understanding in content area and teaching methods
2. Ensure content and pedagogy are aligned with international standards
3. Build community and corporate partnerships to assist with and sustain professional development
4. Create and sustain quality professional learning communities
5. Focus on continuous improvement across the system
6. Improve dispositions (commitment to higher expectations of all students).

Sample policies:

- Require teachers to complete credits in their academic subject area as part of their licensure renewal process, demonstrating their knowledge and skills to teach to international standards
- Require that a teacher, to advance to a professional certification, must demonstrate proficiency in teaching to international standards
- Establish a public-private partnership to develop, pilot and implement a statewide academy to enhance the knowledge, skills and leadership of school and district administrators to more successfully integrate international benchmarks
- Require a school district — as a condition for receiving specified professional development block grant funds — to focus on improving the academic achievement and global competencies of pupils
- Establish school-based quality professional learning communities by providing deliberate time and structures to promote adult growth that is directly linked to student learning
- Establish a system that utilizes formative assessment of teacher knowledge and skills for targeted professional development and support, professional advancement and sustained employment
- Create a coordinated system of pre-service and in-service strategies and practices that establishes and enhances teachers' ability to assist students to perform.

Policymakers and education leaders should evaluate their current teacher professional development systems for alignment with international standards. It is essential for professional development policies to provide clear standards of expectations, mechanisms for feedback on performance, and a means for improvement thereby raising the standards of the profession. In doing so, the experiences of high-performing countries demonstrate that enabling the profession to operate at high levels appeals to the best and brightest and assists with teacher recruitment.

D. Assessment

Learning and performance indicators assist in informing and influencing decisions regarding instruction and content. By ensuring that teachers teach to international standards and measure students' progress in meeting those standards, leaders and teachers can incorporate the results into their decisions. More students should be expected to demonstrate international competencies focused on complex skills and deeper content knowledge. Corresponding measures of achievement will provide meaningful information about all students including those who still perform below expectations. Policies that promote effective assessment:

1. Align to and build upon international standards
2. Assess for deeper content knowledge and corresponding skills
3. Assess higher-level thinking skills
4. Analyze assessments for misalignment with:
 - a. Content, standards and curriculum
 - b. Teaching strategies
 - c. Assessment alignment
 - d. Standardized tests; collaborate with test-makers.

Sample policies:

- Establish a program and funding source for school districts to administer international assessment tests to students in the district (the program allows the chief state school officer to compare the performance of their students to students of the same grade level in other countries)
- Redesign or adjust assessments in math, reading and science for all grades and align with international assessments
- Align state assessments and student accountability with international standards
- Ensure all students in public schools have an equal opportunity to demonstrate grade-level international proficiency through the application of knowledge and skills in the core academic areas
- Adopt statewide assessments appropriate for all students, including students with need, and make adjustments according to assessment results
- Develop assessments and supporting instructional materials that interpret the findings from international assessments in ways that are useful for teachers
- Adopt instructionally sensitive assessments, tests that measure the impact of instruction, so that educators can more effectively use the results to improve instruction. (Jim Popham).

Policymakers and education leaders should compare existing student knowledge and skills with those of high-performing countries. Finally, they should encourage schools to incorporate Programme International Student Assessment (PISA) and Trends in International Math and Science Study (TIMSS) assessments into their accountability systems. PISA and TIMSS assessments compare nations and identify mathematics and science standards.

Characteristics of High-Performing Nations

ECS' analysis of education systems, policies and student assessments from high-performing nations uncovers a set of characteristics that lead to high-performing schools and students. Collectively, they encourage policymakers and education leaders to:

- Establish a framework for the teaching profession that is performance-based
- Adopt placement policies that put the best administrators and teachers where they are most needed
- Provide high-quality technical assistance to schools and districts based on world class best practices
- Support stable funding and hold schools accountable for appropriate use of resources
- Ensure access for all youth regardless of socioeconomic status
- Focus on fewer standards and deeper content
- Provide flexibility for schools to benchmark to international standards (not one size fits all)
- Align system-wide (P-20)
- Ensure effective metrics are in place to measure student competencies
- Provide standards for teacher effectiveness
- Promote professional development of school administrators
- Focus on students rather than on the adults working in the education system to create a student-centered learning environment
- Inculcate good values, and nurture thinking skills and creativity through formal and informal curricula
- Improve dispositions (commitment to higher expectations of all students)
- Employ data-driven decision making; diagnose the key drivers of school success and failure, and improve accordingly
- Actively recruit, select and hire the best and brightest teachers
- Continuously modify and review teaching and assessment methods to nurture thinking skills, creativity and to encourage knowledge generation and application.

Recommendations from States (Ohio and Michigan)

We recognize that several states have focused on international benchmarking. These states include Michigan, which has benchmarked its math standards to international standards, and Ohio, which has conducted a major analysis of what it will take to create and sustain a world-class education system, but has not yet benchmarked to international standards. We offer the following strategies from these two states:

- Ensure state participation in Program for International Student Assessment (PISA)
- Provide incentives to both align with and develop international standards (includes both positive incentives and negative consequences for meeting or failing to meet expectations for identifying and diagnosing student needs)
- Provide the necessary resources and support to meet high expectations
- Align standards with high-performing PISA participants
- Promote continuous improvement by using comparative data analyses
- Align clear expectations for teachers with evaluation and professional development
- Ensure funding is fairly allocated and linked to accountability
- Focus on standards that are rigorous, clear and specific
- Offer more opportunities for increased enrollment in International Baccalaureate programs
- Offer more Advanced Placement courses.

Challenges: Real and Perceived

ECS recognizes there are challenges in implementing and sustaining international benchmarking policies.

Perceived challenges include:

- The misperceptions around the differences between the United States and other countries (e.g. the misconception that the United States is different in that we test all students unlike other countries). *In fact*, most of the high-performing countries test all of their students.
- Policymakers and education leaders may view benchmarking to international standards as unattainable because of the erroneous belief that it requires a complete system overhaul. *In fact*, the International Benchmarking Blueprint can be adopted by all states, districts and schools regardless of current performance and/or readiness.
- The fear that national standards will be a by-product when *in fact* benchmarking requires local flexibility and is not a one-size fits all approach.
- Public concerns about too much testing. *In fact*, assessing international competencies is the most important indicator of student success and achievement in a global society and economy.
- Administrative concerns regarding costs in dollars and testing time. *In fact*, international benchmarking is an investment in a streamlined, comprehensive approach to policy. The Blueprint is an efficient, cost-effective way to address many of the problems plaguing education.
- The belief that high-performing countries are homogeneous and small in size. *In fact*, most high-performing countries vary in size and are heterogeneous.
- The belief that this Blueprint creates an oversimplified approach to a very complicated problem that actually requires system upheaval. *In fact*, ECS intended to establish a blueprint that is manageable to implement and yet will also assist states, districts and schools in aligning to international benchmarks.

Real challenges include:

- Balance local control with the need for international expectations
- Ensure that standards continually align to global competencies and success
- Emphasize results thereby avoiding too much focus on compliance
- Align systems of support to better focus on youth rather than focus on adults working in those systems
- Lack of political will; complacency with current performance
- Need for flexibility at state, district and school levels.

These challenges are addressed with resolute and determined leadership as demonstrated by many of the high-performing countries.

Resources Provided By ECS

- *Creating a World-Class Education System in Ohio*, Achieve, Inc.
- Information on PISA
- *Trends in International Math and Science Study (TIMSS)*
- Michigan Math Standards
- Dr. William Schmidt Resources
- Dr. Andreas Schleicher Resources
- NGA/ACHIEVE (Michael Cohen to write)
- *Learn Canada 2020, A Joint Declaration of Education*, Canada
- ECS national and regional forums focused on benchmarking to international standards
- ECS Web site sharing information, strategies and policies

Endnotes

While ECS is grateful for the contributions and feedback of those recognized, we also acknowledge that the contributors may not support all statements and recommendations contained therein.

- ¹ The collaborative report will identify a set of international benchmarks that reflect common expectations of high-performing countries, against which state standards can be compared. It also will examine expectations incorporated in the PISA and TIMSS assessment framework.
- ² *The Framework for Secondary Mathematics: Overview and Learning Objectives*, The National Strategies/Secondary, Crown, United Kingdom, 2008.
- ³ William H. Schmidt, *Education in a Global Context*, PowerPoint presented February 28, 2008.
- ⁴ *How the world's best-performing school systems come out on top*. McKinsey & Company, September 2007, pg. 13.



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