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**To:** FCIEEE<r3-fl-council@ieee.org>  
**Date:** August 5, 2004  
**Subject:** Educational Activities Committee Report to the  
Summer Meeting of the Florida Council of the I.E.E.E.  
NOVA/Southeastern University Student Ctr, Orlando, FL-Sat., Aug. 14,'04

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#### STUDY FINDS IMPLEMENTATION OF NCLB EXPANDS LEARNING TIME FOR LITERACY, MATH, AND SCIENCE

The first significant study of how the No Child Left Behind Act is influencing instructional time and professional development in key subject areas reveals that schools are spending more time on reading, math, and science but squeezing out social studies, civics, geography, languages, and the arts. The report, conducted by the Council for Basic Education(CBE) and funded by the Carnegie Corporation of New York, says that the shift away from these liberal arts subjects is most pronounced in elementary schools and schools with large minority populations. The study, "Academic Atrophy: The Condition of the Liberal Arts in America's Public Schools," is based on a survey of more than 1,000 principals in four representative states(Indiana, Maryland, New Mexico, and New York) that were chosen for their socio-economic, political, and geographical diversity. According to the report, three-quarters of all principals surveyed say that instructional time for reading, writing, and mathematics is increasing greatly or somewhat, while a similar majority also reported moderate or large increases in time for teachers to hone their skills and knowledge in these areas. Close to half of all principals surveyed reported increased instructional time for science, and even larger numbers project such increases over the next two years.

However, while these courses are receiving greater emphasis, the overall curriculum is becoming narrower, the report reveals. For example, elementary school principals reported decreases in instructional time for social studies, civics, and geography. One of the areas subject to the largest cutbacks is the arts. "The narrowing of the curriculum is worrisome because students need exposure to history, social studies, geography, and foreign languages to be fully prepared for citizenship, work, and learning in a rapidly changing world," says Raymond "Buzz" Bartlett, president of the Council for Basic Education. "Truly high expectations cannot begin and end with math, science, and reading." The report is available at [www.c-b-e.org](http://www.c-b-e.org).

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#### AFRICAN AMERICAN PARENTS CONSIDER SCIENCE IMPORTANT PART OF CHILDREN'S EDUCATION

Science education is a high priority among African American parents, according to a new nationwide poll released by the U.S. Department of Education. Results of the poll of 1,000 parents indicate that African American parents -- more so than white parents -- are likely to encourage their children to take science classes and are more comfortable helping with related homework. \*"Based on this recent poll, parents of all races --but especially minority parents -- recognize the importance of science education and want to help their children succeed," U.S.

Secretary of Education Rod Paige said. "No area of our lives is untouched by science, and it is our duty to foster our children's desires to chart new courses and explore new paths in science. By providing equal access to a quality education for all children, regardless of skin color or background, we are cultivating a new crop of astronomers, biologists, physicists, zoologists, and more. We are saying to children 'if you can dream it, we'll help you achieve it.'"

Almost three-quarters of the African American parents surveyed rated science as "very important" to their child's education. In addition, 71 percent of these parents regard science education as crucial in a globally competitive workforce. Results also showed that Hispanics are just as concerned about their children's science education as African American parents and understand its importance and value in a globally competitive workforce. In addition, mothers rated higher than fathers in helping their children with science homework and encouraging them to take science-related courses, as well as believing that a science-based education is a critical component of being competitive in the workforce. Despite minority parental involvement and support with regard to science education, minority students tend to do worse on science assessments than their white counterparts. Thus, there seems to be a disparity between parental expectations and student performance, poll results showed.

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#### NATIONAL SCIENCE TEACHERS ASSOCIATION HONORS TOP SCIENCE EDUCATORS

Triangle Coalition member, the National Science Teachers Association (NSTA), the world's largest organization of science educators, has announced the recipients of its 2004 Teacher Awards Program, which honors K-12 teachers, professors, principals, and others for their outstanding achievement and innovative programs in science education. The awards will be presented at the NSTA National Convention in Atlanta, GA, April 1-4, 2004. NSTA will present its most prestigious award, the Robert H. Carleton Award, to Dr. Gerald Skoog, Paul Whitfield Horn Professor at Texas Tech University and former NSTA President. With funding from Triangle Coalition member, the Dow Chemical Company, the Association gives this award to an NSTA member who has made outstanding contributions to and provided leadership in science education at the national level and to NSTA.

Dr. Skoog taught at the high school and college levels for more than 44 years. His service to NSTA spans 27 years and includes work as president, board member, committee member, and task force participant. Skoog has been active with numerous other science education organizations and has made many scholarly contributions to science curricula and research articles. Most notably, his research and published work on the teaching of evolution has made him a well-known authority on the topic. NSTA is also honoring dozens of other award recipients. A full list of this year's award winners may be found at [www.nsta.org/awards](http://www.nsta.org/awards).

"NSTA awardees represent the best and brightest in science education," said John Penick, NSTA President. "We congratulate these outstanding educators for their lifelong commitment to science education and for their innovative and creative approach to teaching our students science." NSTA encourages science educators to apply for its 2005 Teacher Awards. Applications and information can be found at [www.nsta.org/awards](http://www.nsta.org/awards).

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## NATIONAL GEOGRAPHIC KIDS SURVEY FINDS 6- TO 14-YEAR-OLDS THINK LEARNING IS COOL

More than 80 percent of kids think learning is fun and seven out of 10 say that it's cool to be smart, according to a survey by National Geographic Kids magazine and NFO WorldGroup market research company. Ninety-three percent of kids say they learn not only in school but also from experiences outside the classroom, which they consider more fun. Nearly 1,300 youngsters, ages 6 to 14, participated in the "Learning About Learning" survey -- a comprehensive research project to find out how kids learn and their attitudes toward school, learning, and life. Among key findings were that 82 percent of kids think learning is fun; 71 percent say it's cool to be smart; parents and teachers are kids' main role models; and kids enjoy taking part in learning activities outside of school, with watching movies, playing sports, playing video games, traveling, and using the computer rated the most enjoyable.

The nationwide survey showed that kids whose parents encourage educational activities outside of school get higher grades, have more confidence in their intelligence, and are more likely to say they plan to go to college. The survey also revealed that youngsters' role models, and people they hope to be like when they grow up, are those whom they consider to be smart: their parents, teachers, Bill Gates, J.K. Rowling, and George Washington. Most kids in the survey expressed confidence about their own intelligence. \*Nearly 70% of kids said they are smarter than other students their age, and 65 percent believed that they will be smarter than their parents when they grow up. For additional information, visit [www.nationalgeographic.com](http://www.nationalgeographic.com).

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## INQUIRY-BASED HIGH SCHOOL PHYSICS PROGRAM

Foundations of Physics, a new grade 10-12 program authored by Tom Hsu, Ph.D., a graduate of M.I.T. and founder of CPO Science, brings a fresh approach to science education by combining a student textbook, lab manual, and teacher support materials with high-quality investigative equipment. The result is a true inquiry-based science curriculum that meets the requirements of today's standards-based system while maintaining in-depth learning -- the hallmark of inquiry-based science. Many educational publishers rely on a team of editors and consultants to produce their science textbooks. In the case of CPO Science, Dr. Hsu is the writer, from start to finish. "Tom's involvement in the project is critical. It can be very easy for the author's intention to be altered during the editorial process," notes Lynda Pennell, Vice President of Educational Products. "The author-controlled editorial process at CPO Science ensures accurate text and content-rich graphics that work together to strengthen understanding."

The equipment modules of the program and several accessories are built at the CPO Science plant in Peabody, MA, which provides another benefit with the Foundations of Physics program. "Since we design the equipment, the drawings in the textbook match the equipment we build," notes Hsu, "making it very easy for teachers and students to experience success." Foundations of Physics is a follow up to the programs Foundations of Physical Science and Integrated Physics and Chemistry. These programs were the first from CPO Science to provide a total solution by

combining a student textbook, lab manual, and teacher support materials with investigative equipment. A recent Gallup survey, sponsored by Bayer, cites that 86 percent of Americans favor replacing textbook-based education with hands-on science learning. CPO Science is working hard to meet that demand. CPO Science([www.cposcience.com](http://www.cposcience.com)) is a division of Triangle Coalition member, Delta Education, LLC.

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INTEL STS NAMES HERBERT MASON HEDBERG "NATION'S TOP HIGH SCHOOL SCIENTIST"

Intel Corporation has awarded Herbert Mason Hedberg, of North Attleboro, MA, a \$100,000 scholarship and top honors in the Intel Science Talent Search(Intel STS), a national high school science competition that is often called the "junior Nobel Prize." Hedberg, 17, developed a faster, more efficient method to diagnose cancer by screening for telomerase inhibitors and ranking their potency as potential tumor suppressors. The second-place prize, a \$75,000 scholarship, went to Boris Alexeev, 17, of Athens, GA. His research deals with the theory of automata, a simple model of computation that is the mathematical basis for pattern matching and can be used in fields such as genetics and speech recognition. Ryna Karnik, 17, of Portland, OR won the third-place \$50,000 scholarship for her patent-pending design method for constructing microchips which may save developers time and money when creating and testing prototype semiconductor chips.

Students were judged by an independent committee, selected by Triangle Coalition member, Science Service, administrator of the competition since 1942. Winners were chosen based on their research ability, scientific originality, creative thinking, and ability to apply science to the world around them. Over the past 63 years, STS alumni have been recipients of the world's most coveted science and math honors, including five Nobel Prizes, three National Medals of Science, ten MacArthur Foundation Fellowships, and two Fields Medals. Intel's sponsorship of the STS is part of the Intel Innovation in Education initiative, a collaboration with educators around the world to improve the quality of science, mathematics, engineering, and technology education to help students develop the higher-level thinking skills they need to participate and succeed in a knowledge-based economy. For more information, visit [www.intel.com/education](http://www.intel.com/education).

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STATE ACCOUNTABILITY SYSTEMS INCOMPLETE, SAYS NEW FORDHAM STUDY OF ACADEMIC STANDARDS, TESTS, AND ACCOUNTABILITY POLICIES

The No Child Left Behind act requires all states to establish state academic standards in reading and math, to test all students on whether they're meeting those standards, and to hold schools and districts accountable for their academic performance. Yet a new study indicates that few states have successfully tied their standards, tests, and accountability policies into a comprehensive and rigorous system. "Grading the Systems: The Guide to State Standards, Tests, and Accountability Policies," from the Thomas B. Fordham Foundation and Accountability Works, examines thirty states' standards, tests, and accountability policies to see how well these essential components tie together(as of January 2003). Specifically, the authors look at six key elements of an effective and complete accountability package for primary-secondary schooling: state

standards(for reading and math), the content of state tests, alignment between standards and tests(to ensure that what's supposed to be taught is also what's being tested), test rigor(whether passing scores are set where they should be), test trustworthiness and transparency, and accountability measures (whether the state has incentives, consequences, and interventions for students, adults, and districts).

"Simply requiring states to have standards and accountability is not enough," remarks Foundation President Chester E. Finn, Jr. "They also need to be scrutinized to see how effective their accountability systems are. Now that all states have standards for reading and math, we must work to ensure that their tests are aligned to those standards and that the results mean something for students and adults alike." Massachusetts, Virginia, and Pennsylvania received solid scores for at least three of six elements, with the Bay State(Massachusetts) posting excellent scores for its standards. Most multi-state averages were merely "fair." The study is available at [www.edexcellence.net/foundation/publication/publication.cfm?id=328](http://www.edexcellence.net/foundation/publication/publication.cfm?id=328).

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NEW MATH AND SCIENCE RESOURCE ON THE WEB

The National Network of Eisenhower Consortia and Clearinghouse has developed a new resource for educators interested in improving mathematics and science teaching and learning. This webpage ([www.mathsciencenetwork.org/products.htm](http://www.mathsciencenetwork.org/products.htm)) provides links to a wide range of products developed by the Network in mathematics, science, assessment, equity, using data, professional development, lesson study, technology, and special populations, as well as journals and newsletters. Many of the resources are free and available online.

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TCEB LINKS

The following links may provide more information on articles in this TCEB:

"Academic Atrophy: The Condition of the Liberal Arts in America's Public Schools" - [www.c-b-e.org](http://www.c-b-e.org)

Project SENSE - [www2.gasou.edu/SENSE](http://www2.gasou.edu/SENSE)

NSTA Teacher Awards Program - [www.nsta.org/awards](http://www.nsta.org/awards)

National Geographic "Learning About Learning" Survey - [www.nationalgeographic.com](http://www.nationalgeographic.com)

Foundations of Physics - [www.cposcience.com](http://www.cposcience.com)

Intel Science Talent Search - [www.intel.com/education](http://www.intel.com/education)

"Grading the Systems: The Guide to State Standards, Tests, and Accountability Policies" - [www.edexcellence.net/foundation/publication/publication.cfm?id=328](http://www.edexcellence.net/foundation/publication/publication.cfm?id=328)

National Network of Eisenhower Consortia and Clearinghouse -

[www.mathscienencenetwork.org/products.htm](http://www.mathscienencenetwork.org/products.htm)

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NATION'S BEST MATHEMATICS AND SCIENCE TEACHERS RECEIVE PRESIDENTIAL  
AWARD

Pickles, Oreos, cell phone billing plans, and Barbie dolls have everything to do with raising achievement in secondary mathematics and science, according to some of the nation's top teachers in these subjects. Innovation, humor, expert knowledge of their subject and an ability to inspire student creativity are among the qualities common to the 95 mathematics and science teachers honored recently with the Presidential Awards for Excellence in Mathematics and Science Teaching(PAEMST). The National Science Foundation(NSF) administers the awards program for the White House. NSF is an independent federal agency that supports fundamental research and education across all fields of science and engineering, with an annual budget of nearly \$5.58 billion. NSF funds reach all 50 states through grants to nearly 2,000 universities and institutions. Among the activities award-winning teachers use to spark the learning process:

    Illuminating a pickle to illustrate electrochemical principles.

    Computing the volume of stuffing in Oreo Double Stuff cookies.  
    Is it really double?

    Analyzing the DNA from a mock crime scene

    Videotaping basketball free throws to study projectile motion

    Using a Barbie doll in a bungee-jump to test laws of motion

The award-winning teachers overwhelmingly agree that students frequently respond best to lessons that relate to recognizable phenomena from their own lives or that allow for hands-on learning. They have observed that an engaging teaching style prompts students to pose their own questions, test their own theories, and arrive at their own solutions, with the teacher as a facilitator and guide. Since 1983, the White House and NSF have sought nominations of exemplary math and science teachers from every state and four U.S. jurisdictions. In addition to honoring their achievement, the goal of the awards is to expand and exemplify the definition of excellent science and mathematics teaching. The 2004 nominations are currently open for mathematics and science teachers in grades K-6. For more information, visit [www.paemst.org](http://www.paemst.org). For the list of 2003 PAEMST Awardees, visit [www.paemst.org/2003Awardees.cfm](http://www.paemst.org/2003Awardees.cfm).

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U.S. DEPARTMENT OF EDUCATION AWARDS CONTRACT TO  
DEVELOP AND OPERATE WORLD'S LARGEST EDUCATION DATABASE

The U.S. Department of Education has awarded a five-year, \$34.6 million contract to Computer Sciences Corporation(CSC) of Rockville, MD, to develop and operate a new database system for the Education Resources Information Center(ERIC). The ERIC database will use the latest

search and retrieval methods to cull education literature and give high-quality access to educators, researchers, and the general public. The ERIC database is the world's largest education database. Begun in 1966, it is composed of more than one million bibliographic records. The goal of the new ERIC is to provide more education materials quicker, and more directly, to audiences through the Internet. With the new ERIC, individuals will be able to go to one website to search a comprehensive database of journal articles and document abstracts and descriptions and, for the first time, directly access full text. The database will include as much free full text as possible, and links will be provided to commercial sources so that individuals can purchase journal articles and other full text immediately.

Libraries will also be able to indicate their in-house holdings so that individuals do not purchase information that is already available to them. Materials will be added to ERIC within one month of release, and authors will submit conference papers through an online system. During the development and transition to the new ERIC, the ERIC database will continue to be available at [www.eric.ed.gov](http://www.eric.ed.gov).

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**SPACE STATION CREW TALKS WITH NEW YORK STUDENTS**

The faculty and students of Mill Middle School, Williamsville, NY, took a unique field trip in late March. But unlike typical outings, they remained in school, while traveling 220 miles above the Earth for a live conversation with the International Space Station crew. Students had twenty minutes to ask questions and chat with NASA's Station and Expedition 8 Commander Michael Foale and Russian Flight Engineer Alexander Kaleri. Questions focused on the moon, which Mill Middle School sixth graders are currently studying. One bilingual fifth grader, Rossen Pamakov, even asked Kaleri a question in Russian.

The in-flight event is an integral component of NASA's Teaching From Space Program, which promotes educational opportunities using the unique environment of human space flight. The program builds partnerships with the education community and uses NASA research and technology to bring one-of-a-kind learning experiences to students. Mill Middle School is one of approximately two-dozen sites in the U.S. and abroad selected by NASA to host these unique, interactive educational experiences. For information about Triangle Coalition member, NASA, and agency education programs, visit <http://education.nasa.gov>.

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**INSTITUTE OF EDUCATION SCIENCES INVITES APPLICATIONS FOR NAEP  
SECONDARY ANALYSIS GRANTS**

The Institute of Education Sciences invites applications to conduct secondary analyses of the nationally representative achievement data collected by the National Assessment of Educational Progress(NAEP) and the NAEP High School Transcript Studies(HSTS). NAEP surveys the educational achievement of students in the United States, and monitors their progress over time. The NAEP Secondary Analysis Program encourages the preparation of reports that would not otherwise be available, utilizing new ideas or state-of-the-art techniques to analyze and report the information contained in NAEP and the HSTS. Analyses and reports prepared under this

program should potentially be useful to the general public, parents, educators, educational researchers, or policy makers. For the 2004 NAEP Secondary Analysis competition, applicants may propose analyses using any currently available NAEP or HSTS data set.

Applications must be submitted under one of the three program goals. Goal One encompasses projects that use the NAEP data to study issues related to educational improvement. Goal Two encompasses projects that develop tools and methodologies to assist users of the NAEP data. Goal Three encompasses projects that develop improvements to the estimation, analysis, and reporting of the NAEP data. Through this program, the Institute encourages greater use of NAEP data to inform educational policy and practice. A great deal of potentially valuable information that could be gained from the NAEP data remains untapped. Program details and an application package are available at [w.ed.gov/programs/naep/applicant.html](http://w.ed.gov/programs/naep/applicant.html).

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**FEDERAL MATH AND SCIENCE EDUCATION PROGRAMS PROVIDE KEY SUPPORT FOR TEACHERS**

Members of the House Science Committee have heard testimony from four award-winning teachers -- and comments from dozens more -- on ways to improve science and math education. The 2003 Presidential Awardees for Excellence in Mathematics and Science Teaching consistently praised federally sponsored math and science programs as critical to their award-winning teaching methods and their students' success. The teachers cited key programs at the National Science Foundation(NSF) and the National Institutes of Health(NIH), among other agencies, and asked committee members for their continued support. Gail Bromiley McGee, a science teacher at Carnegie VanGuard High School in Houston stated, "I think the federal government is on to a good thing, offering educators a consistent, well thought out, overview for success in science education." McGee singled out NSF's National Math and Science Partnership Program and the National Science Education Standards as "a perfect example of what the federal government can contribute to science education."

"None of the other things this Committee wants to see done -- whether it's developing a hydrogen car or maintaining a presence in space -- none of these things can be accomplished unless we have the scientists and engineers to do the work and a scientifically literate citizenry who will support it and learn from it. And, of course, there's only one way we can create those scientists and engineers and educated citizens, and that's through education -- starting from earliest childhood," said Chairman Sherwood Boehlert(R-NY). Boehlert continued, "You'd think that this sort of hearing would be happening all the time, but, unfortunately, that's not the case. Instead, Congress talks constantly about education, but it rarely listens, and it listens least of all to the most important experts -- actual classroom teachers, the folks at the front lines of our nation's educational system. So this hearing offers us a rare opportunity to hear directly from teachers -- and not just any teachers, but those who have been recognized as the best." Witness testimony and an archived webcast of the hearing can be found at [www.house.gov/science](http://www.house.gov/science).

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**DENVER TEACHERS APPROVE PAY-FOR-PERFORMANCE PLAN**  
(Source: Education Week, March 23, 2004)

Denver teachers have voted to embrace a new pay plan that would stop rewarding them for years on the job and start recognizing specific skills and achievements in the classroom. Approval from the teachers' union puts the closely watched plan into the hands of Denver voters, who will be asked in 2005 for a property-tax increase to pay for the \$25 million annual cost. Members of the Denver Classroom Teachers Association supported the proposal, written as part of the teachers' contract, by a decisive 59 percent to 41 percent. About 2,700 of the union's 3,200 members cast ballots. The 70,000-student district has about 4,500 teachers.

In Denver and across the nation, teachers typically are paid on the basis of years of service and the extent of their graduate education courses. But while many observers say that system should go, it has not been easy to challenge. In 2002, for instance, Cincinnati teachers resoundingly rejected a pay-for-performance plan that, like Denver's, had been in the making for several years. The Cincinnati plan had even steered clear of the most controversial area of merit pay: rewards linked to student test scores. The National Education Association, the nation's largest union and the parent of the Denver association, officially opposes departures from the traditional pay scale.

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**EMC BRINGS ADVANCED NETWORKED STORAGE/LAPTOPS TO MASSACHUSETTS STUDENTS**

EMC Corporation, a world leader in information storage and management, has announced the donation of its EMC CLARiiON networked storage systems and software to six Massachusetts schools. The storage solutions will provide math and science students with an opportunity to work with advanced technology used by many of the world's largest companies and government agencies. Schools in Franklin, Hopkinton, Milford, Upton, Westborough, and Worcester will deploy more than five terabytes of the information storage systems. Five terabytes is the equivalent of five million books, one million digital photos or 200,000-300,000 MP3 files. Additionally, EMC is donating more than 200 laptop and desktop systems to Massachusetts schools. Students will use these laptops and desktops in the classroom.

EMC sponsors educational partnerships and programs that encourage students to explore scientific, engineering, and information technology fields. Programs include co-op internships through EMC's Area School Outreach program, computer donations through the Catholic Schools Computers and Networks program, and Project SCOPE, a year-round science enrichment program for middle-school girls. In August 2003 EMC hosted the first Massachusetts Mathematics Institute, which brought together elementary school teachers from nearly a dozen districts around the state for two weeks of intensive math education. EMC also supports science and math competitions such as FIRST Robotics teams and the Massachusetts State Science Fair. And, EMC assists centers of study that deliver science and technology to the public, such as Boston's Museum of Science, the New England Aquarium, and the Community Access Technology Center in Worcester. For more information about EMC, visit [www.emc.com](http://www.emc.com).

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**ISTE/COSN LAUNCH GRASSROOTS ADVOCACY NETWORK**

The International Society for Technology in Education(ISTE) and the Consortium for School Networking(CoSN) have announced the creation of the Ed Tech Action Network(ETAN), a new joint initiative designed to establish a grassroots network of education technology advocates. ETAN will provide its users with the necessary tools to advocate for increased federal government support for education technology at a grassroots level, including a website ([www.edtechactionnetwork.org](http://www.edtechactionnetwork.org)), in-person training, sample advocacy letters, legislation updates, and policy backgrounders. The launch of ETAN was held in conjunction with Washington Advocacy Day, March 4, which was an opportunity for educators to meet and communicate with their legislators in Washington, D.C. about the significance of technology in the classroom. More than 150 educators representing 29 states and over 80 Congressional districts converged on Capitol Hill to deliver the message that federal leadership and funding of education technology is vital to improve student achievement and ensure high-quality teaching.

ISTE([www.iste.org](http://www.iste.org)) is a source in education technology for professional development, knowledge generation, and advocacy. A nonprofit membership organization, ISTE provides leadership and service to improve teaching and learning by advancing the effective use of technology in K-12 and teacher education. CoSN([www.cosn.org](http://www.cosn.org)) is a national nonprofit organization with a mission is to advance the K-12 education community's capacity to effectively use technology to improve learning through advocacy, policy, and leadership development. CoSN members represent school districts, state and local education agencies, nonprofits, companies, and individuals who share this vision.

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#### NSF SEEKS APPLICANTS FOR TEACHER PROFESSIONAL CONTINUUM

The National Science Foundation(NSF) is seeking applications for the Teacher Professional Continuum(TPC) Program which addresses critical issues and needs regarding the recruitment, preparation, induction, retention, and life-long development of K-12 science, technology, engineering, and mathematics(STEM) teachers. The program's goals are to improve the quality and coherence of teacher learning experiences across the continuum through research that informs teaching practice and the development of innovative resources for the professional development of K-12 STEM teachers. The program supports research studies, resources for professional development, and conferences and symposia. The TPC program reflects a cycle of discovery, innovation, and application that includes:

- Developing and testing new theories and knowledge about teaching and learning;
- Designing and developing tools, materials, and methods;
- Designing, implementing, and documenting interventions;
- Synthesizing and interpreting results and identifying new insights and questions; and
- Conducting research on problems of learning, teaching, and implementation.

Preliminary proposals are due May 25, 2004. The full proposal deadline is September 10, 2004. Additional information is available at [www.nsf.gov/pubs/2004/nsf04568/nsf04568.htm](http://www.nsf.gov/pubs/2004/nsf04568/nsf04568.htm).

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#### TCEB LINKS

The following links may provide more information on articles in this TCEB:

Presidential Awards for Excellence in Mathematics and Science Teaching (PAEMST) - [www.paemst.org](http://www.paemst.org)

ERIC database - [www.eric.ed.gov](http://www.eric.ed.gov)

NASA Education Programs - <http://education.nasa.gov>

NAEP Secondary Analysis Program - [www.ed.gov/programs/naep/applicant.html](http://www.ed.gov/programs/naep/applicant.html)

House Science Committee Webcast Archive - [www.house.gov/science](http://www.house.gov/science)

EMC - [www.emc.com](http://www.emc.com)

International Society for Technology in Education(ISTE) - [www.iste.org](http://www.iste.org)

Consortium for School Networking(CoSN) - [www.cosn.org](http://www.cosn.org)

Ed Tech Action Network(ETAN) - [www.edtechactionnetwork.org](http://www.edtechactionnetwork.org)

NSF Teacher Professional Continuum Program - [www.nsf.gov/pubs/2004/nsf04568/nsf04568.htm](http://www.nsf.gov/pubs/2004/nsf04568/nsf04568.htm)

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#### SECRETARY PAIGE ISSUES NEW POLICY FOR CALCULATING PARTICIPATION RATES UNDER NO CHILD LEFT BEHIND

In an effort to help states implement the No Child Left Behind Act, U.S. Secretary of Education Rod Paige has announced new policies for calculating participation rates -- the percentage of enrolled students who participate in an assessment program. States will be able to average participation rates over a three-year period. In addition, students who are unable to take the test during the testing and make-up windows because of a unique, significant medical emergency will not count against the school's participation rate. States already have significant authority in calculating participation rates. They determine how large a subgroup must be in order to be considered separately for participation rate calculations. In addition, many states have testing windows, which include "make-up assessments" for students who miss tests. These make-up tests can count toward the school's participation rate.

Under the new policy, a state may use data from the previous one or two years to average the participation rate data for a school and/or subgroup, as needed. If this two- or three-year average meets or exceeds 95 percent, the school will still meet the AYP(adequate yearly progress) requirement. Thus, schools that are performing well in this category may not be identified as "in need of improvement" because of a one- or two-year dip in their participation rates. The new policy also makes allowances for those rare circumstances when a student cannot take the

assessment during the entire testing window, including make-up dates, due to a significant medical emergency, such as a car accident. Although students remain enrolled in the school during this period, schools do not have to include these students when calculating their participation rates. No Child Left Behind requires all students to participate in a state's test, although a school can make "adequate yearly progress" if at least 95 percent of students, measured by total school population and by subgroup, participate in a state's annual assessment of student achievement. For more information, visit [www.ed.gov/nclb](http://www.ed.gov/nclb).

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## CGCS STUDY ANALYZES TRENDS IN MATH AND READING ON STATE ASSESSMENTS

In the first year of the federal No Child Left Behind law, students in the nation's big-city school systems have advanced substantially, posting significant gains in math and reading on state-mandated assessments, according to a report recently released by the Council of the Great City Schools (CGCS). The report, "Beating the Odds," shows improvement of public school students who scored at or above proficiency levels on their respective state tests in fourth- and eighth-grade reading and math in 61 urban school districts from 37 states. The study compares 2003 state test scores with those in 2002 -- the first year of No Child Left Behind, which requires school districts to report performance levels based on state tests and show the percentage of students who score at "proficient" or higher levels as specified in the law. Data reveal that 47.8 percent of urban school students in the study scored at or above proficient in fourth-grade reading, a 4.9 percentage point increase from 42.9 percent in 2002. In fourth-grade math, the percentage of students jumped to 51 percent from 44.2 percent -- a 6.8 percentage point gain. Students improved somewhat in eighth-grade reading and math but at much lower rates. In 2003, 37.9 percent of eighth-graders scored at or above proficiency in reading compared with 36.8 percent in 2002, rising by 1.1 percentage point. In math, 39.4 percent reached those levels, a 3 percentage point gain from 36.4 percent. Between 2002 and 2003, the study finds in math assessments that:

- \* 33.3 percent of cities improved in all grades tested;
- \* 14.3 percent of cities improved in all grades tested faster than the state;
- \* 75.9 percent of cities improved in at least half the grades tested;
- \* 49.0 percent of cities improved in at least half the grades tested faster than the state;
- \* 72.2 percent of all grades tested improved for African American students; and
- \* 68.6 percent of all grades tested improved for Hispanic students.

Although urban schools show gains in math performance, the big cities still lag behind state and national averages. However, three major urban school districts -- Anchorage, AK, Broward County (Fort Lauderdale, FL), and San Francisco, CA -- had the same or higher math scores than their states in all grades tested. Other school systems that had average math scores in half or more of the grades tested in 2003 that were the same as or higher than their respective states were Albuquerque, NM, Greenville, SC, and Hillsborough County (Tampa), FL. The Council of the Great City Schools is a national coalition representing more than 60 of the largest urban public school systems in the United States. For more information, visit [www.cgcs.org](http://www.cgcs.org).

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## SCIENCE NEWS FOR KIDS

Science News for Kids is a new website([www.sciencenewsforkids.org](http://www.sciencenewsforkids.org)) devoted to science news for children of ages 9 to 13. The goal of the site is to offer timely items of interest to kids, accompanied by suggestions for hands-on activities, books, articles, Internet resources, and other useful materials. The site offers visitors the opportunity to comment on the subject matter, ask questions of scientists featured in articles, try out mathematical puzzles, and submit their own work for possible web publication. At the same time, the site offers teachers creative ways of using science news in their classrooms. The Science News for Kids site is administered by Triangle Coalition member, Science Service. It was made possible by grants from several corporations and foundations including the American Honda Foundation and Triangle Coalition members, E.I. du Pont de Nemours and Company, and Dow Chemical Company. The site offers six zones:

- \* PuzzleZone: a weekly brainteaser for those who enjoy solving and inventing puzzles
- \* SciFiZone: entertaining science-fiction composition exercises for those interested in writing
- \* ScienceFairZone: weekly science fair profiles and tips
- \* GameZone: a selection of logic and memory games
- \* TeacherZone: classroom materials
- \* LabZone: features a weekly hands-on activity

Science Service has also published the printed Science News since 1922, a weekly news-magazine covering important research in all fields of science. Its sixteen pages are packed with articles that appeal to both general readers and scientists. Each issue reaches about 160,000 subscribers and more than 1 million readers. Science Service also administers the Intel Science Talent Search, the Intel Science and Engineering Fair, the Discovery Channel Young Scientists Challenge, and other programs in science education. For more information about Science Service, visit [www.sciserv.org](http://www.sciserv.org).

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## AMERICA'S SCHOOLS NOT USING COMPUTERS EFFECTIVELY AS LEARNING TOOLS

America's schools now provide computer access to almost all students, but many schools are not using computers effectively to enhance student learning. This is largely because many teachers and administrators have not been adequately trained in their use, according to a new report from ACT entitled "Evaluating the Effectiveness of Technology in Our Schools." "Our students are behind those in many other countries in math and science, and one of the things holding them back is our educators' inability to use technology effectively as a learning tool," said Richard J. Noeth, director of ACT's Office of Policy Research and a co-author of the report. Research reviewed by ACT for the report suggests that the use of computers in the classroom, when combined with traditional instruction, can increase student learning and achievement, particularly among low-achieving and at-risk students. This can be especially true in the areas of math and science. Students learn more quickly and with greater retention when learning with the aid of computers, and their attitudes toward school and learning are positively affected by

computer use.

Most American students now have access to computers at school, either in classrooms or in learning centers, and a majority of teachers use computers and the Internet for instructional purposes. Despite this greater access to technology, however, there is no strong evidence that overall student achievement has increased as a result. One reason for this disconnect, according to the report, is that access to technology is only half of the mission that must be accomplished. "You must not only have computers, you must also be able to use them effectively," said Noeth. "Too often we see teachers using computers only for basic, isolated tasks such as math calculations and word processing. Instead, computer technology should be integrated into the teaching process to help motivate students and enhance learning." According to the report, computer technology can be used to enhance learning in a wide variety of ways, particularly in the areas of simulation and interactivity. For example, well-trained teachers can use computers to help students interact with scientific models, visualize historical events, and solve complex problems. Inadequate teacher training, the report claims, is part of a larger problem: the lack of early, thoughtful, and comprehensive planning by school districts. For technology to be effective as a learning tool, schools must set appropriate objectives and goals for its use, ensure that educators are well trained to use it, and have clearly envisioned plans for evaluating its effectiveness. For more information, visit [www.act.org/research/policy/pdf/school\\_tech.pdf](http://www.act.org/research/policy/pdf/school_tech.pdf).

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**STUDENT PROGRAMS TAP INTO MARS ROVER ADVENTURES**

NASA's Mars Exploration Rovers are not only providing scientists a flood of information about Mars -- including new insights about winds -- they are also adding excitement to classrooms throughout the nation. An assortment of programs giving students first-hand opportunities to work with information from NASA Mars missions help young people "see themselves as scientists in the future because they understand the process of science," said Sheri Klug of Arizona State University, Tempe, and NASA's Jet Propulsion Laboratory(JPL), Pasadena, CA. She coordinates NASA Mars education programs for kindergarten through high school, part of the agency's goal to inspire the next generation of explorers.

Silver Stage High School in Silver Springs, NV, is one of 13 schools participating in one program that pairs selected students with researchers on the rover missions. "I actually get the opportunity to work with the scientists. It's really awesome!" said Shannon Theissen, 16, a Silver Stage junior. Dr. Wendy Calvin, rover science team member from University of Nevada, Reno, and Shannon's mentor for a week at JPL, said, "This is the real stuff, not baby steps. The students are using the same tools we do." Hundreds of other students from around the country participate in programs using pictures and other information from NASA Mars orbiters, and more than 1,000 have sent in rocks for a project to compare Earth rocks with Mars rocks. Information about NASA school projects is available at <http://education.nasa.gov>. NASA is a member of the Triangle Coalition.

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**HELP WANTED: TEACHERS IN MATH, SCIENCE, SPECIAL ED**  
(Source: Chicago Sun-Times, March 21, 2004)

Even with a 40 percent drop in the number of teachers needed next year, Chicago Public School (CPS) officials are beating the bushes for new recruits -- especially in math, science, and special education. Despite a one percent drop in student enrollment this year -- the first dip in more than a decade -- officials foresee 1,500 vacancies from attrition and early retirement in the system, which this year employs 26,548 teachers. One strategy to fill almost a third of the empty slots is to lure professionals from other careers.

Officials announced some 435 career switchers will be hired from CPS alternative certification programs at colleges, with emphasis on areas of critical need. "Despite 9,000 resumes, we're still short in math and science and special ed," schools chief Arne Duncan said. Career switchers bring hands-on knowledge, but the concept has its critics. "The real issue is not getting teachers into schools, it's keeping them," said Kathleen Fulton of the National Commission on Teaching and America's Future. "There is data that teachers are less well-prepared, they don't stay as long, and all the money spent on recruitment goes back out the window. Content knowledge is important, but knowledge of teaching is extremely important, too."

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CONFERENCE CALENDAR

The Triangle Coalition maintains a conference calendar on its website at [www.trianglecoalition.org/calendar.htm](http://www.trianglecoalition.org/calendar.htm).

April 2004

- \* 16-18: The Ohio Academy of Science Annual Meeting: "Intellectual Property: Essential Capital for the New Economy," Youngstown, OH
- \* 16-20: National Association of Elementary School Principals Annual Convention, San Francisco, CA
- \* 19-21: National Council of Supervisors of Mathematics Annual Conference, Philadelphia, PA
- \* 21-24: National Council of Teachers of Mathematics Annual Conference, Philadelphia, PA
- \* 24: International Bridge Building Contest, Baltimore, MD

May 2004

- \* 21-22: Science Olympiad National Tournament, Juniata College, Huntingdon, PA
- \* 21-23: American Society for Microbiology Conference for Undergraduate Educators, New Orleans, LA
- \* 29 - June 2: Odyssey of the Mind 2004 World Finals

June 2004

- \* 12-16: American Society for Biochemistry and Molecular Biology Annual Meeting, Boston, MA
- \* 20-23: American Society For Engineering Education Annual Conference & Exposition, Salt Lake City, UT
- \* 20-23: International Society for Technology in Education National Educational Computing Conference, New Orleans, LA

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## TCEB LINKS

The following links may provide more information on articles in this TCEB:

No Child Left Behind - [www.ed.gov/nclb](http://www.ed.gov/nclb)

Council of the Great City Schools Report: "Beating the Odds" - [www.cgcs.org](http://www.cgcs.org)

Science News for Kids - [www.sciencenewsforkids.org](http://www.sciencenewsforkids.org)

Science Service - [www.sciserv.org](http://www.sciserv.org)

Ohio Academy of Science - [www.ohiosci.org](http://www.ohiosci.org)

ACT Report: "Evaluating the Effectiveness of Technology in Our Schools" - [www.act.org/research/policy/pdf/school\\_tech.pdf](http://www.act.org/research/policy/pdf/school_tech.pdf)

NASA Educational Projects - <http://education.nasa.gov>

Triangle Coalition Conference Calendar - [www.trianglecoalition.org/calendar.htm](http://www.trianglecoalition.org/calendar.htm)

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## LEGISLATIVE NEWS: SCIENCE, MATHEMATICS, AND TECHNOLOGY EDUCATION NEEDS YOUR SUPPORT IN WASHINGTON

There are currently three "Dear Colleague" letters circulating among Members of Congress in support of Science, Mathematics, and Technology Education. Dear Colleague letters are one of the important ways in which the Members of Congress can gauge the level of support for any given issue. They are sent from either Representatives or Senators to their fellow members asking them to "sign-on" and encourage Congress to take specific action on a given issue. The number of signatures on a letter is an indication of the level of support for the issue and the proposed direction.

The first letter, from Representatives Vernon Ehlers(R-3rd/MI) and Rush Holt(D-12th/NJ), addressed to the Chairman of the House Education Appropriations Subcommittee, Ralph Regula (R-16th/OH). This letter requests that the Subcommittee appropriate \$300 million for the Math and Science Partnerships at the Department of Education(ED). These funds would be part of Title II Part B of No Child Left Behind(NCLB). As we reported earlier, the Administration's Proposed Budget for Fiscal Year 2005 requests \$269 million for the ED MSP program.

However, the Proposed Budget would restrict the additional \$120 million over the FY 2004 budget to be used solely for secondary math programs through competitive grants managed by the ED. This requirement would be in conflict with the language of NCLB, which requires these funds to be directly distributed to the states through formula grants when the funding exceeds \$100 million. Triangle Coalition has joined with both NSTA (National Science Teachers

Association) and NCTM(National Council of Teachers of Mathematics) in objecting to this provision and requesting that the Congress ensure that the full \$269 million continue to be distributed through formula grants directly to the states and not be retained at the Department of Education.

The second Dear Colleague letter is from Senator John D. Rockefeller(D-WV) to Senators Christopher Bond and Barbara Mikulski, the Chairman and Ranking Member respectively, of the Senate VA/HUD/Independent Agencies Appropriations Subcommittee, which is responsible for the National Science Foundation budget. Senator Rockefeller's letter asks his colleagues to maintain funding for the NSF Math and Science Partnerships(MSP) program in the Fiscal Year 2005 budget. As we have shared with you in the past the Administration's Budget Proposal has eliminated this program altogether. Triangle Coalition, NSTA, NCTM, and other Triangle members have called on Congress to restore the funding for this critical program.

The third Dear Colleague letter is from Senator Durbin to Senators Arlen Specter(R-PA) and Tom Harkin(D-IA), the Chairman and Ranking member respectively, of the Senate Labor, Health and Human Services and Education Appropriations Subcommittee, which has budgetary oversight for the ED. Senator Durbin's letter asks the Subcommittee to continue support for the ED MSP programs while maintaining the complementary NSF/MSP program.

This is a critical time to express support for science and mathematics education. Members of Congress are currently reviewing the budget to establish the priorities for funding for the next year. It is very important that Members become aware of the issues and support these Dear Colleague letters in order to ensure adequate funding for these programs in the upcoming budget. Please take a minute and call or e-mail your Congressional Representative and Senators to let them know how important these issues are and encourage them to sign on to the Dear Colleague letters. Ask your Congressperson to sign on to the Ehlers/Holt letter to Congressman Regula and the House Education Appropriations Subcommittee. Ask your Senators to sign on to the letters from Senators Rockefeller and Durbin in support of the NSF and ED MSP programs.

(Editor's Note: The Triangle Coalition website includes a "Contact Congress" page at [www.trianglecoalition.org/congress.htm](http://www.trianglecoalition.org/congress.htm). In addition, all three "Dear Colleague" letters are available on the site at [www.trianglecoalition.org/legnews.htm](http://www.trianglecoalition.org/legnews.htm).)

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**TRIANGLE COALITION EXECUTIVE DIRECTOR NAMED TO SCIENCE MATH  
EDUCATION CAUCUS STEERING COMMITTEE**

Congressman Vern Ehlers(R-3rd/MI) has established a Science Math(STEM) Education Caucus for Members of Congress. To help facilitate the dialogue with the STEM community he is also establishing a Steering Committee for the Caucus made up of leaders in the grassroots efforts to improve Science, Math, and Technology Education. Triangle Coalition Executive Director, Vance Ablott, has been named to the Steering Committee along with other representatives from the business, scientific, and education communities. The steering committee will serve several roles:

- \* Forge links to the grassroots business, education, and scientific communities to determine the communities' STEM concerns, successes, and emerging issues and to alert the communities to Congress' and Caucus actions and concerns on STEM.
- \* Educate Congressional staff on STEM issues through several briefings each year.
- \* Encourage Members of Congress to join the Caucus.

"This is a wonderful opportunity to help focus the dialogue on the critical areas of Mathematics, Science, and Technology education," says Vance Ablott. "The Triangle Coalition is committed to furthering the efforts under way to ensure that America's students are well prepared for their future in the global marketplace." "Congressman Ehlers has been a champion of these issues for some time and I look forward to serving on the steering committee," he adds.

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#### PROJECT PROBASE SEEKS PILOT- AND FIELD-TEST SITES FOR 2004-2005

Project Probase, a National Science Foundation's Advanced Technological Education project ongoing at Illinois State University seeks pilot- and field-test sites for the 2004-2005 academic year. Probase is developing eight, nine-week curriculum units that are driven by engaging design problems. Schools selected as pilot- or field-test sites will be required to dedicate at least one period per day (one group of students and one instructor) to the pilot- or field-test for a period of at least one semester during 2004-2005. Selected sites may elect to dedicate more than one period per day to the project. If selected as a pilot/field test site, the instructor will be expected to teach the curriculum as outlined in the Probase Instructor's Guide. Instructors and students at the site will be expected to provide the project with feedback and comments related to the effectiveness of the curriculum. Applicants will also need to secure administrative support for participation in the project. If selected for participation in the program, the instructor will receive \$250 per quarter (\$1,000 per year) to cover incidental expenses, one copy of the Probase Student Guide for each participating student, one copy of the Instructor Guide for each participating instructor, and any specialized materials or equipment necessary to implement the curriculum. Selected test sites must have adequate laboratories and the general equipment/materials necessary to deliver the course content.

During the 2004-2005 academic year, the following nine-week units will be tested: Construction Technologies, Medical Technologies, Agriculture & Bio-related Technologies, Manufacturing Technologies, Transportation Technologies, Energy and Power technologies, and Information and Communication Technologies. Selected schools will have input into the specific units tested at their respective sites. For more details, or to apply for this opportunity, visit [www.probase.ilstu.edu](http://www.probase.ilstu.edu) and complete a pilot-site application form. To be considered for this opportunity, application materials must be received by April 30, 2004.

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#### APRIL 30 WAS NATIONAL "DNA" DAY

April 30, 2004 marks the second annual National DNA Day. National DNA Day was initiated last year to commemorate the completion of the Human Genome Project in April, 2003 and the discovery of DNA's double helix a half century earlier. Through this event, the National Human

Genome Research Institute in cooperation with the American Society of Human Genetics and the Genetic Alliance hope to help teachers inspire the next generation of scientists who will use the human genome sequence to benefit human health. A variety of free resources are available at the National DNA Day website ([www.genome.gov/DNAday](http://www.genome.gov/DNAday)), including:

- \* Genetic Education Modules - lesson plans on the history, facts, and genetic terminology behind the Human Genome Project.
- \* "Exploring Our Molecular Selves" - an online multimedia educational tool that explores the Human Genome Project and the history of genetics.
- \* "Human Genetic Variation" - an online curriculum supplement on the basics of human genetics.
- \* Genetics Mentorship Program - provides teachers access to experts in human genetics.
- \* Online Videos and Webcasts

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U.S. DEPARTMENT OF EDUCATION PUBLISHES PARENT GUIDES ON SCIENCE AND MATH

The U.S. Department of Education has added two new publications on science and mathematics to its "Helping Your Child Series" for parents. Both Helping Your Child Learn Science and Helping Your Child Learn Mathematics are downloadable as PDFs from [www.ed.gov/parents/academic/help/hyc.html](http://www.ed.gov/parents/academic/help/hyc.html). The publications have suggestions for activities at home as well as explanations of what parents should look for in their schools' science and math programs. The Helping Your Child publication series aims to provide parents with the tools and information necessary to help their children succeed in school and life. These booklets feature practical lessons and activities to help their school-aged and preschool children master a topic such as science, math, and reading; to understand the value of homework; and to develop the skills and values necessary to achieve and grow.

"Helping Your Child Learn Science" provides parents of children ages 3 through 10 with information, tools, and activities they can use in the home and community to help their child develop an interest in the sciences and learn about the world around them. "Helping Your Child Learn Mathematics" consists of fun activities that parents can use with children from preschool age through grade 5 to strengthen their math skills and build strong positive attitudes toward math.

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MARS IN THE CLASSROOM

Triangle Coalition member, NASA, offers a variety of educational initiatives to help bring Mars to every classroom. Teachers are encouraged to find out more about the following four major programs:

- \* Imagine Mars(<http://imaginemars.jpl.nasa.gov>) teaches students science through the arts, letters, and humanities.
- \* The Mars Student Imaging Project (<http://msip.asu.edu>) allows students to use a camera on the Odyssey orbiter to take their own image of the red planet and analyze it using the

scientific method.

\* Mars Robotics Education(<http://robotics.nasa.gov>) is a program in development that aligns with technology-education standards.

\* Mars Educator Workshops(<http://marsrovers.jpl.nasa.gov/classroom/teacherevents.html>) offer professional development opportunities for teachers.

For Mars lesson plans, please visit the Mars Exploration Program's Classroom section (<http://marsprogram.jpl.nasa.gov/classroom>), where there are lessons, resources, and programs about Mars.

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TCEB LINKS

The following links may provide more information on articles in this TCEB:

Triangle Coalition Legislative News - [www.trianglecoalition.org/legnews.htm](http://www.trianglecoalition.org/legnews.htm)

Project Probase - [www.probase.ilstu.edu](http://www.probase.ilstu.edu)

The National Assessment of Educational Progress(NAEP) - <http://nces.ed.gov/nationsreportcard>

Delta Education - [www.deltaeducation.com](http://www.deltaeducation.com)

National DNA Day - [www.genome.gov/DNAday](http://www.genome.gov/DNAday)

U.S. Department of Education "Helping Your Child Series" - [www.ed.gov/parents/academic/help/hyc.html](http://www.ed.gov/parents/academic/help/hyc.html)

Imagine Mars - <http://imaginemars.jpl.nasa.gov>

The Mars Student Imaging Project - <http://msip.asu.edu>

Mars Robotics Education - <http://robotics.nasa.gov>

Mars Educator Workshops - <http://marsrovers.jpl.nasa.gov/classroom/teacherevents.html>

Mars Exploration Program's Classroom - <http://marsprogram.jpl.nasa.gov/classroom>

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CONFERENCE HIGHLIGHTS INNOVATIVE UNDERGRADUATE SCIENCE,  
TECHNOLOGY, ENGINEERING, AND MATHEMATICS EDUCATION

More than 400 educators recently participated in a three-day conference showcasing innovations in science, technology, engineering, and mathematics(STEM) that are revolutionizing how students learn. The conference, sponsored by the National Science Foundation's(NSF) Division of Undergraduate Education(DUE) in collaboration with the American Association for the Advancement of Science(AAAS), was held April 16-18 in Crystal City, VA. The conference highlighted innovative programs developed as part of DUE'S Course, Curriculum, and Laboratory Improvement (CCLI) Program. CCLI is designed to improve undergraduate STEM education through innovations in learning environments, course content, curriculums, and educational materials and practices. These programs strive to better prepare students to meet

increasingly technological needs of the workforce, the K-12 classroom, graduate and professional schools, and to participate as citizens in our increasingly technological society.

In the five years since its inception, CCLI has funded approximately 1750 projects at a diverse group of nearly 600 institutions, including community colleges, liberal-arts colleges, and major research universities. With a total budget of \$240 million over this five-year period, the CCLI program has involved over 1.4 million undergraduate students and over 25,000 faculty members. The conference focused on four overarching themes in educational innovation: invention, adaptation, assessment, and impact. For more information about CCLI, visit [www.ehr.nsf.gov/ehr/DUE/programs/ccli](http://www.ehr.nsf.gov/ehr/DUE/programs/ccli).

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## STUDENTS DROP ON A DIME AT NASA

Despite the name, NASA's Dropping In a Microgravity Environment(DIME) competition doesn't sound anything like a coin hitting the floor. The thud of experiment packages being dropped in the Glenn Research Center's 2.2 Second Drop Tower and cheers from student teams make for a loud event. In April of each year, Glenn hosts several teams of high school students for DIME Drop Days. In 2004, sixteen teams submitted proposals and four teams made it to the final stage of the academic year-long program: Sycamore High School(Cincinnati, OH), Archbishop Hoban High School(Akron, OH), Troy Athens High School(Troy, MI), and Felix Varela Senior High School(Miami, FL). Each of these teams designed and constructed their science experiments for operation in the drop tower. This gives the students real-world experience in an actual NASA test facility -- not your average science fair project! "In the DIME program, students learn a fundamental lesson for space experiments -- microgravity; or 'weightlessness,' can be created on the ground by dropping experiments in a free fall," said Richard DeLombard, DIME program creator and coordinator from the Glenn Research Center. "We hope this program will inspire the next generation of astronauts and project scientists by allowing students to perform their experiments in conditions similar to that in the shuttle and International Space Station."

The program is open to student teams in grades 9-12 from science classes, clubs, or scout troops, and their advisors. To be eligible for participation, each group must develop an experiment concept, prepare a proposal, and submit it to NASA by November 1. This year, a panel of microgravity experts at Glenn selected the top proposals. The selected teams continued their experiment development and fabrication and then came to Cleveland to conduct their experiments in Glenn's world-class 2.2 Second Drop Tower. Topics included fluid flow, fluid surface tension, ultrasound levitation, and combustion dynamics. "During their visit to Glenn, the student teams also participated in microgravity workshops, toured several facilities, and participated in a Self-Contained Underwater Breathing Apparatus(SCUBA) diving lesson at their hotel pool," DeLombard said. Triangle Coalition member, NASA, provides expense-paid trips for five representatives of each selected team to attend DIME Drop Days in April at NASA Glenn Research Center in Cleveland, OH. The activities are also webcast so that home schools, parents, and anyone with Internet access can observe the teams' activities in real time. Information about DIME and related educator resources is available on a CD-ROM by sending requests to [dime@grc.nasa.gov](mailto:dime@grc.nasa.gov). For program information, visit <http://microgravity.grc.nasa.gov/DIME.html>.

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ASME "TEEM-UP" EDUCATION EVENT A SUCCESS

The ASME-sponsored Math/Science Partnership(MSP) workshop, "Teams of Engineers, Educators and Mathematicians for K-12(TEEM-UP)," held in early March in Clearwater, FL, was a success. The event was funded by the U.S. Department of Education to inform engineering departments of the need to work with teacher colleges and the availability of federal and state funding opportunities. Teams from more than 25 institutions of higher education were in attendance. Presentations focused on pre-service and in-service teacher training programs, partnership development and funding opportunities. The premise is that we must start with teacher knowledge to achieve increased student achievement in science, technology, engineering, and mathematics education.

The keynote speaker, Ioannis Miaoulis, president of the Boston Museum of Science and former Dean of Engineering at Tufts University, is seen as the driving force behind the revision of the Massachusetts curriculum science and technology standards to include engineering in all elementary and secondary grades. When reviewing existing education standards in the state, he wondered, "why so much time was spent studying volcanoes and no time spent studying cars, given how much time we spend in cars, as opposed to volcanoes!" He suggested it was time to review the curriculum and replace some material with more relevant technology elements. He also stressed that when developing instructional materials and other offerings, they must be aligned with the states' standards. TEEM-UP For K-12 encourages college/university department heads from education, engineering, and mathematics to form teams and develop a plan of action for their institution that will provide enhanced math content for new teachers and professional development courses for existing teachers. TEEM-UP presentations and related math and science partnership resources can be found at [www.asme.org/education/precollege/teemup](http://www.asme.org/education/precollege/teemup). The American Society of Mechanical Engineers(ASME) is a member of the Triangle Coalition.

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SCHOOLS ENLIST SPECIALISTS TO TEACH SCIENCE LESSONS  
(Source: Education Week, April 9, 2004)

As science gets squeezed in the elementary curriculum, at least two Florida districts are trying a new approach to keeping hands-on lessons a part of pupils' experiences. Because of the priority given to federal requirements in reading and math, "we're getting a lot of teachers saying that their principals have come in and literally said, 'Stop teaching science,'" said Gerald F. Wheeler, the executive director of the National Science Teachers Association. In the past year, though, both the Broward and Palm Beach county(FL) districts have increased the number of science specialists working in their elementary schools -- teachers who, like physical education and music teachers, work with students at all levels once or twice weekly. Instead of replacing science instruction in the regular classroom, district officials say, the specialists reinforce the science lessons taught by regular teachers by conducting experiments that too often get dropped because of a crowded school day.

"Reading is the mainstay right now; everything centers on reading. But the science-resource teachers show how science integrates into reading," said Rose-Marie Botting, a science-curriculum specialist in the 271,000-student Broward County district, where 65 schools -- about half the district's elementary schools -- have such specialists. Those science teachers can also prepare the materials needed for an experiment for five different classes of kindergartners and then clean up the mess -- something that many classroom teachers don't have the time to do, said James Lindeman, a science specialist at Park Lakes Elementary School in Lauderdale Lakes, FL.

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#### EINSTEIN FELLOW PROFILE: LETITIA HOAAS

Letitia Hoaas, an elementary and middle school teacher from Louisiana, is one of the 2003-2004 Einstein Fellows working at the National Aeronautics and Space Administration(NASA) in Washington, DC. A teacher of science and mathematics for more than twenty years and the recipient of numerous education awards and grants, Letitia is a strong advocate of the use of technology in the classroom. Her role within NASA is to support the NASA Explorer Schools (NES) program, which establishes partnerships between NASA and school teams, consisting of teachers and administrators. While partnered with NASA, NES teams will acquire and use new teaching resources and technology tools for grades 4-9 using NASA's unique content, experts, and resources. Schools in the program are also eligible for grants to purchase technology tools that support science and mathematics instruction. Through her involvement in the NES program, Letitia was able to attend the Educating with Virtual Education Conference in Ireland where she presented information about NES and the Digital Learning Network. She also contributed to the publication of a poster, Explore NASA, which includes information about how to become a NASA Explorer School and Mars activities. In addition, Letitia will have the opportunity to fly on the KC135 with three teams of NES teachers. She is very excited about the chance to experience microgravity and see the results of the student-designed experiments.

Letitia additionally supports the NASA Student Involvement Program(NSIP), a national program of six competitions linking students in grades K-12 with NASA's mission of exploration, research, and discovery. Letitia says, "It has been very interesting to be involved in decision making and planning at the national level. My input from the perspective of a classroom teacher is listened to and respected." The Einstein Fellows Program began in 1990 and was formalized by the Albert Einstein Distinguished Educator Fellowship Act of 1994. The program aims at sharing the expertise of highly accomplished classroom teachers with those planning and implementing national education programs and policies. For more information on the Einstein Fellows Program, visit [www.trianglecoalition.org/ein.htm](http://www.trianglecoalition.org/ein.htm).

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#### EDUCATION GRANTS FORECAST

The U.S. Department of Education website -- FY 2004 Grants Forecast ([www.ed.gov/fund/grant/find/edlite-forecast.html](http://www.ed.gov/fund/grant/find/edlite-forecast.html)) -- lists virtually all programs and competitions under which the Department has invited or expects to invite applications for awards. The site also provides actual or estimated dates for the transmittal of applications under these programs. The lists are in the form of charts, organized by the Department of Education's program offices.

School districts representing large high schools(with an enrollment of 1,000 or more students) are eligible to apply for planning or implementation grants through the Smaller Learning Communities Program. An estimated 90 planning grants are expected to be awarded; awards are based on the number of schools that it will serve and range from \$25,000-\$50,000 for one school to \$250,000 for local education agencies applying on behalf of up to ten schools. An estimated 120 three-year implementation grants will be awarded; awards range from \$250,000-\$550,000 for one school to \$5.5 million. The deadline for applications is April 29, 2004. Applicants must focus on methods to improve reading and math skills for students who enter high school well below grade level. For more information, visit [www.ed.gov/programs/slcp](http://www.ed.gov/programs/slcp).

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**REPORTERS FROM SCIENCE MAGAZINE TO RECEIVE ASM PUBLIC COMMUNICATIONS AWARD**

The American Society for Microbiology(ASM) has named two journalists from Science magazine the recipients of the ASM 2004 Public Communications Award. The winning entry, written by Martin Enserink and Dennis Normile, is a two-part series, "SARS in China." It focuses on China's initial denial of the emerging epidemic and insistence that the cause was the Chlamydia bacterium despite research showing otherwise, and it provides an in-depth look at where the virus originated and how it developed in humans. Now in its ninth year, the award recognizes outstanding achievement in increasing public awareness, knowledge, and understanding of microbiology. The recipients will be presented with a \$2,500 honorarium and a plaque during the 104th General Meeting of the ASM in New Orleans, LA, May 24, 2004. Triangle Coalition member, the American Society for Microbiology, is the largest single life science society, composed of over 42,000 scientists and health professionals. Its mission is to promote research and research training in the microbiological sciences and to assist communication between scientists, policy makers, and the public to improve health, the environment, and economic well-being. For more information, visit [www.asm.org](http://www.asm.org).

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**SCHOOL PRINCIPALS SALARIES' CREEP DOWN**

School principals' salaries have slipped down a bit this year according to the National Association of Elementary School Principals(NAESP). The 2003-2004 average annual salary for an elementary school principal is \$75,144; middle-level leaders average \$80,060; and high school principals earn \$86,160. In 2002-2003 those salaries were elementary \$75,291, middle-level \$80,708, and high school \$86,452. "This is the first salary decline in over a decade, which certainly doesn't reflect the higher expectations and increasing responsibilities of the profession," said Vincent Ferrandino, NAESP's executive director. "It's small but troubling because it comes at a time when candidates for the principal's job are already in short supply." Conducted by the Educational Research Service(ERS), the National Survey of Salaries and Wages in Public Schools reflects data collected from 527 sample school systems representing all district sizes, all per-pupil expenditure levels, and all geographical regions across America. For additional information, visit [www.naesp.org](http://www.naesp.org).

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## TCEB LINKS

The following links provide additional information on articles in this issue of TCEB:

NSF Course, Curriculum, and Laboratory Improvement Program -  
[www.ehr.nsf.gov/ehr/DUE/programs/ccli](http://www.ehr.nsf.gov/ehr/DUE/programs/ccli)

NASA Dropping In a Microgravity Environment(DIME) Competition -  
<http://microgravity.grc.nasa.gov/DIME.html>

ASME Workshop "Teams of Engineers, Educators and Mathematicians for K-12(TEEM-UP)" -  
[www.asme.org/education/precollege/teemup](http://www.asme.org/education/precollege/teemup)

Eisenhower National Clearinghouse for Mathematics and Science Education - [www.enc.org](http://www.enc.org)

Albert Einstein Fellows Program - [www.trianglecoalition.org/ein.htm](http://www.trianglecoalition.org/ein.htm)

US Department of Education FY 2004 Grants Forecast - [www.ed.gov/fund/grant/find/edlite-forecast.html](http://www.ed.gov/fund/grant/find/edlite-forecast.html)

Smaller Learning Communities Program - [www.ed.gov/programs/slcp](http://www.ed.gov/programs/slcp)

American Society for Microbiology - [www.asm.org](http://www.asm.org)

National Association of Elementary School Principals - [www.naesp.org](http://www.naesp.org)

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## PUBLIC TO POLICYMAKERS: "MORE MATH, PLEASE"

A new bicoastal public opinion poll reveals a public that wants more math, not less. The findings from a poll conducted by the Boston-based Mass Insight Education and Research Institute and the Seattle-based Partnership for Learning has been released as more states are requiring higher levels of math to graduate from high school. More than 75% of the 1000 adults surveyed in Massachusetts and Washington believe all students should take at least geometry and algebra. Of these, about a third think all high school students should study trigonometry and calculus. Seven out of ten believe that better math education would provide a critical competitive advantage to their state's economic future. Also according to the poll, the pop-culture notion of widespread "math phobia" an American public that is largely intimidated by mathematics -- may hold less truth than is generally believed. Only 14% of the 1000 adults surveyed by the study acknowledge having a fear of math, and an overwhelming 85% agree that, because today's economy is more complex and technology-oriented, having math skills is important. Sample findings include:

- \* The public believes that math was not harder to learn than other subjects, although more women remember having difficulty with math in school than men.

\* Those who have the chance to help children with homework are as willing to help with math as they are with other core subjects. By 2 to 1 margins, however, they find it more difficult to help with math than with other subjects.

The Mass Insight Education and Research Institute([www.massinsight.org](http://www.massinsight.org)) is an independent non- profit organization focused on improving student achievement in Massachusetts public schools. Partnership for Learning([www.partnership4learning.org](http://www.partnership4learning.org)) is an independent, statewide, nonprofit coalition of Washington business and community leaders. The survey, called "More Math, Please," is available online at [www.massinsight.org/docs/MoreMathPlease.pdf](http://www.massinsight.org/docs/MoreMathPlease.pdf).

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**2004 NATIONAL TEACHER OF THE YEAR**

Kathy Mellor has been named 2004 National Teacher of the Year by President George W. Bush at a White House ceremony April 21, 2004. Also recognized at this event were the 2004 State Teachers of the Year. The National Teacher of the Year Program is sponsored by Scholastic Inc., and is a project of Triangle Coalition member, the Council of Chief State School Officers. The program focuses public attention on teaching excellence. Mellor, the fifty-fourth National Teacher of the Year and the first to represent Rhode Island, begins a year as a full-time national and international spokesperson for education on June 1, 2004. As an English as a Second Language(ESL) teacher at Davisville Middle School in North Kingstown, RI for 19 years, Mellor has been at the forefront of designing and implementing a district ESL program since she began teaching there.

The National Teacher of the Year Program began in 1952 and continues as the oldest, most prestigious national honors program that focuses public attention on excellence in teaching. The National Teacher of the Year is chosen from among the State Teachers of the Year by a national selection committee representing the major national education organizations. The National Teacher of the Year is released from classroom duties during the year of recognition to travel nationally and internationally as a spokesperson for the teaching profession. For more information, visit [www.ccsso.org/ntoy](http://www.ccsso.org/ntoy).

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**WHAT IS SCIENCE?**

What is science? What is an hypothesis? What is a theory as used in science? Why is science important? These basic questions are answered in a brief policy statement adopted on April 16, 2004 by Triangle Coalition member, The Ohio Academy of Science. The Academy says that science is a systematic method of continuing investigation, based on observation, hypothesis testing, measurement, experimentation, and theory building, which leads to more adequate explanations of natural phenomena, explanations that are open to further testing, revision, and falsification, and while not “believed in” through faith may be accepted or rejected on the basis of evidence. “We created this policy document to help teachers, students, and parents understand the nature of science,” said Lynn Elfner, CEO of The Ohio Academy of Science. “Considerable confusion exists about very basic elements of science, especially in the news media,” he continued. Created for public dissemination, the brief document may be distributed

at will to help all understand the nature of science. To download, visit [www.ohiosci.org/Whatisscience.pdf](http://www.ohiosci.org/Whatisscience.pdf).

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## MATH AWARENESS MONTH - APRIL 2004

Mathematics Awareness Month, held in April each year, has recently been expanded from Mathematics Awareness Week. Its goal is to increase public understanding of and appreciation for mathematics. In the first year, Mathematics Awareness activities concentrated on national-level events, such as opening an exhibit at the Smithsonian Institution on mathematics and hosting a Capitol Hill reception. Since that time the focus has shifted to activities at the local, state, and regional levels. Over the years, the general purpose has consistently been to increase the visibility of mathematics as a field of study and to communicate the power and intrigue in mathematics to a larger audience.

Activities for Mathematics Awareness Month are generally organized by college and university departments, institutional public information offices, student groups, and related associations and interest groups. They have included a wide variety of workshops, competitions, exhibits, festivals, lectures, and symposia. The theme for Mathematics Awareness Month 2004 is "The Mathematics of Networks." For additional information, visit <http://mathforum.org/mam/04>.

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## WHAT CAN A TEAM OF HIGH SCHOOL STUDENTS INVENT WITH \$10,000? ALMOST ANYTHING!

The Lemelson-MIT Program for Invention and Innovation, through the generosity of The Lemelson Foundation, launched InvenTeams in 2002 to foster inventiveness in high school students. InvenTeams is currently seeking applicants for the 2005 program. The Lemelson-MIT Program started the InvenTeams initiative to generate excitement about the rewarding process of identifying a need, brainstorming on a solution, and working through the inventive process. The program provides grant support to high school-age invention teams nationwide for projects developed during the academic year. InvenTeams are comprised of high school students, their teachers, and industry mentors for the purpose of inventing something useful that addresses a problem or need identified by the students. Grants are awarded to teams under the supervision of science, mathematics, or technology teachers, who are expected to work collaboratively with their teams in the spirit of self-directed learning.

At a time when school budgets are being cut, InvenTeams grants give teachers and students the resources to explore practical applications of science, math, and entrepreneurship, and the opportunity to have a unique, hands-on invention experience. Moreover, the invention is exclusively the property of the inventors – the students! Teams may be formed in class or as extracurricular activities at public, private, or charter high schools or vocational programs. Grants of up to \$10,000 each are awarded annually in early fall and teams have until late the following spring to complete their projects. Among other invention projects, this year's InvenTeams are developing inspection-friendly luggage, assistive devices for the disabled and elderly, and solar-powered environmental sensors. Brochures with complete information about

the 2005 Lemelson-MIT InvenTeams and application materials are available at [www.inventeams.org](http://www.inventeams.org). The initial application packet is due May 7, 2004 and must be submitted by a high school science, mathematics, or technology education teacher. For further information, please contact the Lemelson-MIT Program at 617-253-3352.

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ENTERTAINMENT INDUSTRY, ROBOTICS, AND EDUCATION EXPERTS TESTIFY  
BEFORE THE PRESIDENT'S COMMISSION ON MOON, MARS AND BEYOND

Experts from the fields of education, entertainment, and robotics have appeared as witnesses before the President's Commission on Moon, Mars and Beyond in April. The President's Commission on Implementation of U.S. Space Exploration Policy(Moon, Mars and Beyond) is charged with building consensus, providing recommendations to the President regarding moon research activities, increasing young people's interest in space science, and bringing in industry and other countries as space partners. Among others, space writer Ray Bradbury, astronaut/educator Barbara Morgan, Jim McMurtray, Executive Director of the National Alliance of State Science and Mathematics Coalitions(NASSMC), and Gerry Wheeler, Executive Director of the National Science Teachers Association(NSTA), presented their views and observations.

"A scientifically illiterate population is an economic and social liability that no nation can afford," McMurtray said. "Systems are perfectly designed and operated to produce the results they get. We do not know what a new education system might look like but we can be sure it will look different because it will have been designed to yield a different outcome." In his testimony, Wheeler said NSTA believes that space exploration "provides inherent, compelling, and powerful opportunities to strengthen and support education." He provided six recommendations to the Commission for their consideration:

- (1) establish education as a core component of the President's vision for space exploration;
- (2) develop a unifying vision to guide all education contributions of exploration activities;
- (3) significantly increase the number of teachers and university faculty engaged in high-quality professional development through space exploration;
- (4) enhance the content knowledge of educators through their intellectual engagement;
- (5) create a compelling national understanding of the importance of science, technology, engineering, and mathematics using the President's exploration vision; and
- (6) explicitly include the science-teaching workforce in all workforce considerations.

NSTA and NASSMC are members of the Triangle Coalition. For more information on the President's Commission on Moon, Mars and Beyond, visit [www.moontomars.org](http://www.moontomars.org).

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TEACHERS TO LISTEN, LEARN, SHARE PRACTICES TO IMPROVE STUDENT  
ACHIEVEMENT

U.S. Secretary of Education Rod Paige has announced a new initiative to engage some of the nation's best teachers and education experts in sharing techniques for raising student achievement with other teachers from across the country. The Teacher-to-Teacher Initiative will

also keep teachers informed of the latest strategies and research on educational practices that work in the classroom. The four-pronged Teacher-to-Teacher initiative features:

- \* **Teacher Roundtables:** This spring and summer, the U.S. Department of Education will host discussions with teachers around the country on effective teaching, professional development, teacher leadership and ways to advance the teaching profession. The emphasis will be on listening and engaging teachers about what support they need to meet the academic needs of students.
- \* **Summer Workshops:** Teachers and education experts who have improved student achievement and closed the achievement gap will share experiences with fellow teachers on how to emulate these programs.

Teachers will also receive additional resources, such as online assistance, to support them as they incorporate new strategies in the classroom.

- **Research-to-Practice Summit:** To be held this summer in Washington, DC, the summit comprises a day of listening and learning from experts in the field of scientifically based research and teachers with success in improving their students' achievement levels.
- **Teacher E-mail Updates:** Electronic updates will keep teachers apprised of the latest policy, research and developments in the profession.

The initiative also includes a new website([www.teacherquality.us](http://www.teacherquality.us)) with information about effective practices and initiatives at the state and local levels and upcoming teacher-oriented events. Educators may apply for one of the summer workshops or register for the e-mail updates online.

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TCEB LINKS

The following links provide additional information on articles in this issue of TCEB:

Mass Insight Education and Research Institute - [www.massinsight.org](http://www.massinsight.org)

Partnership for Learning - [www.partnership4learning.org](http://www.partnership4learning.org)

"More Math, Please" - [www.massinsight.org/docs/MoreMathPlease.pdf](http://www.massinsight.org/docs/MoreMathPlease.pdf)

National Teacher of the Year Program - [www.ccsso.org/ntoy](http://www.ccsso.org/ntoy)

What is Science? - [www.ohiosci.org/Whatisscience.pdf](http://www.ohiosci.org/Whatisscience.pdf)

Mathematics Awareness Month - <http://mathforum.org/mam/04>

New SAT - [www.collegeboard.com/newsat](http://www.collegeboard.com/newsat)

2005 Lemelson-MIT InvenTeams - [www.inventeams.org](http://www.inventeams.org)

President's Commission on Moon, Mars and Beyond - [www.moontomars.org](http://www.moontomars.org)

Teacher-to-Teacher Initiative - [www.teacherquality.us](http://www.teacherquality.us)

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DUPONT ANNOUNCES "PIONEERS IN EDUCATION ALLIANCE"

On March 31, 2004, Du Pont announced a new educational partnership: "Pioneers in Education." The partnership will promote awareness of and interest in science, mathematics, and technology applications in career paths not traditionally associated with those fields of study and will include an annual "Pioneer in Education Award." According to Phyllis S. Buchanan, Manager of the Du Pont Office of Education, "The Pioneers in Education Alliance will work to increase awareness of the wider applications for science and technology learning. For example, when studying science, school students are introduced to careers in research and industry, but rarely learn about the role of science and technology in fields as diverse as entertainment and museum studies."

The Alliance unites four partners with a history of cross-collaboration: the National Museum of the United States Army(NMUSA), the Science, Engineering, Mathematics & Aerospace Academy of the National Aeronautics & Space Administration(NASA-SEMAA), SECME, Inc., and the Du Pont Company. Du Pont traces its earliest roots to its role as supplier of gunpowder to the U.S. Army during the administration of Thomas Jefferson, has collaborated with NASA since its inception to promote science and engineering enrichment programs for students, and has partnered with SECME since 1975 to recruit and develop under represented minorities for entrée into science and technology careers.

Founded in 1802, E.I. du Pont de Nemours and Company is the oldest U.S. company. Its founder, E.I. du Pont, launched the company's commitment to education in 1817 when he established the Brandywine Manufacturers' Sunday School, a non-sectarian primary school for teaching the three-R's to company workers and their children. In 1918, the company established its Fellowships & Scholarships Program to promote the development of chemical engineering and chemical research in U.S. colleges. Today's Du Pont continues to invest in science, mathematics, and engineering education through a variety of programs at the higher education level(including its Science & Engineering Grants Program, its Young Professors Program, and its University Consultants Program), through its programs for K-12 science reform and enrichment (including its Elementary Science Initiative, Du Pont Science Essay Challenge, F.I.R.S.T Robotics and Lego League, Science Olympiad, and the International Science & Engineering Fairs), and its targeted programs to encourage women and minorities in engineering. For more information about Triangle Coalition member E.I. du Pont de Nemours and Company, visit [www.dupont.com](http://www.dupont.com).

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MINNEAPOLIS PUBLIC SCHOOLS CELEBRATE CAPSTONE GRANT FROM THE  
MEDTRONIC FOUNDATION FOR HIGH SCHOOL SCIENCE REVITALIZATION

Students in every grade in the Minneapolis Public Schools(MPS) will now have the opportunity to experience hands-on, rigorous science education, thanks to a recent capstone grant from Triangle Coalition member, the Medtronic Foundation, to support high school science laboratories, teachers, and students. For almost a decade, MPS has been focused on revitalizing science facilities and curriculum -- starting with elementary, then middle and now high school -- and the Medtronic Foundation has been an active partner for the district in making it happen. With the addition of this \$550,000 high school revitalization grant, Medtronic's contributions to the Minneapolis K-12 science programs have now surpassed \$1.8 million. For more than a decade, the Medtronic Foundation has supported science programs in MPS through the STAR (Science and Technology Are Rewarding) program, beginning with grants to individual teachers and school programs at a number of Minneapolis K-12 schools. The partnership progressed to larger scale systemic efforts with a four-year grant in 1996 that allowed the district to successfully adopt a standards-based, hands-on science curriculum for elementary school students. This investment served as leverage for the district to obtain a significant grant from the National Science Foundation.

Following the district's investment in middle grades science facilities, the partnership grew in 2000 with another four-year grant, this time for \$650,000. This grant provided the equipment and materials necessary for the ongoing operation of the 48 middle school laboratories, and additionally provided 72 sets of hands-on science kits that focus on life, earth, and physical science. The Minneapolis Public Schools will use the recent STAR grant over the next four-years to support the district's work to revitalize science education in the high schools. Under the grant, MPS will provide specialist science teachers to coordinate science materials and professional development for teachers, create an ongoing maintenance plan for the science equipment, and purchase science curriculum and offering new courses that meet the needs of the district's expanding high school program. For more information about the Medtronic Foundation, visit [www.medtronic.com/foundation](http://www.medtronic.com/foundation).

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## CARUS CHEMICAL CELEBRATES EARTH DAY WITH 600 ILLINOIS VALLEY NEIGHBORS

Triangle Coalition member, Carus Chemical Company, celebrated Earth Day 2004 by holding a Household Hazardous Collection at its Peru, IL headquarters site. Carus Chemical employees staffed the collection, which was held in cooperation with the Illinois Environmental Protection Agency (IEPA). According to Dave Anderson, Environmental Protection Specialist with the IEPA, the Carus collection was one of the most organized waste collections in the state. "Carus and its volunteers did an exceptional job of bringing this event to the Illinois Valley community. Our preliminary records show that they collected 300 drums(55-gallon size) of household waste from 634 local households in 452 cars," said Anderson. Carus Chemical Company also independently collected prescription eyeglasses and old cell phones. Lynn Solorio, Community Relations Director at Carus Chemical, will deliver the eyeglasses to the Lions Club and the cell phones to the Freedom House Shelter for use by victims of domestic abuse.

Carus Chemical Company, founded in LaSalle, IL in 1915, is the world's leading manufacturer of potassium permanganate and sodium permanganate, which Carus manufactures mainly for

environmental applications: to improve the quality of drinking water, to treat municipal and industrial wastewater, and in the remediation(clean-up) of contaminated sites. Carus has been a member of the American Chemistry Council for more than 60 years, and is an active participant in the ACC's Responsible Care initiative, a voluntary program to achieve improvements in environmental, health, and safety performance beyond levels required by government regulations. The Responsible Care program has resulted in significant reductions in releases to air, land, and water; major improvements in workplace and community safety; and expanded programs to research and test chemicals for potential health and environmental impacts. For more information, visit [www.caruschem.com](http://www.caruschem.com).

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TERC AND ECLASSROOM PARTNER TO ADVANCE RESEARCH IN K-12 ONLINE EDUCATION

Triangle Coalition member, TERC, and eClassroom, the K-12 division of eCollege, have announced a partnership that to advance research efforts in K-12 online education and increase the flexibility, reach, and effectiveness of TERC's online programs. TERC and eClassroom are working together to develop applications that support the use of inquiry as a learning tool, with the goal of improved eLearning applications and practices in mathematics, science, and technology. Potential research collaboration efforts will focus on topics that enhance the eLearning experience, such as student collection and analysis of real-world data, data visualization for exploratory data analysis, and greater course accessibility for students from a variety of backgrounds. Additionally, TERC and eClassroom will jointly work on various education industry advisory boards and events to share their insight and research findings.

Beyond R&D initiatives, the partnership also provides an avenue to increase access to TERC's math, science, and technology educational materials and professional development programs. TERC will deliver many of its existing and future online materials, as well as its master's program for middle school science teachers, through the eClassroom platform. TERC is a not-for-profit education research and development organization in Cambridge, Massachusetts. Since 1965, TERC's mission has been to improve math, science, and technology teaching and learning. TERC works at the edges of current theory and practice to contribute to the understanding of learning and teaching, foster professional development, develop applications of new technologies, create curricula and other products, and support school reform. For more information, visit [www.terc.edu](http://www.terc.edu). For more information about eClassroom, visit [www.eClassroom.com](http://www.eClassroom.com).

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TEXAS INSTRUMENTS APPOINTS MATH AND SCIENCE EDUCATION POLICY ADVISOR

Triangle Coalition member, Texas Instruments Incorporated, has announced the appointment of Senior Vice President Dr. Richard Schaar to the position of math and science education policy advisor for the corporation. In this role, Dr. Schaar will develop strategy and guide implementation of the company's programs to increase the number and the abilities of high school graduates with interest in collegiate studies in science, mathematics, and engineering. Dr.

Schaar will work in concert with senior management of the corporation and with members of the Board of Trustees of the Texas Instruments Foundation. "Richard Schaar is recognized in business and in academia as one of the leading authorities in America on the subject of math and science education," said incoming TI President and CEO Rich Templeton. "We are fortunate that he will commit his talents to the development of education policies that better serve students and our society in expanding basic capacities for research and innovation."

Prior to this appointment, Dr. Schaar served as President of TI's Education & Productivity Solutions business, with worldwide responsibility for TI's leadership position in educational technology and professional development of educators. An active leader in educational reform, Dr. Schaar chairs the National Science Teacher's Association's Corporate Advisory Group, and sits on the Mathematics Association of America's National Advisory Committee for the Preparing Mathematicians to Educate Teachers(PMET) initiative. Texas Instruments provides leadership to numerous educational initiatives and organizations at the national and state level and in its headquarters community in Dallas. For more information about Texas Instruments, visit [www.ti.com](http://www.ti.com).

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DIGITAL IMAGING SHOWS NEW VISIONS OF SCIENTIFIC TOPICS  
(Source: Education Week, April 28, 2004)

When scientists first discovered the Archimedes text -- a 2,000-year-old manuscript by the Greek mathematician -- the task of deciphering it looked hopeless. The mathematician's greatest surviving work, which had been converted into a prayer book, was nearly illegible. But with the help of digital imaging, in which scientists captured 10 digital images of the text under different illuminations, they were able to read it. The use of such digital-imaging technologies, once available only to scientists and researchers, is growing quickly in science classrooms, experts say. Students and teachers are using digital cameras and other imaging technologies to conduct more sophisticated scientific data collection, lab work, and 3-D imaging. "It takes data collection to a whole new level," said Gerry Wheeler, the executive director of the National Science Teachers Association. In fact, Mr. Wheeler said, the 56,000-member organization has seen a sharp increase in discussions among its members about how to use digital-imaging technologies in science.

Teacher web sites covering the uses of digital technology for every facet of the school curriculum -- from science to social studies -- abound at every grade level. But the technology has given science teachers, in particular, a tool they can use to investigate scientific concepts in much more sophisticated ways. "It's a new approach to the way we've done science in the past," said Charles B. Murphy, a science and mathematics teacher at the 1,600-student Roosevelt High School in St. Louis. He uses digital cameras and digital video equipment to teach chemistry, biology, and physics. For example, his students use the digital images they take for projects to measure the size of base pairs in DNA samples. They also use the images they capture to analyze the surface and composition of natural objects, such as seashells. As part of a physics lesson, students take digital pictures of a person jumping, and then examine the images frame by frame to understand gravity and force. "People usually say that a picture is worth a thousand words," Mr. Murphy said. "What I try to get [them] to understand is that a [digital] image is

worth a thousand pictures. [With a digital image], we can see patterns that are not visible to the naked eye."

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**CABLE IN THE CLASSROOM SEEKS TEACHER ADVISORS**

Cable in the Classroom(CIC) is looking for media and technology savvy K-12 educators to serve as advisors, mentors, and project consultants. CIC seeks insight about trends and issues in education and technology, and ideas for using technology effectively in the classroom. Cable in the Classroom's teacher advisors will be paid a \$4,000 annual stipend. In addition, their schools will each receive \$1,000. Applicant educators(teachers, library media specialists, etc.) must regularly and innovatively use technology. Selected advisors will use and evaluate new tools and technology applications in their classroom, participate in conference calls and online collaborations, contribute to website and print publications, consult on limited- duration projects, and attend meetings or conferences. Applications are available at <http://taa2004.ciconline.org>, and were by May 31.

CIC represents the cable telecommunications industry's commitment to education -- to improve teaching and learning for children in schools, at home, and in their communities. This is the only industry-wide philanthropic initiative of its kind; since 1989, 8,500 cable companies and 39 cable networks have provided free access to commercial-free, educational cable content and new technologies to 81,000 public and private schools, reaching 78 percent of K-12 students. For more information about Cable in the Classroom, visit [www.ciconline.org](http://www.ciconline.org).

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**TCEB LINKS**

The following links provide additional information on articles in this issue of TCEB:

E.I. du Pont de Nemours and Company - [www.dupont.com](http://www.dupont.com)

Medtronic Foundation - [www.medtronic.com/foundation](http://www.medtronic.com/foundation)

Ball Foundation - [www.ballfoundation.org](http://www.ballfoundation.org)

Carus Chemical Company - [www.caruschem.com](http://www.caruschem.com)

TERC - [www.terc.edu](http://www.terc.edu)

eClassroom - [www.eClassroom.com](http://www.eClassroom.com)

Texas Instruments - visit [www.ti.com](http://www.ti.com)

Cable in the Classroom Teacher Advisors - <http://taa2004.ciconline.org>

Cable in the Classroom - [www.ciconline.org](http://www.ciconline.org)

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## ILLINOIS EIGHTH-GRADER AND ILLINOIS TEAM AWARDED MATHEMATICS CHAMPIONS AT 2004 MATHCOUNTS NATIONAL COMPETITION

Gregory Gauthier of Wheaton, IL answered this challenging math problem in less than 45 seconds to win the MATHCOUNTS National Championship title at the 2004 MATHCOUNTS National Competition in Washington, D.C: "How many five digit positive integers have the sum of all five digits equal to eight and the product of all five digits equal to eight? (The correct answer: ten integers) The eighth-grader from Monroe Middle School competed against 227 other middle school student "Mathletes" in the competition. In the team competition, Illinois captured the National Team Championship title. The California team took second place, and the Indiana team placed third. "The MATHCOUNTS National Competition provides an opportunity to recognize these outstanding students and to reemphasize the importance of math education in our high tech world," said Donald G. Weinert, P.E., chairman of the board of the MATHCOUNTS Foundation. "However, the true measure of MATHCOUNTS' success is in the positive impact MATHCOUNTS materials have on students of all abilities in schools across the country."

Celebrating its 21st anniversary, MATHCOUNTS is a national math enrichment, coaching, and competition program open to all 6th, 7th, and 8th grade students. Each year, MATHCOUNTS develops an entirely new MATHCOUNTS School Handbook that meets National Council of Teachers of Mathematics (NCTM) standards for 7th and 8th grades, and provides a complimentary copy to middle schools nationwide. MATHCOUNTS National Competition teams are comprised of the four top scoring students in their respective state competition, representing all 50 states, the District of Columbia, Puerto Rico, Guam, US Virgin Islands, the Northern Mariana Islands, and Department of Defense and State Department schools worldwide. Since 1983, more than six million students have participated in MATHCOUNTS. The 228 Mathletes who competed in the National Competition represent more than 500,000 students who have been exposed to MATHCOUNTS at the local and state levels. More than 17,000 MATHCOUNTS volunteers from the business and education communities annually organize and conduct the program in communities nationwide. MATHCOUNTS' Founding Sponsors are the CNA Foundation, the National Society of Professional Engineers, and the National Council of Teachers of Mathematics(NCTM). National Sponsors also include the General Motors Foundation, Lockheed Martin, National Aeronautics and Space Administration(NASA), Texas Instruments Incorporated(TI), and the 3M Foundation. NCTM, NASA, TI, and the 3M Foundation are members of the Triangle Coalition. For more information, visit [www.mathcounts.org](http://www.mathcounts.org).

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## US SCHOOLS NEED MORE TECH SAVVY

(Source: The Christian Science Monitor, May 06, 2004)

In Maine, every seventh- and eighth-grader is equipped with a laptop computer. In Kansas, students in middle school and high school can now take state reading and math tests via the Internet. And in North Carolina, teachers in the 2004-2005 school year will be able to access

students' academic and attendance records from their desktop computers. Yet despite these technological advances, a new report shows that America needs to play catch-up with several other countries when it comes to Internet availability and computer use in schools. The US is tied for first in the world, with Australia and Latvia, for student-to-computer-ratio(five students per computer). But it falls well behind other countries in percentage of school computers connected to the Internet, according to Technology Counts 2004, Education Week's seventh annual report on school technology. Only 39 percent of schools in the US are connected to the Internet, as opposed to 80 percent in Australia.

The 98-page report presents a global view of school technology in North America, Asia, Europe, South America, Africa, and the Australia/Pacific region. Education Week sent reporters to Canada, Singapore, and Iceland to get a firsthand look at how computers are being used in the classroom. The goal of this report, was to go out of the US borders and bring back lessons to the United States. One good example is Singapore. The tiny Asian nation is using technology to foster more independent thinking and self-directed learning. The data also shows that the US ranks behind Italy, Britain, and Australia in the number of 15-year-olds using computers at school several times a week. Only 25 percent of students use the computer for instructional learning as opposed to 34 percent in Italy, 36 percent in Britain, and 38 percent in Australia. Reasons for this vary, from inadequate teacher training to significant budget cuts at schools around the country. Technology spending for schools has dropped more than 24 percent from the 2001-02 to 2002-03 school years, according to Market Data Retrieval.

(Editor's Note: Technology Counts 2004 may be viewed online at [www.edweek.org/sreports/tc04](http://www.edweek.org/sreports/tc04).)

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#### YES STUDENT WINNERS ANNOUNCED

Research projects about smallpox vaccination policies and indoor tanning by teenagers took top honors recently at the first-ever Young Epidemiology Scholars(YES) Competition. High school students Benjamin Eidelson of Merion Station, PA, and Robert Levine of Lincolnshire, IL, each earned \$50,000 scholarships as first-place winners in the contest, which is supported by The Robert Wood Johnson Foundation and administered by the College Board. The YES Competition is designed to spur students' interest in epidemiology, the scientific method used to investigate, analyze, and prevent or control a health problem in a population. The 60 students who competed in the finals, held in Washington, DC, were chosen from nearly 600 entries nationwide. In all, nearly half-a-million dollars in scholar-ships were awarded to 123 students throughout the course of regional and national competition.

While the competition focuses on epidemiology, YES seeks to develop skills that go beyond just that area of study. Eidelson developed a mathematical model to evaluate the effects of different smallpox vaccination strategies, based on data from previous outbreaks of smallpox. He found that mass vaccination before an outbreak typically resulted in significantly fewer infections than vaccinations after an outbreak, but that the two strategies were equal in their ability to eliminate the virus from the population within five months. Levine conducted a random sample of students at a Midwestern high school to learn about their practices and attitudes about indoor

tanning. He found 24% of the students tanned indoors, even though 92% believed that indoor tanning was unhealthy. For more information, visit [www.collegeboard.com/yes](http://www.collegeboard.com/yes).

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**PRESIDENT BUSH HONORS EXCELLENCE IN SCIENCE, MATHEMATICS AND  
ENGINEERING MENTORING**

President Bush has announced nine individuals and eight institutions to receive the 2003 Presidential Award for Excellence in Science, Mathematics and Engineering Mentoring (PAESMEM). Each award includes a \$10,000 grant for continued mentoring work. Each year the president recognizes the people and institutions that have provided broad opportunities for participation by women, minorities, and people with disabilities in science, mathematics, and engineering in elementary, secondary, under-graduate, and graduate education. The National Science Foundation(NSF), an independent federal agency that supports fundamental research and education programs across all fields of science and engineering, administers the awards on behalf of the White House. In the eight years the awards have been made, 78 individuals and 62 institutions have been recognized. The program allows for an annual maximum of 10 awards each for individuals and institutions.

Recipients of this year's individual awards include a range of professionals from biology and chemical engineering to computer science and medicine. Their innovative approaches include comprehensive programs and enrichment activities for K-12 students to initiatives aimed at reaching a continuum of students from early childhood through undergraduates, using such community resources as schools and churches. The institutional awards recognize organizations that have developed mentoring approaches that encourage improved achievement; keeping young students in the "pipeline" of science, engineering, and mathematics education; and creating peer mentoring programs. For more information on the presidential mentoring awards program, visit [www.ehr.nsf.gov/EHR/HRD/paesmem.asp](http://www.ehr.nsf.gov/EHR/HRD/paesmem.asp).

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**ARE MALE TEACHERS ON THE ROAD TO EXTINCTION?**

A new National Education Association (NEA) survey shows that the number of male public school teachers now stands at a 40-year low. After two decades of decline, just 21 percent of the nation's 3 million teachers are men. Male elementary school teachers are even more scarce. According to NEA's research report, "Status of the American Public School Teacher," the percentage of male elementary teachers has fallen from an all-time high of 18 percent in 1981 to an all-time low of 9 percent today. And while men represented half of secondary teachers in 1986, today they make up 35 percent. For minority males, the statistics are as troubling. Teachers of color make up 16 percent of the teaching population, and some 42 percent of public schools have no minority teacher at all.

What makes male teachers an increasingly endangered species in classrooms? The shortage can be traced to a variety of factors. In part, gender stereotypes play a role. Despite decades of struggle to banish distinctions between "men's work" and "women's work," dated notions prevail that women are better at nurturing young children. For this reason, more male teachers are

drawn to secondary schools. Economics also plays a role in the gender split. Low salaries relative to other white-collar professions undermine efforts to recruit males to teaching because many men don't believe teaching pays enough to support families.

(Editor's Note: For more information read the NEA Fact Sheet "Wanted: More Male Teachers" at [www.nea.org/teachershortage/03malefactsheet.html](http://www.nea.org/teachershortage/03malefactsheet.html).)

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#### PROVIDENCE PUBLIC SCHOOLS AND EAST BAY COLLABORATIVE HOST NEW ENGLAND EDUCATORS AT INQUIRY-BASED SCIENCE INSTITUTE

The Providence(RI) Public School District and the East Bay Collaborative recently hosted New England educators at an inquiry-based science institute. The New England Institute for Urban Middle Schools was held at the Health, Science, and Technology Academy in Providence, RI. Dr. Lawrence Lowery, professor emeritus at the University of California at Berkeley, provided the keynote presentation on Adolescent Brain Development. Dr. Lowery walked educators from Rhode Island, Massachusetts, Connecticut, Maine, and New York through research results that show how children best learn. To show the importance of sensory input to a child's education, Dr. Lowery compared two images of brain scans.

"In today's schools, the way most children learn science is through 'symbolic narrative' -- reading textbooks. Not only does reading about science not fully engage students, but reading always requires a prior knowledge for anyone to fully comprehend what is being read," Dr. Lowery emphasized. "In the case of science, reading alone does a poor job of conveying the depth of content, but first-hand sensory experiences following by appropriate reading materials improves learning significantly." The East Bay Educational Collaborative was founded in 1989 by the state legislature and superintendents from the eight school districts in the East Bay region. The goal was to combine the districts' resources to provide better school, administrative, and professional development for all the schools in the area. The New England Institute for Middle Schools was developed in partnership between the Providence Public Schools, East Bay Collaborative, and Delta Education, LLC. Triangle Coalition member, Delta Education ([www.deltaeducation.com](http://www.deltaeducation.com)), a New Hampshire-based publisher of inquiry-based science programs, underwrote costs for the institute.

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#### AMERICAN MUSEUM OF NATURAL HISTORY SEMINARS ON SCIENCE

What would happen if we traveled on a light beam? Would time stop? Explore these kinds of questions and ideas by registering for "Space, Time and Motion - Physical Science," an online course from the American Museum of Natural History. The six-week course explores the physical laws that govern our universe and our evolving conceptions of space, time, motion, matter, and energy.

Five different life, Earth, and physical science courses will be offered by the Museum beginning June 28. Designed for K-12 educators, all are fully web-based and can be taken for up to four graduate credits. Courses feature rich media elements and flexible online discussions that include a Museum scientist, an experienced instructor, and a networked community of teachers.

For complete descriptions of all five courses or to register, visit <http://learn.amnh.org>. For more information about the NSTA Institute, of which the museum is a member, visit <http://institute.nsta.org>.

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2005 DELTA EDUCATION/CPO SCIENCE INQUIRY-BASED SCIENCE TEACHING  
EXCELLENCE AWARDS

The National Science Teachers Association(NSTA) is accepting nominations for the 2005 Delta Education/CPO Science Inquiry-based Science Teaching Excellence Awards. Full-time, K-12 science teachers who successfully use inquiry-based science to enhance teaching and learning in the classroom are eligible to apply for an award in one of three grade categories: elementary (preK-5), middle level(6-8), or high school(9-12). To be considered for this award, teachers are asked to submit an overview of their inquiry-based program; a detailed description of the program's philosophy, goals, and objectives; the program's impact on students; and a copy of a lab activity.

Each winner will receive an expense-paid trip to NSTA's 2005 National Convention and will be recognized at the convention with a \$1,500 check and a plaque commemorating his or her achievement. A judging committee chosen by NSTA will review submissions and select the winners. Delta Education, LLC, a leading publisher of K-12 inquiry-based science materials underwrites expenses. The high school award is sponsored by Delta Education's subsidiary, CPO Science, a Peabody, MA, publisher of inquiry-based science materials for grades 6-12. The deadline for receipt of applications by NSTA for the 2005 awards is October 15, 2004. Application forms and guidelines can be found online at [www.nsta.org/565](http://www.nsta.org/565). Both NSTA and Delta Education are members of the Triangle Coalition.

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TCEB LINKS

The following links provide additional information on articles in this issue of TCEB:

MATHCOUNTS - [www.mathcounts.org](http://www.mathcounts.org)

Technology Counts 2004 - [www.edweek.org/sreports/tc04](http://www.edweek.org/sreports/tc04)

Young Epidemiology Scholars(YES) Competition - [www.collegeboard.com/yes](http://www.collegeboard.com/yes)

Presidential Award for Excellence in Science, Mathematics and Engineering Mentoring - [www.ehr.nsf.gov/EHR/HRD/paesmem.asp](http://www.ehr.nsf.gov/EHR/HRD/paesmem.asp)

Council of State Science Supervisors - <http://csss.enc.org>

Utah State Office of Education - [www.usoe.k12.ut.us/curr/science](http://www.usoe.k12.ut.us/curr/science)

NEA Fact Sheet "Wanted: More Male Teachers" -

[www.nea.org/teachershortage/03malefactsheet.html](http://www.nea.org/teachershortage/03malefactsheet.html)

Delta Education - [www.deltaeducation.com](http://www.deltaeducation.com)

American Museum of Natural History Seminars on Science - <http://learn.amnh.org>

NSTA Institute - <http://institute.nsta.org>

2005 Delta Education/CPO Science Inquiry-based Science Teaching Excellence Awards -  
[www.nsta.org/565](http://www.nsta.org/565)

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#### 2004 NATIONAL SCIENCE OLYMPIAD RESULTS

Student teams from Fayetteville-Manlius High School (Manlius, NY) and Booth Middle School (Peachtree City, GA) have been named winners of the 2004 National Science Olympiad. The competition brought more than 1,800 high school and middle school students from across the country to the Juniata College in Huntingdon, PA. More than 4,000 visitors from states as far away as Alaska, California, and Texas came to the campus to cheer on their teams. The students competed in 46 individual and/or team events.

Science Olympiad is a national nonprofit organization dedicated to improving the quality of science education; increasing male, female, and minority interest in science; and providing recognition for outstanding achievement by both students and teachers. These goals are achieved by participating in Science Olympiad tournaments, incorporating Science Olympiad into classroom curriculum, and attending teacher training institutes. The prestige of winning a medal at a Science Olympiad event, especially the Nationals, is often a springboard to success. Former Science Olympiad winners are now employed as astrophysicists, crime scene investigators, NASA scientists, doctors, lab technicians, engineers, and professors. For more information about Triangle Coalition member, Science Olympiad, visit [www.soinc.org](http://www.soinc.org). For more details on 2004 winners, visit <http://projects.juniata.edu/scioly/national>.

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#### IN ITS FIFTIETH YEAR, NUCLEAR SOCIETY FORECASTS GOLDEN OPPORTUNITIES

Celebrating a tradition of innovation, attendees will explore the legacy and the future of nuclear technologies at the American Nuclear Society (ANS) 2004 Annual Meeting, June 13-17 in Pittsburgh, PA. The conference theme, "A Golden Anniversary, A Golden Opportunity," marks the fiftieth year of efforts by ANS members to develop and safely apply nuclear science and technology through knowledge exchange, professional development, and enhanced public understanding. More than 1,000 people from around the world will attend the meeting, which features an embedded topical meeting, the 2004 International Congress on Advances in Nuclear Power Plants. Participants will address the competing demands and growing needs for power, medical, space, and food technologies that utilize nuclear science to benefit society. Nearly 500 presentations will take place over four days.

Triangle Coalition member, American Nuclear Society, was established in 1954 and is a professional organization of scientists and engineers devoted to the applications of nuclear science and technology. Its 10,500 members come from diverse technical disciplines ranging from physics and nuclear safety to operations and power, and from across the full spectrum of the national and international nuclear enterprise, including government, academia, research laboratories, and private industry. For more information, visit [www.ans.org](http://www.ans.org).

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NATIONAL ALLIANCE OF STATE SCIENCE AND MATHEMATICS COALITIONS

Triangle Coalition member, the National Alliance of State Science and Mathematics Coalitions(NASSMC), is a nonprofit umbrella organization for state coalitions of business, education, and public policy leaders united for the improvement of mathematics, science, and technology education for all students. NASSMC is a network of 37 state coalitions and serves as the national advocate for the member organizations. Working as a network of coalitions, NASSMC pursues goals not achievable by any one organization or sector working alone. Member coalitions work to bring coherence and added value to the separate efforts of many individuals and organizations in pursuit of its vision that all US students will have the necessary knowledge of, understanding of, and skills in mathematics, science, and technology, so they can be productive in their personal, work, and civic lives -- and that the nation will have a competent and competitive workforce that continues to meet the challenges of the global economy.

NASSMC evolved from a 1989 project of the Mathematical Sciences Education Board of the National Research Council. NASSMC's current work is driven by some major projects including Linking Leaders for Systemic Improvement, NASA Explorer Schools Partnership for Sustainability, NASSMC Briefing Service, GrantSeeker, and the NASSMC/Annenberg/CPB Public Awareness and Engagement Project. The flagship program is the state-based "Linking Leaders for Systemic Improvement" program, a collaboration between NASSMC and Triangle Coalition member, NASA, that is designed to strengthen existing state coalitions by aligning NASA programs and resources with systemic efforts in each state. For more information about NASSMC, visit [www.nassmc.org](http://www.nassmc.org), email [info@nassmc.org](mailto:info@nassmc.org), or call 703-516-5970.

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EDUCATOR ASTRONAUTS JOIN THE ASTRONAUT CANDIDATES CORPS

The Astronaut Candidate Class of 2004 has eleven new faces. Among them are three classroom teachers who are embarking on a bold new adventure. These excited educators are now full-fledged astronaut candidates and are about to take the wildest ride of their lives. Mission Specialist-Educators Joe Acaba, Ricky Arnold, and Dottie Metcalf-Lindenburger were introduced on May 6 as members of the 2004 Astronaut Candidate Class. The candidates will report to NASA's Johnson Space Center this summer. Once settled in Houston, they will begin the intensive training. Initially, they will undergo land survival training, T-38 jet ground and flight training, Shuttle orbiter systems training, Space Station systems training, science and engineering briefings, and orientation tours at all NASA centers, including the Kennedy Space Center and Marshall Space Flight Center.

NASA opened the door in January 2003 to professional educators to apply to the astronaut corps and a dedicated group of teachers stepped up to the challenge. Teachers from elementary, middle, and high schools filed their applications with hopes of making the team. Joe, Ricky, and Dottie will represent those educators as they train and perform their duties as astronauts. By doing so, they will inspire students to consider careers in math, science, engineering, and technology and maybe, some day join the Nation's space program. For more details on the three educator astronauts, visit <http://education.nasa.gov>.

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#### CASIO ANNOUNCES A TEACHER ADVISORY COUNCIL

Casio, Inc., of Dover, NJ, has announced the establishment of Casio's Teacher Advisory Council (CTAC) to help define future electronic technology and curricular materials that will aid teachers in their implementation of technology in the classroom. CTAC will be made up of 100 educators from across the United States. Fifteen of these members will be selected to serve on a "Foundation Board" and will have the distinction of chairing various committees designed to obtain input from teachers, understand trends and challenges in education, and provide input in the development of new technologies that meet the needs of the classroom teacher. The first Foundation Board meeting was held at the National Council of Teachers of Mathematics Conference in April.

The Educational Division of Casio, Inc. is responsible for orchestrating a number of initiatives that will expand and enhance the use of Casio calculators in the classroom. These initiatives include a Loyalty Point Program, a PTA Fundraiser Initiative, and a new interactive website. Each of these initiatives is aimed at providing affordable technology for the classroom. The new website([www.casioeducation.com](http://www.casioeducation.com)) has been designed to allow both teacher(via password) and student/consumer participation. The site not only features Casio's latest products and new developments in the educational market, but also includes lesson plans, contests, and purchasing opportunities for both teachers and students.

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#### NSF NAMES EIGHT DISTINGUISHED TEACHING SCHOLARS

The National Science Foundation(NSF) has recognized eight persons to receive the Director's Award for Distinguished Teaching Scholars(DTS), the foundation's highest honor for teaching and research excellence. Whether it's showing undergraduate engineering students how to take apart photocopiers to learn about design, teaching calculus through visualization techniques, or providing virtual research and data gathering opportunities on climate change, the new NSF teaching scholars are wide-ranging in their approaches. "They make students major participants in the process of discovery. They also promote activities that expand the education process beyond the boundaries of the university into local schools and communities," said NSF's acting director, Arden L. Bement, Jr.

Worth about \$300,000 to each scholar over the next four years, the DTS awards represent NSF's finest examples of accomplishments by scientists and engineers whose roles as educators and mentors are as important as the ground-breaking research results they achieve. The grants allow

the scholars to work on new projects, or continue present work in new ways that benefit their individual fields and the students they support. NSF has made DTS awards to 27 scholars since the program began four years ago. For more information on the DTS program and information on the 2004 awardees, visit [www.ehr.nsf.gov/ehr/DUE/programs/dts](http://www.ehr.nsf.gov/ehr/DUE/programs/dts).

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**NEW REPORT IDENTIFIES PRE-K-12 PROGRAMS THAT HELP UNDERREPRESENTED GROUPS SUCCEED IN MATHEMATICS AND SCIENCE**

Building Engineering and Science Talent(BEST) has announced the results of its final assessment of best practices in pre-kindergarten through grade 12 math and science education to keep women, minorities, and persons with disabilities on the educational path to careers in science and engineering. The report, titled "What it Takes: Pre-K-12 Design Principles to Broaden Participation in Science, Technology, Engineering and Mathematics," showcases nine programs with significant evidence of effectiveness and eleven that warrant further research, based on an in-depth evaluation of research evidence programs by the BEST Blue Ribbon Panel on Pre-K-12 Education and the American Institutes of Research(AIR). The BEST panel, chaired by Dr. Shirley Malcom, head director for Education and Human Resources at the American Association for the Advancement of Science, screened 200 programs and selected 34 for detailed examination.

This report focuses on what is working in pre-K-12 education to meet a difficult and increasingly urgent national challenge -- the under representation of women, African Americans, Hispanics, Native Americans, and persons with disabilities in science, technology, engineering, and mathematics. These underrepresented groups comprise nearly two-thirds of the overall U.S. workforce yet only make up one-quarter of the science and engineering workforce. BEST, an initiative of the Council on Competitiveness was established in 2001 at the recommendation of the Congressional Commission on the Advancement of Women in Science, Engineering and Technology. For additional information, visit [www.bestworkforce.org](http://www.bestworkforce.org).

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**WINNING TEAMS AWARDED \$60,000 AT WORLD'S LARGEST ROCKET CONTEST**

Three ninth graders from Penn Manor, Lancaster, PA, have claimed the honor of first place in the world's largest model rocketry contest. The team achieved a perfect score when their custom- built rocket soared to exactly 1,250 feet. The winners of the second annual Team America Rocketry Challenge, Cam Aument, Benjamin Raush, and Bob O'Connor, will share a \$60,000 prize pool with ten other teams. About 600 students in 102 teams from middle schools and high schools from across the nation brought their custom-designed model rockets to Great Meadow in The Plains, VA, after competing successfully against nearly 7,000 other students on 600 teams around the country in regional fly-offs. The students were asked to design and build a two-stage rocket that could fly to an altitude of 1,250 feet -- no more, no less -- and return a payload of two raw eggs to the ground unbroken.

Sponsored by the Aerospace Industries Association(AIA) and the National Association of Rocketry(NAR), the contest was originally created to celebrate the 100th anniversary of flight,

and to encourage interest in aerospace design and engineering among high school students. AIA President and CEO John W. Douglass said that AIA and NAR decided to make the contest an annual event after receiving hundreds of requests from students, teachers, and parents. For more information and the results of the competition, visit [www.rocketcontest.org](http://www.rocketcontest.org).

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**CCSSO REPORT SHOWS GAINS IN SCIENCE AND MATHEMATICS EDUCATION;  
INCREASED DEMAND FOR QUALIFIED TEACHERS**

Triangle Coalition member, The Council of Chief State School Officers(CCSSO), has released a new edition of the biennial series, "State Indicators of Science and Mathematics Education." The report assists state, national, and local policymakers and educators in making informed decisions to improve science and mathematics education. The science and math statistical indicators and trends analyses are used to analyze state policies such as high school graduation requirements, teacher certification, and use of educational technology. Among the major findings, the report highlights the demand for qualified teachers. Only 60 percent of middle grade mathematics and science teachers were state-certified in their assigned subject in 2002, which was a slight increase in math and slight decline in science compared to rates in 1994. Over the same period, the total number of secondary teachers of math and science in the U.S. increased by over 15 percent.

CCSSO has worked with states to track and report on the progress of science and mathematics education in schools since 1990. Data for the science and math indicators report are provided by the state departments of education and the U.S. Department of Education. The research and analysis contained in this report was supported by a grant from the National Science Foundation. The report is available online at [www.ccsso.org/Projects/Science\\_and\\_Mathematics\\_Education\\_Indicators](http://www.ccsso.org/Projects/Science_and_Mathematics_Education_Indicators).

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**TCEB LINKS**

The following links provide additional information on articles in this issue of TCEB:

Science Olympiad - [www.soinc.org](http://www.soinc.org)

American Nuclear Society - [www.ans.org](http://www.ans.org)

National Alliance of State Science and Mathematics Coalitions - [www.nassmc.org](http://www.nassmc.org)

Medtronic Foundation - [www.medtronic.com/foundation](http://www.medtronic.com/foundation)

Educator Astronauts (NASA) - <http://education.nasa.gov>

Casio Education - [www.casioeducation.com](http://www.casioeducation.com)

NSF Director's Award for Distinguished Teaching Scholars -

[www.ehr.nsf.gov/ehr/DUE/programs/dts](http://www.ehr.nsf.gov/ehr/DUE/programs/dts)

BEST Report: "What it Takes: Pre-K-12 Design Principles to Broaden Participation in Science, Technology, Engineering and Mathematics" - [www.bestworkforce.org](http://www.bestworkforce.org)  
Team America Rocketry Challenge - [www.rocketcontest.org](http://www.rocketcontest.org)

CCSSO Report: "State Indicators of Science and Mathematics Education" - [www.ccsso.org/Projects/Science\\_and\\_Mathematics\\_Education\\_Indicators](http://www.ccsso.org/Projects/Science_and_Mathematics_Education_Indicators)

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**DISCOVERER'S RETURN TO TITANIC EXPEDITION IS  
FOCUS OF NEW MATH CURRICULUM**

Take a deep-sea dive to the resting place of the greatest shipwreck ever, the RMS Titanic, and journey alongside scientists as they navigate to Titanic's resting place and pilot Remotely Operated Vehicles(ROV) to map the wreck, using mathematics as a guide. A new math product, being developed by the JASON Foundation for Education to be available in December, will allow students to recreate the Return to Titanic expedition, which launched May 30 - June 9, 2004. "JASON Math Adventure: Geometry and Return to Titanic" will teach 6th through 8th graders basic geometry skills that researchers will use during the expedition. The math activities will follow the expedition in chronological order, so students can lead their own quest to help researchers accurately position the research vessel and the underwater ROV, "Hercules," so it can collect samples and take research photos of the Titanic wreckage.

"After receiving thousands of letters from students wanting to follow me on my first expedition to Titanic, I was inspired to begin JASON in 1989," said Dr. Robert Ballard, founder of the JASON Foundation for Education. "Now, after 15 years, it's poignant for me to launch JASON's new Math Adventure series on my Return to Titanic. JASON is working to make not only science, but also math, a hands-on learning adventure." Ballard, who discovered the Titanic wreckage in 1985, is returning to map Titanic and build a baseline of scientific information with technology that was not available in the 1980s. Researchers will study the natural deterioration of the ship's hull caused by tiny microbes, which feed on iron and create icicle-shaped formations called rusticles, and Toredos worms, which are mollusks that feed on organic matter and have eaten most of the wood on the ship. For more information, visit <http://returntotitanic.jason.org>.

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**TOP PHYSICS STUDENTS NAMED TO U.S. TEAM**

This summer, the U.S. will send athletes to the Olympic Games in Athens, Greece. But an Olympics of another sort will also take place in July, one devoted to physics. Instead of competing in track or swimming events, the high-school-age participants in the annual International Physics Olympics will be demonstrating their lab skills and solving problems that would stump professors. Just 24 students were selected from across the country to be part of the 2004 United States Physics Olympiad Team. In January, the students started taking extremely challenging physics exams, eventually scoring higher than over a thousand other students to earn

a spot on the prestigious team. This year the 35th International Physics Olympiad will be held in Pohang and Gyeongju, South Korea, July 15 through 23. Winners will be announced July 21.

The teammates met for the first time at the University of Maryland on May 21. The team then spent a week at a physics training camp, conducting lab experiments, taking exams, and hearing presentations from prominent scientists. Also, before the Olympics itself the students will be competing against each other: five students from the camp will be named to the traveling team and will fly to South Korea for the international competition. The U.S. Physics Olympiad Program is sponsored by the American Association of Physics Teachers([www.aapt.org](http://www.aapt.org)) and Triangle Coalition member, the American Institute of Physics([www.aip.org](http://www.aip.org)). It was started in 1986 to promote and demonstrate academic excellence and prepare students to compete in the International Physics Olympiad. The international Olympiad is a nine-day competition among pre-university students from more than 60 nations. For more information, visit [www.aapt.org/Contests/olympiad.cfm](http://www.aapt.org/Contests/olympiad.cfm).

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**NSF LAUNCHES DISCOVERY CORPS FELLOWSHIP PROGRAM**

The National Science Foundation(NSF) has named the first six fellows of its new Discovery Corps: a pilot program that is exploring innovative ways for scientists to combine their research expertise with service to society as a whole. The six are Dominick Casadonte, Texas Tech University; Alanah Fitch, Loyola University of Chicago; Earl Wagener, Clemson University; Geoffrey D. Bothun, University of Kentucky; Catherine M. Oertel, Cornell University; and Carrie Stoffel, University of Colorado. This initial group will undertake projects that range from preventing corrosion in Baroque-era organ pipes, to training retirees to work with kids in science classes, to attracting undergraduates to seek careers in science and technology.

The Discovery Corps program offers two types of awards. The one-year senior fellowships are intended for mid-career scientists who have already accumulated substantial independent research experience, and who are looking to strike out in new directions. The two-year post-doctoral fellowships are intended for recent Ph.D.s who are seeking alternatives to the traditional postdoctoral experience, in which they would work in the research group of a senior principal investigator. But in both cases, says Ellis, "the Discovery Corps fellowship program recognizes that expertise in scientific research can give value to our society in many ways. A solicitation for the second round of Discovery Corps fellows will be announced this summer. For more information, visit [www.nsf.gov](http://www.nsf.gov).

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**THE ADC FOUNDATION**

Triangle Coalition member, the ADC Foundation, was founded in 1999 and is the charitable arm of ADC Telecommunications, Inc. The foundation's goal is to provide social and economic value by encouraging employee contributions and by making direct grants in two strategic focus areas: mathematics and science education, and public access to technology. With regard to science, technology, engineering, and mathematics(stem) education, grants are provided to selected organizations whose primary mission impacts K-12 or higher education. Focus is on

projects where the aim is systemic improvements in the teaching or learning of mathematics and science or enhancements to the "pipeline" for the preparation of students for work in technology-oriented industry. Regarding access to technology, ADC supports projects that serve to promote nonprofit access to technology by providing the nonprofit sector with competitive computing or telecommunications technologies, with the end goal of using technology tools to improve service delivery and enhance sector capacity.

ADC was founded in 1935 and has served the communications industry for more than half a century. The company holds hundreds of patents and developed the original bantam jack technology still used in networks. Today, ADC is a world leader in providing global network infrastructure products and services that enable the profitable delivery of high-speed Internet, data, video, and voice services to consumers and businesses worldwide. For additional information about ADC, visit [www.adc.com](http://www.adc.com). For more details on the ADC Foundation, visit [www.adc.com/aboutadc/adcfoundation](http://www.adc.com/aboutadc/adcfoundation).

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#### NRC URGES MULTIPLE STUDIES FOR MATH CURRICULA

(Source: Education Week, May 26, 2004)

At least four different types of studies need to be conducted on a mathematics curriculum before it can be deemed effective, asserts a report released by the National Research Council("On Evaluating Curricular Effectiveness: Judging the Quality of K-12 Mathematics Evaluations"). That conclusion was reached by a team of researchers who for two years studied the body of research that has been done on 19 math curricula, 13 of which were produced with the support of the National Science Foundation, and six of which were published by commercial ventures. The report outlines what is needed to have "a set of high-quality and valid studies," said Jere Confrey, the chairwoman of the review committee for the NRC, an arm of the congressionally chartered National Academies of Science. So far, no single curriculum has met the committee's goal of using four different methodologies to prove its worth, she said.

The timing of the report is especially significant because the No Child Left Behind Act includes a provision requiring that educational materials be proved effective according to "scientifically based research." But there was no clear definition in the law for what that research should entail, Ms. Confrey said. As a result, the research team from the NRC set out to define the term "scientifically established effective" for existing math curricula, and concluded that using four specific methodologies fulfills that definition. The committee recommended that content analyses focusing on such matters as accuracy, topic coverage, and the progression of math lessons be performed on each program. In addition, comparative studies that weigh two programs of high quality against each other should be carried out, the report says. Case studies showing how the materials are used in classrooms are also essential, according to the report. Finally, studies that look at other evaluations of the curriculum are also required to judge the quality of materials.

(Editor's Note: "On Evaluating Curricular Effectiveness: Judging the Quality of K-12 Mathematics Evaluations," is available on the National Research Council website at [www.nap.edu/books/0309092426/html](http://www.nap.edu/books/0309092426/html).)

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GENENTECH FOUNDATION FOR BIOMEDICAL SCIENCES AWARDS \$1 MILLION+ TO  
SCIENCE EDUCATION PROGRAMS

The Genentech Foundation for Biomedical Sciences has announced that its Board of Directors has awarded 23 grants totaling over a million dollars to educational institutions in the San Francisco, CA area that share the Foundation's commitment to supporting innovative science programs for students. Among this year's grantees is fourth-time grant recipient Andrew P. Hill High School Biotechnology Academy, a program in San Jose, CA, dedicated to producing students with biotechnology skills necessary to enter the workforce or to continue on to institutions of higher learning. "Given the Genentech Foundation's commitment to local science education and its continued generous support, we have been able to provide our students with a valuable after-school tutoring program over the last several years, which has helped many of them excel in their studies," said Mary Metz, director of the Biotechnology Academy. "The Foundation's support has made a significant impact on our students' interest in the sciences and many students now see science as a possible career."

The Genentech Foundation for Biomedical Sciences is an independent, nonprofit organization that supports biomedical education and research. The Foundation supports educational programs at junior high and high schools, colleges and universities, museums, and community organizations that foster science education for San Francisco area students, including under-represented minorities and underprivileged groups. For additional information, visit [www.gene.com](http://www.gene.com).

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DAVIDSON INSTITUTE FOR TALENT DEVELOPMENT SEEKS APPLICANTS FOR  
DAVIDSON FELLOWSHIPS

The Davidson Institute for Talent Development is offering high achieving young people across the country the opportunity to be named as 2005 Davidson Fellows. Individuals named as Davidson Fellows receive a \$50,000, \$25,000, or \$10,000 scholarship in recognition of their outstanding achievements in the areas of science, technology, mathematics, music, literature, and/or philosophy. Each submission must be an original piece of work recognized by experts in the field as "significant" and it must have the potential to make a positive contribution to society. To be eligible, applicants must be under the age of 18 as of October 1, 2005, and a U.S. citizen or permanent U.S. resident. There is no minimum age for eligibility. The scholarship must be used at an accredited institute of learning. Each application is evaluated on its scope and quality, level of significance, and the applicant's depth of knowledge and understanding of the work and related domain area. For more information on the Davidson Fellows, or to download an application, visit [www.davidsonfellows.org](http://www.davidsonfellows.org).

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CONFERENCE CALENDAR

The Triangle Coalition maintains an online conference calendar

([www.trianglecoalition.org/calendar.htm](http://www.trianglecoalition.org/calendar.htm)) with links to each of the following educational events.

#### June 2004

- 12-16: American Society for Biochemistry and Molecular Biology Annual Meeting
- 13-17: American Nuclear Society Annual Meeting
- 20-23: American Society For Engineering Education Annual Conference & Expo
- 20-July 2: Summer Enrichment for Academics in Mathematics and Science, Illinois  
Mathematics and Science Academy
- 21-23: International Society for Technology in Education National Educational Computing  
Conference

#### July 2004

- 1-6: National Education Association Annual Meeting
- 12-16: Society for Industrial and Applied Mathematics Annual Meeting
- 13-17: 78th Convention of the American Federation of Teachers
- 18-21: National Middle School Association Leadership Institute
- 18-21: National Science Education Leadership Association Leadership Institute
- 21-24: Harris Institute: Introduction to Problem-Based Learning Design, Illinois Mathematics  
and Science Academy
- 25-30: 8th Annual Science and Engineering Education Scholars Program
- 26-28: 2004 National Conference on Educational Robotics
- 31-Aug 4: American Association of Physics Teachers National Meeting various dates:  
Mid-continent Research for Education and Learning(McREL) Summer Academies

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TCEB LINKS

The following links provide additional information on articles in this issue of TCEB:

"JASON Math Adventure: Geometry and Return to Titanic" - <http://returntotitanic.jason.org>

Genentech Foundation for Biomedical Sciences - [www.gene.com](http://www.gene.com)

American Society for Biochemistry and Molecular Biology - [www.asbmb.org](http://www.asbmb.org)

National Science Foundation Discovery Corps - [www.nsf.gov](http://www.nsf.gov)

The ADC Foundation - [www.adc.com/aboutadc/adcfoundation](http://www.adc.com/aboutadc/adcfoundation)

National Research Council Report: "On Evaluating Curricular Effectiveness:

Judging the Quality of K-12 Mathematics Evaluations" - [www.nap.edu/books/0309092426/html](http://www.nap.edu/books/0309092426/html)

U.S. Physics Olympiad Program - [www.aapt.org/Contests/olympiad.cfm](http://www.aapt.org/Contests/olympiad.cfm)

American Association of Physics Teachers - [www.aapt.org](http://www.aapt.org)

American Institute of Physics - [www.aip.org](http://www.aip.org)

Davidson Fellows - [www.davidsonfellows.org](http://www.davidsonfellows.org)

Triangle Coalition Conference Calendar - [www.trianglecoalition.org/calendar.htm](http://www.trianglecoalition.org/calendar.htm)

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**EINSTEIN FELLOWS TEACH IN AN AFTER-SCHOOL SCIENCE AND MATH PROGRAM**

In early June, the Sherwood Recreational Center in northeast Washington, DC, recognized several current Albert Einstein Distinguished Educator Fellows for their participation in an after-school "Science and Math Are Fun" program. The program, held at the Sherwood Center, was organized by the US Department of Energy's Office of Science, a Triangle Coalition member. Every other Tuesday afternoon for three months, ten to twenty-five students, ages 6-16, met for learning, questions, and fun as they interacted with exceptional math and science teachers from around the country. The Office of Science hopes to continue the program during the 2004-2005 school year.

During the first session, Jim Cherry, a Chemistry teacher from Connecticut, performed a series of demonstrations showing properties of air and gases to help students understand how this invisible part of our world works and affects us. He returned two months later with demonstrations on the "very cool" topic of liquid nitrogen and properties of materials at low temperatures. Two other sessions were about bugs. Sandra Geisbush, a science teacher from Texas, started off with a lesson on worms and worm anatomy, called "Which End is Which?" Aaron Schuetz, a physics teacher from Virginia, and Mimi McClure, a science teacher from Florida, presented a lesson on the abundant Cicadas invading the Mid-Atlantic coast this year. Aaron discussed recipes for the bugs and students used magnifying glasses to look at both alive and dead insects in various stages of growth. Todd Clark, a former Einstein Fellow now working for the Office of Science, also participated, and led the students in Cicada-origami so students could make their own paper bug to take home. Other topics included a lesson on DNA by Peggy Deichstetter, a biology teacher from Illinois, in which students extracted DNA from their own mouths, and a lesson where Aaron and Mimi made a racket with various noisemakers to help the students understand the physics of sound. The Director of Volunteers at the Sherwood Center, Claudette Clark, presented the Einstein Fellows and the Office of Science with certificates of appreciation for their involvement in the program. For more information about the Albert Einstein Distinguished Educator Fellowship Program, visit [www.trianglecoalition.org/ein.htm](http://www.trianglecoalition.org/ein.htm). For more information about the US Department of Energy's Office of Science, visit [www.science.doe.gov](http://www.science.doe.gov).

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**NEW EDUCATION TRUST STUDY EVALUATES GRADUATION RATES**

The Education Trust has released "A Matter of Degrees: Improving Graduation Rates in Four-Year Colleges and Universities," a new report that reveals problems in the graduation rates at four-year colleges and universities. The good news is that more students in the United States are

entering two- and four-year institutions than ever before; enrollment has increased from less than half in 1975 to almost two thirds in 2001. The biggest gains among entering freshmen are coming from groups that have been traditionally left behind, female and low-income students. Unfortunately, while enrollment has increased, graduation rates have not increased at the same rate. In fact, many institutions lose one out of every four students they enroll in the freshman year alone. While the overall graduation rates are low for all students, they are particularly low for minority and low-income students: only 46% of African American, 47% of Latino, and 54% of low-income, first-time, full-time freshmen are graduating within six years.

The report indicated that one method of improving graduation rates would be to improve the alignment between K-12 and higher education. According to the report, far too many high school graduates enroll in higher education unready to do advanced work. As a result, one in five students who start as full-time, first-time freshmen in public four-year institutions take at least one remedial reading, writing, or mathematics course, while 12% of students in private four-year colleges and universities do the same. The consequences of this weak preparation are severe. Remedial students are much less likely to graduate. The full report is available online at [www.edtrust.org](http://www.edtrust.org).

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#### COLORADO SCHOOL OF THE DEAF AND BLIND AND McREL CREATE SCIENCE MATERIALS FOR VISUALLY-IMPAIRED STUDENTS

The Colorado School for the Deaf and Blind(CSDB) and Triangle Coalition member, Mid-continent Research for Education and Learning(McREL), have launched a new series of exemplary science materials for visually impaired students. Funded through a NASA Initiative to Develop Education through Astronomy and Space Science(IDEAS) grant, these Adapted Curriculum Enhancement(ACE) materials are designed to translate leading-edge science from NASA's Genesis mission into teacher guides, student activities, texts, and tactile learning materials for visually impaired students. The first module in the series, the Evolving Universe, focuses on the origins of the universe. Students study tactile models of specific features of the present universe to gain a better understanding of the difficulties of conducting science on large time and distance scales by indirect observation and inference. Like true cosmogonists(scientists who study the origins of the universe), they work backward from contemporary models of the universe to envision a reasonable initial state of the cosmos. They are available online at [www.ace-education.org](http://www.ace-education.org).

CSDB and McREL worked closely with scientists from the Jet Propulsion Laboratory and Los Alamos National Laboratory to ensure accuracy of the science content for Evolving Universe. Science teachers interested in field-testing these materials in the fall should contact Dr. Donna Bogner at [dbogner@mcrel.org](mailto:dbogner@mcrel.org) for more information. Other tactile science projects and resources may be found at [www.tactilelearning.org](http://www.tactilelearning.org). McREL is a nationally recognized, private, nonprofit organization located in Aurora, CO, dedicated to improving education for all students through applied research, product development, and service. Its staff of highly respected educators and researchers focuses on providing educators and policymakers with the highest quality, field-tested, research-based products and services available in PreK-16 education. For more information about McREL, visit [www.mcrel.org](http://www.mcrel.org).

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EINSTEIN FELLOW PROFILE: ROBERT HICKEY

Robert Hickey, a physics teacher from Wayland, MA, with a background in the high-tech industry, is one of the 2003-2004 Albert Einstein Distinguished Educator Fellows on Capitol Hill. Robert works in the office of Senator Joseph I. Lieberman(D-CT) and is involved in all aspects of supporting legislation for the reauthorization of the Higher Education Act, including developing a teacher professional development bill and a minority graduation bill that Senator Lieberman's office is working to get passed. In addition, Robert conducts meetings with constituents and lobbyists, researches issues related to education, writes floor statements, and contributes to speechwriting. Midway through the Fellowship year, Robert remarked, "The six months as an Einstein Fellow in Senator Lieberman's office have been the most professionally rewarding experience of my career. Education policies are extremely important in our office and my colleagues are always interested in getting a 'teacher's perspective' on these issues. I feel very fortunate to be playing such a vital role in the education-related issues in Senator Lieberman's office. I never thought I would have the opportunity to be directly involved in drafting legislation. The experience is fantastic."

In his first month in the office, Robert wrote an internal report on the differences between the House and Senate IDEA bills and another on The Higher Ed Reauthorization Act: A summary of legislation in 2003 and major topics to be addressed in the reauthorization process for the 108th congress. He additionally recommended online education resources to be included on Senator Lieberman's web page. Prior to his Fellowship, Robert taught physics at Wayland High School for ten years. He went into teaching after working in the high-tech industry for 12 years, where he developed mathematical models to simulate electromagnetic wave propagation through various media. Robert changed careers because he wanted to do something that he felt passionate about and where he could make a difference in someone's life. He feels it is important for a teacher to have the ability to bring real life applications of science into the classroom. The Einstein Fellows Program began in 1990 and was formalized by the Albert Einstein Distinguished Educator Fellowship Act of 1994. The program aims at sharing the expertise of highly accomplished classroom teachers with those planning and implementing national education programs and policies. For more information about the Albert Einstein Distinguished Educator Fellowship Program, visit [www.trianglecoalition.org/ein.htm](http://www.trianglecoalition.org/ein.htm).

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CHILDREN REACH THE STARS WITHOUT LEAVING THE GROUND

Children around the world will soon have a new, innovative, hands-on means to explore space, without leaving the ground, thanks to a partnership between the Challenger Learning Center at Wheeling Jesuit University and Computer Associates International(CA). CA is providing more than \$100,000 in financial support to enable the Challenger Learning Center to develop a digital learning e-Mission program aimed at students in grades 3-5. Through the grant, the new program, entitled "e-Mission: Moon, Mars and Beyond," will be available worldwide through a growing network of Challenger Learning Centers established by the Challenger Center for Space Science Education in memory of the ill-fated Challenger Shuttle. e-Mission programs are made

up of integrated curriculum packages that include teacher development training, standards-based online curriculum, teacher support resources, and embedded assessment materials -- all culminating in a live two-hour simulation.

Moon, Mars and Beyond will complement two existing e-Mission programs, Operation Montserrat and Space Station Alpha, designed for middle and high school students, respectively. In Operation Montserrat, students analyze seismic activity of a possible erupting volcano on the island of Montserrat in the Caribbean, track the path of an approaching hurricane, or assist the crew on board a space station. In Space Station Alpha, students track a solar storm, control orbital position, predict radiation levels, and monitor oxygen levels. All programs use digital learning technology to run interactive simulations from within a classroom. Students and teachers connect with flight directors at the Center's Mission Control using the Internet or video conferencing technology for a live learning adventure that encourages students to draw on and develop math, science, and problem-solving skills. For more information, visit [www.wju.edu/clc](http://www.wju.edu/clc).

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## FERMI NATIONAL ACCELERATOR LABORATORY

Triangle Coalition member, the Fermi National Accelerator Laboratory, is a high-energy physics laboratory, home of the world's most powerful particle accelerator, the Tevatron. Scientists from across the U.S. and around the world use Fermilab's resources in experiments to explore the most basic particles and forces of nature. Fermilab has an abiding commitment to enhancing mathematics and science education and stimulating science literacy. Laboratory education programs serve students from pre-kindergarten to graduate research scientists in training, giving special emphasis throughout to underrepresented groups. These programs are sponsored by Fermilab and Fermilab Friends for Science Education and are funded by the U.S. Department of Energy, the National Science Foundation, the U.S. Department of Education, the State of Illinois Department of Education, and various private foundations and individuals.

Fermilab's education mission is to strengthen primary and secondary education schools by using the resources of the lab to improve teaching and learning in science, mathematics, engineering, and technology and to:

- Encourage young people to pursue careers in science and engineering,
- Enhance the quality of precollege science education in public and private schools,
- Promote a broader public awareness and understanding of science, and
- Facilitate the integration of science and technology with complementary cultural and social fields.

An educator's page is available on the Fermilab website with links to materials, field trips, events, programs, study units, and downloadable resources at [www-ed.fnal.gov/educators.html](http://www-ed.fnal.gov/educators.html). The Fermilab Education Office([www-ed.fnal.gov](http://www-ed.fnal.gov)) offers science materials, prairie resources, physics data, and links to the Lederman Science Center, where many activities are held. For more information on Fermilab, visit [www.fnal.gov](http://www.fnal.gov). For more information on Fermilab Friends for Science Education, visit [www-ed.fnal.gov/ffse](http://www-ed.fnal.gov/ffse).

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**PROJECT ASTRO HELPS KIDS SET THEIR SIGHTS ON THE STARS**

This spring marks the 10th year of Project ASTRO, an innovative program at the Astronomical Society of the Pacific(ASP) that partners amateur and professional astronomers with teachers around the country to give students a hands-on introduction to astronomy. Since the program started in San Francisco and Los Angeles classrooms in 1994, it has directly helped more than 103,000 students enjoy and participate in the excitement of scientific discovery. Project ASTRO is currently operating through 12 regional sites across the nation. Close to 2000 scientists, graduate students, and astronomy hobbyists have been trained with a local teacher since the program began. Many of them report that going into their local school has been the most satisfying volunteer experience of their lives and has given them a new appreciation of the challenges all teachers face in conveying science effectively. Each astronomer adopts one classroom and visits at least four times during the school year -- but a few have become so involved they have gone back ten times in a single semester! A key element in the success of the program is that astronomers and teachers are first trained together at summer workshops that guide them through teaching space science using a variety of hands-on, inquiry-based activities. These include such fun projects as "Toilet Paper Solar System," "Invent an Alien," and "The Reasons for the Seasons Symposium."

The project began with support from the National Science Foundation and NASA's Office of Space Science. Since 1999, all the regional sites -- from Boston to San Diego -- have found their own funding from local and national sources. Each site is supported by a coalition of educational and scientific organizations in its community, and there is a "lead institution" which coordinates the local project. The leaders of the Project ASTRO regional sites have also formed a "national network" to exchange ideas and seek solutions to the challenges of running the project on a shoestring. For more information, visit [www.astrosociety.org/education/astro/project\\_astro.html](http://www.astrosociety.org/education/astro/project_astro.html).

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**MICROSOFT LAUNCHES \$35M TECH TRAINING PROGRAM FOR U.S. SCHOOLS**  
(Source: eSchool News, June 1, 2004)

Students and teachers in Washington state will be among the first to reap the benefits of a multi-million-dollar nationwide initiative sponsored by software giant Microsoft Corp. The project will develop curricula and build a collection of best practices intended to help educators better prepare today's students for success in an increasingly digital future. Microsoft plans to spend more than \$35 million over the next five years to add a U.S. component to its overseas Partners in Learning program, which has endeavored to train teachers and students in technology. The goal stateside is to create technology-infused learning models that can be replicated and sustained by schools from Puget Sound to New York City, and everywhere in between. In Washington, Microsoft will work with a yet-to-be announced state university to research, develop, and implement an ed-tech framework consisting of two parts: (1) a "College of Education School of the Future" model, in which teachers and administrators will explore new teaching methods intended to facilitate the development of 21st-century skills among students;

and (2) a program that uses existing and emerging technologies to raise student achievement and meet higher graduation rates, especially among at-risk students. Microsoft plans to document each initiative and make the blueprints available for free on its web site. The company has joined forces with several members of the education community to develop specific course offerings, construct standards for learning, and supply professional development. (Editor's Note: For more information, visit [www.microsoft.com](http://www.microsoft.com).)

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TCEB LINKS

The following links provide additional information on articles in this issue of TCEB:

Albert Einstein Distinguished Educator Fellowship Program - [www.trianglecoalition.org/ein.htm](http://www.trianglecoalition.org/ein.htm)

US Department of Energy's Office of Science - [www.science.doe.gov](http://www.science.doe.gov)

Education Trust Report "A Matter of Degrees: Improving Graduation Rates in Four-Year Colleges and Universities" - [www.edtrust.org](http://www.edtrust.org)

Adapted Curriculum Enhancement(ACE) - [www.ace-education.org](http://www.ace-education.org)

McREL - [www.mcrel.org](http://www.mcrel.org)

Challenger Learning Center Program "e-Mission: Moon, Mars and Beyond" - [www.wju.edu/clc](http://www.wju.edu/clc)

Fermilab Education Office - [www-ed.fnal.gov](http://www-ed.fnal.gov)

Fermilab - [www.fnal.gov](http://www.fnal.gov)

Fermilab Friends for Science Education - [www-ed.fnal.gov/ffse](http://www-ed.fnal.gov/ffse)

Project ASTRO - [www.astrosociety.org/education/astro/project\\_astro.html](http://www.astrosociety.org/education/astro/project_astro.html)

Microsoft Corporation - [www.microsoft.com](http://www.microsoft.com)

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2004 EXPLORAVISION WINNERS

The eight national student team winners who combined creativity with science to envision future technologies as part of this year's Toshiba/ National Science Teachers Association Explora Vision Awards Program were recognized June 9-13 during various events in Washington, DC. Each student team was formally recognized for their accomplishments during a gala awards banquet and ceremony. Five of this year's winning teams envisioned advancements in medical technologies. Real-life experiences inspired some of these teams to create their invention. A sick grand-parent, for example, inspired a team of eleventh and twelfth graders from La Jolla, CA, to envision the "Nanoclotterator," a tiny robot that fits into the tiniest capillaries to bite away

chunks of life-threatening clots. Three teams proposed technologies to make the world safer and more environmentally friendly. The "Plant Remover," envisioned by a team of fourth graders from Virginia Beach, VA, is a submersible craft that uses global-positioning satellite and laser holographic technologies to seek and destroy invasive, foreign aquatic plants. A group of eighth graders from St. Louis, MO, envisioned "E.colocator Gloves," which alert meat handlers to harmful bacteria by changing color.

Sponsored by the Toshiba Corporation, the Toshiba American Group Companies, and the Toshiba America Foundation, the ExploraVision program is administered by Triangle Coalition member, the National Science Teacher's Association. The program encourages K-12 students to work in teams of up to four people to envision what an existing technology would look like 20 years in the future. Since the program's inception, more than 180,000 students have submitted entries. This year's top winners were selected from 4,377 entries representing the work of almost 14,000 students from across the United States and Canada. The deadline to submit entries for next year's ExploraVision competition is February 2005. For more information or an application, call 1-800-EXPLOR-9, or visit [www.exploravision.org](http://www.exploravision.org).

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**BUSINESS SOFTWARE ALLIANCE RECOMMENDS ROADMAP FOR IMPROVING  
EDUCATION**

The CEOs of some of the world's leading technology companies have released a roadmap for revamping the nation's educational system, which focuses on creating a culture of lifelong learning that ensures every citizen is literate in the use of information technology. The report is part of a new "Initiative for the Future," announced during the Business Software Alliance's (BSA) eighth annual CEO Forum. The initiative was announced at a roundtable discussion between BSA CEOs and Senate leaders, as part of a day of meetings with key administration and congressional leaders. The first report in the initiative, "Educating for the Future," identifies three key challenges for upgrading the nation's educational system to meet the technological and economic realities of the 21st Century: 1. Create an educational system aimed at lifelong learning, 2. Ensure every person is IT literate and has other necessary skills, and 3. Modernize the education process to fully integrate and take advantage of powerful IT tools. The report lays out a series of recommendations for industry, government officials, and educators that includes:

Establishing an ongoing dialogue between the technology industry and educational institutions at all levels to make lifelong learning a high priority,

Creating effective new technologies for a redesigned education system,

Providing incentives such as loan forgiveness for students to pursue advanced degrees in math, science, and engineering,

Preparing future teachers with strategies for integrating IT literacy in their teaching and assessment and improve professional development for current teachers,

Requiring IT literacy of every 8th grade student, and

Devoting greater resources to teaching math and science.

For a full copy of the education report and more information on the BSA CEO Initiative for the Future, visit [www.bsa.org/ceoinitiative](http://www.bsa.org/ceoinitiative).

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#### CARUS CHEMICAL COMPANY

Triangle Coalition member, Carus Chemical Company, is the world's largest maker of potassium permanganate, which Carus manufactures mainly for environmental applications: to improve the quality of drinking water, to treat municipal and industrial wastewater, in air purification systems, and in the remediation(clean-up) of contaminated sites. The company was founded in 1915 by Dr. Edward Hegeler Carus, who first performed experiments with the chemical while an undergraduate at the University of Wisconsin. When World War I in Europe threatened foreign supplies of potassium permanganate to the United States, Edward Carus saw an opportunity and began production in barns located on the site of what is now Carus Chemical's La Salle manufacturing facility. Carus Chemical is a member of the American Chemistry Council and is an active participant in the industry's award-winning Responsible Care initiative, working to make life better, healthier, and safer through chemistry.

A goal of the Carus Chemical Company is to increase the interests of local children in careers in science, technology, and engineering. Carus is involved in SWEPT(Scientific Work Experience Programs for Teachers), and sponsors a summer Science Camp for kids. Along with the SWEPT teachers, Carus employees volunteer to act as guides to help the young campers with the experiments and games. Carus Chemical's educational outreach efforts are also aided by the Chemical Educational Foundation, which provides "You Be The Chemist" kits and assists with suggestions for hands-on experiments that teachers can use in the classroom to spark their students' interests in science. This year, Carus Chemical Company will be the host of the pilot program for the "You Be The Chemist" Challenge, a Jeopardy-like competition for junior high science students. In addition to myriad educational and community outreach programs, Carus Chemical employees bring science to local schools through annual Classroom Chemistry demonstrations, scheduled to coincide with the American Chemical Society's National Chemistry Week. For more information about Carus Chemical Company's award-winning outreach programs, visit [www.caruschem.com](http://www.caruschem.com), or contact Lynn Solorio, Carus Community Relations Director, at 815-224-6682 or [lynn.solorio@caruschem.com](mailto:lynn.solorio@caruschem.com).

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#### GOLD MEDALISTS OF THE USA BIOLOGY OLYMPIAD ANNOUNCED

Virginia-based Center for Excellence in Education has announced the four-person team to represent the United States at the International Biology Olympiad, July 12-18, 2004, in Brisbane, Australia. Established by the Center for Excellence in Education, the USA Biology Olympiad (USABO) is a national competition in biology for high school students. This year, approximately 5,000 US high school biology students competed for a coveted position to be among the 20 National Finalists of the Olympiad. From these National Finalists, the Academic

Jury of the USABO awarded Gold Medals to the top four students:

Kay Aull, Thomas Jefferson High School for Science & Technology, Alexandria, VA  
ZeNan Chang, Santa Monica High School, Santa Monica, CA  
Clinton Hansen, Oneida High School, Onieda, NY  
Brad Hargreaves, Caddo Parish Magnet High School, Shreveport, LA

The Center for Excellence in Education was co-founded by the late Admiral Hyman G. Rickover and Joann P. DiGennaro in 1983 to nurture young scholars for careers of excellence and leadership in science and technology. Luminaries such as President Jimmy Carter, US Senators William H. Frist and Joseph I. Lieberman, and former Secretary of Defense, Frank C. Carlucci, serve on the Center's Board of Trustees. The Center sponsors the Research Science Institute, and the USA Biology Olympiad for high school students. For more information about the Center and its programs, visit [www.cee.org/usabo](http://www.cee.org/usabo).

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**LUCENT TECHNOLOGIES HONORS 52 STUDENTS WITH INVITATIONS TO  
THE SIXTH ANNUAL GLOBAL SCIENCE SCHOLARS SUMMIT**

Lucent Technologies has announced that 52 students have been selected to receive the Lucent Global Science Scholars award for their excellence in science and math. Sponsored by the Lucent Technologies Foundation, the Global Science Scholars program supports exceptional students who are pursuing careers in information and communications technologies. The culmination of the program is the weeklong Global Science Scholars Summit, to take place July 23-30 at Lucent Technologies' headquarters in Murray Hill, NJ. During the week, students will shadow Bell Labs researchers, tour laboratories, participate in panel discussions, interact with Bell Labs scientists and researchers, and work collaboratively with other multinational scholars on a research project.

This year's students come from 14 countries -- Brazil, Canada, China, France, Germany, India, Korea, Mexico, the Netherlands, Poland, Russia, Saudi Arabia, Spain, and the United Kingdom - - as well as 12 US states. This is the first year since the program's inception in 1999 that students from Poland and Russia have participated in the program. The Global Science Scholars competition is open to all US high school students, and to students at selected universities in 16 countries outside the United States. This year, applications were received from students in 44 US states and all 16 participating countries. Scholars receive an expense-paid trip to the Summit, as well as a \$5,000 award. In the year following their selection, recipients are offered a paid internship at a Lucent location in their home country, where possible. For more information, visit [www.lucent.com/social/2004GSS.html](http://www.lucent.com/social/2004GSS.html).

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**ISTE AND MICROSOFT PROVIDE ONLINE ASSESSMENTS OF TECHNOLOGY  
LITERACY OF MIDDLE SCHOOL STUDENTS**

The No Child Left Behind(NCLB) legislation mandates that by 2006 every eighth-grade student

in the United States be proficient in technology literacy skills. To help teachers monitor student progress and meet the requirements, a new online tool to assess the technology literacy of middle school students made its debut during the National Educational Computing Conference(NECC) in New Orleans in mid-June. Developed as a collaboration between the International Society for Technology in Education(ISTE) and Microsoft Corporation, the assessment tool is a component of Microsoft's U.S. Partners in Learning. The free online tool will be accessible through ISTE's website(www.iste.org), and will contain 12 assessments as well as classroom curriculum and teacher support materials. The first seven assessments are already online, with five more to be available in mid-August.

The online assessments are aligned with ISTE's National Educational Technology Standards for Students, and includes a mapping tool to specify the standards met. The performance-based assessments use authentic, real-world scenarios to test eighth-grade technology literacy skills using the Microsoft Word, Excel, PowerPoint, Internet Explorer, Outlook, Access, and Front Page applications and were piloted by 133 students in eight U.S. middle schools. According to Anthony Salcito, general manager for Microsoft Education -- U.S. Public Sector, "U.S. Partners in Learning is part of Microsoft's ongoing commitment to help schools achieve a successful 21st-century learning environment. By working with and supporting leading education organizations such as ISTE, we can deliver on that commitment and enable educators with needed resources and tools as they work to integrate technology skills into education."

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EPALS CLASSROOM EXCHANGE'S K-12 SCHOOL EMAIL ACCOUNTS

ePALS Classroom Exchange, Inc.(www.epals.com), is a leader in school-safe email technology and an online network of international collaborative classrooms, with over two million student and teacher email accounts. "ePALS SchoolMail is a multilingual web-based solution enabling schools to easily integrate email into their curriculum and make a positive impact on daily communication, project-based learning, literacy, and cultural connections with classrooms worldwide" explains Tim DiScipio, ePALS Chairman and Co-Founder. One of the industry trends closely followed by ePALS is the use of email as a home-to-school connection and a project-sharing resource for literacy or language skill building. Founded in 1996, ePALS also supports a global online school network that connects 4.5 million students and teachers in 191 countries. Teachers and students use the ePALS network for cross-cultural project sharing and learning.

Theresa Cormier, a teacher at Haddam-Killingworth Middle School in Connecticut, connected her French language students with an ePALS class-room in France to complement her lesson plans. "ePALS SchoolMail drives my curriculum and allows my students to access work safely from home or the lab in an organized and protected environment," says Cormier. "This technology has become a living language textbook that reinforces student understanding of the language they are learning. I cannot begin to describe how excited my students are to exchange email letters with their French peers." The first email worldwide with built-in language translation capability(72 language pairs), SchoolMail also provides spam/virus checking for email and attachments, customization of authorized and protected community user access(class, grade, school, or district), and file storage and sharing. ePALS SchoolMail is also eligible for

funding under the eRATE program.

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## TCEB LINKS

The following links provide additional information about articles in this TCEB:

ExploraVision - [www.exploravision.org](http://www.exploravision.org)

Business Software Alliance's CEO Initiative for the Future - [www.bsa.org/ceoinitiative](http://www.bsa.org/ceoinitiative)

Carus Chemical - [www.caruschem.com](http://www.caruschem.com)

USA Biology Olympiad - [www.cee.org/usabo](http://www.cee.org/usabo)

National Council of Teachers of Mathematics - [www.nctm.org](http://www.nctm.org)

Lucent Global Science Scholars - [www.lucent.com/social/2004GSS.html](http://www.lucent.com/social/2004GSS.html)

International Society for Technology in Education - [www.iste.org](http://www.iste.org)

Microsoft's U.S. Partners in Learning - [www.microsoft.com/education/partnersinlearning.aspx](http://www.microsoft.com/education/partnersinlearning.aspx)

ePALS Classroom Exchange, Inc. - [www.epals.com](http://www.epals.com)

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## KENNEDY SPACE CENTER WEBSITE HELPS STUDENTS ENJOY SCIENCE AND MATH

Kennedy Space Center's(KSC) newest website seeks to encourage middle school students across the nation to develop an interest in science and math by viewing real working experts in these fields. The "Enter the Firing Room" site provides interactive games and information linking these subjects to exciting careers with NASA. The site highlights system engineers who work in KSC's launch firing rooms. The site includes a firing room tour, fun facts, pictures, and a special page for educators. Students get a chance to meet actual engineers through videos and biographies. Videos of astronauts are also featured on the site. After a virtual tour, students can test their knowledge by taking the Launch Simulation Quiz. "Enter the Firing Room" was funded through NASA's Human Exploration and Development of Space enterprise. For more information, visit <http://enterfiringroom.ksc.nasa.gov>.

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## NEW FREE ONLINE PUBLICATION FROM THE EISENHOWER CONSORTIA AND EISENHOWER CLEARINGHOUSE NETWORK

The Eisenhower Mathematics and Science Consortia and Eisenhower Clearinghouse Network is producing a series of Lessons Learned reports from its 12 years of work in mathematics and

science reform. The first publication completed is "What Experience Has Taught Us About Collaboration" which is available as a PDF at [www.mathsciencenetwork.org/collaboration.pdf](http://www.mathsciencenetwork.org/collaboration.pdf). The report begins with a look at how collaboration is characterized in the literature. It then moves to a discussion of strategies and steps for building effective collaborative relationships. Finally, it explores several "deep structure" issues that represent barriers to collaborative work. The National Network of Eisenhower Regional Consortia and Clearinghouse(The Eisenhower Network) works collaboratively to improve and strengthen K-12 mathematics and science education for all. It is a unique regional and national system that provides professional development, fosters collaboration, and disseminates exemplary products and resources. For more information, visit [www.mathsciencenetwork.org](http://www.mathsciencenetwork.org). Triangle Coalition member, the Eisenhower National Clearinghouse(ENC), is a member of the Eisenhower Clearinghouse Network. For more information on ENC, visit [www.enc.org](http://www.enc.org).

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## VERNIER SOFTWARE & TECHNOLOGY

Triangle Coalition member, Vernier Software & Technology([www.vernier.com](http://www.vernier.com)), has been developing educational software and hardware for science and math teachers for 23 years. The company has grown steadily since its founding by a high-school physics teacher, and it now has 65 employees. Vernier is a leading producer of inexpensive, easy-to-use, data-acquisition products for science and math classrooms and labs around the world. Vernier Software & Technology has received many growth awards and has been on the list of the 100 Best Companies to Work For in Oregon for the last five years. Vernier products can be divided into four general categories:

**Laboratory Interfaces:** The Vernier LabPro interface can be used with computers(both Macintosh and Windows), TI graphing calculators, and Palm OS handhelds. It can be used to measure just about anything a teacher would want to measure in a chemistry, physics, biology, or physical science classroom. Vernier recently introduced their new Go!Link and Go!Temp products, which connect directly to the USB port of a computer. These new products provide the least expensive way to get started in computerized data collection.

**Software:** Vernier has two data-collection programs for use with computers, Logger Pro and Logger Lite. Also available are data-collection programs for TI calculators and Palm OS handhelds. All Vernier programs come with a school site license, which even includes the students' home computers.

**Sensors:** Vernier produces sensors for studying motion, measuring temperature, pH, pressure, heart rate, EKG, dissolved oxygen, conductivity, force, light level, magnetic field, acceleration, and more. In all, there are over 45 sensors for all areas of science.

**Laboratory Manuals:** A series of books for use with Vernier products are available for chemistry, biology, physics, Earth science, physical science, and middle school. There are versions of these books for use with Palm OS handhelds, calculators, and computer-based data collection. The newest book is a collection of lab activities for elementary school students using the Go!Temp system.

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## CCSSO HOSTS 34TH NATIONAL CONFERENCE ON LARGE-SCALE ASSESSMENT CONFERENCE

Triangle Coalition member, the Council of Chief State School Officers(CCSSO), recently sponsored the 34th National Conference on Large-Scale Assessment in Boston, Massachusetts. During the conference, over 1,000 professionals in education with an interest in student assessments conducted at the national, state, district, and classroom level gathered to discuss and debate new ideas and issues in assessment and examine new technologies. The theme for this year's conference was two-fold: celebrating the 40th anniversary of the National Assessment of Educational Progress(NAEP) and tackling the tough challenges of No Child Left Behind(NCLB).

Every year, the conference attracts the best and brightest from federal, state, and local education agencies; representatives from test development and publishing companies; university staff and researchers; policy makers and analysts from all levels of government; teachers; graduate and doctoral students; education association staff; and consultants convene to share the latest findings, developments, and research on large-scale assessment. The conference also examines technical concerns related to the development of performance assessments and new standards-based assessments.

The Council of Chief State School Officers is a nonpartisan, nationwide, nonprofit organization of public officials who head departments of elementary and secondary education in the states, the District of Columbia, the Department of Defense Education Activity, and five US extra-state jurisdictions. CCSSO provides leadership, advocacy, and technical assistance on major educational issues. The Council seeks member consensus on major educational issues and expresses their views to civic and professional organizations, federal agencies, Congress, and the public. For more information, visit [www.ccsso.org](http://www.ccsso.org).

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## PBS TEACHERLINE DEBUTS PROGRAM TO HELP SCHOOLS MEET 'HIGHLY QUALIFIED' TEACHER MANDATES OF NCLB

Gearing up to meet the explosive demand for teacher training courses, PBS TeacherLine has launched a national professional development program, offering 80 courses. The courses aim to enhance teacher quality and address competency requirements under the No Child Left Behind (NCLB) Act. Teacher quality provisions in NCLB -- along with increased federal funding to states for teacher professional development -- have created a large upswing in the number of teachers enrolling in professional development courses. At the same time, standards for professional development have become more rigorous, creating an acute need to provide high-quality courses to American teachers. Under NCLB, educators who teach core academic subjects -- including reading, language arts, mathematics, and science -- must meet the definition of

"highly qualified" by the 2005-2006 school year. The highly qualified provision requires teachers to possess a bachelor's degree, be certified in the subjects and/or grades they teach, be licensed to teach in the state, demonstrate subject knowledge and teaching skills, and not teach

with a provisional, emergency, or temporary license.

Funded by a Ready to Teach grant from the U.S. Department of Education, PBS TeacherLine offers research- and standards-based online professional development programs for educators. Courses cover instructional technology, mathematics, reading, science, curriculum mapping, and instructional strategies. In addition, PBS TeacherLine offers ISTE/Capstone courses that help teachers earn certification in technology integration. PBS TeacherLine courses are developed by instructional and content experts such as Triangle Coalition members, Mid-Continent Research for Education and Learning(McREL) and the Concord Consortium.

Courses are aligned to content standards from such leading organizations as Triangle Coalition member the National Council of Teachers of Mathematics(NCTM) and the International Society for Technology in Education(ISTE). For more information, to view a full course catalog, or to register for courses, visit [www.pbs.org/teacherline](http://www.pbs.org/teacherline). Teachers who are unfamiliar with the online learning format can participate in a free, two-hour preparatory course, Practice Learning Online with TeacherLine, available at [http://teacherline.pbs.org/teacherline/modules/learning\\_online.cfm](http://teacherline.pbs.org/teacherline/modules/learning_online.cfm).

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#### YOUNG ENGINEERS FIND WAYS TO HELP THE ELDERLY DRIVE SAFELY

This year's National Engineering Design Challenge(NEDC) asked teams of high school students to develop a new product to help the aging population determine when they can no longer safely operate a motor vehicle. This spring, winning teams from regional competitions held in Florida, Connecticut, New York, and West Virginia presented their designs and demonstrate a working model before a panel of engineer judges at the National Academy of Engineering in Washington, D.C. This year's NEDC topic was selected because the American population is getting older, and

the Census Bureau predicts the population over the age of 65 will increase by 60 percent in the next 20 years. The "graying of America" is a concern of the nation, so this year's NEDC problem

addressed an issue important to those with aging loved ones. The competition's winners were Upper St. Clair High School, St. Clair, PA; Gulliver Preparatory School, Miami, FL; Central High School, Bridgeport CT; and Saginaw Arts and Sciences Academy, Saginaw, MI.

The NEDC competition is an activity of Triangle Coalition member, the Junior Engineering Technical Society(JETS). It is a hands-on program in which high school students -- with the advice of a teacher/coach and volunteer engineer -- design and build a working model of a new product. To increase student interest and social understanding, the projects normally are consumer based and emphasize universal design. JETS is a national non-profit education organization that has served the pre-college engineering community for more than 50 years. Through its outreach programs and student competitions, JETS reaches nearly 30,000 middle and high school students(34 percent female and 22 percent minority) each year. Programs are held at about 2,500 high schools and on more than 125 college and university campuses in all 50 states, the Virgin Islands, and Puerto Rico. JETS students represent large urban and suburban high schools, as well as small remote and rural schools with fewer than 40 students. For more

information, visit [www.jets.org](http://www.jets.org).

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#### ENTER THE SIEMENS WESTINGHOUSE COMPETITION

The Siemens Westinghouse Competition in Math, Science & Technology recognizes remarkable talent early on, fostering individual growth for high school students who are willing to challenge themselves through science research. Through this competition, students have an opportunity to achieve national recognition for science research projects that they complete in high school. The competition is administered by The College Board and funded by the Siemens Foundation. The 2004-05 Siemens Westinghouse Competition is open to all high school students who would like to submit an original science and math research project. The deadline for entries is October 1, 2004. Online registration is available at [www.siemens-foundation.org](http://www.siemens-foundation.org). The Siemens Foundation provides more than \$1 million in college scholarships and awards each year for talented high school students in the United States. By supporting outstanding students today, and recognizing the teachers and schools that inspire their excellence, the Foundation hopes to help nurture tomorrow's scientists and engineers.

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#### 16TH ANNUAL YOUNG SCIENCE ACHIEVERS PROGRAM

The Young Science Achievers Program(YSAP)([www.young-science-achievers.com](http://www.young-science-achievers.com)) recently honored outstanding minority and female New Jersey and New York City high school students for their innovative research projects. This year, students from 27 New Jersey and New York area high schools participated in the Young Science Achievers Program. The first place award went to Alicia Crosby, Ileana Garcia, and Kristin Hornedo from the Young Women's Leadership School in New York, who studied the impact that society has on the ecological systems that support our planet. Anne Greenberg, from Woodbridge High School in Woodbridge, NJ, was named teacher of the year and received a \$1,000 prize for her commitment to science and technology education. Students researched a wide range of scientific and technology subject areas, including physics, biology, chemistry, computer science, and engineering. Projects were completed under the guidance of scientists from Bell Labs, the research and development arm of Lucent Technologies.

The Young Science Achievers Program(formerly known as the Bell Labs Science Grant Program), now in its 16th year, awards grants to African-American, Hispanic, Native-American, and female high school students for physics, computer science, chemistry, biology, and electrical engineering projects. In collaboration with AT&T Labs, the National Inventors Hall of Fame, and the New Jersey Science Teachers Association, the program is supported by the Lucent Technologies Foundation([www.lucent.com/news/foundation](http://www.lucent.com/news/foundation)) and the AT&T Foundation ([www.att.com/foundation](http://www.att.com/foundation)).

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#### TCEB LINKS

The following links provide additional information about articles in this TCEB:

Kennedy Space Center's "Enter the Firing Room" - <http://enterfiringroom.ksc.nasa.gov>

The Eisenhower Network - [www.mathsciencenetwork.org](http://www.mathsciencenetwork.org)

"What Experience Has Taught Us About Collaboration" - [www.mathsciencenetwork.org/collaboration.pdf](http://www.mathsciencenetwork.org/collaboration.pdf)

Eisenhower National Clearinghouse - [www.enc.org](http://www.enc.org)

Vernier Software & Technology - [www.vernier.com](http://www.vernier.com)

Council of Chief State School Officers - [www.ccsso.org](http://www.ccsso.org)

Center for Mathematics, Science, and Technology at Illinois State University(CeMaST) - [www.ilstu.edu/depts/cemast](http://www.ilstu.edu/depts/cemast)

RonJon Publishing, Inc. - [www.ronjonpublishing.com](http://www.ronjonpublishing.com)

PBS TeacherLine - [www.pbs.org/teacherline](http://www.pbs.org/teacherline)

Practice Learning Online with TeacherLine - [http://teacherline.pbs.org/teacherline/modules/learning\\_online.cfm](http://teacherline.pbs.org/teacherline/modules/learning_online.cfm)

JETS/National Engineering Design Challenge - [www.jets.org](http://www.jets.org)

Siemens Westinghouse Competition in Math, Science & Technology - [www.siemens-foundation.org](http://www.siemens-foundation.org)

Young Science Achievers Program - [www.young-science-achievers.com](http://www.young-science-achievers.com)

Lucent Technologies Foundation - [www.lucent.com/news/foundation](http://www.lucent.com/news/foundation)

AT&T Foundation - [www.att.com/foundation](http://www.att.com/foundation)

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**FAREWELL AND WELCOME, EINSTEIN FELLOWS**

The 2003-2004 Einstein Fellows have completed their fellowships. A poster session was held at the Library of Congress on June 23 to celebrate the close of a very productive year. Those of us at the Triangle Coalition would like to express our gratitude to all those who made this year a success for these hardworking K-12 educators. The new, incoming Fellows are in the process of moving to Washington, DC and finding new places to live for the 2004-2005 school year. This year's Fellows will be working at NASA, the National Science Foundation(NSF), the National Oceanic and Atmospheric Administration(NOAA), and on Capitol Hill. Stay tuned to the

Triangle Coalition website and future issues of the TCEB for further details on this group of outstanding science, math, and technology teachers.

The Albert Einstein Distinguished Educator Fellowship Program began in 1990 and offers current public or private elementary and secondary mathematics, technology, and science classroom teachers with demonstrated excellence in teaching an opportunity to serve in the national public policy arena. Fellows provide practical insight in establishing and operating education programs. Fellowships increase understanding, communication, and cooperation between legislative and executive branches and the science, mathematics, and technology education community. The Program and was formalized by the Albert Einstein Distinguished Educator Fellowship Act of 1994. For more information on the Einstein Fellows Program, visit [www.trianglecoalition.org/ein.htm](http://www.trianglecoalition.org/ein.htm).

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**ENERGY DEPARTMENT SCIENCE EDUCATION INITIATIVE LAUNCHED**

The U.S. Department of Energy(DOE) and its national laboratories are launching STARS: Scientists Teaching and Reaching Students -- an initiative to promote science literacy and help develop the next generation of scientists and engineers. The program is designed to enhance the training of America's mathematics and science teachers, grow students' interest in science and math, and draw attention to DOE women and men who through their accomplishments encourage young people and prospective teachers to pursue careers in math and science. The initiative contains several actions including:

A pilot DOE Laboratory Science Teacher Professional Development program to bring K-12 teachers and community college faculty instructors to seven of DOE's national labs.

The expansion of DOE's Argonne National Laboratory's "Ask A Scientist" website ([www.newton.dep.anl.gov/aas.htm](http://www.newton.dep.anl.gov/aas.htm)).

A new "What's Next?" conference this fall to bring together scientists and corporate innovators to demonstrate breakthrough technologies and science.

Career Day Programs for DOE scientists to visit local schools to conduct hands-on experiments and discuss career opportunities.

Science Appreciation Days to bring one thousand fifth-graders and one thousand eighth-graders to DOE facilities each year for a day.

More information about all of the components of the U.S. Department of Energy's science education initiative may be found at [www.science.doe.gov](http://www.science.doe.gov).

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**NEW STUDY FINDS OVER 60% OF THE NATION'S TOP SCIENCE AND MATH STUDENTS ARE CHILDREN OF IMMIGRANTS**

New research from the National Foundation for American Policy(NFAP), an Arlington, VA based public policy group, shows that 60% of the nation's top science students and 65% of the top math students are the children of immigrants. The research also shows that foreign-born high school students make up 50% of the 2004 U.S. Math Olympiad's top scorers, 38% of the U.S. Physics Team, and 25% of the Intel Science Talent Search finalists. The foundation produced these findings after conducting more than 50 interviews and examining the immigration backgrounds of top U.S. high school students. The study, "The Multiplier Effect," can be found at [www.nfap.net](http://www.nfap.net). Key findings include:

60% of the finalists of the Intel Science Talent Search(24 of 40) and 65% of the U.S. Math Olympiad's top scorers(13 of 20) are the children of immigrants. 46% of U.S. Physics Team members(11 of 24) are the children of immigrants.

Seven of the top 10 award winners at the 2004 Intel Science Talent Search were immigrants or the children of immigrants. In 2003, three of the top four awardees were foreign-born.

Nearly a quarter(9 of 40) of Intel Science Talent Search finalists' parents came to America as international students. 20%(4) of the U.S. Math Olympiad top scorers' parents entered first as international students.

Foreign-born high school students make up 50% of the 2004 U.S. Math Olympiad's top scorers, 38% of the U.S. Physics Team, and 25% of the Intel Science Talent Search finalists.

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INNOVATIVE EDUCATION PRACTICES HIGHLIGHTED IN NEW BOOKLET

Eight of the nation's highest-achieving charter schools are featured in the U.S. Department of Education's new booklet "Innovations in Education: Successful Charter Schools," which highlights promising practices in Education. The schools highlighted include Houston's Knowledge Is Power Program(KIPP) Academy; the BASIS School in Tucson, AZ; Gates Charter Language School in Lake Forest, CA; Oglethorpe Charter School in Savannah, GA; Arts and Technology Public Charter School in Washington, DC; School of Arts and Sciences Charter School in Tallahassee, FL; Roxbury Preparatory Charter School in Roxbury, MA; and Community of Peace Charter School in St. Paul, MN. Charter schools are independent public schools of choice designed and operated by educators, parents, community leaders, and educational entrepreneurs. The first U.S. public charter school opened in 1992. Almost 3,000 charter schools serve nearly 750,000 students in 37 states and Washington, DC. Charter schools are given greater flexibility in return for strict accountability for improving student achievement. The U.S. Department of Education's Office of Innovation and Improvement created the guide to share practical advice and concrete examples from schools which are meeting state standards of accountability for performance results of all students, as required by the No Child Left Behind Act. All of the schools have improved student achievement over the past three years. The guide is divided into two parts: the first section provides an overview of common elements of these excellent schools, including: organizational structure; leadership and mission; innovative curricula and programs; efforts to promote a community of continuous learning; partnerships

with parents and the community; and accountability for results. The second section provides rich descriptions about each of the schools featured. "Innovations in Education: Successful Charter Schools" may be viewed at [www.ed.gov/admins/comm/choice/charter](http://www.ed.gov/admins/comm/choice/charter). The guide is the third of six booklets on promising and innovative education practices to be released this year.

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STUDENT SPACE SETTLEMENT DESIGN CONTEST WINNERS VISIT NASA

Local and international student winners of the NASA Space Settlement Contest recently visited NASA Ames Research Center(Moffett Field, CA) to present their visions of where and how people will live in the future. The annual contest challenges students to design all aspects of an orbital space colony, from the colony's structural design, atmosphere regulation, and waste management, to how the colony will keep its inhabitants happy and healthy. The 2004 grand prize was awarded to Flaviu Valentin Barsan, Andrei Dan Costea, and Carmen Maria Sigovan from Constantza, Romania, for their submission 'LEDA.' United States entries were received from California, Colorado, Florida, Illinois, Missouri, New Hampshire, New Mexico, New York, Tennessee, and Virginia. Other international entries were received from Germany, India, Japan, Malaysia, Pakistan, and Romania. A total of 122 submissions were received from 444 students. Founded in 1994, the contest is designed to spark a student's interest in math and science and to develop the ideas and skills to make orbital colonies a reality. The contest also is a key component of NASA's efforts to inspire the next generation of explorers. The contest is judged by scientists and engineers from NASA's Fundamental Space Biology Program and is funded by NASA's Office of Biological and Physical Research, which investigates fundamental biological processes through space flight and ground-based research. For more information about the Space Settlement Contest, visit <http://lifesci3.arc.nasa.gov/SpaceSettlement/Contest>. More information about NASA's Office of Biological and Physical Research may be found at <http://spaceresearch.nasa.gov>. NASA is a member of the Triangle Coalition.

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MORE TEXANS TAKING NEW PATH TO TEACHING  
(Source: The Dallas Morning News, June 11, 2004)

A new breed of teacher is starting to dominate the ranks of educators entering Texas classrooms. In a historic shift from the past, a majority of first-year teachers last year came from nontraditional sources as school districts turned to the private sector to fill a greater number of their vacancies, state researchers have found. It was the first time in Texas that most rookie teachers did not come from the class of new college graduates. "The growth of alternative certification has been particularly strong," said a study by the State Board for Educator Certification. "This route appears to be on track to become the primary source of new teachers in Texas within the next 10 years."

Some educators say the trend was inevitable because colleges cannot produce enough teacher graduates to meet needs; others have misgivings about the ability of alternative programs to turn out teachers who will stick with the profession. While 70 percent of first-year teachers in 2000 were recent college graduates with traditional training, that number slipped to just 46 percent in

2003, the lowest percentage ever seen in the state. Of the 20,528 new teachers hired last year, a solid majority -- 54 percent -- received their training through a nontraditional route. Most of those enrolled in an alternative certification program, while others independently took teacher-preparation classes part-time in a college or university. "Combined, these two nontraditional routes produced the majority of beginning teachers in the state in 2003. In addition, alternative certification programs are producing the majority of male teachers, minority teachers, and teachers certified in most shortage subject areas," said the study, analyzing the characteristics of first-year teachers from 1999 to 2003.

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#### TOP MCAS SCORERS ELIGIBLE TO GET FREE STATE TUITION

(Source: Boston Herald, June 16, 2004)

Students who place in the top 25 percent of MCAS(Massachusetts Comprehensive Assessment System) scores will be eligible for four years of free tuition at any state(Massachusetts) school under a new scholarship program approved by the Board of Higher Education. "It opens up opportunities for all(school) districts," said Governor Mitt Romney, who proposed the John and Abigail Adams Scholarship. Students graduating high school next year will be the first eligible class for the scholarship, which will cost \$8.3 million now and \$34 million in four years. The estimated 17,000 qualified students would still be on the hook for fees, which are assessed by individual campuses and are generally higher than tuition. Tuition this year ranges from an average \$740 at community colleges up to \$1,700 at the University of Massachusetts-Amherst, where fees are \$5,800. Room and board make a year at the campus cost nearly \$15,200. Romney said the scholarship would also improve schools by attracting brighter students. UMass President Jack M. Wilson agreed, saying, "We think it will bring good students." Two Board of Higher Education members voted against Romney's plan, saying the scholarships would benefit wealthier students, who are more likely to score high on the Massachusetts Comprehensive Assessment System exam. "Children from Chelsea and Lawrence and Lynn are not going to get the same chance," said Kathleen Kelley, a board member and president of the Mass. Federation of Teachers. But Romney said the wealthier students would likely shun the offer of free tuition since they infrequently choose public higher education.

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#### GRADUATE STUDENT ENROLLMENT AND POST-DOCS REACH NEW PEAKS IN SCIENCE AND ENGINEERING, BUT FIRST-TIME ENROLLMENT OF FOREIGN STUDENTS DECLINES

The National Science Foundation(NSF) reports that more students than ever were enrolled in science and engineering(S&E) graduate programs in fall 2002. The 455,400 S&E graduate students enrolled that year surpassed, by 6%, the previous peak in 1993. The number of post-doctoral appointments (post-docs) in academic institutions also reached a new peak at 32,100 in 2002, up 6% from 2001. The numbers represent the first national data on graduate S&E enrollment since the 9/11 terrorist attacks and shed light on the fate of students on temporary visas(foreign students) in the wake of those events. While graduate enrollment of foreign students in S&E fields increased by 8% to an all-time high in 2002, full-time, first-time graduate enrollment of foreign students in these fields declined by about 2,100(7.9%) in 2002. Full-time, first time enrollment of foreign students fell in most S&E fields with the largest

decreases in computer sciences(almost 15%) and earth, atmospheric, and ocean sciences(about 8%). In contrast, full-time, first-time S&E graduate enrollment increased almost 14% for U.S. citizens and permanent residents. Overall, the declines in total graduate S&E enrollment from 1994 through 1998 have reversed with gains in enrollment every year since 1999. The proportion of women among S&E graduate students grew from 35% in 1992 to more than 41% in 2001 and 2002, as female enrollment increased each year. Other topics covered in the report, "Graduate Enrollment in Science and Engineering Fields Reaches a New Peak; First-Time Enrollment of Foreign Students Declines," include trend data since 1992 for graduate enrollment by citizenship, enrollment status, sex, race/ethnicity, and S&E field, and for post-docs by citizenship. The report is available at [www.nsf.gov/sbe/srs/infbrief/nsf04326/start.htm](http://www.nsf.gov/sbe/srs/infbrief/nsf04326/start.htm).

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[www.trianglecoalition.org/ein.htm](http://www.trianglecoalition.org/ein.htm) - (<http://www.trianglecoalition.org/ein.htm>)

U.S. Department of Energy's Science Education Initiative - [www.science.doe.gov](http://www.science.doe.gov) -  
(<http://www.science.doe.gov/>)

DOE's Argonne National Laboratory's "Ask A Scientist" website -  
[www.newton.dep.anl.gov/aas.htm](http://www.newton.dep.anl.gov/aas.htm) - (<http://www.newton.dep.anl.gov/aas.htm>)

"The Multiplier Effect" Study - [www.nfap.net](http://www.nfap.net) - (<http://www.nfap.net/>) -  
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U.S. Department of Education Booklet "Innovations in Education: Successful Charter Schools" -  
[www.ed.gov/admins/comm/choice/charter](http://www.ed.gov/admins/comm/choice/charter) - (<http://www.ed.gov/admins/comm/choice/charter>)

NASA Space Settlement Contest - (<http://lifesci3.arc.nasa.gov/SpaceSettlement/Contest>)

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