

# Wisconsin Project Lead The Way News Alert

## *What the National Governors Association is saying about STEM*

*In a 2007 report issued by the National Governors Association (NGA) as part of its Innovation America initiative, NGA says that today's global economy is forcing states to educate a workforce that thinks critically and innovates. NGA also details the obstacles to creating a world-class STEM education system and some ways in which states can address these obstacles, including the integration of Project Lead The Way, a proven STEM curricula found in all 50 states.*

*Founded in 1908, NGA is the collective voice of the nation's governors and one of Washington, D.C.'s most respected public policy organizations. Its members are the governors of all U.S. states, territories and commonwealths. NGA provides governors and their senior staff members with services that include developing solutions to public policy challenges through the NGA Center for Best Practices. For more information, visit [www.nga.org](http://www.nga.org).*

### **Demands of Global Economy**

In the new global economy, states need a workforce with the knowledge and skills to compete. A workforce of problem solvers, innovators, and inventors who are self-reliant and able to think logically is one of the critical foundations that drive innovative capacity in a state. A key to developing these skills is strengthening science, technology, engineering, and math (STEM) competencies in every K–12 student.

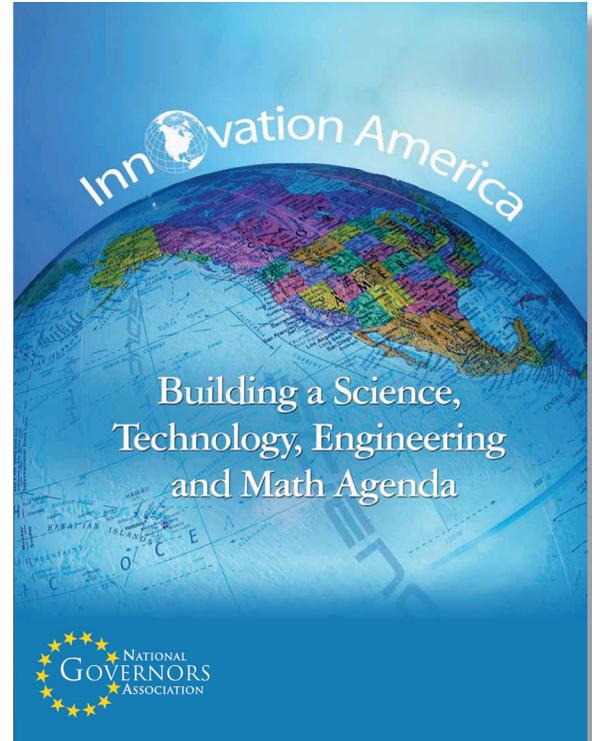
Results from the 2003 Third International Mathematics and Science Study, which measures how well students acquired the mathematics and science knowledge they have encountered in school, show that U.S. eighth and 12th graders do not do well by international standards. Further, NGA's National Assessment of Education Progress confirms persistent math and science achievement gaps between students relative to their race/ethnicity, gender, and socioeconomic status.

### **Obstacles to STEM Education**

Three key issues have been identified as obstacles to having a world-class STEM education system: On a variety of STEM indicators it is clear that too many high school graduates are not prepared for postsecondary education and work. A recent study by ACT, Inc. has demonstrated that regardless of a student's postsecondary pathway, high school graduates need to be educated to a comparable level of readiness in reading and math proficiencies. Nearly three out of 10 first-year college students are placed immediately into remedial courses. In the workforce, employers report common applicant deficiencies in math, computer, and problem solving skills. A wide variety of studies and indicators have demonstrated that our education system continues to fail to prepare many students for the knowledge based economy.

The second obstacle is the misalignment of STEM coursework. Currently, there is a lack of alignment between K–12 postsecondary skills and work expectations; between elementary, middle, and high school requirements within the K–12 system; and between state standards and assessments and those of our international competitors. This misalignment has resulted in a system in which students participate in incoherent and irrelevant course work that does not prepare them for higher education or the workforce.

Finally, the STEM teaching workforce is under-qualified in large part because of teacher shortages caused by attrition, migration, and retirement. This shortage has led to what has been called a "revolving door" of STEM educators. Many of those who are teaching STEM classes are unprepared and/or teaching out of their subject area; thus, students in STEM classes experience a lower number of highly qualified teachers during the course of their studies. Simply increasing the number of STEM teachers through financial incentives and other recruitment strategies will not solve the problem. States must also support high quality preparation and professional development for teachers that lead to improvements in large numbers of classrooms.



*The Global Competitiveness Report 2006–2007 of the World Economic Forum in its rating of national competitiveness, dropped the United States from first to sixth position, trailing Switzerland, Finland, Sweden, Denmark and Singapore.*

*Nearly three out of 10 first-year college students are placed immediately into remedial courses.*

## How States Can Improve

A state with an effective STEM policy agenda uses its power to set academic content standards; require state assessments, high school graduation requirements, and content-rich teacher preparation and certification standards; and develop new models to support an effective K–12 STEM classroom.

States should seek to:

1. Align state K–12 STEM standards and assessments with postsecondary and workforce expectations for what high school graduates can do.
2. Examine and increase the state's internal capacity to improve teaching and learning.
3. Identify best practices in STEM education and bring them to scale.

As states identify best practices in STEM, they should create and expand the availability of specialized STEM schools; develop standards and assessments in science, technology, engineering and math; support the development of high quality STEM curricula for voluntary use by districts; and develop standards for rigorous and relevant CTE programs that prepare students for STEM related occupations.

## What NGA Says about Project Lead The Way

NGA's report specifically cited Project Lead The Way as *“a program designed to introduce high school students to engineering. Students participate in core STEM courses built around national STEM standards. More than 80 percent of PLTW graduates are going to college, and 68 percent of the college-bound PLTW graduates have decided to major in engineering. PLTW also engages teachers in a two-week summer workshop that models project- and problem-based STEM courses. PLTW has developed a complete engineering program, including curricula, assessments, standards, and professional development.”*

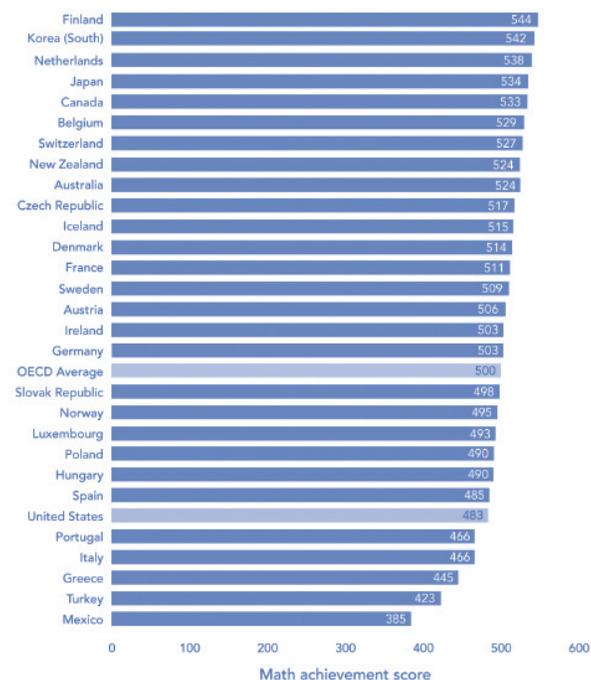
The report also notes that PLTW offers opportunities to earn early college credit and that Illinois has invested more than \$1.2 million in PLTW across the state as a part of its *Opportunity Returns* regional economic development strategy.

## For More Information...

To view the National Governors Association's "Building a Science, Technology, Engineering and Math Agenda" report in its entirety, download the PDF at <http://www.nga.org/Files/pdf/0702INNOVATIONSTEM.PDF> or call the organization at 202-624-5300. NGA is located at 444 North Capitol Street, NW, Suite 267, Washington, DC 20001-1512. Visit NGA online at [www.nga.org](http://www.nga.org).

## MATHEMATICALLY LAGGING

On international tests of performance, 15-year-olds in the United States, on average, trail behind their peers in many other developed nations. Out of the 30 countries taking part in the 2003 Program for International Student Assessment, or PISA, the average mathematics achievement of U.S. students was higher than that of students in only five countries.



SOURCE: Organization for Economic Cooperation and Development, 2006

## About Project Lead The Way

Project Lead The Way is an innovative curriculum for middle and high school students that addresses the nation's need for a more tech-savvy workforce—and students that are better prepared to study science and math in college. PLTW forms partnerships with schools, higher education institutions and the private sector to increase the quantity and quality of engineers and technical professionals graduating from our educational system. The PLTW curriculum was first introduced to 12 New York State high schools in 1997. A year later, PLTW field-tested a four-unit Middle School Program in three middle schools. Today, the programs are offered in some 3,000 schools in 50 states and the District of Columbia. More than 200 schools in Wisconsin currently feature PLTW coursework.



To learn how Project Lead The Way can help improve the STEM curriculum in your school, visit [www.pltw-wi.org](http://www.pltw-wi.org) or contact PLTW Wisconsin Affiliate Director Steve Salter at [salters@msoe.edu](mailto:salters@msoe.edu) or 414-277-7255. His address is 1025 North Broadway, Milwaukee, WI 53202.