

# News from Triangle Coalition

## **Technological Literacy of U.S. Population Not Well-Assessed**

The federal government, state governments, and the private sector should develop tests and surveys to measure Americans' knowledge of technology, how they use it in their daily lives, and their ability to make informed decisions on issues involving technology, says a recent report from the National Academy of Engineering and National Research Council. Data on technological literacy could allow policymakers to better respond to people's concerns about technology and help educators improve technology-related curricula and teachers' education. In reviewing nearly 30 surveys and tests that included questions about technology, the committee found that none adequately assessed people's knowledge and use of technology. Many of these surveys and tests determined participants' attitudes about technologies instead of their understanding of them. New surveys and tests should be developed or existing ones should be modified to better measure technological literacy. The committee described how to assess three U.S. populations: K-12 students, K-12 teachers, and out-of-school adults.

To assess K-12 students, new studies should be conducted by the National Science Foundation, the report says. Questions about technology should also be added to existing tests that measure students' knowledge in mathematics, science, and history, the report says. The technological literacy of teachers could be assessed by following guidelines of the No Child Left Behind Act, which require teachers to demonstrate their level of knowledge in the subjects they teach through several means, including competency tests, the report says. States should ensure that these tests include questions about technology for teachers of a broad range of subjects, including science, mathematics, history, and social studies. Existing surveys of adult literacy and skills could be used to assess adults who have finished school, but they should include additional questions about technology. Examples of such surveys are the Adult Literacy and Lifeskills Survey, the General Social Survey, and the National Household Education Survey. The study was sponsored by the National Science Foundation. The report "Tech Tally: Approaches to Assessing Technological Literacy" may be viewed online at <http://www.nap.edu/books/0309101832/html/R1.html>.

## **Biotechnology Institute Says Creationism Leads to Poor Science Education**

Concerned by recent attacks on teaching evolution in school systems around the nation, Triangle Coalition member, the Biotechnology Institute, says the siege on evolution in Kansas, Ohio, Michigan, and many other states is compromising the quality of U.S. public science education, stifling scientific innovation, and so undermining our economic well-being. The Arlington, VA non-profit biotechnology education organization stated in a position statement that "development of scientific literacy and the successful completion of training in the sciences demand a clear understanding of evolution as scientists understand it." Evolution, the evidence-based theory that all living organisms have descended from common ancestors, is a cornerstone principle of the biological sciences on which biotechnology is based.

"To combat the spread of AIDS, bio-warfare, and pandemic diseases – to give us life-saving new cures and life-improving new breakthroughs – tomorrow's biologists must be equipped with scientifically-based knowledge today," says Paul Hanle, president of the Biotechnology Institute. "The race to develop new antibiotics and antiviral drugs to combat rapidly-evolving bacteria and viruses is a well-known example of evolution-based research in action. Policymakers considering issues of science should certainly respect non-scientific viewpoints. But they must uphold the standards of teaching science if only to let the communities they serve offer a decent public science education. With that, our children can grow up to make informed decisions affecting public policy and prepare for careers in the science-based world economy." Nations that value open inquiry and use scientific criteria in education, research, and industry will outperform those that don't. If we are to continue to be leaders in the global economy, we must teach science, not religion, in the science classroom, according to Hanle. The Biotechnology Institute is dedicated to education about the present and future impact of biotechnology. Its mission is to engage, excite, and educate the public, particularly students and teachers, about biotechnology and its immense potential for solving human health, food, and environmental problems. For more information, visit <[www.biotechinstitute.org](http://www.biotechinstitute.org)>.

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### **Cleveland Clinic Launches Web Portal to Provide Access to Educational Resources Online**

Cleveland Clinic has launched "Real World Connect" (<http://www.clevelandclinic.org/RealWorldConnect>), a web portal that provides online learning opportunities in the areas of math, science, health and wellness, the arts, and innovation.

Resources include:

- Worldwide Classroom: a curriculum of state-of-the-art distance learning courses.
- Infotrac: a nationally recognized database of health information resources.
- My Health Librarian: a personalized service that provides answers to health questions.
- Earl's Virtual Garage: a narrated, minds-on educational playground for children of all ages.
- Online X-Ray Library: a student-created database of authentic medical images.
- Virtual eXpressions Exhibition: an online collection of award-winning student art and the scientific research that inspired it.

"Making available this broad array of educational resources online will strengthen lesson plans, enhance materials available for school projects and research papers, and improve the access to current health information," said Rosalind Strickland, Senior Director of Cleveland Clinic's Office of Civic Education Initiatives. Cleveland Clinic, located in Cleveland, OH, is a not-for-profit multispecialty academic medical center that integrates clinical and hospital care with research and education.

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## **NSG's Math and Science Partnerships Demonstrate continued Increases in Student Proficiency**

An analysis of 123 schools participating in the National Science Foundation (NSF) Math and Science Partnership (MSP) program shows improvements in student proficiency in mathematics and science at the elementary, middle, and high school levels over a three year period. The most recent data, for 2004-2005, show continued increases since the MSP program was established in 2002. Students showed the most significant improvements in mathematics proficiency, with a 13.7 percent increase for elementary, 6.2 percent increase for middle-school, and 17.1 percent increase for high school students. Science proficiency at each level showed marked gains as well, with a 5.3 percent increase for elementary, 4.5 percent increase for middle-school, and 1.4 percent increase for high-school students. The most dramatic increases were documented by elementary grade students in mathematics, where 7.2 percent more students achieved or exceeded proficiency from 2002-2003 to 2003-2004, followed by an increase of 6.5 percent from 2003-2004 to 2004-2005. African American, Hispanic, and white students showed significant improvements in elementary level mathematics, as did students designated as special-education or as limited English-proficiency students. The proficiency data also reveals a correlation between teachers who participate in MSP professional development and their school's change in student achievement. The correlations are positive in both mathematics and science at all grade levels (elementary, middle, and high school) and are statistically significant for both elementary and high school mathematics and science.

NSF's MSP program supports partnerships among higher education, local K-12 school systems, and supporting stakeholders, such as businesses or informal science-education organizations. At a minimum, each partnership must contain one institution of higher education and one K-12 school system. The program's portfolio includes 52 partnerships and more than 30 other projects engaged in the development of tools, research, and capacity building for evaluation to support the work of the partnerships. Find out more at (<http://www.nsf.gov/ehp/MSP>).

## **Universal Education Achievable and Affordable, American Academy Study Finds**

"Educating All Children: A Global Agenda," is a new book from the American Academy of Arts and Sciences, which examines the impact of providing high-quality education to every child in the world between the ages of 6 and 16. According to the authors, achieving universal basic and secondary education by the middle of the 21st century is both possible and affordable. The volume presents a cohesive picture of past, present, and future steps necessary to achieve this goal. The Academy study concludes that achieving universal primary and secondary education is both urgently needed and well within the ability of wealthy nations to fund. Although greater numbers of people are completing primary, secondary, and tertiary education than ever before, ensuring universally available high-quality schooling still faces major obstacles. In "Educating All Children," leading experts discuss the current state of education and how to measure global educational progress, the history of compulsory education, political, and financial obstacles to expanding education, the role of educational assessment and evaluation in developing countries, cost estimates for providing universal education (and why they differ so

widely), the potential consequences of expanded global education, and the relationship between education and health.

Universal primary education has long been advocated in international forums, but the editors contend that secondary education must also be universally available. They note that many benefits of education do not accrue until students have had ten years or more of schooling and that "primary education is more attractive if high-quality secondary education beckons." At the current rate of progress, the international commitment to universal primary education by 2015, as expressed in the United Nations' Millennium Development Goals, will not be met. According to the study, by 2015, roughly 114 million children – most in the world's poorest countries -- will still not be enrolled in primary school and almost twice that number will not be receiving a secondary education. "Educating All Children: A Global Agenda" is published by the MIT Press. The volume grew out of a multidisciplinary project undertaken by the American Academy of Arts and Sciences. Future research will concern the goals and rationales for universal primary and secondary education. The project is supported by a major grant from the William and Flora Hewlett Foundation and by a small number of individual donors. More information about the project is available online (<http://www.amacad.org/projects/ubase.aspx>) .

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