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**To:** FCIEEE<r3-fl-council@ieee.org>  
**Date:** January 25, 2005  
**Subject:** Educational Activities Committee Report to the  
Winter Meeting of the Florida Council of the I.E.E.E.  
NOVA/Southeastern University Student Ctr, Orlando, FL-Sat., Jan. 29, '05

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## FIRST NATIONAL NO CHILD LEFT BEHIND RESEARCH-TO-PRACTICE SUMMIT

In late July, U.S. Secretary of Education Rod Paige welcomed more than 150 teachers from every grade level, academic discipline, and nearly every state in the nation to the first-ever National Research-to-Practice Teacher Summit. The summit teamed up leading education researchers and teachers who have successfully put research into practice in the classroom and asked them to demonstrate their strategies in reading, mathematics, science, and the arts at the summit. The goal was to improve student learning for all students and to close the achievement gap by providing summit participants with the latest information about what works in the classroom. Participating teachers from around the country will then share what they've learned with colleagues in their schools and districts.

The national summit is part of the Bush administration's Teacher-to-Teacher initiative, which also includes seven regional workshops, roundtable discussions with teachers about the support they need to meet the academic needs of their students, a teacher toolkit, and electronic e-byte updates to provide useful information to teachers. To reach as many teachers and educators as possible, the U.S. Department of Education will make 10 of the best sessions from the workshops and summit available via the Internet and on satellite television. More information about the tapes will be available by the start of the coming school year. For a fact sheet on the Teacher-to-Teacher initiative, visit [www.ed.gov/teachers/dev/contedu/initiative/factsheet.html](http://www.ed.gov/teachers/dev/contedu/initiative/factsheet.html).

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## BOEING LAUNCHES TEACHERS INTO SPACE CAMP

Thirty-four elementary and high school teachers from around the world enhanced their knowledge of math, science, and space at the 13th Annual Boeing Educators to SPACE CAMP in mid July at the U.S. Space & Rocket Center in Huntsville, AL. Through interactive classroom assignments, special tours and lectures, and hands-on team activities, the Boeing program provides educators with many of the resources they need to inspire and motivate their students to learn more about math, science, and space. While in Huntsville, teachers from 15 states including Hawaii and Alaska will take part in a week-long series of exercises that include simulated space missions, astronaut training, and lectures by experts in rocketry and space exploration. Graduation ceremonies were held July 18, in recognition of the 35th anniversary of the first moon landing during Apollo 11 in 1969.

Besides experiencing the rigors of astronaut training, the teachers networked with their colleagues and took back their enthusiasm and knowledge to share with the young minds in their

classrooms. Since 1992, more than 300 teachers have taken part in the program, reaching more than 23,000 students. Boeing's ongoing commitment to education includes charitable investments in early learning through 12th grade, and higher education in 29 U.S. states, as well as in primary and secondary education in 14 countries and two multi-country regions outside the United States. Boeing is committed to strategically focusing their investments by concentrating on teacher effectiveness especially in the areas of math, science, and literacy, and in school leadership. For more information about Space Camp, visit [www.spacecamp.com](http://www.spacecamp.com). For more information on Boeing, visit [www.boeing.com](http://www.boeing.com).

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CHRISTOPHER COLUMBUS AWARDS CHALLENGES TEAMS OF MIDDLE SCHOOL STUDENTS

The Christopher Columbus Awards, a free award program which challenges middle school students to explore opportunities for positive change in their communities, has announced the program's Call for Entries for the 2004-2005 school year. For the program, teams of up to four students and a coach will identify a community issue and use the scientific process to solve it. The award program is now in its ninth year, and has attracted over 12,000 students from all across the United States. Past winners have included a group of Native American girls who built a study hall out of straw on the Crow Indian Reservation in Montana, and a group of students from Pennsylvania who developed a handheld grocery scanner that quickly deciphers food labels to detect whether the item contains allergens such as dyes or nuts. Many teams have gone on to develop patents on their ideas. Some entrants have decided to major in science in college as a result of becoming involved in the program.

The program attracts many students who may not typically enter a science competition. More than half of the entrants are girls, and more than a fourth are from diverse ethnic and cultural backgrounds. The Christopher Columbus Fellowship Foundation's Board of Trustees believes the teamwork aspect and community focus encourages a broader range of students to enter. The program is sponsored by the Christopher Columbus Fellowship Foundation with support from the National Science Foundation. It is endorsed by the National Middle School Association. Coaches may be teachers, parents, community leaders, or mentors. Teams do not need to be affiliated with a school to enter. More details and a complete list of past winners can be found at [www.christophercolumbusawards.com](http://www.christophercolumbusawards.com).

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NIH LAUNCHES EXPANDED HEALTH INFORMATION WEB SITE

The National Institutes of Health(NIH) has announced the launch of an expanded health information website at <http://health.nih.gov>. The expanded site now offers links to a wider range of NIH's valuable resources, features colorful images to highlight an intriguing range of useful features, and gives readers the chance to test their health knowledge. Visitors can still access the popular A to Z listing of health topics, browse topics by body location/systems, or use the main Search box. Favorite health databases, such as Clinical Trials, MEDLINEplus, and PubMed, remain one click away.

The website includes three new feature sections. "Healthy Lifestyles" highlights links to popular topics such as seasonal health concerns, nutrition, and weight loss. "Research In Action" links users to cutting-edge scientific information on topics such as stem cells and genetics, and provides readers with an opportunity to meet scientists ranging from high school students to Nobel Laureates. "Now Online" emphasizes interactive features and web exhibits, such as the Portion Distortion quiz, the Household Products Database, and the Milk Matters campaign. A new "Take a Quiz" box challenges viewers to test their knowledge with a series of continually rotating true/false questions on hot topics such as diabetes, osteoporosis, cancer prevention, and heart disease. The newly expanded NIH health information site has information geared for the whole family, including kids, teens, parents, and seniors. Educators, clinicians, and researchers will also continue to find the site a valuable resource of tools and guidelines.

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NATION'S LEADING STATE EDUCATION OFFICIALS GATHER IN MASSACHUSETTS

Triangle Coalition member, the Council of Chief State School Officers(CCSSO), held its annual Summer Institute in mid-July in Cambridge, MA. Organized around the theme "Improving Instructional Practice: A New Commitment to Students and Teachers," the Institute brought together the nation's state-level commissioners and superintendents of education to discuss high quality teacher professional development and partnerships that can help improve instructional practice. During the Institute, chief state school officers explored how student needs are changing and how teaching must also change to meet the demands of a new economy and the expectation that every child must learn to high levels. Classroom instruction is one of the most powerful influences on student performance, and investment in ongoing teacher professional development is one of the most powerful levers states have to improve classroom instruction. At the Institute, chiefs developed and shared ideas for state level actions and partnerships than can improve overall systems of teacher professional development. Held annually, the Summer Institute is the premier professional development conference for chief state school officers. The Institute provides chiefs the opportunity to interact with nationally recognized researchers and experts in the various fields impacting education.

The Council of Chief State School Officers(CCSSO) 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 U.S. 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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LUCENT TECHNOLOGIES' SIXTH ANNUAL GLOBAL SCIENCE SCHOLARS SUMMIT

The sixth annual Global Science Scholars Summit was held in late July at Lucent Technologies' headquarters in Murray Hill, NJ. This year's 55 students came from 14 countries outside the United States -- Brazil, Canada, China, France, Germany, India, Korea, Mexico, the Netherlands, Poland, Russia, Saudi Arabia, Spain, and the United Kingdom -- and twelve US states. Students

were selected to receive the Lucent Global Science Scholars award and attend the summit for their achievements in science and math. Sponsored by the Lucent Technologies Foundation, the Global Science Scholars program supports exceptional students who are planning to pursue careers in information and communications technologies. During the weeklong summit, students interacted with Bell Labs scientists and researchers, toured laboratories, attended panel discussions, and participated in a cross-cultural event designed to learn more about the scholars' diverse cultures.

The scholars also worked alongside Bell Labs scientists and conducted research into areas including silicon micromachines, dense wavelength division multiplexing, molecular beam epitaxy, plastic electronics, biomimetics, and large-scale data analysis. Among the honorees are students who have participated in prestigious math and science competitions, graduated as valedictorians of their class, received National Merit Scholarships, have patents pending, have published papers, and held leadership positions on sports teams and in other clubs at their schools. The Global Science Scholars competition is open to all US high school students, and to students at selected universities in 14 countries outside the United States. In addition to receiving an expense-paid trip to the Summit, students receive a \$5,000 award and are offered a paid internship at a Lucent location in their home country, where possible, in the year following their selection. For a complete list of this year's scholars, visit [www.lucent.com/social/2004GSS.html](http://www.lucent.com/social/2004GSS.html).

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**2005 NATIONAL MEDAL OF SCIENCE NOMINATIONS**

The Medal of Science is the one of the Nation's highest honors for scientists and engineers, and is presented annually by the President of the United States. It was established by the 86th Congress in 1959 as a Presidential Award to be given to individuals "deserving of special recognition by reason of their outstanding contributions to knowledge in the physical, biological, mathematical, or engineering sciences." In 1980 Congress expanded this recognition to include the social and behavioral sciences. A committee of 12 scientists and engineers is appointed by the President to evaluate the nominees for this Award.

Since its establishment, the National Medal of Science has been awarded to distinguished scientists and engineers whose careers spanned decades of research and development. There are numerous younger American scientists and engineers, many of them women and minorities, now reaching the point where their contributions are worthy of recognition. The committee is currently seeking nominations for the 2005 awards. More information is available at [www.fastlane.nsf.gov/honawards](http://www.fastlane.nsf.gov/honawards).

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**"WHAT WORKS" RESEARCH SITE UNVEILED**

(Source: Education Week, July 14, 2004)

After nearly two years in development, a new federally backed research service on "what works" in education began rolling its first products off the assembly line last week. Launched with \$18.5 million in funding from the U.S. Department of Education, the newly operational What Works Clearinghouse([www.whatworks.ed.gov](http://www.whatworks.ed.gov)) is the department's electronic version of a

Consumer Reports for research in education. Part of the Bush administration's push to transform education into an evidence-based field, the clearinghouse has the job of vetting research on programs and strategies and publishing the results on a website where practitioners and policymakers can easily find them.

Already on the rise, demand for research-backed educational programs stepped up with the advent of the No Child Left Behind Act. The federal law puts a heavy emphasis on "scientifically based" research in education, requiring schools that receive federal money for serving needy students to use proven programs for most aspects of their education programs. The clearinghouse products unveiled on June 30 won't immediately answer all of educators' questions about which interventions are scientifically based. They are limited for now to 10 "study reviews" of specific experiments on two topics: peer-assisted learning strategies and middle school mathematics programs.

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TCEB LINKS

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

Teacher-to-Teacher Initiative - [www.ed.gov/teachers/dev/contedu/initiative/factsheet.html](http://www.ed.gov/teachers/dev/contedu/initiative/factsheet.html)

Space Camp - [www.spacecamp.com](http://www.spacecamp.com)

Boeing - [www.boeing.com](http://www.boeing.com)

University of Nevada, Las Vegas - [www.unlv.edu](http://www.unlv.edu)

Research Council on Mathematics Learning - [www.unlv.edu/RCML](http://www.unlv.edu/RCML)

School Science and Mathematics Association - [www.ssma.org](http://www.ssma.org)

Christopher Columbus Awards - [www.christophercolumbusawards.com](http://www.christophercolumbusawards.com)

National Institutes of Health's Health Information Website - <http://health.nih.gov>

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

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

National Medal of Science - [www.fastlane.nsf.gov/honawards](http://www.fastlane.nsf.gov/honawards)

What Works Clearinghouse - [www.whatworks.ed.gov](http://www.whatworks.ed.gov)

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EDUCATION DAY AT WORLD RENEWABLE ENERGY CONGRESS VIII

August 31 is Education Day at the World Renewable Energy Congress and Exposition VIII. The World Renewable Energy Congress is the world's premier conference on renewable energy. Each year the event is held in a different country. Denver, CO is the site of this year's Congress, which runs August 29 through September 3. The goal for Education Day is to provide teachers with curricular tools and students with hands-on renewable energy science activities that will teach them about fuel cell, wind, and solar energy. Several educator workshops will be held, along with multiple exhibits at an education pavilion featuring renewable energy education materials and activities. Other exhibits offer educators a unique glimpse at the global future of renewable energy. Education Day is free to educators and students.

One featured exhibit, Renewable Energy and Efficiency Education on Wheels(RnE2EW), is designed to educate students, teachers, and the community about renewable energy and efficiency sciences. The exhibit will showcase US Department of Energy and National Renewable Energy Laboratory(NREL) research and technology in relation to renewable energy and efficiency.

The RnE2EW program consists of a customized 23 foot bus and trailer. The bus is outfitted with media electronics, displays, and workstations designed around renewable energy and efficiency themes. The trailer demonstrates renewable energy technology and systems. For more information on the Congress and about Triangle Coalition member, NREL, visit [www.nrel.gov](http://www.nrel.gov).

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THE WORLD YEAR OF PHYSICS

On July 7, the House of Representatives passed a resolution in support of physics and physics education. The World Year of Physics in 2005 will be an international celebration of the field, timed to honor the 100th anniversary of the publication of Albert Einstein's groundbreaking papers on the special theory of relativity, the photoelectric effect, and Brownian motion. In the United States, the American Physical Society, the American Association of Physics Teachers, and Triangle Coalition member, the American Institute of Physics, are leading efforts to organize events during the year, but individual scientists, teachers, physics departments, laboratories, science museums, and other groups are encouraged to plan local events in their communities.

"This resolution encourages the American public to take note of the physics used every day and encourages them to learn more about it," said its sponsor, Rep. Vern Ehlers(R-MI). "I hope that the American people will observe the World Year of Physics by supporting physics education and research. I encourage physicists and educators to engage the public, especially the children, in physics to inspire the next generation of scientists and engineers." "Through physics," explained Congressman Rush Holt(D-NJ), "we can explore the diverse phenomena from the existence of black holes to the composition of the atom and nucleus. Understanding mechanics, gravity, and propulsion allowed us to develop machinery, bridges, and rockets while knowledge about electricity and magnetism and matter led to lasers, light bulbs, telescopes, fiber optics, the Internet, and the huge market of consumer electronics." "Physics research will help us to solve major new challenges in homeland security and find new energy sources," Holt added. More information on the World Year of Physics can be found at [www.physics2005.org](http://www.physics2005.org).

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ANNENBERG/CPB OFFER EDUCATORS FREE VIDEO PROFESSIONAL  
DEVELOPMENT COURSES

This fall the Annenberg/CPB Channel presents "Essential Science for Teachers: Earth and Space Science" and "Rediscovering Biology: Molecular to Global Perspectives," two free video professional development courses for teachers. "Essential Science for Teachers: Earth and Space Science" is designed to help K-6 teachers gain an understanding of some of the bedrock science concepts they need to teach today's standards-based curricula. Real-world examples, demonstrations, animations, still graphics, and interviews with scientists compose content segments that are intertwined with in-depth interviews with children that uncover their ideas about the topic at hand. Each program also features an elementary school teacher and his or her students exploring the topic using exemplary science curricula. "Essential Science for Teachers: Earth and Space Science," an 8-part course, will air on the Annenberg/CPB Channel Wednesdays, September 15 - November 10.

"Rediscovering Biology: Molecular to Global Perspectives" explains recent developments in the field of biology for teachers of high school biology to update their content knowledge and understanding. The multimedia course materials -- video, online text, interactive web activities, and course guide -- will help new and veteran biology teachers become familiar with current research methods and tools that will lead to new discoveries in the coming decades. The videos feature interviews with expert scientists involved in groundbreaking research, such as Eric Lander of the MIT Genomics Center and Rita Colwell, director of the National Science Foundation. "Rediscovering Biology: Molecular to Global Perspectives," a 13-unit course, will air on the Annenberg/CPB Channel Wednesdays, October 6 - November 17. To register or download print support materials, visit [www.learner.org/channel/workshops/register\\_info.html](http://www.learner.org/channel/workshops/register_info.html). Optional credit is also available.

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US GRADUATE SCIENCE AND ENGINEERING STUDENTS EMBARK ON RESEARCH  
EXPERIENCES IN EAST ASIA AND AUSTRALIA

The National Science Foundation's(NSF) 2004 East Asia and Pacific Summer Institutes Program for US Graduate Students(EAPSI) has offered a unique opportunity to 150 advanced science and engineering students this summer in Australia, China, Japan, Korea, and Taiwan. NSF is supporting these students as they conduct research with foreign counterparts in fields such as cancer research, humanoid robotics, computational neuroscience, and nanofabrication. For example, Matthew Averill, a graduate student at the University of Texas at El Paso, is working on earthquake prediction with researchers at the University of Tokyo. Sarah Rothenberg from the University of California, Los Angeles, is working on modeling urban water demand at China's Institute of Geographical Sciences and Natural Resources.

The summer institutes last approximately eight weeks. Each EAPSI awardee receives an international round-trip air ticket and a stipend of \$3,000 from NSF. Sponsoring organizations in these East Asia and the Pacific communities support students' local living expenses. NSF administers and manages the EAPSI program through its Office of International Science and

Engineering. The National Institutes of Health co-sponsors the summer institute in Japan. Applications are now being sought for 2005 summer institutes. The deadline for submitting those applications is December 10, 2004. For a complete list of 2004 EAPSI awardees and research areas, visit [www.nsf.gov/pubsys/ods/getpub.cfm?eapsi04](http://www.nsf.gov/pubsys/ods/getpub.cfm?eapsi04); for general program information, visit [www.nsf.gov/pubsys/ods/getpub.cfm?nsf03608](http://www.nsf.gov/pubsys/ods/getpub.cfm?nsf03608).

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#### REALLY NEAT NASA EXPERIENCE

NASA's Educator Astronaut Program recently hosted a gathering at Johnson Space Center(JSC) of 160 science and math educators from around the nation. These teachers are part of the Network of Educator Astronaut Teachers(NEAT) and were selected from a group of 1,600 educators who applied to be educator astronauts and received superior marks on their applications. Connie Hollingsworth, NASA manager of the Educator Astronaut Program, described this conference as a chance to recognize "outstanding educators for their enthusiasm, leadership skills, and commitment to educational excellence, and, in addition, to facilitate communication between NASA and the K-12 community." Top NASA officials were on hand to share their perspectives on education. The 2004 astronaut class, who reported to JSC for training the same week, shared stories about the teachers who inspired them, reinforcing the theme for the week: "Inspiring the next generation of explorers." Workshops, tours, and briefings, which included a reception in honor of the teachers, were planned to keep the educators busy throughout the week. At a "share-a-thon," the educators gave each other creative teaching techniques and activities to apply back home.

On one of the behind-the-scene tours at JSC, the teachers got the opportunity to stand in the historic Mission Control room in Building 30. "Standing in the Apollo control room has been the most inspiring thing at NASA because I was able to be in a room where life-changing events took place," said Aldo Cos, an eighth-grade teacher in California. As much as the teachers may have learned during the conference, NASA will benefit in turn from their creativity, perseverance, and commitment. "I believe in my heart that you all are the ones that are going to inspire NASA, as well as our nation," said Kent Rominger, Chief of the Astronaut Office. For more information on Triangle Coalition member, NASA, and its Network of Educator Astronaut Teachers, visit [www.nasa.gov](http://www.nasa.gov).

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#### AMERICAN NUCLEAR SOCIETY HOSTS TEACHER WORKSHOP TO ENCOURAGE YOUTH CAREERS IN INDUSTRY

The fiftieth anniversary meeting of Triangle Coalition member, the American Nuclear Society(ANS), was held in June in Pittsburgh, PA. As part of the conference, science educators attended a one-day workshop titled "Detecting Radiation in Our Radioactive World." The workshop connected the members of the American Nuclear Society to the middle and high school teachers who will cultivate the next generation of professional scientists and engineers. Specialists from NASA, University of Florida, Penn State University, Idaho National Laboratory, and Westmoreland Hospital were on hand to provide valuable information and hands-on activities for teaching about radiation, radioactivity, and nuclear technology in

classrooms.

Participants received free analog Geiger Counters to use with their students, along with other visual materials and experiments. The American Nuclear Society([www.ans.org](http://www.ans.org)) is a not-for-profit, international, scientific, and educational organization. ANS has a diverse membership composed of 10,500 engineers, scientists, administrators, and educators who seek to exchange scientific and technical research, encourage scholarship, and disseminate information on nuclear science and technology. The American Nuclear Society's Public Education Program provides current information on nuclear-related topics to educators, students, and the public. ANS resources include the "About Nuclear" website(<http://www.aboutnuclear.org/>), printed publications, and the ReActions newsletter.

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CONFERENCE CALENDAR

The Triangle Coalition maintains an online conference calendar at [www.trianglecoalition.org](http://www.trianglecoalition.org) with links to many educational events, including the following:

- August 12-14: Mathematical Association of America Annual National Meeting:  
"MathFest," Providence, RI
- August 18-24: 2004 Interactive Technologies Conference, Society for Applied Learning  
Technology, Arlington, VA
- August 22-26: American Chemical Society National Meeting, Philadelphia, PA
- August 29 - September 3: World Renewable Energy Congress and Exposition, Denver, CO
- September 7-10: 3rd ASEE International Colloquium on Engineering Education, Beijing,  
People's Republic of China
- October 10-16: Earth Science Week 2004, American Geological Institute

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TCEB LINKS

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

World Renewable Energy Congress and Exposition - [www.nrel.gov](http://www.nrel.gov)

World Year of Physics - [www.physics2005.org](http://www.physics2005.org)

Annenberg/CPB Channel Professional Development Courses -  
[www.learner.org/channel/workshops/register\\_info.html](http://www.learner.org/channel/workshops/register_info.html)

International Technology Education Association - [www.iteawww.org](http://www.iteawww.org)

NSF 2004 East Asia and Pacific Summer Institutes Program -  
[www.nsf.gov/pubs/ods/getpub.cfm?nsf03608](http://www.nsf.gov/pubs/ods/getpub.cfm?nsf03608)

NASA Network of Educator Astronaut Teachers - [www.nasa.gov](http://www.nasa.gov)

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

"About Nuclear" - [www.aboutnuclear.org](http://www.aboutnuclear.org)

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

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## CONVERGENCE: WHERE MATHEMATICS, HISTORY AND TEACHING INTERACT

Triangle Coalition member, The Mathematical Association of America(MAA), has launched an online magazine on the history of mathematics and its use in teaching, entitled "Convergence: Where Mathematics, History and Teaching Interact." The magazine has financial support from the National Science Foundation and has a target audience of teachers of grades 9-14 mathematics -- whether they are secondary teachers, two- or four-year college teachers, or college teachers preparing secondary teachers. The founding editors of the magazine are Victor J. Katz(University of the District of Columbia) and Frank Swetz(Penn State University, Harrisburg). The magazine will include:

Expository articles on the history of topics in the mathematics curriculum, which will frequently contain interactive components and color graphics. For example, an article on Conic Sections shows interactively how to generate these curves by slicing a cone with a plane and also how to use the slicing to determine the equations of the curves.

Translations of original sources, accompanied by commentary showing the context of the works. An initial example is a work of Frans van Schooten on geometric constructions using only a ruler(rather than the standard "ruler and compass").

Reviews of current and past books, articles, teaching aids, and websites on the history of mathematics that are of use to teachers.

Classroom suggestions showing how to use history in the teaching of a particular topic. For example, one classroom suggestion adapts Eratosthenes' method of measuring the earth for use in a geometry class.

Historical problems appearing in a section entitled "Problems from another time," with new problems appearing frequently.

What Happened Today in History?, listing "mathematical events" that happened on that date in history.

New and interesting quotations about mathematics, which will change daily.

An up-to-date guide to what is happening around the world in the history of mathematics and its use in teaching.

For more information, or to submit articles, contact Victor Katz at vkatz@udc.edu. Convergence can be accessed through the MAA home page, [www.maa.org](http://www.maa.org), or directly through <http://convergence.mathdl.org>.

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STUDENTS' INNOVATIONS HAVE WORLDWIDE IMPLICATIONS

Sixteen students from across the country have been named as 2004 Davidson Fellows, an honor accompanied by a \$50,000; \$25,000; or \$10,000 scholarship. The Davidson Institute for Talent Development, a national non-profit foundation that supports profoundly intelligent young people, established the Davidson Fellowship in 2001 to recognize and reward students under the age of 18 who have made significant achievements in science, technology, mathematics, music, literature, and philosophy. Each of the Fellows' projects must make a positive contribution to society. "The work completed by the 2004 Davidson Fellows could forever change the world," said Marie Capurro, director of programs and services at the Davidson Institute. "Students such as these are the ones who will lead future research, like developing the cure for AIDS, ending our dependence on fossil fuels and discovering new technologies. As a society, we could very well depend on their genius to address some of today's most important problems."

Cultivating such genius is not difficult, says the Davidson Institute, it just takes flexibility on the part of educators, guidance from mentors and, most importantly, support from parents. At present, nearly half of all gifted students are underachievers and, alarmingly, up to 20 percent of high school dropouts test in the gifted range. Further, there is no federal legislation that mandates gifted education nor are there cohesive infrastructures in place that help parents recognize -- and take advantage of -- resources to effectively advocate for gifted children. The absence of such practices stifles the development of highly intelligent youth, arguably the most under-served population in American schools today, and poses significant concerns regarding the development of future advances and inventions in all fields of study. Because most states do not have mandatory identification programs in place for all school districts, many parents and educators often times do not realize how bright their student actually is until he or she becomes a disciplinary problem or complains of being bored in school. For more information on the Davidson Institute for Talent Development, visit [www.davidson-institute.org](http://www.davidson-institute.org). To download 2005 Davidson Fellow application materials, visit [www.davidsonfellows.org](http://www.davidsonfellows.org).

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2004-05 SIEMENS WESTINGHOUSE COMPETITION IN MATH, SCIENCE & TECHNOLOGY

A signature program of the Siemens Foundation, the Siemens Westinghouse Competition in Math, Science & Technology is a leading research-based science and math competition for high school students. The competition awards college scholarships ranging from \$1,000 to \$100,000, and students may enter as individuals or as members of a team. More than 1,200 students registered for the 2003-04 competition and more than 70 students won scholarships. The competition attracts entries from America's finest high school scientists and mathematicians. The national winners of the 2003-04 competition were Yin Li of New York, NY, who made a significant advance in understanding how the brain works, and Mark and Jeffrey Schneider of South Windsor, CT, who created a computer model that could help identify ways to reduce the

spread of West Nile Virus.

Online registration for this year's competition has begun. The Siemens Westinghouse Competition is administered by the College Board. Entries are judged at the regional level by esteemed scientists and faculty at six leading research universities: Carnegie Mellon University; University of Notre Dame; University of California, Berkeley; Massachusetts Institute of Technology; Georgia Institute of Technology; and The University of Texas at Austin. The national finals will be held at the American Association for the Advancement of Science in Washington, DC, in December, and judged by a panel of prominent scientists and mathematicians. For more information, visit [www.siemens-foundation.org](http://www.siemens-foundation.org).

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#### ALGEBRA'S FOR EVERYONE NOW - EXPECTATIONS ARE RISING

(Source: USA TODAY, August 12, 2004)

As Chris Brooks remembers it, his algebra troubles began early. "It was one of those classes that if you didn't pay attention from the beginning, you were going to be lost," Brooks says. "And I didn't pay attention from the beginning." He's not alone. Brooks, a rising sophomore at Northern High School, says 20 of his friends joined him to retake algebra in summer school last month. A few probably wouldn't have set foot in algebra class if they'd had a choice and would have settled for a less challenging math course. But they didn't have a choice; every freshman in Baltimore must pass algebra these days. Once the sole concern of college-bound students, algebra is for everyone now. In Maryland as elsewhere, students will soon be denied diplomas if they can't pass an algebra test. Since the 1990s, schools nationwide have quietly begun requiring the course for more and more students, hoping they'll develop skills for college and a changing workplace -- not to mention everyday life, with its computer spreadsheets and cell phone plans.

Twenty-one states require students to pass algebra to graduate. Now they're prodding teachers and textbooks to reinvent it, stressing real-world situations while minimizing calculation and theoretical concepts that dogged students a generation ago. "It's not the way we learned it," says Baltimore summer school teacher Valerie Stamper, a baby boomer who attended high school 30 years ago, when most algebra textbooks were formula-driven. Stamper and many other teachers welcome the shift to more real-life problems, but some critics say it's not that simple. Schools, they say, are diluting algebra, making it almost unrecognizable and less useful for college-bound kids.

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#### DELTA EDUCATION PROVIDES SCIENCE KITS FOR NAEP SPRING '05 ASSESSMENT YEAR

Triangle Coalition member, Delta Education, LLC, will be manufacturing manipulative science kits for use with the National Assessment of Educational Progress (NAEP) printed tests. NAEP is also known as The Nation's Report Card. Delta Education develops inquiry-based science and math programs and resources for grades K-8 and works with educational publishers to develop investigation kits that complement their textbook content. Working with NAEP strengthens Delta's position as a leader in the inquiry-based educational

market and also highlights the movement to improve science and math education through an inquiry-based learning model. NAEP is one of several tests measuring science knowledge using hands-on assessment.

"Since testing has become such an important aspect of measuring students' achievement, it makes sense that the testing companies utilize hands-on, inquiry-based assessment," notes Grant Gardner, Executive Director of Delta Education, Custom Publishing. "Inquiry-based science is a very effective method of teaching and learning because it works for the many different learning styles of students. NAEP will help advance inquiry-based learning, because we'll be able to show, on a national level, how effective it is," Gardner adds. For more information about Delta Education, LLC, visit [www.delta-education.com](http://www.delta-education.com).

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### AACTE REPORT CALLS FOR ALL PRESCHOOL INSTRUCTORS TO HAVE BACHELOR'S DEGREES

The American Association of Colleges for Teacher Education(AACTE) has released a report, "The Early Childhood Challenge: Preparing High Quality Teachers for a Changing Society," which calls for major changes in how preschool educators are prepared to teach. The report recommends that all preschool teachers have bachelor's degrees in early childhood education. "Research shows us that the early years are the most important years in a child's intellectual development, but not all preschool teachers are adequately prepared to teach the diverse young children that populate their classrooms today," said David Imig, president and CEO of AACTE. "All preschool teachers should have bachelor's degrees in early childhood education, yet in fact, less than 40 percent of all preschool teachers have a four-year degree in any subject."

According to the council's report, the level of education of preschool teachers in the US ranges widely, from a GED(high school equivalency diploma) to master's degrees. Surveys of preschool teachers show that while 87 percent of preschool teachers in public schools have a bachelor's degree or higher, only 30 percent of teachers in Head Start programs and 39 percent of teachers in for-profit early childhood education centers have a bachelor's degree. The report outlines recommendations for constituents of the early childhood field, including professionals working with young children, schools, colleges, departments of education, policymakers, and the private sector. The report is available at [www.aacte.org](http://www.aacte.org).

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### HOME-SCHOOLING UP 29 PERCENT SINCE 1999

The National Center for Education Statistics(NCES) has released a new brief which outlines current home schooling trends in the United States. The brief used data from the 2003 National Household Education Surveys Program (NHES) to estimate the number of home schooled students in the United States in 2003 and to discuss the reasons parents decide to home school their children. The brief states that 1.1 million students were home schooled in 2003, up 29 percent since 1999. The increase in the home schooling rate(from 1.7 percent to 2.2 percent) represents about 0.5 percent of the 2002-03 school-age population. While data from the NHES cannot explain why home schooling was more prevalent in 2003 than in 1999, it can provide

insight into why parents home schooled their children in 2003. According to the brief, parents may have home schooled their children for a variety of reasons, but certain factors appear to have been more influential than others. Nearly two-thirds of home schooled students had parents who said that their primary reason for home schooling was either concern about the environment of other schools or a desire to provide religious or moral instruction.

Data from NHES can also be used to examine the student, family, and household characteristics of home schoolers. Upcoming NCES reports will use these data to study the characteristics of home schoolers, to compare the characteristics of home schooled students to those of public and private school students, and to see how home schooling rates may have changed between 1999 and 2003 for different segments of the student population. The new brief may be downloaded at <http://nces.ed.gov/pubs2004/2004115.pdf>.

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#### NATIONAL FILE FORMAT INITIATIVE

In a landmark announcement for students with sensory and other print disabilities, the U.S. Department of Education has endorsed the National Instructional Materials Accessibility Standard(NIMAS), version 1.0. The voluntary standard will guide the production and electronic distribution of flexible digital instructional materials such as textbooks so they can be more easily converted to Braille, text-to-speech, and other accessible formats. The report of the National File Format technical Panel, including the technical specifications for the National Instructional Materials Accessibility Standard(NIMAS), is available at [www.cast.org/ncac/nimas](http://www.cast.org/ncac/nimas).

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#### TCEB LINKS

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

"Convergence: Where Mathematics, History and Teaching Interact" - <http://convergence.mathdl.org>

Mathematical Association of America - [www.maa.org](http://www.maa.org)

Davidson Institute for Talent Development - [www.davidson-institute.org](http://www.davidson-institute.org)

2005 Davidson Fellows Program - [www.davidsonfellows.org](http://www.davidsonfellows.org)

National Science Teachers Association - [www.nsta.org](http://www.nsta.org)

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

Delta Education, LLC - [www.delta-education.com](http://www.delta-education.com)

AACTE Report, "The Early Childhood Challenge: Preparing High Quality

Teachers for a Changing Society" - [www.aacte.org](http://www.aacte.org)

National Center for Education Statistics Home Schooling Brief -  
<http://nces.ed.gov/pubs2004/2004115.pdf>

National Instructional Materials Accessibility Standard - [www.cast.org/ncac/nimas](http://www.cast.org/ncac/nimas)

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**ALBERT EINSTEIN DISTINGUISHED EDUCATOR FELLOWS BEGIN THEIR FELLOWSHIPS**

Twelve nationally selected science, math, and technology education teachers have started their fellowships. The US Department of Energy is sponsoring four fellows on Capitol Hill: Rob Culbertson, a physics teacher from Richmond, VA, is serving in Senator Joseph Lieberman's office; Mickie Flores, a chemistry teacher from Potsdam, NY, is serving in Senator Richard Durbin's office; Alfred Bird, a physics teacher from Charlestown, MA, is serving in Senator Daniel Akaka's office; and Diane Cherkerzian, a first-grade teacher from Brookline, MA, is currently interviewing with several Capitol Hill offices. The National Science Foundation is sponsoring five fellows: Carol Engelmann, an 8th grade science teacher from Omaha, NE, is serving with the Division of Elementary, Secondary and Informal Education(ESIE); David Kapolka, a math teacher from Grand Rapids, MI, is also serving with ESIE; Mark Klawiter, a chemistry teacher from Ladysmith, WI, is serving with the Division of Research, Evaluation and Communication(REC); Jenelle Hopkins, an earth science teacher from Las Vegas, NE, is serving with the Geosciences Directorate; and Mimi McClure, a middle school teacher from Apopka, FL, is serving with the Graduate Teaching Fellows in K-12 Education Program. The National Aeronautics and Space Administration(NASA) is sponsoring two fellows: John Henry, a technology education teacher from Woodbury, NJ, is serving with the Explorer Schools Program; Naveen Cunha, a fifth grade teacher from College Station, TX, is serving with the Educator Astronaut Program. Finally, the National Oceanic and Atmospheric Administration is sponsoring one fellow: Joyce Stark, a biology teacher from Sunnyside, WA, is serving with the Office of Education and Sustainable Development.

The Albert Einstein Distinguished Educator Fellowship Program was authorized by an act of Congress in 1994. The program is administered by the US Department of Energy and is coordinated by the Triangle Coalition for Science and Technology Education. The fellowship offers elementary and secondary mathematics, technology, and science teachers who have demonstrated excellence in teaching an opportunity to serve in the national public policy arena. Selected teachers spend a school year in a Congressional Office or a federal agency. Fellows provide practical insights and "real world" perspectives to policy makers and program managers developing or managing education programs. The fellowships increase understanding, communication, and cooperation between the mathematics, science, and technology education community and legislative and executive branches of the federal government. For more information on the Einstein Fellows Program and to read biographies of these highly accomplished educators, visit [www.trianglecoalition.org/ein.htm](http://www.trianglecoalition.org/ein.htm).

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## COUNTDOWN BEGINS TO CHOOSE AMERICA'S TOP YOUNG SCIENTIST OF THE YEAR

The countdown to choosing the nation's top young scientist has begun as Discovery Communications, Inc. has announced the 400 middle school students from around the country selected as semifinalists in the 2004 Discovery Channel Young Scientist Challenge(DCYSC). The DCYSC is a science contest for students in grades 5-8 and has a goal of encouraging the discovery, exploration, and communication of science and identifying the scientific trailblazers of tomorrow. The 400 semifinalists come from 41 states and Puerto Rico and were selected from a pool of 1,795 formal entries, and initially were chosen from a pool of 75,000 students who entered science fairs nationwide. The top six states represented in the 400 are Florida(53), Texas (36), California(35), Missouri(16), Arizona(15), and Ohio(15). The 400 semifinalists are split nearly evenly between girls and boys and range in age from 10 to 15.

The 400 projects selected to advance to the semifinals run the scientific gamut, from biochemistry to physics, from zoology to health, and from mathematics to engineering. All the projects were developed with clear-eyed precision and showcased a level of complexity that might make the average adult's head spin. Beyond the originality and excellence of these projects, semifinalists were also chosen for their ability to effectively communicate the reasoning and purpose behind their projects. In 1999, Discovery created the DCYSC to be a part of the solution to America's chronic underachievement in science and math. The contest responds to evidence that academic performance and interest in science among American students declines dramatically as students get older -- particularly during the middle school years. Triangle Coalition member, Science Service, administers the DCYSC. For more information, visit <http://school.discovery.com/sciencefaircentral/dyssc>.

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## PENCILS STILL NEEDED AT TECH-SAVVY SCHOOLS (Source: CNN, August 27, 2004)

Back-to-school shopping lists are constantly evolving to keep up with technological advancements, many even including cell phones, laptops, Blackberrys, and iPods. But one clear staple remains -- the pencil. As 5-year-old children opt to play computer learning games instead of using traditional learning toys, and middle schoolers would not even think to research a school project with a physical encyclopedia, the staying power of the little wooden pencil -- like the ones George Washington used -- seems remarkable. Not only are pencils still used in classes like art and math, the good old No. 2 pencil is the key to the multiple-choice, computer-graded tests that open doors to the nation's universities and graduate programs.

Tom Ewing, spokesman for the Educational Testing Service, which administers tests like the SAT, GRE, and GMAT, said that while the number of people taking them on computers is increasing, the paper and pencil versions still predominate. Ewing said that in fiscal 2004 the number of people who took the tests on computers was only a fraction of those using pencils -- only about 1.6 million people on computers, compared with about 23.7 million using paper and pencil. He said ETS would like to increase the number of computer tests, though a major shift is

far down the road. "For the foreseeable future paper and pencils remain the reliable workhorse of educational measurement," Ewing said.

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US DEPARTMENT OF EDUCATION FORECAST OF FUNDING

The US Department of Education hosts a website of use to K-12 educators. The "Forecast of Funding" lists virtually all programs and competitions under which the Department of Education has invited or expects to invite applications for new awards for FY 2004 and provides actual or estimated deadline dates for the transmittal of applications under these programs. The lists are in the form of charts -- organized according to the Department's principal program offices -- and include programs and competitions they have previously announced, as well as those they plan to announce at a later date. For more information, visit [www.ed.gov/fund/grant/find/edlite-forecast.html](http://www.ed.gov/fund/grant/find/edlite-forecast.html).

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NASA-BASED TECHNOLOGY AIDS EDUCATION PROCESS

With up to 18 percent of America's children exhibiting forms of attention and behavioral problems at school, a new tool to help educators and parents combat the problem has emerged, Play Attention. Developed from NASA technology, the device has proven it can make an important difference. "We've proven that the educational feedback device can help," says the educator who adapted the technology, Peter Freer. The non-invasive device monitors the user's brain waves and feeds data to a computer -- enabling the user to move and control screen characters by maintaining focus on the task in an educational video-game environment without the use of their hands. "Children quickly learn how fidgeting and other distracting behaviors immediately decrease their ability to mentally control screen characters," says Freer. "They learn there is a direct correlation between their behavior and attention." The system has been tested and proven effective in more than 300 school systems across America since 1996. For additional information about Play Attention, visit [www.playattention.com](http://www.playattention.com).

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TEACHER PAY LAGS BEHIND

Pay for the nation's teachers is considerably lower than for other workers with similar education and skills. Despite growing national attention to the schools' need to recruit and retain highly skilled teachers, the wage gap grew larger over the last decade, according to a new book by the Economic Policy Institute. "How Does Teacher Pay Compare?" reviews recent analyses of teacher pay and benefits and provides its own detailed analysis of trends in teacher pay and how it measures up in the labor market. The authors found what amounts to a teaching penalty -- a pay gap that has grown in recent years: since 1993 teacher wages have fallen 11.5 percent relative to workers with similar education and skills. Moreover, the authors also document that there was no improvement in benefits that offset this increased wage disadvantage. Some of the book's major findings include:

In 2003, the average weekly wage of teachers was \$833; in contrast, the average weekly wages

for college graduates who were not teachers was \$1,078.

Between 1993 and 2002 teachers' weekly wages lagged behind that of other workers with similar education and experience, by 13% among women and by 12.5% among men.

Weekly wages have grown far more slowly for teachers than for workers in comparable professions, deteriorating almost 15% since 1993.

The Economic Policy Institute is a nonprofit, nonpartisan economic think tank founded in 1986. The Institute can be found at [www.epinet.org](http://www.epinet.org).

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### PUBLIC SCHOOLS EXPECT 48.2 MILLION STUDENTS

(Source, Education Week, September 1, 2004)

U.S. public schools will open their doors to about 48.2 million students in prekindergarten through grade 12 this September, according to recent projections by the National Center for Education Statistics. That's about 135,000 more students than for the 2003-04 school year, or an increase of less than half a percent. A decade ago, the nation's overall enrollment in public schools was just over 44 million. The NCES projects that about 6.3 million students will attend private schools this fall, an increase of about 23,000 from the previous school year. Researchers cited in the federal statistical bible on education, *The Condition of Education 2004*, released in June, attribute the climbing enrollment to increased immigration and the "baby boom echo" -- a 25 percent increase in annual births that began in the mid-1970s and peaked in 1990. By 2013, the furthest horizon for the NCES projections, the enrollment in public schools is expected to reach 49.7 million, compared with 6.6 million for private schools. A prominent education demographer points out that one of the more interesting enrollment trends involves differences between states. "Half of us live in only 10 states," said Harold L. Hodgkinson, the director of the Center for Demographic Policy at the Washington-based Institute for Educational Leadership. "States are getting more unlike one another all the time."

(Editor's Note: "*The Condition of Education 2004*," is available at <http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2004077>.)

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### PBS COURSES CAN HELP TEACHERS MEET NCLB REQUIREMENTS

(Source: NSTA Reports, August 20, 2004)

PBS TeacherLine® has launched a national professional development program of 80 courses for preK-12 educators. These courses aim to enhance teacher quality and address competency requirements under the No Child Left Behind (NCLB) Act. 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 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. The price for each of the online courses, which are led by facilitators who are trained and certified by PBS TeacherLine, is \$150. Course topics include "Enabling Students with Special Needs To Succeed in Math Class" and "Fostering Cooperative Learning, Inquiry, and Critical Thinking in Elementary Science(Grades 1-4)." Courses focused on secondary teachers include "Scientific Inquiry and Field Work: Discovering with Technology for Grades 6-8" and "Building Critical-Thinking Skills for Online Research." For more information, 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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TCEB LINKS

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

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

Discovery Channel Young Scientist Challenge -  
<http://school.discovery.com/sciencefaircentral/dysc>

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

Play Attention - [www.playattention.com](http://www.playattention.com)

Economic Policy Institute - [www.epinet.org](http://www.epinet.org)  
The Condition of Education 2004 - <http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2004077>

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)

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NO CHILD LEFT BEHIND TEACHER-TO-TEACHER INITIATIVE

Over the summer break, the U.S. Department of Education brought together some of the nation's most effective teachers and education experts to share with their colleagues strategies for successful teaching and learning. At seven regional locations, educators from across the country assembled for the Department's Teacher-to-Teacher Summer Workshops, which highlighted the latest effective practices for raising student achievement, making data-driven decisions, and

working with special populations.

The workshops provided an array of training sessions, including Data and Graphing, Developing Computational Fluency in Addition and Subtraction, Reading Strategies for Special-Needs Students, and Federal Resources. Over 1,400 participants attended the workshops in Denver, CO; Portland, OR; Pittsburgh, PA; Orlando, FL; Anaheim, CA; St. Louis, MO; and Boston, MA. To complement the summer workshops, the Department also welcomed more than 150 teachers to a Research-to-Practice Summit July 19-20, at its headquarters in Washington, D.C. The summit is part of the Bush administration's Teacher-to-Teacher initiative to support America's teachers, which also includes the seven regional workshops, roundtable discussions, a teacher toolkit, and weekly e-mail updates. Ten of the best sessions from the workshops and summit will be available later this fall via the Internet and satellite television. For more information, visit [www.teacherquality.us](http://www.teacherquality.us) or call 1-800-USA-LEARN.

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**BIOTEACH CAMPAIGN TO EQUIP MA PUBLIC HIGH SCHOOLS WITH BIOTECH EQUIPMENT AND TEACHER TRAINING**

The Massachusetts Biotechnology Council(MBC) through the Massachusetts Biotechnology Education Foundation(MassBioEd) have announced the official launch of its BioTeach campaign. The campaign kicked off with the presentation of a \$1.4 million grant from the U.S. Department of Labor. This grant will aid MassBioEd in its goal of providing Massachusetts high school students with biotechnology lab experience by offering school equipment and supplies, teacher training, and career development activities. BioTeach seeks to make this offer to all 366 public high schools in Massachusetts over the next six years.

BioTeach is an expansion of a MassBioEd initiative that began five years ago through corporate sponsorships and private funds. To date, 37 public high schools have improved their students' science labs through sorely needed equipment as a result of the funds raised. "In 2003 alone, 19 schools received funding allowing trained teachers to offer exciting biotech lab experiences to nearly 2,500 students," said Cora-Beth Abel, Vice President, MassBioEd. BioTeach, by dynamic teaching of biotechnology, has a goal of sparking student interest in science to help fuel the biotech workforce pipeline. "MassBioEd grant money has enabled public schools like Brighton High School in Brighton, MA to update their laboratory materials to keep up with the constantly evolving field of biotechnology. By exposing students to biotechnology methods, skills, and issues, students are inspired to participate in advanced science courses, to explore careers in biomedical science, and to consider the impact of scientific discoveries on society," said Kenneth Salim, former biology teacher, Brighton High School. For more information, visit [www.massbio.org](http://www.massbio.org).

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**HIGHER EDUCATION PROGRESS STALLED DESPITE HIGH SCHOOL IMPROVEMENTS**

Although more high school graduates are prepared for college, most states, and the nation as a whole, have made few gains in college enrollment and completion over the last decade. And for

most American families, paying for college has become more difficult. These are among the major findings of "Measuring Up 2004: The National Report Card on Higher Education." This report is the first to examine ten-year performance trends in the nation as a whole and in each of the 50 states. The achievement gains are not evenly spread through the population, the report also finds. Substantial racial, ethnic, income, and geographical disparities are hidden in the rising national averages in achievement. "Measuring Up 2004" is the third in a series of biennial analyses issued by the independent, nonprofit, nonpartisan National Center for Public Policy and Higher Education, based in San Jose, CA. Like the earlier reports, this one measures the nation's and each state's performance in providing education and training beyond high school.

The current report's findings suggest that the national standards movement, and other reforms at the elementary and secondary school levels, have produced larger numbers of college-ready students. More high school students are taking rigorous courses, such as upper-level math and science. In many states, however, smaller proportions of students are completing high school and going to college following graduation. Moreover, only slightly more of those who do enroll in college are completing two- and four-year degree programs than was the case a decade ago. "At a time of economic and demographic changes that point to a need for more Americans with education and training beyond high school, the United States has been stalled for a decade," said Patrick Callan, president of the National Center. "We can no longer attribute all of our college access and quality problems to the failure of public schools. The fact is, high schools have improved over these last ten years and we haven't seen commensurate higher education gains." For more information, visit [www.highereducation.org](http://www.highereducation.org).

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**3,000 TOP COLLEGE GRADS HEAD TO CLASSROOMS THROUGH TEACH FOR AMERICA**

Teach For America has announced the deployment of 3,000 corps members -- some of the country's top college graduates -- to teach in 21 urban and rural areas across the U.S. This fall, roughly 1,600 new teachers will join returning corps members in the midst of their two-year commitment, bringing the total number of individuals who have joined this national corps to more than 12,000. The incoming corps members hail from some of the country's top colleges and universities, where they earned an average GPA of 3.5 and nearly all(93 percent) held a leadership position in at least one extracurricular activity.

A recent study conducted by Mathematica Policy Research found that Teach For America corps members in elementary grades effected greater gains in reading and math than would typically be expected in a year. In addition, a June 2004 survey conducted by Kane, Parsons & Associates reveals that principals who hire Teach For America corps members exhibit a very high level of satisfaction with these new teachers. According to the survey, ninety-five percent of principals reported they would hire another Teach For America corps member if given the opportunity. For a full summary of findings from these independent studies and more information on the program, visit [www.teachforamerica.org/studies.html](http://www.teachforamerica.org/studies.html).

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**TAKE SCHOOL SERIOUSLY, EMPLOYERS TELL STUDENTS**

(Source Des Moines Register, September 5, 2004)

Chet Crawford knew he wasn't destined for college. As a high school student in Des Moines, the 20-year-old wanted to follow in the footsteps of his father and grandfather, who worked as electricians. Three years into an electrical apprenticeship program, Crawford said he wishes he'd taken some classes more seriously in high school. "Geometry would probably be helpful," Crawford said. "You have to work with angles all the time, and basic trigonometry." Whether students plan to go to college or directly into the work force, they need to take a variety of challenging classes in high school, educators and employers agree.

Technological advances in the past 20 years have drastically changed many blue-collar vocations, most of which now demand solid math, science, computer, and communications skills. High school students -- no matter what their plans after graduation -- should take challenging math courses such as advanced algebra and geometry, and science classes such as chemistry and physics, as well as English classes that build writing and speaking skills, educators and employers say. National studies show a disconnect between the American education system and post-high school life. Many students graduate from high school each year unprepared for jobs or college, according to a two-year review by the American Diploma Project.

(Editor's Note: For more information on the American Diploma Project, visit [www.achieve.org/achieve.nsf/AmericanDiplomaProject](http://www.achieve.org/achieve.nsf/AmericanDiplomaProject).)

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## NCES TO EXAMINE CONTENT OF ALGEBRA 1 COURSES

(Source: Education Week, September 1, 2004)

Long considered a crucial portal to the world of postsecondary education and a launching point for more complex studies of mathematics, Algebra 1 is at the heart of most students' academic schedules in the late middle grades or early in high school. Despite its increasing importance in schools, though, many observers say there is little uniformity in how that course on the relations and properties of quantities is taught, or what students are expected to learn while taking it. Troubled by that lack of knowledge, officials at the National Center for Education Statistics (NCES) are expected soon to launch a first-of-its-kind study of introductory algebra, aimed at exploring the content and teaching of the course.

Robert Lerner, the commissioner of the NCES, recently described the study as a pilot project with "fairly ambitious" goals. "We have the title 'Algebra 1,' but a perusal of textbooks suggests different things are being taught," said Mr. Lerner, whose center is the federal government's primary source of educational data. Math test scores have shown that students who are taking algebra courses with the same titles sometimes perform much differently on standardized tests, the commissioner noted. "Doesn't that raise questions about what they're being exposed to?" he said. Mr. Lerner said he chose Algebra 1 for study in part because it has traditionally been a "gateway to college" course -- an academic prerequisite for students seeking to pursue a post-secondary degree. The project will include a study of both student achievement and teacher characteristics in middle and high school, he said, and it is likely to be conducted this fall and next spring.

(Editor's Note: For more information on the study, visit the National Center for Education Statistics website at <http://nces.ed.gov>.)

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NASA PARTNERS WITH TEACHER NETWORK FOR SCHOOL YEAR

Students can experience learning in a whole new light this school year with NASA's Network of Educator Astronaut Teachers(NEAT). Educators from 39 states are bringing an "out of this world" experience into the nation's classrooms. These exemplary educators were in the top tier of applicants for the Educator Astronaut Program, launched in January 2003. They will showcase space and science to their students and communities and expose them to various career possibilities and activities related to the Vision for Space Exploration(VSE). The Vision calls for NASA to finish building the International Space Station, develop a new space vehicle to replace the Space Shuttle, return to the moon, eventually send astronauts to Mars and worlds beyond.

More than 1600 applications were received for NASA's Educator Astronaut Program. A team of experts reviewed the applications and selected the top 197 for evaluation by the Astronaut Selection Board. Three of the 197 were selected as Educator Astronauts on May 6. The remaining 194 educators are part of the special group called NEAT. The program allows them to continue their involvement in the VSE by conducting workshops and informational briefings in their local schools using NASA's resources. NASA is providing NEAT members a series of workshops and networking activities. Sessions also provided them with knowledge about NASA resources, missions, special access to facilities and personnel, strategies for using NASA content in the classroom, components of astronaut training, and agency education activities. For more information about Triangle Coalition member, NASA, visit [www.education.nasa.gov](http://www.education.nasa.gov).

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NSTA TO HOLD SCIENCE AND LITERACY CONFERENCE  
(Source: NSTA Reports, August 24, 2004)

In response to the current interest in linking science and literacy in K-8 classrooms, the National Science Teachers Association(NSTA) will present a professional development conference on the topic on November 17, in conjunction with its area convention in Seattle, WA, November 18-20. The conference, titled "Linking Science and Literacy in the Classroom," will inform teachers, administrators, and professional development providers about current research on the roles of literacy in science learning, the professional development needs of teachers, and the impact on students' literacy skills and science learning. The daylong event will feature several National Science Foundation-funded initiatives related to the topic. Experts from the fields of science education research, instructional materials development, school administration, and teacher professional development will share their findings, emphasizing the implications for professional development and classroom practice. Teachers and their principals and/or science supervisors are encouraged to participate as a school team, and teams from currently under represented schools and districts are particularly urged to attend. To register, or for more information about Triangle Coalition member, NSTA, visit [www.nsta.org/conventions](http://www.nsta.org/conventions).

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## TCEB LINKS

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

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

BioTeach - [www.massbio.org](http://www.massbio.org)

"Measuring Up 2004: The National Report Card on Higher Education" - [www.highereducation.org](http://www.highereducation.org)

Teach For America - [www.teachforamerica.org/studies.html](http://www.teachforamerica.org/studies.html)

American Diploma Project - [www.achieve.org/achieve.nsf/AmericanDiplomaProject](http://www.achieve.org/achieve.nsf/AmericanDiplomaProject)

National Center for Education Statistics - <http://nces.ed.gov>

NASA's Network of Educator Astronaut Teachers (NEAT) - [www.education.nasa.gov](http://www.education.nasa.gov)

NSTA Conference "Linking Science and Literacy in the Classroom" - [www.nsta.org/conventions](http://www.nsta.org/conventions)

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## 2004 CRAFTSMAN/NSTA YOUNG INVENTORS AWARDS WINNERS ANNOUNCED

Fourth grader Nicolette Mann designed a special box, so her little brother could reach the "piano peddles," while seventh grader Katelyn Eubank added paint rollers to the sides of a wheelchair, so her grandmother could move smoothly through doorways. The students are national winners in the 2004 Craftsman/NSTA Young Inventors Awards Program. Sponsored by Sears through its Craftsman tools brand and the National Science Teachers Association(NSTA), the annual competition, which is beginning its ninth year in classrooms across the U.S., invites students to create a new tool or re-think an existing one. Nicolette and Katelyn each have won a top prize of a \$10,000 U.S. savings bond. Ten national finalists -- from second through eighth grade -- have won a \$5,000 U.S. savings bond. These top 12 students, who were selected from nearly 9,000 second through eighth graders nationwide, also have won a trip to Chicago for themselves, their parents, and their teachers to the national awards ceremony at the Museum of Science and Industry.

Visit [www.nsta.org/programs/craftsman](http://www.nsta.org/programs/craftsman) for more information about the program. Triangle Coalition member, NSTA, is the world's largest organization dedicated to promoting excellence and innovation in science teaching and learning for all.

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## BEST ROBOTICS KICKS OFF 2004 CHAMPIONSHIPS

This year's BEST robotics competition kicked-off in September. Student teams from across the country were given the game objective and a kit of parts that they must turn into a radio-controlled robot. Industry and academic coaches act as mentors but the students lead the decision-making and building. Six weeks after kickoff, teams compete in local contests. The top finishers will advance to regional championships.

BEST Robotics Inc. is a non-profit, volunteer organization, whose mission is to inspire students to pursue careers in engineering, science, and technology through participation in a sports-like, science and engineering based robotics competition. Local groups or "hubs" organize the competitions and find sponsors so there is no cost to participating schools or students. BEST is growing rapidly with competitions currently in 12 states. BEST started in 1992 with 14 competing schools and 221 students. Triangle Coalition member, BEST now has over 700 middle and high schools and over 8,000 students participating each fall. For more information about participating in or observing a competition in October, contact a local "hub" or regional director listed at [www.bestinc.org](http://www.bestinc.org).

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**PAIGE ANNOUNCES 2004 NO CHILD LEFT BEHIND BLUE RIBBON SCHOOLS**

U.S. Secretary of Education Rod Paige has announced that more than 250 of the nation's schools have been named No Child Left Behind(NCLB) Blue Ribbon Schools of 2004. The NCLB Blue Ribbon Schools program recognizes schools that make significant progress in closing the achievement gap or whose students achieve at very high levels. A complete list of NCLB Blue Ribbon Schools is available at [www.ed.gov/programs/nclbbrs/awards.html](http://www.ed.gov/programs/nclbbrs/awards.html). The schools are selected based on one of three criteria:

Schools with at least 40 percent of their students from disadvantaged backgrounds that dramatically improve student performance on state tests, as determined by the state school chief;

Schools whose students, regardless of background, achieve in the top 10 percent on state tests; and

Private schools that achieve in the top 10 percent in the nation.

The No Child Left Behind Act is the education reform law designed to change the culture of America's schools by closing the achievement gap, offering more flexibility to states, giving parents more options, and teaching students based on what works. Under the law's accountability provisions, states must describe how they will close the achievement gap and make sure all students, including those with disabilities, achieve academically. More information about the No Child Left Behind Act is available at [www.ed.gov](http://www.ed.gov).

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**REPORT SETS AGENDA FOR ACADEMIC ENRICHMENT IN NATION'S AFTER SCHOOL PROGRAMS**

A new conference report issued by a national coalition of organizations involved in out-of-school learning, entitled "Science After School," provides a framework and objectives for efforts to support academic enrichment in after-school time. Convened by leaders at three major science and mathematics research and development organizations (Triangle Coalition member, TERC; Lawrence Hall of Science; and the Exploratorium), the National Conference on Science After School is among the first steps toward a thorough evaluation of how after school programming can better support children's intellectual, emotional, and social growth.

Over 6.5 million children participate in after school programs, and the parents of another 15.3 million say their children would participate if programs were available. Supporting children's academic achievement in a high-stakes school environment is increasingly important to after school leaders. In many cases, more time is spent on literacy and mathematics in the after school setting than ever before. The report identifies the rationale for the increased emphasis on academic enrichment in children's after school time. It goes on to articulate the conference's vision to strengthen science, technology, engineering, and mathematics content in after school programs, while balancing the need to maintain core values and design strategies that have traditionally made the after school hours engaging, nurturing, and productive for youth -- including those who do not thrive in formal school settings. The Coalition for Science After School plans to continue to expand the scope of its work. For more information about the Coalition's efforts and to download a copy of the report, visit <http://scienceafterschool.terc.edu>.

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**SUPPORTING TEACHERS, REACHING STUDENTS, AND BUILDING FUTURES  
THROUGH NCTM'S MATHEMATICS EDUCATION TRUST**

The Mathematics Education Trust of Triangle Coalition member, the National Council of Teachers of Mathematics (NCTM), is pleased to announce its 2005 program, which includes four grants to help elementary school teachers improve classroom instruction. The Ernest Duncan Grant, John and Stacey Wahl Grant, and Clarence Olander Grant will each award up to \$2,000 to help teachers improve their professional competence as classroom mathematics teachers. The Irene Etkowicz Eizen Grant for Emerging Leaders in Elementary School Mathematics will award up to \$6,000. NCTM Executive Director and MET Board Member Jim Rubillo says, "Through the generosity of contributors, these grants will give teachers the opportunity to receive financial support for their professional growth and leadership development. More importantly, their own growth will benefit and ultimately improve mathematics education for all students."

For nearly 28 years, the Mathematics Education Trust (MET) has been supporting the improvement of mathematics teaching and learning through the funding of grants, awards, and other projects by the generosity of contributors to classroom-based efforts that benefit all students. MET provides funds to support classroom teachers in improving classroom practices and increasing teachers' mathematical knowledge. For more information about available MET grants, visit [www.nctm.org/about/met](http://www.nctm.org/about/met). The National Council of Teachers of Mathematics is a public voice of mathematics education, providing vision, leadership, and professional development to support teachers in ensuring mathematics learning of the highest quality for all students.

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## EDUCATION LEVELS RISING IN OECD COUNTRIES BUT LOW ATTAINMENT STILL HAMPERS SOME

More people around the world are completing university courses and other forms of tertiary education than ever before, according to the 2004 edition of Education at a Glance, the Organization for Economic Co-operation and Development's(OECD) annual compendium of education statistics. However, progress has been uneven across countries and some have significantly fallen behind, potentially compromising their future ability to keep up with economic and social progress. On average across OECD countries, half of today's young adults now enter universities or other institutions offering similar qualifications at some stage during their life. An average 32% complete a first university-level degree, but this ranges from less than 20% in Austria; the Czech Republic; Germany; and Switzerland to 45% in Australia and Finland. Almost all OECD countries have seen a rise in the education levels of their citizens over the past decade, and in some countries the increase has been spectacular. Enrollment in tertiary education, which covers both university-level education and high-level vocational programs, increased between 1995 and 2002 by more than 50% in the Czech Republic; Greece; Hungary; Iceland; Korea; and Poland, and still by more than 20% in Australia; Finland; Ireland; Mexico; Portugal; Spain; Sweden; and the United Kingdom. In general, people with tertiary qualifications command significantly higher salaries than those with only secondary education. In the U.S., earnings for tertiary graduates are 86% higher on average than those for people with only secondary education, and in Hungary they are more than double. Tertiary education is rapidly becoming an international domain. In 2002, 1.9 million students were enrolled in the OECD area outside their country of origin, with nearly three quarters of them choosing Australia; France; Germany; the United Kingdom; and the United States as their destination. On average, foreign enrolment increased by 34% between 1998 and 2002.

Significant progress has also been achieved in reducing the gender gap in educational qualifications. Younger women today are far more likely to have completed a tertiary qualification than women 30 years ago: in 19 of the 30 OECD countries, more than twice as many women aged 25 to 34 have completed tertiary education than women aged 55 to 64. What has remained broadly unchanged, though, is that women still earn less on average than men in all OECD countries, whatever their level of education. On average, women without upper secondary education obtain 60% of the earnings of men with the same level of education. Women with upper secondary and tertiary qualifications average 65% of equivalent male earnings. In mathematics and computer science, gender differences in tertiary qualifications remain persistently high: the proportion of women among university graduates in mathematics and computer science is only 30% on average among OECD countries, and in Austria; Belgium; Germany; Hungary; Iceland; the Netherlands; Norway; the Slovak Republic; and Switzerland it is only between 9% and 25%. Further information on "Education at a Glance 2004" can be found at [www.oecd.org/edu/eag2004](http://www.oecd.org/edu/eag2004).

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## EDUTOPIA: A NEW MAGAZINE SERVES AS CATALYST FOR EDUCATIONAL CHANGE

The George Lucas Educational Foundation has launched Edutopia, a new magazine that will showcase the best and most innovative thinking in education, profile the sharpest minds, reveal ways around roadblocks, and question the status quo. Edutopia is the first magazine launch for Lucas and for the foundation, which was founded in 1991 to chronicle innovative practices in education. Edutopia launches as a bimonthly publication until September 2005, when it will publish ten times a year, and will follow the academic calendar. Designed for educators, legislators, parents, and all others interested in education, the magazine profiles the heroes of education reform, cutting-edge schools, and brings to life innovations in science, art, and technology.

Publisher Cheryl Lucanegro says, "Edutopia takes you inside the classroom and outside the schoolyard, covering everything from politics to philosophy, gadgets to music, technology to teaching skills. We're reaching educators and opinion leaders who see the bigger picture -- those who care deeply about the future, our world and what's happening in politics, science, and the arts. They're lifelong learners themselves." To sign up to receive Edutopia, or to view the current issue, visit [www.edutopia.org](http://www.edutopia.org).

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**PUBLIC SCHOOLS NO PLACE FOR TEACHERS' KIDS**  
(Source: The Washington Times, September 22, 2004)

More than 25 percent of public school teachers in Washington and Baltimore send their children to private schools, a new study reports. Nationwide, public school teachers are almost twice as likely as other parents to choose private schools for their own children, a study by the Thomas B. Fordham Institute found. More than 1 in 5 public school teachers said their children attend private schools. In Washington(28%), Baltimore (35%), and 16 other major cities, the figure is more than 1 in 4. In some cities, nearly half of the children of public school teachers have abandoned public schools.

Public school teachers told the Fordham Institute's surveyors that private and religious schools impose greater discipline, achieve higher academic achievement, and offer overall a better atmosphere. Public school teachers in Philadelphia, Cincinnati, Chicago, Rochester(NY), and Baltimore registered the most dissatisfaction with the schools in which they teach. The report says the school choice movement has begun competitively forcing public school improvement, particularly in cities like Milwaukee, called "a hotbed of school reform," where 29.4% of public school teachers sent their children to private schools, the study finds.

(Editor's Note: "Where Do Public School Teachers Send Their Kids to School?" may be downloaded from the Thomas B. Fordham Institute website as a PDF at [www.edexcellence.net/doc/Fwd-1.1.pdf](http://www.edexcellence.net/doc/Fwd-1.1.pdf).)

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**TCEB LINKS**

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

2004 Craftsman/NSTA Young Inventors Awards Program - [www.nsta.org/programs/craftsman](http://www.nsta.org/programs/craftsman)

BEST Robotics Inc. - [www.bestinc.org](http://www.bestinc.org)

No Child Left Behind (NCLB) Blue Ribbon Schools, 2004 - [www.ed.gov/programs/nclbbrs/awards.html](http://www.ed.gov/programs/nclbbrs/awards.html)

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

"Science After School" - <http://scienceafterschool.terc.edu>

MET Grants - [www.nctm.org/about/met](http://www.nctm.org/about/met)

"Education at a Glance 2004" - [www.oecd.org/edu/eag2004](http://www.oecd.org/edu/eag2004)

Edutopia - [www.edutopia.org](http://www.edutopia.org)

Thomas B. Fordham Institute's "Where Do Public School Teachers Send Their Kids to School?" - [www.edexcellence.net/doc/Fwd-1.1.pdf](http://www.edexcellence.net/doc/Fwd-1.1.pdf)

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### KIDS FIND ONE MORE REASON TO ASK FOR A NEW CELL PHONE: A HIGHER SAT SCORE

If you think your kids have tried every variation of the "I need a cooler cell phone" speech, think again. The Princeton Review and wireless application developer VOCEL have partnered to distribute a new cell phone application, The Princeton Review's Prep for the SAT. The application, available now for Verizon cell phone users (and soon for other carriers' platforms), is the latest tool designed to help raise SAT scores. Taking advantage of a unique patent-pending push technology from VOCEL, The Princeton Review can deliver content to college-bound teens on their phones at any time that fits students' schedules. Students can now use their mobile phones to get interactive, hands-on practice, strategy, and tips in much the same way that they would play a game or download a ring tone. Once downloaded, content resides in the phone, so users can access test prep even if there's no phone signal.

The content focuses on the new SAT that students will take for the first time this spring. It offers practice drills and immediate explanations for questions on a single subject such as grammar or algebra, or timed practice exams across reading, writing, and math. Graphics, vibrations, and sound effects help make the lessons compelling. A special feature even allows parents to be notified about their student's progress by phone or email. The Princeton Review Prep for the SAT mobile phone application is currently available through Verizon's Get It Now catalog. It costs \$5.75 per month, but the application will be available for free to all students enrolled in The Princeton Review Prep for the SAT classes. For more information, visit [www.vocel.com/products/satprep.html](http://www.vocel.com/products/satprep.html).

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**MEDTRONIC DONATES \$512,000 TO PROVIDE MATERIALS FOR SCIENCE CLASSES**  
(Source: Pioneer Press, September 14, 2004)

Ann Oubaha tells her science students at Jackson Elementary Magnet School in St. Paul(MN) that she doesn't worry so much about whether they become scientists. She's more focused on science as a way to help them become critical thinkers and "be as successful as they want to be," she said. On Monday, all 48 of St. Paul's public elementary schools learned that their science programs will benefit from a \$512,000 grant from the Medtronic Foundation. Oubaha, a science specialist who teaches fourth- through sixth-grade students at Jackson, said the grant coincides nicely with a revamping of the science curriculum to align with Minnesota's new academic standards. But it also will help with the goal of giving kids more hands-on opportunities for science experiments.

Monday's grant announcement pushes Medtronic's total investment in the St. Paul public schools' science programs past the \$1 million mark. The foundation, part of the Fridley-based medical device firm, has put more than \$10 million into K-12 science education during the past 14 years. About 80 percent of those grants went to schools in the seven-county Twin Cities metro area. The four-year-long grant will help St. Paul operate a professional development program that allows elementary-classroom teachers to collaborate with scientists. More than 700 teachers from St. Paul's 48 elementary schools and 100 scientists will be involved. The grant will provide science kits and classroom materials that are aligned with the new academic standards. It also will provide each elementary school with one "science associate," who will receive a stipend to inventory, prepare, and manage science materials that can be used in the classroom. The model has been used in other districts and commonly uses retirees or parents to staff the part-time position.

(Editor's Note: For more information about Triangle Coalition member, the Medtronic Foundation, visit [www.medtronic.com/foundation](http://www.medtronic.com/foundation).)

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**JETS PRE-ENGINEERING TIMES**

Triangle Coalition member, JETS, is offering free subscriptions to the Pre-Engineering Times. The e-newsletter provides the latest news on engineering careers, compares salaries between different engineering disciplines, features classroom activities for teachers, and offers updates about JETS activities. The Pre-Engineering Times is edited by Celeste Baine, author of "Is There an Engineer Inside You?" It provides up-to-the-minute resources and spotlights the inside story of engineers. Visit [www.jets.org/programs/ewssignup.cfm](http://www.jets.org/programs/ewssignup.cfm) for more details. JETS is a national non-profit education organization that has served the pre-college engineering community for over 50 years. Through competitions and programs, JETS serves over 30,000 students and 2,000 teachers, and holds programs on 150 college campuses each year.

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**BOSTON RECEIVES NSBA URBAN SCHOOL BOARD EXCELLENCE AWARD**

The National School Boards Association's Council of Urban Boards of Education(CUBE) has

announced that the Boston Public Schools has been selected as the winner for its first annual award for Urban School Board Excellence. Boston Public Schools, as the winning district, will receive a \$5,000 contribution to its student scholarship fund. Chula Vista Elementary School District in California and Norfolk Public Schools in Virginia have been awarded honorable mentions. The award for Urban School Board Excellence is presented to the school district that best demonstrates excellence in four core areas -- board governance, closing the achievement gap, academic achievement, and community engagement. The CUBE award highlights the link between urban student achievement and successful board governance.

The Boston School Committee and Superintendent Thomas Payzant have relied heavily on community input in developing the district's strategic plan, "Focus on Children." The plan provides clear direction regarding district goals, enhancing the superintendent's effectiveness in designing and executing new, data driven approaches to teaching and learning. As part of the plan, the district has focused on strengthening literacy and math while increasing academic standards and expectations for all students. Boston has established citywide learning standards in English, math, science, and social studies. The school committee has moved aggressively to improve academic achievement by investing more than \$15 million to reduce class size, approving a new student promotion policy, and developing a new accountability system to measure school and student progress. In addition, Boston is reorganizing all of its secondary schools into smaller learning communities. Five years ago, the majority of 10th graders failed to meet state standards. Last fall, more than 64 percent of students passed the math exam and 70 percent passed the English test. For more information about CUBE, visit [www.nsba.org](http://www.nsba.org). For more information on Boston's "Focus on Children" program, visit <http://boston.k12.ma.us/schcom>.

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NSF AWARDS \$36.5 MILLION EXPLORE HOW HUMANS, ANIMALS, AND  
MACHINES LEARN

Boston University, Carnegie Mellon University, and the University of Washington have received National Science Foundation(NSF) awards totaling \$36.5 million over the next 3 years to establish Science of Learning Centers. The new centers will engage in basic research and serve as hubs for a national network of research focused on learning. Their goal is to make new discoveries about the foundations of learning across a wide range of learning situations -- from processes at the cellular level to complex processes engaging different brain areas, to behaviors of individuals, to interactions in the classroom, to learning in informal settings, to learning performed by computer algorithms. These centers will support the intellectual, organizational, and physical infrastructure needed to study problems of such scope and complexity. Each center has formed partnerships with a variety of researchers and organizations. And each center is built around an integrated, multidisciplinary research core, with each of the three centers devoted to a different aspect of learning.

According to Joseph Bordogna, NSF Deputy Director, "This is the right time to make new investments in the science of learning, when scientists are revealing innovative ways to integrate research across many disciplines -- biological, cognitive, computational, mathematical, neuro, physical, and social sciences; engineering; and education." For more information, visit

www.nsf.gov/home/crssprgm/slc.

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## NETDAY ANNOUNCES RESULTS OF TEACHER SPEAK UP DAY

NetDay, in partnership with BellSouth and the National Education Association(NEA), have released the results of the first-ever Speak Up Day for Teachers a nationwide online survey which gave teachers in all grades and subjects the opportunity to share their voices and views about their personal and professional use of technology and the Internet. More than 11,000 teachers from 1,885 schools in 50 states completed the online survey. "What we found during Speak Up Day for Teachers is that technology is really taking hold in America's classrooms and teachers are increasingly more comfortable using it to deliver lessons," said Julie Evans, CEO, NetDay. "However, teachers also told us that, with technology becoming as commonplace in schools as chalkboards, they need better training and a greater voice in technology decisions."

The survey found teachers are using technology to enrich their lessons plans and to engage students in learning. Results also revealed that teachers are relying more and more on technology to meet the requirements of No Child Left Behind. Teachers also felt that their lesson plans were richer in content due to information available on the Internet. Teachers cited certain obstacles to integration of technology, including inadequate pre-service training, lack of time in the school day to most effectively use technology, and school district firewalls and filters that limit access to valuable online educational resources. Speak Up Day is NetDay's latest initiative and focuses awareness on the importance of student and teacher voices in the national dialogue on education and technology. For more information, visit NetDay at [www.NetDay.org](http://www.NetDay.org).

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## ASU RECEIVES \$12.5 MIL FOR MATH, SCIENCE

(Source: The Arizona Republic, September 28, 2004)

Arizona State University(ASU) officials have announced that the school has been awarded a \$12.5 million grant from the National Science Foundation to improve high school mathematics and science instruction in five Valley school districts and then possibly at a national level. The new grant, combined with a series of grants made over the past five months, brings to \$33 million the total federal money ASU has received to improve teaching. The money will be used to improve instruction in areas that American students have had difficulty with for decades: mathematics, science, and reading. "These grants matter a great deal because the failures in American science and math education are enormous roadblocks to future economic growth in this country," ASU spokesman James Hathaway said. "The reason that the federal government is giving us this money is they recognize those failures only too well and want ASU to develop models that can be used nationally to improve instruction in math, science, and reading," Hathaway said.

The newest grant was made to the ASU Center for Research on Education in Science, Mathematics, Engineering, and Technology, which has received a total \$18.8 million. CRESMET director Marilyn Carlson said ASU will send mathematics and science professors into high schools in Mesa, Tempe, Chandler, Gilbert, and Tolleson to work with teachers.

Carlson said that at first, about 150 high school teachers will be involved in classes and seminars designed to update their knowledge in their subject areas, explore the latest teaching methods, and learn better to relate their subject to real world experiences. Carlson said that tests would be given to students in the target schools at the beginning of the five-year program. As students progress, more tests will be given so that progress, or lack of it, can be measured. She also said that the National Science Foundation wants to see if the program raises the number of students who persist in mathematics and science classes throughout their education.

(Editor's Note: For more information on ASU's Center for Research on Education in Science, Mathematics, Engineering, and Technology, visit <http://cresmet.asu.edu>.)

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NASA EDUCATION PROGRAM BEGINS ANOTHER YEAR OF INSPIRING STUDENTS

NASA's International Space Station(ISS) EarthKAM program(Earth Knowledge Acquired by Middle school students) is launching its eighth year of involving students in the scientific study of Earth from space. The program is designed to inspire student interest in science, math, technology, and geography. Students have direct access to, and control of, a digital camera mounted on the Space Station. They identify places on Earth to photograph from space, and then use the ISS EarthKAM Web-based interface to calculate exactly when the digital camera should take pictures. Students use their digital images of Earth to study a wide variety of science topics. The first ISS EarthKAM investigation period for the 2004-05 school year is October 26-29. Additional ISS EarthKAM image acquisition and investigation missions are scheduled in February and April 2005. Participation is free. Inspired by her Space Shuttle missions, Dr. Sally Ride, America's first woman astronaut, created the ISS EarthKAM. Ride established EarthKAM in 1996 as a way for students to experience the same fascination and awe she felt looking down at Earth from space.

Since its inception, more than 16,400 scientifically valuable, high-quality digital images of Earth have been taken by thousands of middle-school students from America and other participating ISS countries. "No other NASA program gives students such direct control of an instrument flying on a spacecraft orbiting Earth," said Dr. Karen Flammer, EarthKAM's Project Director. "As a result of this hands-on, real world experience, students assume an unparalleled personal ownership in the study and analysis of their Earth photographs." ISS EarthKAM is funded by NASA and is coordinated through a partnership between the University of California at San Diego; NASA's Jet Propulsion Laboratory, Pasadena, CA; Texas A&M University, College Station, TX; and Triangle Coalition member, TERC, a non-profit education research and development organization based in Cambridge, MA. To participate in ISS EarthKAM during the 2004-05 school year, visit: <http://datasystem.earthkam.ucsd.edu/ekReg/ekRegistration.shtml>. For educator guides, activities, and other educational resource materials, visit [www.earthkam.ucsd.edu](http://www.earthkam.ucsd.edu).

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TCEB LINKS

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

VOCEL's Princeton Review Prep for the SAT - [www.vocel.com/products/satprep.html](http://www.vocel.com/products/satprep.html)

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

JETS Pre-Engineering Times - [www.jets.org/programs/enevssignup.cfm](http://www.jets.org/programs/enevssignup.cfm)

National School Boards Association's Council of Urban Boards of Education(CUBE) - [www.nsba.org](http://www.nsba.org)

Boston's "Focus on Children" Program - <http://boston.k12.ma.us/schcom>

National Science Foundation's Science of Learning Centers - [www.nsf.gov/home/crssprgm/slc](http://www.nsf.gov/home/crssprgm/slc)

NetDay - [www.netday.org](http://www.netday.org)

ASU's Center for Research on Education in Science, Mathematics, Engineering, and Technology - <http://cresmet.asu.edu>

ISS EarthKAM - [www.earthkam.ucsd.edu](http://www.earthkam.ucsd.edu)

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**REGISTRATION HAS BEGUN FOR THE 2005 TRIANGLE COALITION POLICY CONFERENCE**

Mark your calendars for the third annual Triangle Coalition Policy Conference to be held March 17-18, 2005 at the Hamilton Crowne Plaza Hotel in Washington, DC. The 2005 conference will build on the success of last year's conference, "Informing Policy in Support of Mathematics, Science, and Technology Education." Discussion will center on current and upcoming legislative issues and will include presentations and panel discussions from leaders from Congress, Congressional Staff, U.S. Department of Education, NSF, and other governmental agencies. During the 2004 conference, participants were provided with information about federal programs supporting Science, Technology, Engineering, and Mathematics (STEM) education. Attendees also heard from Congressional staff members about upcoming legislation and the legislative process in addition to learning the basics of communication with Congress.

As part of the 2004 Conference, over 80 meetings were scheduled so that participants could visit members of Congress to discuss issues key to STEM education in their home states. Gwen Pollock, 2004 Conference participant from Illinois, said, "The opportunity afforded by the Triangle Coalition allowed me to be a part of contributing to the policy making for science education for the country. Sharing the effective processes and advice from the Coalition about citizen-educator conversations with legislators is a next-step for me in Illinois. Thank you for such a grand learning opportunity." A draft agenda and registration form for the 2005 conference is available at [www.trianglecoalition.org/conf.htm](http://www.trianglecoalition.org/conf.htm).

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NATIONAL SCIENCE DIGITAL LIBRARY CREATES "NEW PATHWAYS"

The National Science Foundation (NSF) has announced that it is providing funding to four new National Science Digital Library (NSDL) Pathways Projects. The NSF established the NSDL, which opened in the fall of 2000, as an online library of resources for science, technology, engineering, and mathematics(STEM) education and research. The NSDL provides access to collections and services from both public and private institutions, including universities, museums, commercial publishers, government agencies, and professional societies. The library supports teaching and learning at all levels, from preschool through adult, with materials ranging from journal articles and lesson plans to interactive animations, and from real-time data sets to technology-based tools. Access to NSDL collections and services began with the launching of a website at [www.nsd.org](http://www.nsd.org) in December 2002. There are now more than 150 NSF-funded projects that contribute to the NSDL, as well as partners from education and industry. The four new NSDL Pathways Projects, receiving NSF grants ranging from \$2.0 million-\$2.8 million over four years, include:

- Mathematical Association of America, Washington, D.C., Pathway to NSDL Mathematics Resources([www.maa.org](http://www.maa.org))(MAA is a member of the Triangle Coalition)
- Shodor Education Foundation, Inc., Pathway to NSDL Computational Science Education Resources([www.shodor.org](http://www.shodor.org))
- University of Wisconsin, Madison, Internet Scout Project(<http://scout.wisc.edu>)
- WGBH(Boston) Teachers Domain, Multimedia Resources for the Classroom and Professional Development ([www.teachersdomain.org](http://www.teachersdomain.org))

NSF has also funded 19 new, smaller nationwide NSDL projects, varying in amounts of \$450,000 to \$850,000. For more information on the NSDL, visit [www.nsd.org](http://www.nsd.org). The National Science Foundation([www.nsf.gov](http://www.nsf.gov)) 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.

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TEACHERS AND NUCLEAR PROFESSIONALS CREATE REACTIONS IN LOCAL CLASSROOMS

Triangle Coalition member, the American Nuclear Society, is providing new teaching tools to middle and high school teachers through its one-day "Detecting Radiation in Our Radioactive World" workshops. Offered nationally by ANS local sections and also by request, the workshops aim to connect the scientists and engineers who belong to the American Nuclear Society with the teachers who instruct the next generation of professionals. The workshops bring together teachers and professionals working in the field of nuclear science and technology. Specialists from NASA, universities, national laboratories, power plants, hospitals, and other areas provide valuable information and hands-on activities for teaching about radiation, radioactivity, and nuclear technology. Participants learn to use analog Geiger Counters with their students. In addition, teachers receive visual materials and experiments for use in their classrooms.

Since the workshop series began in 1998, the number of annual workshops conducted has

constantly grown. More than 25 are anticipated to be held in 2005. ANS local sections, members, and others host events in their communities with materials and financial assistance from ANS Headquarters. Working with other organizations also is important to the success of the ANS Outreach Program. Many events are coordinated with groups such as the Nuclear Energy Institute; Health Physics Society; U.S. Department of Energy, Office of Nuclear Energy, Science and Technology; Visitor Centers; and others. The ANS's Public Education Program also provides current information on nuclear-related topics to educators, students, and the public. ANS resources include the [www.aboutnuclear.org](http://www.aboutnuclear.org) website, printed publications such as the "Atoms Family Coloring Book," and the "ReActions" newsletter for K-12 grade educators. For more information, visit [www.ans.org](http://www.ans.org).

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**UMASS BOSTON AWARDED \$12.5 MILLION FOR SCIENCE EDUCATION REFORM**

The University of Massachusetts Boston has received a \$12.5 million grant from the National Science Foundation for the Boston Science Partnership -- a collaboration with Northeastern University and the Boston Public Schools for a five-year science education reform program to provide teacher training and innovative course development. The Boston Science Partnership was formed to improve science teaching and learning for nearly 33,000 middle and high school students in the Boston Public Schools(BPS) through teacher training, "inquiry-based" science instruction, and a ground-breaking engineering curriculum. The grant is designed to build challenging science courses, increase the number of highly qualified Boston science teachers, increase accessibility for BPS students to advanced science courses, and assist university faculty working side-by-side with school teachers. In addition to UMass Boston, Northeastern, and the Boston Public Schools, the program includes supporting partners at Harvard Medical School, The College Board, and the Education Development Center. The grant is the largest ever awarded to UMass Boston researchers.

"This impressive partnership is a significant breakthrough," Senator Edward Kennedy(D-MA) said. "It has the potential to give our city schools much greater liberty to offer world-class science instruction to all students. Our schools are succeeding in improving student achievement in reading and math, but science is another story. Only 9% of 8th grade students score at the proficient level in science, and 80% of science teachers are not 'highly qualified' under the No Child Left Behind Act." Nationally, two-thirds to three-fourths of students are taught science by teachers who did not attain a major or a minor in the subject. Studies show that low-income and minority children have a much greater probability of having teachers who are unlicensed or teaching outside their fields. However, by the 2007-2008 school year the No Child Left Behind Act requires that all students be assessed on science, in addition to math and English. For more information on the Boston Science Partnership, visit [www.umb.edu](http://www.umb.edu).

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**NEC JOINS INTEL MODEL SCHOOL PROGRAM**

NEC Solutions(America), Inc. Visual Systems Division is pleased to announce it has been selected to participate in the Intel Model School Program. The Intel Model School Program is designed to provide a foundation so that students can become effective leaders in the future. In

addition, the program helps school districts integrate technology into the classroom and take advantage of learning via the Internet, assessing technology infrastructure in member districts, and providing potential solutions. The program aims to improve the quality of the education experience for both teachers and students using leading edge technology. It links school districts to hardware vendors, software developers, and service providers, delivering the tools and resources school districts need to support technology use in the classroom.

"Schools really need to keep up with modern technology to ensure students get the best education possible," said Ron Gillies, senior vice president and general manager for the Visual Systems Division of NEC Solutions America. "NEC is working with the Intel Model School Program and its leading education partners to ensure today's top schools produce students who are knowledgeable not only in reading and math, but in the ever-evolving world of technology as well." Information regarding NEC Solutions America can be found at [www.necsam.com](http://www.necsam.com). For more information about the Intel Model School Program, visit [www.intel.com/modelschool](http://www.intel.com/modelschool).

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### COLLEGE BOARD LAUNCHES NEW SAT PRACTICE TEST ONLINE

Students can now test themselves online in preparation for the new SAT that will debut next March. The College Board, which owns the SAT, has placed an official practice exam online at [www.collegeboard.com/srp](http://www.collegeboard.com/srp). The official practice test is one piece of the College Board's SAT Readiness Program, and is designed to reinforce a student's test-taking skills and to allow students to become more comfortable with the new version of the popular college entrance exam. By taking the official practice test, students can gain a good idea of what to expect on the actual exam. The new SAT will include three sections: math, critical reading, and a new writing section with an essay. Everything a student needs to take and score the practice test is online, including an answer sheet and instructions on how to score the test. Students should set aside sufficient time so that they can take the test in a single sitting, and they should allow themselves the specified time for each section.

The College Board is a not-for-profit membership association whose mission is to connect students to college success and opportunity. Founded in 1900, the association is composed of more than 4,500 schools, colleges, universities, and other educational organizations. Each year, the College Board serves over three million students and their parents, 23,000 high schools, and 3,500 colleges through major programs and services in college admissions, guidance, assessment, financial aid, enrollment, and teaching and learning. To learn more about the SAT Readiness Program, visit [www.collegeboard.com/newsat/hs/readiness.html](http://www.collegeboard.com/newsat/hs/readiness.html).

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### 100 OUTSTANDING K-12 EDUCATORS SURPRISED WITH \$25,000 MILKEN NATIONAL EDUCATOR AWARDS

In early October, 100 unsuspecting K-12 teachers, principals, and specialists throughout the U.S. were surprised with the news they had received the Milken National Educator Awards. Recipients will be presented with unrestricted \$25,000 award checks at the annual Milken National Education Conference, an all-expenses-paid professional development conference held

in Washington, D.C. Milken Family Foundation Chairman and Co-Founder Lowell Milken created the Milken National Educator Awards in 1985 to celebrate the efforts of the most outstanding educators the profession has to offer. Under his leadership, the awards have become the largest teacher recognition program in the United States, by year's end recognizing 2,077 exceptional educators from across America with over \$50 million in cash prizes from the foundation since the program's inception.

Unlike most teaching awards, the Milken National Educator Awards have no formal nomination or application process. Educators are considered for this prestigious honor without their knowledge by a blue-ribbon panel appointed by each state's department of education. Candidates for the Milken National Educator Awards are selected on the basis of numerous criteria, including exceptional educational talent as evidenced by outstanding instructional practices in the classroom, school, and profession; outstanding accomplishments and strong long-range potential for professional and policy leadership; and engaging and inspiring presence that motivates and impacts students, colleagues, and the community at-large. For more information, visit the Milken Family Foundation website at [www.mff.org](http://www.mff.org).

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CONGRESS PASSES BILL TO TIGHTEN LENDING RULES  
(Source: New York Times, October 12, 2004)

Congress has unanimously passed a bill to close loopholes that have enabled student loan companies to bill the federal government more than \$1 billion in what lawmakers and regulators describe as unnecessary subsidies since the mid 1990's. Despite the short tempers and partisanship that accompanied the close of the session, the Senate approved the legislation without opposition. The House had approved the same bill 414 to 0. With the savings, estimated at \$270 million or more for the coming fiscal year, Congress agreed to help pay off the loans of math, science, and special education teachers who commit to working in schools with low-income children for at least five years.

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TCEB LINKS

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

2005 Triangle Coalition Policy Conference - [www.trianglecoalition.org/conf.htm](http://www.trianglecoalition.org/conf.htm)

National Science Digital Library(NSDL) Pathways Projects - [www.nsdsl.org](http://www.nsdsl.org)

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

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

Boston Science Partnership - [www.umb.edu](http://www.umb.edu)

NEC Solutions America - [www.necsam.com](http://www.necsam.com)

Intel Model School Program - [www.intel.com/modelschool](http://www.intel.com/modelschool)

College Board Online Practice SAT - [www.collegeboard.com/srp](http://www.collegeboard.com/srp)

SAT Readiness Program - [www.collegeboard.com/newsat/hs/readiness.html](http://www.collegeboard.com/newsat/hs/readiness.html)

Milken National Educator Awards - [www.mff.org](http://www.mff.org)

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**APPLY NOW FOR THE 2005-06 ALBERT EINSTEIN DISTINGUISHED EDUCATOR FELLOWSHIP PROGRAM**

Attention current K-12 teachers: Are you an experienced educator who is ready to make a difference on a national scale? If so, consider applying for an Albert Einstein Distinguished Educator Fellowship and prepare for a year of unique opportunities. As a Fellow you will spend a school year in Washington, D.C., sharing your expertise with policy makers. You may serve your Fellowship with Congress or one of several government agencies such as the Department of Energy, the National Science Foundation, the National Institutes of Health, the National Oceanic and Atmospheric Administration, or NASA.

The goal of the Einstein Fellows program is to provide an opportunity for teachers to inform national policy and improve communication between the K-12 STEM education community and national leaders. The Fellowship program was created the program in 1990 with support from the MacArthur Foundation. Congress formalized the program in 1994 by passing the Albert Einstein Distinguished Educator Fellowship Act. The Triangle Coalition administers the program under the direction of the Department of Energy. Visit [www.trianglecoalition.org/ein.htm](http://www.trianglecoalition.org/ein.htm) to learn more about becoming an Einstein Fellow.

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**THIRD YEAR OF NSF'S MATH AND SCIENCE PARTNERSHIPS TO FOCUS ON TEACHER'S GRANTS**

Many K-12 teachers will be able to experience a more intense learning and leadership environment as the National Science Foundation(NSF) embarks on a major effort to improve the mathematics and science education of the nation's youth. NSF has announced that seven new Institute Partnerships: Teacher Institutes for the 21st Century will be formed as a result of five-year grants made to universities in the third year of competition for NSF's Math and Science Partnership(MSP) program. The new institutes represent an investment of more than \$31 million over five years for NSF's newest MSP program component. A prototype institute is already underway at the Institute for Advanced Study at Park City, UT. New institute awards have been made to the University of Nebraska, Oregon State University, Tufts University, and the University of Pennsylvania -- each receiving \$5 million over five years. Math and science teachers will study during summers or during the academic year at the new institutes being formed at these campuses. U-Penn(grades 5-12) and Tufts(grades K-8) Institutes will specialize in science. At the University of Nebraska (grades 5-8) and Oregon State University(grades K-

12) institutes will be for math teachers. Three more institute awards have been made to Rice University, Virginia Commonwealth University, and Florida Atlantic University(Boca Raton, FL), and will focus on mathematics teaching.

"The new institute partnerships address a national need for a new generation of experienced teacher-leaders at a time when many teachers of similar stature are retiring" says Joyce Evans, MSP program director. "These multi-year programs will provide courses and experiences that enable teachers to deepen and update their content knowledge, become more effective in the classroom, contribute to the development of more challenging or advanced courses, and become leaders and catalysts for reforming the mathematics and science programs in their schools." Institute participants, Evans explains further, should be able to assume increased responsibilities in their schools after successfully completing an institute program. To make that a reality, schools and districts are expected to provide the time, administrative support, resources, and the recognition and rewards commensurate with this increased responsibility. For more information, visit [www.ehr.nsf.gov/msp](http://www.ehr.nsf.gov/msp).

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**EDUCATION ORGANIZATIONS CALL FOR GREATER ATTENTION TO  
GIFTED LEARNERS IN MIDDLE SCHOOLS**

Two of the nation's leading education groups are calling for schools, teachers, and parents to assure that all middle school youngsters are in classrooms where "both equity and excellence are persistent goals for each learner." National Middle School Association(NMSA) and the National Association for Gifted Children(NAGC) have issued a joint position statement and call for action to meet the needs of high-ability and high-potential learners between 10 and 15 years of age. The statement, entitled "Meeting the Needs of High-Ability and High-Potential Learners in the Middle Grades," is being sent to education and government leaders throughout the United States. "Our challenge is to assure that every learner has access to the highest possible quality education and the opportunities to maximize his or her learning potential," said Carol Tomlinson, past president, NAGC. "Today's middle level schools must provide strong academic programs for all young adolescents, including advanced learners," said Sue Swaim, executive director, NMSA. "Yet, these opportunities must be presented in a developmentally responsive manner for students whose development differs at a given time."

NMSA and NACG are urging schools to implement appropriate identification, assessment, and curriculum and instruction programs for students with advanced abilities and/or advanced potential. Additionally, schools should build partnerships with all adults key to these students' development, and focus on the affective development of these youngsters. Finally, the position statement calls for increased pre-service and in-service staff development for middle level teachers dealing with gifted students. The position statement includes a "call to action" to ensure equity and excellence for all learners, including those of advanced performance or potential. It suggests specific steps for district and school leaders; teachers, gifted education specialists, and support personnel; and parents to take.

The position statement can be downloaded at [www.nmsa.org/news/716\\_gifted.htm](http://www.nmsa.org/news/716_gifted.htm). NMSA ([www.nmsa.org](http://www.nmsa.org)) is the nation's largest professional association focusing specifically on the

education of young adolescents(10- to 15-year-olds). NAGC([www.nagc.org](http://www.nagc.org)) is a non-profit organization of parents, teachers, educators, community leaders, and other professionals who unite to address the unique needs of all children and youth with demonstrated gifts and talents as well as those who may be able to develop their talent potential with appropriate educational experiences.

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NSTA SURVEY SAYS SCHOOLS DISTRICTS STRUGGLING TO  
FILL SCIENCE TEACHER VACANCIES

According to a survey by Triangle Coalition member, the National Science Teachers Association (NSTA), schools nationwide are struggling again this fall to fill science teacher vacancies. Of the 600 science educators who responded to an NSTA informal survey, 70 percent indicated that their school or school district is experiencing difficulty finding and hiring qualified science teachers. When asked if the problem has decreased or increased in recent years, 48 percent said that the problem has increased. "There are many reasons why we continue to experience a shortage of science educators, but the most disturbing is a high turnover rate among teachers," said NSTA President Anne Tweed. "From a lack of ongoing professional development to classroom management issues, and from too few resources to a lack of support from administrators, there are too many reasons not to teach. We must find ways to make the teaching profession more attractive so that prospective educators will choose to be science teachers -- and more importantly -- we must mentor and coach beginning teachers so that they will remain in the classroom once they arrive."

The survey also asked science teachers if their school district was seeking teachers certified through the alternative certification process. About 53 percent said their district was seeking these teachers. When asked about recruiting measures, just over 72 percent indicated that their district was not offering incentives or using other aggressive recruiting measures to attract qualified science teachers. The results come at a time when many news reports indicate a continued -- and heightened -- need for science educators in many states, including Florida, Maryland, North Carolina, and Virginia. "There has always been a high demand for science teachers, but in light of the No Child Left Behind Act, which requires all teachers to be highly qualified by 2005, the situation will only worsen," said NSTA Executive Director Gerry Wheeler. For more information, visit [www.nsta.org](http://www.nsta.org).

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HP ANNOUNCES 2005 TECHNOLOGY FOR TEACHING GRANT INITIATIVE

HP has announced its 2005 HP Technology for Teaching Grant Initiative, which will award grants totaling \$5 million in cash and HP equipment over two years to K-12 public schools and two- and four-year colleges and universities in the U.S. and Puerto Rico. This grant initiative is designed to support K-16 educators who are using mobile technology in innovative ways, and to help identify K-12 schools and higher education institutions that HP might support with future grants. Based on the outcomes of the projects funded through this initiative in 2005, HP will offer grant recipients the opportunity to receive higher-value grants in 2006. K-12 and higher education schools interested in this grant will find additional information, the Requests for

Proposals(RFPs) and application submission deadlines at [www.hp.com/go/hpteach](http://www.hp.com/go/hpteach).

The HP Technology for Teaching Grant Initiative was launched by HP in 2004. The total investment in schools through this grant over three years will be \$15 million. The goals of HP's education programs are to transform teaching and learning through the innovative use of technology, increase the number of underrepresented students on a path toward high-tech careers, and enhance student success in math, science, and engineering. HP is a technology solutions provider to consumers, businesses, and institutions globally. The company's offerings span IT infrastructure, personal computing and access devices, global services, and imaging and printing. More information about HP is available at [www.hp.com](http://www.hp.com).

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### COLLEGE READINESS CRISIS SPURS CALL FOR CHANGE BY ACT IN NATION'S CORE HIGH SCHOOL CURRICULUM

Even with a diploma in hand, many high school graduates do not have all of the skills to succeed in college-level coursework or workforce training. This is the conclusion of a new report from ACT, titled "Crisis at the Core: Preparing All Students for College and Work." Among the findings, only 22 percent of the 1.2 million high school graduates who took the ACT Assessment in 2004 achieved scores that would deem them ready for college in all three basic academic areas -- English, math, and science. Among the class of 2004, only 26 percent of ACT-tested high school graduates had scores indicating that they are ready to earn a "C" or higher in their first college biology course, and only 40 percent had scores indicating that they are ready to earn a "C" or higher in their first college algebra course. In addition, results from ACT's assessments for eighth and tenth graders have suggested that students who graduate from high school in 2006 and 2008 will be no better prepared for college than this year's graduates.

The report urges schools to strengthen the high school core curriculum to help improve students' readiness for college and the workforce. Students in K-8 who are not learning the foundational skills for rigorous high school coursework should be identified earlier and provided with supportive interventions, thus preparing them for higher level math and science courses such as trigonometry, pre-calculus, chemistry, and physics. ACT's research shows that certain courses such as biology, chemistry, and physics, and advanced math courses beyond Algebra II have a strong impact on student performance and college readiness.

The benefit of taking these courses can be seen in the ACT test scores for the national class of 2004. The ACT Assessment is scored on a 1 to 36 point scale. Students who took trigonometry in addition to the math core -- Algebra I, Algebra II, and geometry -- scored 2.6 points higher on the ACT Mathematics Test. Similar gains were seen on the ACT Science Test for students who took physics in addition to the science core -- biology and chemistry. Those who took trigonometry and another advanced math course scored even higher, as much as 4.4 points higher over those who took the math core. Score increases were seen for both genders and all racial/ethnic groups. The full report may be downloaded in PDF format at [www.act.org/path/policy/pdf/crisis\\_report.pdf](http://www.act.org/path/policy/pdf/crisis_report.pdf).

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### SCHOOLS TEST "E-LEARNING" TO BOOST GRADUATION RATES

(Source: St. Louis Post-Dispatch, October 16, 2004)

Fifty students in Madison and St. Clair counties will be able to complete high school degrees by taking classes online, after the state(MO) doled out almost \$370,000 to their schools for a pilot "e-learning" program. State officials and local superintendents gathered at Madison High on Friday to announce the launching of the initiative, which will allow students who are struggling in the traditional high school setting to take their classes online, any time of day. The state grant, which provides \$180,000 to Madison County and \$187,000 to St. Clair County, will allow Madison High and Lovejoy High to target 25 at-risk students each for the next year. The program is open not only to students who are currently enrolled and considering dropping out but also to dropouts 21 or younger who want to get a regular high school diploma.

Those students will be connected with a specialist who will give them day-to-day guidance on what classes they need to graduate, help them take the classes online and then assist them with making a postgraduation plan. The new "e-learning" program differs from online classes that are already in place because it connects students with workplace development groups in the two counties to find careers or schooling after receiving their diplomas.

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TCEB LINKS

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

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

NSF Math and Science Partnership(MSP) Program - [www.ehr.nsf.gov/msp](http://www.ehr.nsf.gov/msp)

National Middle School Association - [www.nmsa.org](http://www.nmsa.org)

National Association for Gifted Children - [www.nagc.org](http://www.nagc.org)

NMSA/NAGC "Meeting the Needs of High-Ability and High-Potential Learners in the Middle Grades" Position Statement - [www.nmsa.org/news/716\\_gifted.htm](http://www.nmsa.org/news/716_gifted.htm)

National Science Teachers Association - [www.nsta.org](http://www.nsta.org)

2005 HP Technology for Teaching Grant Initiative - [www.hp.com/go/hpteach](http://www.hp.com/go/hpteach)

HP - [www.hp.com](http://www.hp.com)

ACT Report: "Crisis at the Core: Preparing All Students for College and Work" - [www.act.org/path/policy/pdf/crisis\\_report.pdf](http://www.act.org/path/policy/pdf/crisis_report.pdf)

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CURRENT AND FORMER EINSTEIN FELLOWS PARTICIPATE IN  
NATIONAL ACADEMIES OF SCIENCES WORKSHOP

Dr. Bruce Alberts, President of the National Academies of Sciences(NAS), convened a workshop in Washington, DC on October 21-22 to get feedback from K-12 science, math, and technology education teachers. The workshop, made up of members of the NAS Teacher Advisory Council (TAC) and guest presenters, examined ways to improve mandatory professional development for teachers. Current Einstein Fellows David Kapolka(National Science Foundation), Diane Cherkerzian(Office of Senator Maria Cantwell), Mickie Flores(Office of Senator Richard Durbin), Al Bird(Office of Senator Daniel Akaka), and Joyce Stark(National Oceanic and Atmospheric Administration) took part. The NAS provided funding for travel for former Einstein Fellows Fe McLean(2003-04), Kaye Kamp(2002-03), and Ruth Rand(1999-2000) to participate. Regarding the workshop, Mickie Flores said, "I appreciated the experience because it exposed me to the process in which a variety of perspectives are shared, amassing the collective best thinking on this issue, and therefore informing policy position for the future." Copies of the workshop proceedings will be available in early 2005.

The Teacher Advisory Council was established in 2002 to advise the National Academies on matters related to education, especially teaching and learning in U.S. schools. The Council currently consists of a core group of eleven teachers representing the sciences, mathematics, and technology. Its mission is to increase the usefulness, relevance, and communication of research to educational practice; help the research community develop new research that is informed by practice; provide advice about how other National Academies programs, initiatives, and recommendations can be most effectively implemented in schools; and offer guidance about how the National Academies can best communicate with the teaching community in the United States. The Teacher Advisory Council is also working to establish a network of Associates in all 50 states and the District of Columbia who will serve with or advise the core group and the National Academies on specific issues when broader expertise is needed and inform teachers in their states about the work of the Council and the initiatives of the National Academies. For more information on the Teacher Advisory Committee, visit [www7.nationalacademies.org/tac](http://www7.nationalacademies.org/tac).

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"AMERICA'S TOP YOUNG SCIENTIST" CHOSEN AT DISCOVERY CHANNEL YOUNG SCIENTIST CHALLENGE

Out of an original field of thousands of middle-school students across the United States, 14-year-old Shannon McClintock has been selected as "America's Top Young Scientist of the Year" by a panel of judges at the Discovery Channel Young Scientist Challenge(DCYSC). Shannon, a student at Scripps Ranch High School in San Diego, CA, was chosen as the grand prize winner from an elite group of forty of the top young scientists in the nation. She won a \$15,000 scholarship award. The second-place winner in the competition was 12-year-old Blake Thompson of Gainesville, FL, and third place was awarded to 14-year-old David Westrich of Cape Girardeau, MO. The winners were judged based on a composite of scores earned from oral presentations of their individual science projects and their participation in two days of "Extreme Einstein Challenges" that took place at the University of Maryland. To commemorate 100 years of Einstein's physics, the team-based, interactive challenges involved all aspects of physics -- from relativity and molecular motion to gravity and the photoelectric effect.

In 1999, Discovery created the DCYSC to be a part of the solution to America's chronic underachievement in science and math. The competition responds to evidence that academic performance and interest in science among American students declines dramatically as students get older -- particularly during the middle school years. More than 7,500 children have entered the DCYSC since its inception. Winners have been awarded more than \$400,000 in scholarship awards, received federal government recognition, and participated in science-related trips that have taken them to the far corners of the globe. Triangle Coalition member, Science Service, administers the DCYSC, which will be broadcast on The Discovery Channel on December 19th. For additional information, visit [www.sciserv.org/dyisc](http://www.sciserv.org/dyisc).

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U.S. DEPARTMENT OF LABOR WOMEN'S BUREAU RELEASES "HOW TO" MANUAL FOR SCIENCE AND TECHNOLOGY MENTORING

As a part of the U.S. Department of Labor(DOL) Secretary Elaine L. Chao's "Strengthening the Family in the 21st Century" initiative, the Women's Bureau has released to the public a "how to" manual providing information on its GEM-SET program, which provides young women all across the United States with a variety of mentors and resources in the fields of science, engineering, and technology. The archive contains questions and answers from GEM-SET students and mentors. The Women's Bureau at the DOL worked with University of Illinois at Chicago to create the GEM-SET program in 2001. With mentors from all over the nation, GEM-SET gives guidance to young women ages 13-18 interested in careers in these fields. The manual contains a full guide about how to create science, engineering, and technology mentoring programs for young girls and women.

The GEM-SET program currently has over 200 mentors and more than 900 students participating from all over the United States. This year, GEM-SET focused on working with more than 300 young women from urban and/or immigrant populations residing in major cities like Chicago, Houston, Los Angeles, Miami, and New York. Continuing their support, the Women's Bureau created the manual to provide guidance, assistance, and tips to those who wish to replicate the GEM-SET program or design similar programs. It includes information on funding and staffing, technology needs, recruiting and community out-reach, tips for future programs, and sustainability. The manual is available online at [www.uic.edu/orgs/gem-set](http://www.uic.edu/orgs/gem-set) and will also be available in print and CD format.

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DAVIDSON INSTITUTE SEEKS DAVIDSON FELLOWSHIPS APPLICANTS

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 Oct. 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. The deadline to apply is March 25, 2005. Each year, the Davidson Fellows are honored at a September reception in Washington, D.C. 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. For more information on the Davidson Fellows, or to download an application, please visit [www.davidsonfellows.org](http://www.davidsonfellows.org).

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**JOHNSON CONTROLS AND NEF ENCOURAGES STUDENT PROJECTS ON ENERGY CONSERVATION AND THE ENVIRONMENT**

Johnson Controls and the National Energy Foundation(NEF) have announced the launch of the fourth Igniting Creative Energy Challenge. The Challenge is an educational competition designed to encourage students to learn more about energy and the environment. Students are asked to submit entries that reflect the competition theme, Igniting Creative Energy, and demonstrate an understanding of what an individual, family, or group can do to make a difference in their home, school, or community. Students may express their ideas on energy conservation and the environment in the form of science projects, essays, stories, artwork, photographs, music, video, or website projects. They may also submit recent service projects or results from the National Energy Foundation's own Energy Patrol activities.

"Students play an important role in energy usage which naturally extends to our business of providing energy solutions," said Jeff Crenshaw, Director, Public Sector Sales for Johnson Controls. "As we introduce our fourth Challenge, we are continually impressed by the excitement and creativity students and teachers exhibit in showing ways to preserve the environment and conserve energy." The Challenge is open to all students in grades K-12 in the U.S. and Canada, excluding Quebec. All entries are due by February 19, 2005, and winners will be announced on or about March 21, 2005. The Challenge is sponsored and funded through an educational grant by Johnson Controls, Inc. with additional support from the United States Energy Association, and is administered by the National Energy Foundation. Official rules about the contest and a downloadable entry form can be found at [www.ignitingcreativeenergy.org](http://www.ignitingcreativeenergy.org).

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**2005 TOYOTA INTERNATIONAL TEACHER PROGRAM**

Toyota Motor Sales, U.S.A., Inc. is offering secondary school teachers a unique opportunity to travel to Japan through the Toyota International Teacher Program. During this short-term study program, participants will be introduced to Japan's past and present, and will consider selected global issues that impact industrialized nations. The program will focus on how history, education, environment, and technology affect industry and society. This professional development opportunity is open to full-time educators of grades 9-12, from Alabama, California, Indiana, Kentucky, Michigan, Missouri, Texas, New York, West Virginia, and Washington, D.C. Now in its seventh year, the program offers teachers a chance to learn about Japan's culture, history, and education system, as well as its approach to issues such as technology and the environment.

An exciting addition to the June 2005 program includes a two-day visit to the 2005 World Expo

in Aichi, Japan, which is being sponsored by Toyota. The program provides participants with the opportunity to enhance global skills and perspective and enhance their high school curricula. After the trip, participants are asked to commit themselves to sharing what they have learned and experienced with their students, colleagues, and schools. Secondary teachers(grades 9-12) in the ten program states are encouraged to submit applications for the 2005 Toyota International Teacher Program. Interested individuals can apply at [www.iie.org/programs/toyota](http://www.iie.org/programs/toyota). The application deadline is January 10, 2005.

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## A SUMMER VACATION TRACKING DOWN UFOS

Erin Schumacher's summer job for NASA was to look for UFOs. Erin is a 16-year-old high school student from Redondo Beach, CA, attending the California Academy of Mathematics and Science in Carson. She was one of ten students selected to work at NASA's Jet Propulsion Laboratory(JPL) in Pasadena as part of the Summer High School Apprenticeship Research Program, or SHARP. But is studying UFOs a useful kind of NASA research? It is when they are "unidentified flashing objects" that appear in certain images of Earth from space. Erin worked with scientists on the Multi-angle Imaging SpectroRadiometer(MISR) project to track down these mysterious features. MISR is one of five instruments onboard the Earth-orbiting Terra satellite. MISR's nine separate cameras all point downward at different angles, each camera in turn taking a picture of the same piece of Earth as the satellite passes overhead. Viewing the same scene through the atmosphere at different angles gives far more information about the aerosols, pollution, and water vapor in the air than a single view would give. Erin's job was to carefully examine the pictures looking for any flashes of light that might be visible from just one of the nine angles.

The NASA Summer High School Apprenticeship Research Program is designed for students who have demonstrated a strong interest in and aptitude for science, technology, engineering, mathematics, and geography(STEM+G). One of NASA SHARP's objectives is to encourage the career paths of pre-college students who have been traditionally underrepresented in STEM+G fields. Each year, approximately 400 students will be selected to participate in NASA SHARP for a minimum of eight weeks during the summer. Some of NASA's top science professionals, while conducting cutting-edge research as well as working on state-of-the-art equipment, mentor qualified students. For more information about SHARP, visit [www.nasasharp.com](http://www.nasasharp.com). For more information about Triangle Coalition member, NASA, visit [www.nasa.gov](http://www.nasa.gov).

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## CONFERENCE CALENDAR

The Triangle Coalition maintains an online conference calendar at [www.trianglecoalition.org/calendar.htm](http://www.trianglecoalition.org/calendar.htm) with links to many educational events, including the following:

- November 14-16: American Nuclear Society Nuclear Technology Expo 2004, Washington, DC;
- 15-19: Acoustical Society of America Meeting, San Diego, CA;
- 18-20: National Science Teachers Association Northwestern Area Convention,

Seattle, WA;

December 2-4: National Science Teachers Association Eastern Area Convention,  
Richmond, VA;

January 5-8, 2005: Joint Mathematics Meetings -- 111th Annual Meeting of the American  
Mathematical Society and 88th Meeting of the Mathematical Association of  
America, Atlanta, GA;

February 17-21: American Association for the Advancement of Science Annual Meeting,  
Washington, DC;

March 17-18: 2005 Triangle Coalition Legislative Update Conference, Washington, DC.

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#### TCEB LINKS

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

National Academies of Sciences Teacher Advisory Council - [www7.nationalacademies.org/tac](http://www7.nationalacademies.org/tac)

Discovery Channel Young Scientist Challenge - [www.sciserv.org/dysc](http://www.sciserv.org/dysc)

GEM-SET - [www.uic.edu/orgs/gem-set](http://www.uic.edu/orgs/gem-set)

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

Igniting Creative Energy Challenge - [www.ignitingcreativeenergy.org](http://www.ignitingcreativeenergy.org)

Toyota International Teacher Program - [www.iet.org/programs/toyota](http://www.iet.org/programs/toyota)

NASA Summer High School Apprenticeship Research Program - [www.nasasharp.com](http://www.nasasharp.com)

NASA - [www.nasa.gov](http://www.nasa.gov)

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

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#### OHIO ACADEMY OF SCIENCE CEO HONORED WITH 2004 OSBA PRESIDENT'S AWARD

The Ohio School Boards Association has bestowed one of its highest honors, the President's  
Award, on Lynn Edward Elfner, chief executive officer of the Ohio Academy of Science, a  
member of the Triangle Coalition. Elfner has been CEO of the Columbus-based Ohio Academy  
of Science ([www.ohiosci.org](http://www.ohiosci.org)) since 1975, and is the academy's representative to the National  
Association of Academies of Science. He also serves on the Ohio Historical Society Board of

Trustees, and the Board of Directors of the Triangle Coalition. The President's Award recognizes individuals who, over a lifetime, have advocated for lay-leadership and control of public education. "While I've received a number of honors and awards in my career," explains Elfner, "this one is special because it comes from a colleague who represents local public school boards -- still an effective mechanism to assure the admonition of the Northwest Ordinance: 'schools and the means of education shall forever be encouraged.'"

Elfner previously was a science teacher at Mount Orab Local Schools in Brown County, an instructor at The Ohio State University, executive director of the Ohio Environmental Council, and served at the Ohio Office of Budget and Management. He earned his bachelor's and master's degrees from The Ohio State University. At the Ohio Academy of Science, Elfner leads a volunteer-driven, not-for-profit organization dedicated to fostering curiosity, discovery, and innovation. The academy also strives to benefit society by uniting all who value education, science, engineering, and technology. In support of those efforts, the organization conducts an annual meeting and science days, and publishes an international, multidisciplinary, scientific journal. A fellow of the American Association for the Advancement of Science, Elfner's many honors include the Ohioana Library Association Book Award; the National Association of Academies of Science Distinguished Service Award; and The Ohio State University College of Agriculture's Distinguished Alumni Award. He also received the Friend of Science Award from the Science Education Council of Ohio, as well as the President's Award from the Ohio Alliance for the Environment. The Ohio School Boards Association is in its 49th year of service to public education and represents 100 percent of the state's public school boards' members.

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**PRESIDENT BUSH NAMES MARGARET SPELLINGS AS NEW EDUCATION SECRETARY**

President Bush has named Margaret Spellings to replace Rod Paige as Education Secretary. Paige recently resigned his position, citing an interest to return to Texas to devote attention to a personal project. Spellings currently serves as a domestic policy adviser, and worked for six years as an education advisor to Bush when he was Governor of Texas, focusing her efforts on early reading and student accountability programs. Spellings, 46, is a former Texas school board lobbyist and is credited with helping to develop the No Child Left Behind Act. Regarding her nomination, Spellings said, "I believe in America's schools, what they mean to each child, to each future President or future domestic policy advisor, and to the strength of our great country. If confirmed by the Senate, I commit to work alongside America's educators and my new colleagues at the Department of Education to make our schools the finest in the world."

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**STUDENT IDEAS NEEDED TO NAME NOAA'S NEW SHIP**

Triangle Coalition partner, the National Oceanic and Atmospheric Administration(NOAA), in partnership with Coastal America and the National Environmental Education and Training Foundation, invites students nationwide in grades 6-12 to participate in a contest to choose a name for a new NOAA ship. Ship names and supporting projects that capture the spirit of ocean exploration are encouraged. Generally, NOAA ships are named for mission-type, environmental

phenomena, myths or traditions, geographical features, or former decommissioned ships crewed by NOAA personnel or predecessors. NOAA's new ocean exploration ship will be unique because it will be the only NOAA ship dedicated exclusively to exploration and research of our oceans. The new vessel will join NOAA's fleet, under the direction of NOAA's Marine and Aviation Operations. Information about NOAA's fleet can be found at [www.nmao.noaa.gov](http://www.nmao.noaa.gov). NOAA ships are staffed by commissioned officers of the NOAA Corps and civilians. The Corps is comprised of officers -- all scientists and engineers -- who provide NOAA with an important blend of operational, management, and technical skills supporting NOAA's environmental programs.

All students in grades 6 through 12 from all U.S. state-recognized public, private, and home schools are eligible to participate. Student teams must be composed of at least four, but not more than eight students, can include students from more than one grade, and can also include members of clubs, scouting groups, or similar organizations. The winning team and school will receive a visit from the undersecretary of commerce for oceans and atmosphere and from a renowned ocean explorer. Students from the winning team will also be invited for a day tour of one of NOAA's atmospheric or oceanographic facilities. During their visit, students will have the opportunity to learn about NOAA, environmental stewardship and the role they can play in protecting the ecosystem. The winning school will receive a plaque and a videotape of the commissioning ceremony of the ship, which is anticipated to occur in 2005-2006. This ceremony marks the time the ship officially becomes part of the NOAA fleet. The ship will carry a plaque with information about the winning team and its school. For more information, visit [www.education.noaa.gov/shipname](http://www.education.noaa.gov/shipname).

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**THE WORLD YEAR OF PHYSICS 2005 PHYSICS TALENT SEARCH**

The World Year of Physics 2005 Physics Talent Search is an international educational project aimed at increasing participation in physics among students ages 10-19. 2005 young people from around the world will be honored as "Physics Young Ambassadors." The Talent Search will begin with a process similar to earning a merit badge in scouting-type organizations. Students will participate in activities drawn from several lists and will earn points for these activities. The points system is designed so that all students who participate in the project feel encouraged and have a positive experience with physics. Any student earning 10 or more points will be recognized as a "United States WYP2005 Physics Talent," and receive a certificate of achievement and a letter from a physicist. Students who earn points equal to their age, in years, will also receive an "International Honorable Mention," including further rewards. To choose the 2005 students worldwide, each country will select equal numbers of male and female students from among its honorable mention winners. Each participating country will contribute ambassadors in proportion to the country's population. Of the 2005 Young Ambassadors, 116 will represent the United States.

The goal of the United States Physics Talent Search is to create enthusiasm, interest, and participation in physics among young people and their families. The project is a part of the International Physics Talent Search for the World Year of Physics 2005, and is sponsored by several groups including Triangle Coalition members, the American Institute of Physics, the

National Science Foundation, and the U.S. Department of Energy's Office of Science. For more information, visit [www.physics2005.org/events/talentsearch](http://www.physics2005.org/events/talentsearch).

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STATE REQUIREMENTS FOR ALGEBRA PREP IN MIDDLE SCHOOL PROMPTS  
CURRICULUM ADVANTAGE TO RELEASE CLASSWORKS ALGEBRA SERIES

As education leaders and new state laws push districts to teach algebra in eighth grade, Curriculum Advantage has announced the release of the "Algebra Series for Classworks," a network-based system of K-12 reading and mathematics curriculum that teaches pre-algebra and algebra to middle school students. Some state learning standards, including the new Georgia Performance Standards and California's Mathematics Content Standards, require that algebra concepts be mastered by the end of eighth grade. In response to the need for algebra curriculum in the middle grades, the new "Algebra Series for Classworks" includes 60 hours of algebra and pre-algebra curriculum. The series offers instruction to ensure that middle school students develop a strong base of algebraic understanding and are better prepared for high school level algebra, geometry, trigonometry, and calculus.

The series also includes more than 330 activities that assess, instruct, remediate, and extend students' exposure to both pre-algebra and algebra. A Classworks pretest given before each unit automatically prescribes a personalized series of lessons for each student, which ensures that students are working on curriculum relevant to their instructional needs. Detailed reports keep teachers abreast of student progress and allow them to edit the activity path if necessary. For more information, visit [www.curriculumadvantage.com](http://www.curriculumadvantage.com).

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PENNSYLVANIA HIGH SCHOOL WINS INTERNATIONAL DESIGN COMPETITION

A student team from Bloomsburg, PA high school won "Best Overall and Fastest Car" in the international finals of the "Jaguar F1 Team in Schools CAD/CAM Design Challenge," in October in Birmingham, England, in the first appearance by a US team. Teams competed from Australia, Brunei, England, Northern Ireland, Scotland, South Africa, Thailand, United States, and Wales. Each team designed, analyzed, built, and raced a Formula One(F1)-type CO<sub>2</sub>-powered car. They also documented and were judged on their design process and oral presentation. "Turbo," the Bloomsburg High School Team, learned a vital lesson when a lack of proper documentation cost them first place in the US regionals, according to Team Advisor Instructor Kirk Marshall. For the nationals, the team totally re-engineered its cars to meet all design specifications, incorporated a unique new aerodynamic design, and created a display and portfolio beyond reproach.

Founded in England in 1999, the "Jaguar F1 Team in Schools CAD/CAM Design Challenge" has attracted more than 34,000 students in England alone. The program showcases how fascinating engineering can be. "It's like taking a lid off a box and letting students grow," says Mike Beasley, patron of F1 in Schools, former managing director of Jaguar, and chairman of CBI. Business, though, drives the program. "We urgently need young people to enter engineering," says Les Ratcliffe, Manager, Community Affairs, Jaguar Cars. "We're experiencing a crucial

shortage of engineers." Students, 11-18 years of age, can enter the F1 competition. For more information, visit [www.f1inschools.co.uk](http://www.f1inschools.co.uk).

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**HP LAUNCHES INTERNET CLASSROOM TRAINING FOR CALCULATORS**

Transforming how it trains students, teachers, and professionals in the use of its popular financial, graphing, and scientific calculators, HP has launched three teacher training and learning aid programs for educators and students. U.S. educators are invited to sign up now for eight free virtual classrooms at [www.hp.com/calculators/training](http://www.hp.com/calculators/training). The programs include online courses, virtual classrooms, and "emulator" software that allows for HP calculators to be presented on a computer screen and projected digitally. The interactive software is expected to quickly replace the clunky, outmoded traditional overhead projectors and transparencies that most teachers have been using.

Also available now to qualified educators is emulator software for most of HP's calculators. This software transforms a PC into a working calculator, giving both educators and students access to a mouse-controlled, on-screen replica of a completely functional calculator. Using the emulator software is simple. The teacher connects a PC loaded with the software to a projector and has instant access to an "emulator" calculator. Similar to a real calculator, the projection screen shows a larger-than-life demonstration of each keystroke required to solve complex engineering, computer science, math, and business problems. Instead of peering over shoulders to look at a handheld device, students can sit in lecture halls observing with ease the step-by-step instructions the instructor is demonstrating. For more information, visit [www.hp.com/go/graphemulators](http://www.hp.com/go/graphemulators).

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**NEW ONLINE COURSES ENCOURAGE INNOVATIVE TEACHING TO INSPIRE STUDENTS IN SCIENCE**

Picture a classroom of students, led by an enthusiastic teacher, actively exploring how bird beak structures affect diets or replicating Galileo's gravity experiments, assisted by video clips from award-winning science documentaries and interactive online activities. Teachers' Domain Professional Development([www.teachersdomain.org/courses](http://www.teachersdomain.org/courses)) is a series of online courses for K-12 educators. The courses provide teachers with multimedia resources for their classrooms, and help to enhance their knowledge of science concepts while presenting effective strategies to inspire students. Teachers' Domain Professional Development courses integrate inquiry learning with streaming video and interactive experiences from award-winning public television science programs and websites, including NOVA, ZOOM, and A Science Odyssey. Using this model, teachers discover first-hand how stimulating learning with multimedia can be. The media, coupled with thought-provoking activities and opportunities to enter online discussions with peers, were designed to increase teachers' breadth and depth of content knowledge in science and, by extension, improve student achievement in science.

The first three courses available are Teaching Elementary Life Science, Teaching Elementary Physical Science, and Teaching Middle School Life Science. Additional courses, including those for high school teachers, are expected to launch in 2005. All course content corresponds to

the National Science Education Standards and the MCREL Compendium of K-12 Standards. Information about the courses, licensing opportunities, and technical requirements is available at [www.teachersdomain.org/courses](http://www.teachersdomain.org/courses). Teachers' Domain Professional Development builds upon Teachers' Domain [www.teachersdomain.org](http://www.teachersdomain.org), an online multimedia library of K-12 science resources correlated to national and state standards. Funded by the National Science Foundation as part of National Science Digital Library, Teachers' Domain includes lesson plans, background essays, and customization features for introducing multimedia resources into the classroom.

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TCEB LINKS

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

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

National Oceanic and Atmospheric Administration Ship Naming Competition - [www.education.noaa.gov/shipname](http://www.education.noaa.gov/shipname)

NOAA's Marine and Aviation Operations - [www.nmao.noaa.gov](http://www.nmao.noaa.gov)

World Year of Physics 2005 Physics Talent Search - [www.physics2005.org/events/talentsearch](http://www.physics2005.org/events/talentsearch)

Curriculum Advantage's "Algebra Series for Classworks" - [www.curriculumadvantage.com](http://www.curriculumadvantage.com)

Jaguar F1 Team in Schools CAD/CAM Design Challenge - [www.f1inschools.co.uk](http://www.f1inschools.co.uk)

HP Teacher Training - [www.hp.com/calculators/training](http://www.hp.com/calculators/training)

HP Emulators - [www.hp.com/go/graphemulators](http://www.hp.com/go/graphemulators)

Teachers' Domain Professional Development - [www.teachersdomain.org/courses](http://www.teachersdomain.org/courses)

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TRIANGLE COALITION REMEMBERS ACCOMPLISHMENTS OF G. CARL BALL

The Triangle Coalition joins others in the educational community in recognizing the broad achievements of G. Carl Ball, former CEO and Chairman of Geo. J. Ball, Inc., who passed away in September. In addition to spearheading a variety of agricultural industry achievements, Ball was a lifelong advocate of education. Ball was also founder of Triangle Coalition member, the Ball Foundation, and had served on the Triangle Coalition Board of Directors in the 1990's. In fact, even into his late 60's, he served as a substitute teacher for third and fifth grade classes in West Chicago. According to Ball, "The purposes of education are at the least threefold: the development of the individual, the needs of an informed citizenry, and the economic one -- to prepare our young people to have the ability to achieve our goals in the world economy."

The Ball Foundation's mission is to discover and develop human potential. This mission is pursued through the foundation's two major programs: Career Vision and Education Initiatives. Career Vision develops aptitude-based career products that promote self-knowledge as an essential tool in effective career management. Beginning in the early 1990s, the foundation began to expand its focus to K-12 education. Education Initiatives began by developing a shared decision-making model and commissioning two research reports. The Foundation also started three charter schools in Illinois and Arizona. Education initiatives' current mission is to partner with school districts to help them become highly productive educational systems so that all students achieve to their full potential and develop a lifelong enthusiasm for learning. For more information about the Ball Foundation and the life of G. Carl Ball, visit [www.ballfoundation.org](http://www.ballfoundation.org).

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**REPRESENTATIVES EHLERS AND UDALL SEEK HIGHER FUNDING FOR FY 2006  
MSPS – ADDITIONAL CONGRESSIONAL SUPPORT IS NEEDED!**

The Fiscal Year 2005 Budget recently passed by Congress funds the Department of Education Math Science Partnerships at \$180 million, a 20% increase over FY 2004, but \$89 million less than had been expected. The NSF Math Science Partnership program is back in the budget for FY 2005, but funded at only \$80 million instead of the hoped for \$100 million that was in the Senate passed funding bill. Representatives Ehlers(R-MI 3rd) and Udall(D-CO 2nd) have joined forces to seek increased funding for FY 2006.

The two Representatives, Co-Chairs of the House STEM Education Caucus, have jointly written to White House Office of Management and Budget(OMB) Director Josh Bolten asking that OMB provide \$400 million for the MSP program at Department of Education and \$200 million for the MSP's at the National Science Foundation. This is the time when many members of Congress and others are vocalizing their priorities for FY 2006 funding to the OMB director. To be most effective the letter from Representatives Ehlers and Udall needs to have as many signatures as possible and this is where members have a chance to express their concern. Triangle Coalition members are urged to let their Congressional Representatives know how important this funding can be to efforts in their individual states and encourage them to sign on to the letter to show their support. The full text of the Ehlers/Udall letter to OMB is available at [www.trianglecoalition.org/pdf/fy06let.pdf](http://www.trianglecoalition.org/pdf/fy06let.pdf).

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**NASSMC STATE SUMMITS IMPLEMENTATION PROGRAM**

The National Alliance of State Science and Mathematics Coalitions(NASSMC) is working in collaboration with the National Aeronautics and Space Administration(NASA), the U.S. Department of Education, and other agencies and organizations to encourage the development of state STEM education summits. \*In 2003 and 2004, the U.S. Secretary of Education convened national summits to bring urgently needed attention to the state of mathematics and science education. In direct response to the national summits, a call was issued for the implementation of state-level summits focusing on state-specific STEM education concerns and addressing necessary actions to develop improved systems for delivering mathematics, science, and

technology education to all students from pre-kindergarten through college.

The NASSMC State Summits Implementation Program(NSSIP) provides assistance to state based organizations with planning, developing, administering, implementing, following-up, and sustaining state mathematics and science education summits. The NSSIP is open to state-based organizations that comprise a coalition of business, education, and public policy leaders or other state organizations representing all three constituencies and united by a vision for improving STEM education. The proposing coalition must represent all three constituencies and must be state-wide in scope. For additional NSSIP details, visit [www.nassmc.org/summits.html](http://www.nassmc.org/summits.html). NASSMC is an umbrella organization for state-based coalitions of business, education, and public policy leaders united for the improvement of mathematics, science, and technology education. Both NASSMC([www.nassmc.org](http://www.nassmc.org)) and NASA ([www.nasa.gov](http://www.nasa.gov)) are members of the Triangle Coalition.

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**WORK WITH NASA AS PART OF AN EXPLORER SCHOOL TEAM**

Schools from across the country are encouraged to apply on-line for an opportunity to partner with the National Aeronautics and Space Administration(NASA) in a program designed to bring engaging mathematics, science, and technology learning to educators, students, and families. Each year, the NASA Explorer Schools(NES) program, which was launched in June 2003, establishes a three-year partnership between NASA and 50 school teams, consisting of teachers and administrators from diverse communities across the country. While partnered with NASA, NES teams acquire and use new teaching resources and technology tools for grades 4-9 using NASA's unique content, experts, and other resources. Schools in the program are eligible to receive funding(pending budget approval) over the three-year period to purchase technology tools that support science and mathematics instruction. The application deadline is January 31, 2005. For more information, visit <http://explorerschools.nasa.gov>.

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**QUALITY MATH FOR ALL STUDENTS: MAKING THE VISION A REALITY**

Triangle Coalition member, the National Council of Teachers of Mathematics(NCTM), and the Minnesota Council of Teachers of Mathematics(MCTM) hosted the NCTM Central Regional Conference and Exposition in Minneapolis, November 11-13. The three-day conference, "Quality Mathematics for All Students: Making the Vision a Reality," brought together math educators from preschool through university levels to exchange ideas on how students learn math. Local host MCTM has organized a conference that offered more than 360 sessions to challenge educators to add to their math knowledge and increase their instructional skills. In an era when educators are balancing No Child Left Behind with state and district accountability, the conference offered solutions and help teachers plan lessons that motivate their students. Math's practical connection to daily life were brought home in "The Mathematics of Voting and Elections", "Mathematics in the Comic Strips", and sessions on teaching math to students of all ages through literature. Another session showed how works by Abbott and Costello and Laurel and Hardy can help students understand geometry and number theory.

With 100,000 members and 250 Affiliates throughout the United States and Canada, NCTM is the world's largest organization dedicated to improving math teaching and learning for grades preK-12. NCTM's "Principles and Standards for School Mathematics," published in 2000, provides guidelines for excellence in mathematics education and issues a call for all students to engage in more challenging mathematics. Its content is extended online through the E-Standards ([standards.nctm.org](http://standards.nctm.org)) and Illuminations ([illuminations.nctm.org](http://illuminations.nctm.org)). For more information, visit [www.nctm.org](http://www.nctm.org).

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**SCIENCE, TECHNOLOGY, ENGINEERING, AND MATHEMATICS TALENT  
EXPANSION PROGRAM**

The National Science Foundation(NSF) is seeking proposals for the Science, Technology, Engineering, and Mathematics Talent Expansion Program(STEP). Undergraduate education is central to the NSF's mission in human resource development. Whether preparing students to participate as citizens in a technological society, to enter the workforce with two- or four-year degrees, to continue their formal education in graduate school, or to further their education in response to new career goals or workplace expectations, undergraduate education provides the critical link between the nation's secondary schools and a society increasingly dependent upon science and technology. NSF believes that increasing the number of undergraduate students obtaining degrees in science, technology, engineering, and mathematics(STEM) fields will provide a workforce that is prepared to ensure a healthy economy, respond to demands for national security, and maintain and elevate the quality of life and standard of living in the United States through technological and scientific advancements.

STEP seeks to increase the number of students(U.S. citizens or permanent residents) receiving associate or baccalaureate degrees in established or emerging fields within STEM. Type 1 proposals are solicited that provide for full implementation efforts at academic institutions. Type 1 proposals are invited from academic institutions in the United States and its territories, from consortia thereof, or from nonprofit organizations that have established consortia among such academic institutions. Type 2 proposals are solicited that support educational research projects on associate or baccalaureate degree attainment in STEM. Type 2 proposals are invited from any individual or organization eligible to submit proposals to the NSF. The deadline for optional letters of intent is January 6, 2005; full proposals are due February 10, 2005. For additional details, visit [www.nsf.gov/pubs/2005/nsf05519/nsf05519.htm](http://www.nsf.gov/pubs/2005/nsf05519/nsf05519.htm).

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**THE NEWTON FELLOWSHIP PROGRAM**

Math for America(MfA) is currently seeking mathematically sophisticated individuals with an interest in teaching in New York City to become 2005 Newton Fellows. The Newton Fellowship Program focuses on the shortage of adequately qualified mathematics teachers in our nation's public high schools by training mathematically-talented individuals to become high school math teachers. The Program currently operates in New York City and is endorsed by the New York City Department of Education. MfA will appoint over 180 Newton Fellows in NYC over the next five years, and is planning to expand the program to other cities in the future.

Newton Fellowships are available to mathematically sophisticated individuals who are interested in using their talents to make a difference in the lives of young people. MfA seeks recent college graduates and mid-career professionals who can demonstrate a strong interest in teaching, have a bachelor's degree with substantial coursework in mathematics, and are willing to commit to a five-year program that includes one year of full-time graduate study and four years of teaching mathematics in New York City high schools. A minimum of 18 credits in mathematics courses at the Calculus level or higher are required for consideration. Exceptions are possible if a candidate has significant math-related coursework or work experience in fields such as engineering or physical sciences. The application deadline is February 4, 2005. For more information, visit [www.mathforamerica.org](http://www.mathforamerica.org).

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### STUDY SAYS STUDENTS' MATH PROFICIENCY DOESN'T ADD UP

(Source: USA TODAY, November 18, 2004)

The math skills of the nation's public school students have risen steadily for more than a decade, but a new study suggests that the progress may not be as significant as it seems. A close look at questions on the widely given National Assessment of Educational Progress, or NAEP, math test shows that many items focus on concepts that students should have learned years earlier, says researcher Tom Loveless of the Brookings Institution's Brown Center on Education. "Yes, they're making gains, but they're making gains in trivial mathematics", he says. For instance, 90.7% of the problem-solving arithmetic items on the eighth-grade NAEP involve concepts commonly taught in fifth grade or earlier. A few observers say the study ignores the ongoing changes to NAEP. Given periodically to thousands of students nationwide, NAEP has become a key barometer used by educators and policymakers to judge the basic skills of U.S. students. Since the 1990s, scores have risen rapidly. In fact, fourth-graders last year scored high enough to nearly match the skill level of sixth-graders in 1990. But Loveless, who pulled publicly released items from NAEP's website, says the test is "completely dominated" by questions involving whole numbers, suggesting that students are "probably not sophisticated at all in their proficiency."

Sharif Shakrani, a mathematician and deputy executive director of the National Assessment Governing Board, which develops NAEP, says Loveless concentrated on a special test that focuses on long-term data, one that has "more direct computational items" that test basic arithmetic. He says the NAEP that most students take is more wide-ranging, "much more sophisticated and more difficult than the long-term trend (NAEP), which has not changed over the last 30 years." The annual Brookings report also criticizes the training that most middle-school math teachers receive, saying it should focus more on subject-area knowledge and less on teaching methods and state standards. It also says school districts should focus on training the one-fourth of teachers who badly need content-area help. National Council of Teachers of Mathematics president Cathy Seeley agrees with that finding, adding that the council has recommended "extended study" for particular content areas. But she says teachers also need training in teaching methods. "I think it's a matter of survival that we don't send them into the classroom unarmed for helping students learn."

(Editor's Note: For more information on the National Assessment of Educational Progress, visit <http://nces.ed.gov/nationsreportcard>.)

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## TCEB LINKS

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

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

Representatives Ehlers and Udall Letter to White House Office of Management and Budget - [www.trianglecoalition.org/pdf/fy06let.pdf](http://www.trianglecoalition.org/pdf/fy06let.pdf)

NASSMC State Summits Implementation Program - [www.nassmc.org/summits.html](http://www.nassmc.org/summits.html)

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

NASA Explorer Schools Program - <http://explorerschools.nasa.gov>

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

NSF Science, Technology, Engineering, and Mathematics Talent Expansion Program - [www.nsf.gov/pubs/2005/nsf05519/nsf05519.htm](http://www.nsf.gov/pubs/2005/nsf05519/nsf05519.htm)

National Aeronautics and Space Administration(NASA) - [www.nasa.gov](http://www.nasa.gov)

Newton Fellowship Program - [www.mathforamerica.org](http://www.mathforamerica.org)

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

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## TRIANGLE COALITION ANNUAL POLICY CONFERENCE

The Triangle Coalition will hold its third annual policy conference on March 17-18, 2005 at The Hamilton Crowne Plaza Hotel in Washington, DC. The purpose of the 2005 conference is to inform conference participants about current legislative issues that are or will be having an effect on their local science, math, and technology education initiatives. Discussion will center on current and upcoming education policy decisions and will include presentations and panel discussions from leaders from Congress, Congressional Staff, U.S. Department of Education, NSF, and other governmental agencies. The goal of the conference is to increase participants' understanding of federal legislation and the legislative process and to improve their ability to inform policy makers of issues key to Science, Technology, Engineering, and Mathematics (STEM) education. Triangle Coalition will aid in scheduling requested meetings with members of Congress. Participants are encouraged to meet with their Senators and Representatives to

discuss issues key to STEM education in their home states. Register now to take advantage of early-bird rates! For a conference registration form and more information about the conference, visit [www.trianglecoalition.org/conf.htm](http://www.trianglecoalition.org/conf.htm).

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INNOVATION KEY TO LONG-TERM HEALTH OF AMERICAN ECONOMY, VERIZON CHAIRMAN SAYS

Speaking recently at the Executives' Club of Chicago, Verizon Chairman and CEO Ivan Seidenberg told business leaders that innovation is the key to the long-term health of the American economy. He told the business leaders this must become a strategic priority of the nation's economic policy. "Innovation is at the heart of any strategy for growth in a transforming economy," Seidenberg said. "Innovation creates wealth, jobs, and value. Innovation provides the sustainable competitive edge to individual workers and entire industries that is required in a global economy." He discussed three planks on which an innovation-centered platform should be built:

1. win the global competition for capital,
2. replenish the nation's intellectual capital by reforming our schools, and
3. reform the nation's health care system.

With regard to education, Seidenberg said that "Innovation cannot exist without a constantly replenished talent pool of entrepreneurs, managers, and engaged employees." "We must make sure today's students are obtaining an education that is equal to the demands of an innovation-centered economy," he added. He went on to say that an innovative agenda for education must be anchored in three key areas: literacy; training in the scientific and technical fields; and an educational infrastructure and culture that fit with the new, more dynamic world of work. "Literacy is the fundamental building block for communications, and schools must be held accountable for ensuring that the next generation of workers will have the tools needed to participate in the information economy," Seidenberg said. "Information technology can be part of the solution by extending scarce educational resources to anyone with a computer and a broadband connection." For more information on Triangle Coalition member, Verizon, visit [www.verizon.com](http://www.verizon.com); for information on the Verizon Foundation, and to find out about Verizon's educational initiatives, visit <http://foundation.verizon.com>.

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2003 TRENDS IN INTERNATIONAL MATHEMATICS AND SCIENCE STUDY (TIMSS) RELEASED

The National Center for Education Statistics has released results on the performance of U.S. students from the Trends in International Mathematics and Science Study (TIMSS). TIMSS, conducted every four years, is an assessment of fourth- and eighth-graders in mathematics and science. TIMSS first collected data in 1995, and then again from eighth-graders in 1999. With the 2003 data collection, TIMSS offers the first international trend comparisons in mathematics and science at grades four and eight. TIMSS measures how well students acquired the

mathematics and science knowledge that they have encountered in school. That is, the content of the TIMSS assessment is based on the curricula of participating countries. Because countries vary in the ways in which mathematics and science are taught as well as the content covered in their school-based courses, this means that the TIMSS assessment should be considered a general indicator of the knowledge of a nation's students. For example, in some countries, large proportions of eighth-graders have been exposed to early and advanced topics in algebra and geometry, whereas in the United States, a significant proportion of eighth-graders have not yet been exposed to these topics, or have only encountered the earliest notions. The following is a sample of the TIMSS results:

**Mathematics:**

In 2003, U.S. fourth-grade students scored 518 in mathematics, on average, exceeding the international average of 495 for the 25 participating countries.

In 1995, U.S. fourth-graders also scored 518 in mathematics, on average, indicating that there has been no change in the average mathematics performance of U.S. fourth-graders over these 8 years.

In 2003, U.S. eighth-grade students scored 504 in mathematics, on average, exceeding the international average of 466 for the 45 participating countries.

In contrast to their fourth-grade counterparts, U.S. eighth-graders improved in mathematics between 1995 and 2003, from an average score of 492 in 1995 to an average of 504 in 2003.

**Science:**

In 2003, U.S. fourth-grade students scored 536 in science, on average, exceeding the international average of 489 for the 25 participating countries.

In comparison to the fourth-grade science results in 1995, U.S. fourth-graders score in 2003 appeared to be lower than the 1995 score, but the difference was not statistically significant.

In 2003, U.S. eighth-grade students scored 527 in science, on average, exceeding the international average of 473 for the 45 participating countries.

In comparison to the earlier TIMSS data collections, U.S. eighth-graders improved in science, from an average score of 513 in 1995 to an average of 527 in 2003. U.S. eighth-graders showed improvement in science between 1999 and 2003 as well.

For more details and to download the full TIMSS report, visit <http://nces.ed.gov/pubs2005/timss03>.

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**AWARD PROGRAM RECOGNIZES SUCCESSFUL SCHOOL AND BUSINESS PARTNERSHIPS**

The Council for Corporate & School Partnerships is now accepting applications for the 2005 National School and Business Partnerships Award, which recognizes outstanding examples of collaboration between businesses and schools to improve the student educational experience. In the National School and Business Partnerships Award's inaugural year in 2003-2004, 354 applications were received from 42 states and the District of Columbia. Applications came from schools of all sizes -- elementary, middle, high schools, and school districts -- and from all geographical areas -- urban, suburban, and rural. Businesses were represented across various industries including health care, automotive, technology, and finance.

Founded by The Coca-Cola Company in 2001 to identify, create, recognize, and support exemplary partnerships between businesses and schools, the Council for Corporate & School Partnerships serves as a forum for the exchange of information, expertise, and ideas to encourage partnerships between schools and businesses to achieve their full potential for meeting key educational objectives. The Council has created two school-business partnerships booklets, Guiding Principles for Business and School Partnerships, a report that describes the qualities of some of the nation's most successful school-business relationships and provides direction for schools and businesses that are interested in forming, maintaining, or improving successful school-business partnerships. The second booklet A How-To Guide for School-Business Partnerships is an instructional booklet designed for school officials and business leaders who are interested in engaging in school-business partnerships. For additional information, visit [www.corpschoolpartners.org/award.shtml](http://www.corpschoolpartners.org/award.shtml).

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#### NEA UPDATES STATE RANKINGS ON SCHOOL SPENDING

Schools have received modest funding increases, but at levels far below what is needed to make the dramatic improvements called for in the No Child Left Behind Act, reports the National Education Association (NEA). The NEA's latest update of "Rankings and Estimates" -- a state-by-state comparison of key education indicators -- reveals that current per-pupil spending for education would increase by 3.6 percent, from the 2002-03 school year through 2003-04. Average current per-pupil spending was \$7,920 for the 2002-03 operation of local public systems. That figure does not include the backlog of construction, repair, and technology upgrades that schools desperately need. Meanwhile, teacher salaries grew more slowly than the economy, with an expected increase of 2.0 percent from 2002-03 to 2003-04. The rate of inflation from 2002-03 through 2003-04 was 2.3 percent. Among the other findings of the report:

In 2002-03, the highest-ranking states in teacher pay were California, Connecticut, and New Jersey; for 2003-04, California, Connecticut, and the District of Columbia were estimated to be the highest-ranking states in teacher pay.

In 2002-03, the lowest-ranking states in teacher pay were South Dakota, North Dakota, and Mississippi; for 2003-04, South Dakota, Oklahoma, and Alabama were estimated to be the lowest-ranking states in teacher pay.

Public school enrollment for 2002-03 was 47.7 million students, compared with a projected 48.1 million for 2003-04.

The biggest leaps in student enrollment were estimated for Nevada, South Carolina, and Arizona.

Using information provided by state education agencies and analyzed by NEA researchers, "Rankings and Estimates" has presented selected education statistics since the 1960s. The full report is available at [www.nea.org/edstats/images/04rankings-update.pdf](http://www.nea.org/edstats/images/04rankings-update.pdf).

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**OCEAN WAVE ENERGY INVENTION AND BREAST CANCER RESEARCH WIN TOP HONORS IN SIEMENS WESTINGHOUSE COMPETITION**

An invention that converts ocean wave energy into electricity and genetics research on breast cancer won top honors in the 2004-05 Siemens Westinghouse Competition in Math, Science and Technology. The Siemens Westinghouse Competition is a national high school science competition that is the signature program of the Siemens Foundation, and is administered by the College Board. Aaron Goldin, a senior San Dieguito High School Academy in Encinitas, CA, won the \$100,000 Grand Prize scholarship in the individual category for inventing the "Gyro-Gen," a gyroscope that converts ocean wave energy into electricity. (Lucie)Yueqi Guo and Xianlin Li, seniors at the North Carolina School of Science and Mathematics in Durham, NC, won the \$100,000 prize in the team category, which they will share equally, for research on identifying new biomarkers that could lead to advances in the early detection and treatment of breast cancer.

The national finals were judged by a panel of prominent scientists and mathematicians headed by lead judge Dr. Kathie L. Olsen, Associate Director, Office of Science and Technology Policy, Executive Office of the President, and the former Chief Scientist at NASA. Eighteen students competed in the national finals, including six individuals and six teams. The national finalists previously competed in a series of regional competitions held at six leading research universities last month. 1,213 students entered the 2004-05 competition, a 24% increase over the 2003-04 competition. For more information, visit [www.siemens-foundation.org](http://www.siemens-foundation.org).

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**FIRST LEGO LEAGUE INTERNATIONAL AND 3M**

FLL(FIRST LEGO League International) is an international program for children ages 9-14(9-16 in Europe) that was created in a partnership between FIRST and the LEGO Company. FLL combines a hands-on, interactive robotics program with a sports-like atmosphere. Teams consist of up to 10 players with the focus on such things as team building, problem solving, creativity, and analytical thinking. Each September, a new Challenge is unveiled to FLL International teams across the world. Over the course of eight weeks, teams strategize, design, build, program, test, and refine a fully autonomous robot capable of completing the various missions of the FLL International "Robot Game" using the LEGO MINDSTORMS materials. Jim Gagnon, a 3M scientist and charter FIRST LEGO League team coach, invented the flexible 4 x 8 ft. playing field mats on which teams of students around the world now operate their robots. Triangle Coalition member, 3M, manufacturers the mat and has donated the more than \$600,000 worth of

mats over the past two years.

As a world leader in science and technology, science encouragement comes naturally to 3M volunteers. 3M scientists and engineers have special skills and career experiences that they share through 3M Science Encouragement Programs, tutoring, and the support of community programs such as FIRST LEGO League, MATHCOUNTS, and many others. In addition, 3M provides grants and product donations to help connect student learning to everyday applications and prepare students for careers that incorporate the latest in technology and innovative thinking. For more information about FLL, visit [www.firstlegoleague.org](http://www.firstlegoleague.org). For more information about 3M, visit [www.3m.com](http://www.3m.com).

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TCEB LINKS

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

Triangle Coalition Annual Policy Conference - [www.trianglecoalition.org/conf.htm](http://www.trianglecoalition.org/conf.htm)

Verizon - [www.verizon.com](http://www.verizon.com)

Verizon Foundation - <http://foundation.verizon.com>

2003 Trends in International Mathematics and Science Study (TIMSS) -  
<http://nces.ed.gov/pubs2005/timss03>

2005 National School and Business Partnerships Award -  
[www.corpschoolpartners.org/award.shtml](http://www.corpschoolpartners.org/award.shtml)

National Education Association's "Rankings and Estimates" Report -  
[www.nea.org/edstats/images/04rankings-update.pdf](http://www.nea.org/edstats/images/04rankings-update.pdf)

2004-05 Siemens Westinghouse Competition in Math, Science and Technology - [www.siemens-foundation.org](http://www.siemens-foundation.org)

First LEGO League International - [www.firstlegoleague.org](http://www.firstlegoleague.org)

3M - [www.3m.com](http://www.3m.com)

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US DEPARTMENT OF EDUCATION CUTS FUNDING TO EISENHOWER NATIONAL CLEARINGHOUSE

The Eisenhower National Clearinghouse(ENC), has announced that the U.S. Department of Education will not continue funding the national mathematics and science education clearinghouse beyond ENC's current contract year ending September 30, 2005. ENC has provided a valuable service to the nation's K-12 mathematics and science teachers over the past 13 years.

The organization is developing plans to deliver its products and services through subscriptions to schools, organizations, and individuals beginning in October 2005. To be updated about ENC's future directions, or if you have comments or suggestions for the ENC staff, please send an email to [info@enc21.com](mailto:info@enc21.com). To view the broad resources currently available at ENC, visit [www.enc.org](http://www.enc.org).

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**SLOAN CAREER CORNERSTONE CENTER TO EXPAND TO COVER LIFE SCIENCES AND ENGINEERING TECHNOLOGY FIELDS**

The Sloan Career Cornerstone Center(SCCC) has announced that the non-profit career resource website ([www.careercornerstone.org](http://www.careercornerstone.org)) will be expanded over the next 18 months to offer additional resources for exploring career paths in engineering, engineering technology, and the life sciences. The site currently is broadly used by middle school, high school, and university level career counselors, students, teachers, and parents who are seeking objective information about career paths in mathematics, physical sciences, and several engineering degree fields. SCCC already contains a myriad of downloadable PDF files and online resources that provide a detailed look into career path options. The site also includes precollege materials, salary and university information, and profiles of the lifestyles and career paths of over 400 professionals working in their fields.

The Sloan Career Cornerstone Center website was launched in March 2003 with funding from the Alfred P. Sloan Foundation and source material from several Triangle Coalition members including the American Society of Mechanical Engineers, Institute of Electrical and Electronics Engineers, American Institute of Physics, American Geological Institute, and Mathematical Association of America. The site is designed and managed by Triangle Coalition member, Target Marketing, which will also be responsible for site management and expansion over the next 18 months. Other areas of site expansion include a new "Industry Profiles" area and career path profiles of degree fields in the Life Sciences, Industrial Engineering, Aerospace Engineering, and Nuclear Engineering. This spring, SCCC will also launch "The Cornerstone News," a free email newsletter containing current career-related information, salary data, field profiles, and precollege materials. For more information, or to subscribe to "The Cornerstone News," visit [www.careercornerstone.org](http://www.careercornerstone.org). Schools, career centers, or other organizations that wish to link to SCCC may request graphics and support materials for use on their websites from [info@careercornerstone.org](mailto:info@careercornerstone.org).

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**TRIANGLE COALITION MEMBER PROFILE: THE EDUCATIONAL OUTREACH DIVISION OF SCIENTIFIC AMERICAN**

The Educational Outreach Division of Scientific American provides a variety of educational support services to teachers including reduced rate subscriptions; and a limited number of complimentary issues and free subscription awards. Scientific American, the oldest continuously published magazine in the U.S., has been bringing its readers unique insights about developments in science and technology for more than 150 years.

The Educational Outreach Division encourages the use of Scientific American in the classroom to support experiments, conduct activities, build models, engage in role plays and debates, and more. The Division also supports the following programs through its subscription awards program: FIRST(For Inspiration and Recognition of Science & Technology), Junior Academy of Sciences, National Junior Science and Humanities Program, Intel Young Scientist Program, Intel Science Talent Search Semifinalists, National Honor Society, New York Academy of Sciences Student Expo, Project SEED, Science Olympiad, ThinkQuest, U.S. Academic Decathlon, Woodrow Wilson Teaching Fellowships, and Young Innovators 2000. Educators may contact the Educational Outreach Division of Scientific American with general questions about their publications and products, or to apply to the awards program on behalf of science fair winners, honors students, and teachers engaged in fellowships, grants, and research. For additional information, visit [www.sciam.com](http://www.sciam.com) or contact Marc Alan Rosner at 914-478-6164 or [education@sciam.com](mailto:education@sciam.com).

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NASA EXPLORER SCHOOLS CONCEPT GOES INTERNATIONAL

A NASA education initiative designed to bring science, technology, engineering, and mathematics learning and activities to U.S. educators, students, and families is going abroad to the Netherlands. NASA's Chief Education Officer, Dr. Adena Williams Loston, has signed an Understanding among NASA, the European Space Agency(ESA), and the Dutch Ministry of Education, Culture and Science, establishing the Delta Researchers Schools (DRS) Program. An Understanding is a written document regarding mutual educational cooperation. Patterned after the NASA Explorer Schools(NES) Program, the DRS Program will identify and develop innovative methods to inspire Dutch primary school students to pursue careers in mathematics and science. The program will focus on stimulating the interest of children --girls in particular -- between the ages of 9 and 12. It also will generate positive awareness of human space flight, the International Space Station, and other international cooperative projects. The Dutch Ministry of Education, Culture and Science initially will launch, manage, and fund activities for selected schools for three-year periods. As part of the new DRS Program, NASA will provide opportunities for Dutch teachers to participate in summer NES workshops at NASA centers. Teachers will acquire new resources and technology tools using NASA's unique content. NES officials will be also available for content consultation and to coordinate distance-learning capabilities to support the DRS Program.

The NASA Explorer Schools Program is a three-year partnership between NASA and selected U.S. schools that offer opportunities and materials for teachers to spark student interest in science and math. Students, parents, teachers, and education administrators from diverse communities in 46 states and the District of Columbia have participated. The NES Program is currently accepting applications from U.S. schools for 2005; the application deadline is January 31, 2005. For more information, visit <http://explorerschools.nasa.gov>.

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VERIZON AWARDS MORE THAN \$100,000 IN TECHNOLOGY AND WORK FORCE DEVELOPMENT GRANTS

The Verizon Foundation, the philanthropic arm of Verizon Communications, has awarded \$102,203 to 13 Oregon non-profit organizations to help advance community technology and work force development. "Verizon strongly believes in investing in the communities it serves to create a literate, well-educated, and technologically fluent work force," said Steve Banta, Verizon Northwest region president. "These grants will help provide computer technology and job training to empower both youth and adults to advance their education and become strong contributors to their communities." Among the organizations Verizon has recently awarded grants is the Portland State University Foundation. Verizon Foundation has provided \$9,000 to fund its Saturday Academy's Advocates for Women in Science, Engineering and Mathematics (AWSEM) program that is designed to inspire girls to pursue education and careers in science, technology, engineering, and math(STEM) fields. AWSEM is a school-year mentoring project that connects girls with role models who are female STEM professionals. Verizon Foundation also provided \$9,000 to Portland Youthbuild(PYB) to kickoff the first year of its "Computers in the Community" initiative. PYB seeks to improve the vocational training and job readiness skills needed by students to successfully obtain entry-level employment in the computer technology fields.

In 2003, the Verizon Foundation awarded more than 21,000 grants totaling about \$70 million to charitable and nonprofit agencies that focus on improving basic and computer literacy, enriching communities through technology, and creating a skilled work force. The Foundation uses its resources in the United States and abroad to develop partnerships in technology and connect them with organizations serving the needs of diverse communities, people with disabilities, victims of domestic violence, and the economically and socially disadvantaged. The Foundation also supports Verizon Volunteers, an incentive program that last year encouraged Verizon employees to volunteer 595,000 hours in their communities and provided \$34.6 million in combined contributions to charitable and nonprofit organizations. For more information about Triangle Coalition member, the Verizon Foundation, visit [www.verizon.com/foundation](http://www.verizon.com/foundation).

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**MORE MINORITY TEACHERS LINKED TO IMPROVED STUDENT ACHIEVEMENT**

The necessity for teacher diversity is often overlooked rather than accepted as central to school reform. High-stakes tests impede efforts to expand the pool of prospective teachers of color. And the logistics of the No Child Left Behind Act(NCLB) continue to create significant barriers to recruiting teachers of color. These are some of the conclusions from a new analysis on teacher diversity prepared by the National Collaborative on Diversity in the Teaching Force. In its report, "Assessment of Diversity in America's Teaching Force," the Collaborative examined the relationship between educational achievement and teacher diversity, and found that increasing the percentage of teachers of color in classrooms is connected directly to closing the achievement gap of students. According to the report about 17% of US public school students are African American, while only 6% percent of teachers are African American. Likewise, about 17% of public school students are Hispanic and 5% of teachers are Hispanic. In more than one-third (38 percent) of America's public schools, there is not a single teacher of color on staff.

The Collaborative is composed of six education groups: American Association of Colleges for

Teacher Education(AACTE), American Council on Education(ACE), Association of Teacher Educators(ATE), Community Teachers Institute(CTI), Recruiting New Teachers(RNT), and the National Education Association. The Collaborative is proposing solutions that include revising NCLB measures to clearly spell out diversity as a critical element of a "highly-qualified" teacher workforce, identifying and eliminating the obstacles faced by minority teachers in passing entry tests, and developing programs that support teachers of color both in the pipeline and in the classroom. The report may be downloaded at [www.nea.org/teacherquality/images/diversityreport.pdf](http://www.nea.org/teacherquality/images/diversityreport.pdf).

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## TCEB LINKS

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

Triangle Coalition Officers and Board - [www.trianglecoalition.org/off.htm](http://www.trianglecoalition.org/off.htm)

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

Sloan Career Cornerstone Center - [www.careercornerstone.org](http://www.careercornerstone.org)

Educational Outreach Division of Scientific American - [www.sciam.com](http://www.sciam.com)

NASA Explorer Schools Program - <http://explorerschools.nasa.gov>

Verizon Foundation - [www.verizon.com/foundation](http://www.verizon.com/foundation)

National Collaborative on Diversity in the Teaching Force Report:

"Assessment of Diversity in America's Teaching Force" - [www.nea.org/teacherquality/images/diversityreport.pdf](http://www.nea.org/teacherquality/images/diversityreport.pdf)

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## FEBRUARY 1 DEADLINE APPROACHES FOR EINSTEIN FELLOWSHIPS

The application deadline for the 2005-2006 cycle of the Albert Einstein Distinguished Educator Fellowship Program is February 1. The program brings outstanding mathematics, science, and technology education teachers to Washington, D.C. to spend a school year working on Capitol Hill or in one of several participating Federal agencies. The purpose of the program, as stated in the Albert Einstein Distinguished Educator Act of 1994, is to provide outstanding educators with an opportunity to serve in the public policy arena and to bring the expertise, unique insights, and know-how of classroom teachers to the Congress and appropriate branches of the Federal government. For information about the program and a link to the on-line application, please visit [www.trianglecoalition.org/ein.htm](http://www.trianglecoalition.org/ein.htm).

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## UNICEF "SCHOOL IN A BOX" SUPPORTS EDUCATION FOR TSUNAMI SURVIVORS

As part of current relief efforts for the survivors of the recent tsunami disaster, UNICEF is distributing "School-in-a-Box" kits that containing education materials for thousands of pupils and their teachers, to help ensure that children can return to school as quickly as possible and regain a sense of normalcy. The "School-in-a-Box" has been used by UNICEF since the mid-1990s. Built on the concept of Supply Division's pre-packed kits, the school-in-a-box was originally developed by education experts from UNICEF and the United Nations Educational, Scientific and Cultural Organization(UNESCO) to provide basic education to hundreds of thousands of children who had been displaced by the events in Rwanda in 1994 and were living in refugee camps.

The latest version of the kit contains supplies and materials for a teacher and up to 80 students, if taught in double-shift classes of 40. In addition to the basic school supplies, such as exercise books, pencils, erasers, and scissors, the kit also includes a wooden teaching clock, plastic cubes for counting, and a set of three laminated posters (alphabet, multiplication, and number tables). The kit is supplied in a locked aluminum box, with a lid that doubles as a blackboard when coated with special paint included in the kit. Using a locally developed teaching guide and curriculum, teachers can establish makeshift classrooms almost anywhere. The purpose of the kit is to ensure the continuation of children's education after an emergency. Founded in 1946, UNICEF helps save, protect, and improve the lives of children around the world through immunization, education, health care, nutrition, clean water, and sanitation. For more information on the "School in a Box" program, visit [www.unicef.org/supply/index\\_cpe\\_education.html](http://www.unicef.org/supply/index_cpe_education.html).

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## NATIONAL EDUCATION TECHNOLOGY PLAN RELEASED

U.S. Secretary of Education Rod Paige has unveiled a national vision outlining how effective use of technology can impact student achievement. "Toward a New Golden Age in American Education: How the Internet, the Law and Today's Students Are Revolutionizing Expectations" establishes a strategy to support the effective use of technology to improve student academic achievement and prepare students for the 21st century. This is the nation's third such plan, which focuses on signs of progress in core subjects, benefits from reforms stimulated by the bipartisan No Child Left Behind Act, and the success of innovative new approaches to learning through advances in educational technology. It also profiles today's students and includes a sampling of the views and recommendations of more than 200,000 students in all 50 states. The plan provides an opportunity to reflect on the progress our nation has made as a result of a decade of increased federal, state, local, and private investments in connecting classrooms to the Internet, providing students with computers, and equipping teachers with the skills they need to use technology as an instructional tool.

According to the report, the technology that has so dramatically changed the world outside our schools is now changing the learning and teaching environment within them. This change is driven by an increasingly competitive global economy and the students themselves, who are "born and comfortable in the age of the Internet." In many states, the explosive growth of online

instruction and virtual schools is already complementing traditional instruction with high-quality courses tailored to the needs of individual students, the report said. At least 15 states provide some form of virtual schooling to supplement regular classes or provide for special needs, and about 25 percent of all K-12 public schools now offer some form of e-learning or virtual school instruction. The report includes numerous details of successful initiatives and partnerships developed at the state level by school districts and by individual schools. It concludes with a series of recommendations for enhancing the use and benefits of new technologies, and places them within the context of long-term, systemic transformation, covering such issues as leadership, management, teacher training, and funding. For more information, visit [www.nationaledtechplan.org](http://www.nationaledtechplan.org).

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#### INTRODUCE A GIRL TO ENGINEERING DAY

The fifth annual Introduce a Girl to Engineering Day is scheduled for February 24, 2005. Hundreds of organizations worldwide will mobilize tens of thousands of women engineers -- along with support from their male colleagues -- to reach one million girls that day and throughout the year with hands-on mentoring activities. "Girl Day" is the centerpiece of Engineers Week's annual outreach to encourage underrepresented groups to consider a career in engineering. The 2005 campaign is led by Engineers Week co-chairs, BP p.l.c., and Triangle Coalition member, ASME International(The American Society of Mechanical Engineers). Engineers Week, founded in 1951 by the National Society of Professional Engineers, is dedicated to raising public awareness of engineers' positive contributions to the quality of life. It promotes recognition among parents, teachers, and students of the importance of a technical education and a high level of math, science, and technology literacy, and motivates youth to pursue engineering careers in order to provide a diverse and vigorous engineering workforce. For more information and planned activities, visit [www.eweek.org/site/News/Eweek/2005\\_nationalpledgeroster.shtml](http://www.eweek.org/site/News/Eweek/2005_nationalpledgeroster.shtml).

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#### AAAS SESSION: "COLLABORATIONS WITH THE NATIONAL ACADEMY OF SCIENCES"

Lynn E. Elfner, of the Ohio Academy of Science and Dr. Jay Labov, of the National Academy of Sciences will present a session at the AAAS Annual Meeting entitled "Collaborations with the National Academy of Sciences." The event will be held Saturday, February 19, 2005, from 9:30 - 11:00 AM in the Hoover Room of the Wardman Park Marriott Hotel in Washington, DC. The session will explore relationships and possible collaborations between the National Academy of Sciences(NAS) and the 43 state and regional academies of the National Association of Academy of Science(NAAS). Possible topics include: 1. Science and Technology Public Policy(e.g., enhancement and dissemination of NAS reports to make them more easily used by states). 2. Pre-K-16 Education(e.g., science, mathematics, and technology education standards; inquiry-based education; international meetings). 3. Organizing state or regional meetings for appropriate state government, industry, and higher education representatives when appropriate reports are published by the National Academies. In addition to science academies, officers, and staff of national scientific and technical societies(e.g., ACS, ASM, ASME, IEEE, NCTM, NSPE,

NSTA, and Sigma Xi) that have state or local affiliates or chapters are encouraged to attend. Participation is open to anyone registered for the AAAS meeting. For more information about the session, contact: Lynn Elfner at 614-488-2228 or oas@iwaynet.net. For more information about Triangle Coalition member, the Ohio Academy of Science, visit [www.ohiosci.org](http://www.ohiosci.org).

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#### CARUS CHEMICAL SETS SAFETY RECORD

Triangle Coalition member, the Carus Chemical Company, has announced that they have achieved three years without a lost-time accident on December 29, 2004. Records show that Carus Chemical Company went through all of 2002, 2003, and 2004 without a single lost-time accident at its headquarters or manufacturing sites. According to Craig Willey, Safety Professional at Carus Chemical, as of 29 December 2004 the company had gone 1,095 days without a day of work lost due to accident or injury. Willey stated, "This achievement is due to the concerted efforts of all our employees and their strong interest in and commitment to safety." Carus Chemical Company, founded in LaSalle, Illinois in 1915, is a leading manufacturer of permanganates, 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. For more information, visit [www.caruschem.com](http://www.caruschem.com).

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#### NSF OFFERS FUNDING FOR CONFERENCES, WORKSHOPS, AND SPECIAL MEETINGS IN THE MATHEMATICAL SCIENCES

The National Science Foundation has announced a funding opportunity for Conferences, Workshops, and Special Meetings in the Mathematical Sciences. Applications are due beginning in early April, 2005. NSF's Division of Mathematical Sciences(DMS) invites proposals of two types: (1) regular conference, symposia, and workshop proposals, and (2) proposals for special meetings, which comprise longer-term or larger-scale activities that more widely engage and connect the mathematical sciences community, such as special research years or semesters, multi-institutional regional meetings, and "summer schools." Proposals normally request funding in the range of \$5,000 to \$25,000, although awards of up to \$50,000 have occasionally been made. Duration is normally for one year. Special meetings proposals may request funding of any amount and for durations of up to three years, but most awards are expected to be in the range of \$50,000 to \$150,000 per year.

The National Science Foundation is committed to strengthening and enriching the science personnel base of our nation. Organizers of research workshops, conferences, and special meetings are encouraged to contribute to fulfilling this commitment. Currently, women, minorities, and persons with disabilities are under-represented among our nation's science personnel. The Division of Mathematical Sciences expects organizers of conferences and special meetings to be attentive to these concerns. For more information, visit [www.nsf.gov/pubs/2005/nsf05540/nsf05540.htm](http://www.nsf.gov/pubs/2005/nsf05540/nsf05540.htm).

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## JASON FOUNDATION FOR EDUCATION WINS TECHNOLOGY & LEARNING AWARD

The Technology & Learning magazine 2004 Award of Excellence has been presented to the JASON Foundation for Education, a provider of experience-based science and math curriculum and professional learning for grades 4-9. The JASON XV: Rainforests at the Crossroads curriculum was honored as an outstanding leader of curriculum products that breaks new ground in the market of education. Competing against more than 140 highly qualified applicants, JASON XV: Rainforests at the Crossroads, was chosen because of the program's innovative and interactive take on learning. Members of the education community and editors of Technology & Learning magazine conducted over 30 hours of extensive product testing during several rounds of judging. Ease of use, quality, effectiveness, creative use of technology, and suitability for the school environment were some of the judging criteria.

Founded in 1989, JASON uses multi-media tools and access to some of the nation's leading scientists to combine genuine scientific expeditions around the world, standards-based classroom curriculum, and accredited professional learning for teachers, to deliver real adventures in learning and measurable gains in student achievement. In 2004, JASON Student and Teacher Argonauts joined scientists and researchers in an exploration of the Isthmus of Panama region and its tropical rainforests. JASON XV: Rainforests at the Crossroads focuses on the research, monitoring, and management of this region. The program looks at how technology has influenced the geography, hydrology, and biology of Panama and how it is used to better understand the interchange between the Earth's dynamic systems. For more information on the JASON Foundation for Education, visit [www.jason.org](http://www.jason.org).

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### MATH, ENGLISH STANDARDS EDGE UP

(Source: The Washington Times, January 6, 2005)

State education standards for English and mathematics instruction in public schools nationwide are improving, but remain woefully inadequate to meet requirements for student learning achievement, according to two national reports issued yesterday. The reports, issued by the Thomas B. Fordham Foundation in Washington, gave D or F grades to eight states for inadequate English instruction standards and 29 states for inadequate math standards in public schools. Just California, Indiana, and Massachusetts received A grades for superior state public school standards in both English and math from kindergarten through 12th grade. Alabama and Louisiana received A grades for superior state English standards alone.

David Klein, mathematics professor at California State University and author of the math report, told reporters "the biggest failure" of most state standards is they "do not require enough arithmetic" in early grades as a prerequisite for algebra, geometry, and calculus. Also, "one of the most debilitating trends in current state math standards is their excessive emphasis on calculators," even starting at pre-kindergarten, he wrote in the report. Using calculators in a high school science class is sensible, Mr. Klein said. "But for elementary students, the main goal of math education is to get them to think about numbers and to learn arithmetic. Calculators defeat that purpose."

(Editor's Note: The Thomas B. Fordham Foundation report, "The State of State Math Standards 2005," may be viewed online or downloaded at [www.edexcellence.net/foundation/publication/publication.cfm?id=338](http://www.edexcellence.net/foundation/publication/publication.cfm?id=338). Another recent report is the National Assessment of Educational Progress (NAEP), or "The Nation's Report Card," which can be downloaded at <http://nces.ed.gov/nationsreportcard>.)

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#### TCEB LINKS

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

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

UNICEF "School in a Box" Program - [www.unicef.org/supply/index\\_cpe\\_education.html](http://www.unicef.org/supply/index_cpe_education.html)

"Toward a New Golden Age in American Education: How the Internet, the Law and Today's Students Are Revolutionizing Expectations" - [www.nationaledtechplan.org](http://www.nationaledtechplan.org)

Introduce a Girl to Engineering Day - [www.eweek.org/site/News/Eweek/2005\\_nationalpledgeroster.shtml](http://www.eweek.org/site/News/Eweek/2005_nationalpledgeroster.shtml)

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

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

NSF Funding Opportunity for Conferences, Workshops, and Special Meetings in the Mathematical Sciences - [www.nsf.gov/pubs/2005/nsf05540/nsf05540.htm](http://www.nsf.gov/pubs/2005/nsf05540/nsf05540.htm)

JASON Foundation for Education - [www.jason.org](http://www.jason.org)

Thomas B. Fordham Foundation Report: "The State of State Math Standards 2005" - [www.edexcellence.net/foundation/publication/publication.cfm?id=338](http://www.edexcellence.net/foundation/publication/publication.cfm?id=338)

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

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#### TRIANGLE COALITION ANNUAL POLICY CONFERENCE: EARLY-BIRD RATE DEADLINE APPROACHES

Register for the Triangle Coalition's Annual Policy Conference soon to take advantage of reduced rates. The deadline for early-bird registration is February 1. A limited number of rooms have been reserved at a special rate and are available until February 15. The third annual policy conference will be held on March 17-18, 2005 at The Hamilton Crowne Plaza Hotel in Washington, DC. The purpose of the 2005 conference is to inform conference participants about current legislative issues that are or will be having an effect on their local science, math, and

technology education initiatives. The opening keynote address will be given by Congressman Vernon Ehlers(MI-3rd) who will address STEM education and related issues facing the 109th Congress. Discussion will center on current and upcoming education policy decisions and will include presentations and panel discussions from leaders from Congress, Congressional Staff, U.S. Department of Education, NSF, and other governmental agencies. The goal of the conference is to increase participants' understanding of federal legislation and the legislative process and to improve their ability to inform policy makers of issues key to Science, Technology, Engineering, and Mathematics(STEM) education. Triangle Coalition will aid in scheduling requested meetings with members of Congress. Participants are encouraged to meet with their Senators and Representatives to discuss issues key to STEM education in their home states. For a registration form and more information about the conference, visit [www.trianglecoalition.org/conf.htm](http://www.trianglecoalition.org/conf.htm).

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**PRESIDENT BUSH'S FY 2006 BUDGET REQUEST**

President Bush on January 12, 2005 highlighted the need to do more to prepare our high school students for the future. The education proposals have a goal of ensuring that every high school student graduates with the skills needed to succeed in college and in a globally competitive workforce. The Fiscal Year 2006 budget will provide \$1.5 billion in funding for a new High School Initiative to help states hold high schools accountable for teaching all students and to provide effective and timely intervention for those students who are not learning at grade level. This initiative includes requirements for state assessments in high school to ensure that diplomas are truly meaningful.

To accelerate mathematics and science achievement for our high school graduates, the President will again propose a total of \$269 million in the FY 2006 budget, for the Mathematics and Science Partnership program authorized in the No Child Left Behind Act. \$120 million will be dedicated to support projects to accelerate the mathematics achievement of all secondary students, and especially low-achieving students. The program works to ensure that states and school districts implement professional development projects for mathematics teachers that are strongly grounded in research, and that help mathematics teachers strengthen their skills. The President also supports partnerships between school districts and public-private institutions to create an Adjunct Teacher Corps, with opportunities for professionals to teach middle and high school courses in the core academic subjects, particularly in mathematics and science. Many school districts are in need of personnel to strengthen instruction in middle and high schools in the core academic subjects, especially mathematics and science.

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**TRIANGLE COALITION MEMBER PROFILE: NATIONAL SCIENCE DIGITAL LIBRARY**

Triangle Coalition member, the National Science Digital Library(NSDL) is a digital library of resource collections and services, organized in support of science, technology, engineering, and mathematics education at all levels. Starting with a partnership of NSDL-funded projects, NSDL is emerging as a center of innovation in digital libraries as applied to education, and a community center for groups focused on digital-library-enabled teaching and learning. NSDL

provides an organized point of access to collections and services from resource contributors that represent some of the best of both public and private institutions including universities, museums, commercial publishers, government agencies, and professional societies. NSDL supports education and research at all levels, from preschool through adult, with materials ranging from journal articles and lesson plans to interactive animations, and from real-time data sets and technology-based tools to ask-an-expert services.

Initial development of NSDL began in late 1995 with an internal concept paper for the National Science Foundation(NSF) Division of Undergraduate Education. In 1996, NSF released a report about ways to improve undergraduate STEM education. It recommended establishing a national digital library that would constitute an online network of learning environments for improving teaching and learning for STEM education at all levels. Beginning in 1998, two rounds of prototype projects were supported. In 2000 the NSDL program began to develop the technical infrastructure of the Library, coordinate access to resources from a wide range of providers, and to build relationships with key stakeholders in the research, education, library, and publishing communities. Access to aggregated collections and services began with the launch of the NSDL.org website in December 2002. To date, nearly 160 projects have been funded to create collections and services for teachers and learners at all levels, and perform targeted research in digital libraries and their application to education. NSDL's most recent initiative is the implementation of specialized portals targeted to meet the needs of specific audiences. A middle school portal developed in collaboration with Triangle Coalition member, Eisenhower National Clearinghouse, is now available, and portals for community colleges(with the Internet Scout Project), K-12 multimedia resources(with WGBH Teachers' Domain), undergraduate math(with the Mathematical Association of America), and computational science(with the Shodor Foundation) are in development. For more information, visit [www.nsd.org](http://www.nsd.org).

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### THREE EINSTEIN FELLOWS AND OTHER TOP MICHIGAN EDUCATORS ASSIST HIGH PRIORITY SCHOOL LEADERS

Over 150 award-winning Michigan educators, including three Albert Einstein Distinguished Educator Fellows, recently shared their knowledge and expertise with High Priority School leaders during a two-day Instructional Excellence Conference at Michigan State University's Kellogg Center. High Priority Schools are Michigan schools that are facing challenges with student achievement, and are the strategic focus of improvement by the State Board of Education. The conference, underwritten by a generous donation from the DTE Energy Foundation, was designed to provide promising teaching practices and a support system to High Priority Schools; maximize the involvement of the Network of Michigan Educators; and acknowledge and uplift the education profession. Einstein Fellows who participated in the event included Dan Schab (2003-2004 Fellow, Capitol Hill Senate Health, Education, Labor and Pensions Committee), Fe MacLean(2003-2004 Fellow, NSF Division of Elementary, Secondary, and Informal Education), and David Kapolka (Current Fellow, NSF Division of Elementary, Secondary, and Informal Education).

A Network of Michigan Educators Blackboard Site(<http://bb.misd.net/>) was established by the Michigan Department of Education to allow the participants to communicate with each other as

they collaborate in forming Action Study Teams. Teams of teachers will form a cadre to research an educational issue, develop an action plan, and implement that plan with the support of the Michigan Department of Education and the other network teachers. According to David Kapolka, "the formation of Action Study Teams and a means for the designated teachers from Michigan to regularly communicate is a major step forward in utilizing the knowledge resource of many of our state's finest educators. I am hopeful that these teachers will make a greater difference for all students as this endeavor moves forward." The Albert Einstein Distinguished Educator Fellowship Program 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. For more information on the Einstein Fellowship Program, which has a February 1 deadline for applications, visit [www.trianglecoalition.org/ein.htm](http://www.trianglecoalition.org/ein.htm).

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### MASSACHUSETTS GOVERNOR CALLS FOR MCAS SCIENCE GRADUATION REQUIREMENT; BONUSES FOR MATH AND SCIENCE TEACHERS

In an effort to graduate more children who will be competitive with the best in the world, Governor Mitt Romney has unveiled a plan to improve education in Massachusetts. The proposed "Education Reform Act of 2005," would expand the school day well into the afternoon, and include a bonus program for math and science teachers. "We should pay more to attract excellent math and science teachers," Romney explained. "Ninety-three percent of our nation's middle school science teachers didn't major or minor in science. No wonder our kids don't go into the sciences when their teachers didn't either." In addition, Romney is pushing to expand MCAS graduation requirement beyond math and English. "I will move for science to be the third MCAS discipline and make science a graduation requirement as soon as possible," he added. Romney has also proposed mandatory parental preparation courses in failing school districts. He explains, "Parental involvement in a child's education is more important than any step we can take. Not all teachers can be parents, but all parents must be teachers." Massachusetts was the first US state to require K-12 engineering standards. For more information on the Massachusetts Department of Education Science, Technology, and Engineering Frameworks, visit [www.doe.mass.edu/frameworks/scitech/2001](http://www.doe.mass.edu/frameworks/scitech/2001).

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### VINNY AWARD HEIGHTENS AWARENESS OF SCIENCE, TECHNOLOGY, ENGINEERING, AND MATHEMATICS

The NASA Center for Distance Learning in cooperation with Christopher Newport University and Triangle Coalition member, the Institute of Electrical and Electronics Engineers(IEEE), have announced the VINNY Award. Named in honor of Leonard da Vinci(a man famous for the creative use of science, technology, engineering, and mathematics to solve human problems) the Award is designed to help heighten and increase awareness of science, technology, engineering, and mathematics(STEM). VINNY is a global video competition, with registration open to K-12 teachers and students worldwide. The competition challenges teams, made up of three students and one teacher, to identify and research a global problem and discover ways that STEM can be used to help solve it. The final product to be submitted for judging is a one-minute video

explaining the global problem and a possible STEM solution. VINNY can be used to supplement curricula and support commonly recognized standards of learning. Submissions can be made in either English or Spanish for the following grade levels: 3-5, 6-8, and 9-12.

Funding for the VINNY is provided by the Institute of Electrical and Electronics Engineers Foundation. Triangle Coalition member, IEEE, is a non-profit, technical professional association of more than 377,000 individual members in 150 countries. Through its members, the IEEE is a leading authority in technical areas ranging from computer engineering, biomedical technology, and telecommunications, to electric power, aerospace, and consumer electronics, among others. For more information about IEEE, visit [www.ieee.org](http://www.ieee.org). VINNY competition registration information, details, and rules are available online at <http://vinny.pcs.cnu.edu>. The registration deadline for VINNY is February 15, 2005, with submissions due by April 1.

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**FDA AND NSTA OFFER SUMMER PROFESSIONAL DEVELOPMENT EVENTS FOR SCIENCE EDUCATORS**

The Food and Drug Administration(FDA) and Triangle Coalition member, the National Science Teachers Association(NSTA), will present a professional development program in Food Science this summer in two separate, week-long sessions for middle school(July 10-16) and high school (July 24-30) science teachers in Washington, D.C. Consistent with the National Science Education Standards, the programs will offer multi-dimensional sustained professional development, including content updates by food science specialists; visits to government/industry facilities; presentations by government and industry leaders; hands-on practice with new curriculum materials and exchange of teaching and learning strategies. Travel, lodging, and meal expenses will be covered for science educators who are selected to participate in the two programs. Deadline for applications is March 18. For additional information and to apply, visit [www.nsta.org/fda](http://www.nsta.org/fda).

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**CELEBRATING MATHEMATICS EDUCATION LEADERS**  
(Source: NCTM News Bulletin, December 2004)

The National Council of Teachers of Mathematics(NCTM) Board of Directors and staff gathered at NCTM headquarters on October 29 for a ceremony and reception to honor some of those who have provided outstanding service and leadership to mathematics education. Since 1994, 27 educators have received NCTM's Mathematics Education Trust(MET) Lifetime Achievement Award for Distinguished Service to Mathematics Education. MET supports the improvement of mathematics teaching and learning through the funding of grants, awards, and other projects by channeling the generosity of contributors into classroom-based efforts that benefit all students. For more information about MET grants, visit [www.nctm.org/about/met](http://www.nctm.org/about/met).

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**LUCENT GLOBAL SCIENCE SCHOLARS COMPETITION SEEKS APPLICANTS**

The Lucent Technologies Foundation is seeking applicants from around the world for the Lucent

Global Science Scholars Competition. The annual international competition identifies and rewards students for academic excellence and achievements in math, science, and technology. Award recipients spend a week in Murray Hill, NJ, with researchers and scientists and fellow Global Science Scholars at the headquarters of Lucent Technologies and its research and development arm, Bell Labs. In addition, Global Science Scholars receive a \$5,000 award, and when an appropriate placement can be found, are offered internships at a Bell Labs or Lucent Technologies facility in their home country. US applicants must be finishing their senior year of high school and planning to enter their freshman year of college in the fall, in pursuit of their first degree. They must have distinguished themselves in math and science and demonstrated a strong interest in careers related to information technology. For more information, visit [www.iie.org/programs/lucent](http://www.iie.org/programs/lucent).

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Massachusetts Department of Education Science, Technology, and Engineering Frameworks - [www.doe.mass.edu/frameworks/scitech/2001](http://www.doe.mass.edu/frameworks/scitech/2001)

VINNY Award - <http://vinny.pcs.cnu.edu>

FDA/NSTA Food Science Professional Development Program - [www.nsta.org/fda](http://www.nsta.org/fda)

NCTM's Mathematics Education Trust - [www.nctm.org/about/met](http://www.nctm.org/about/met)

Lucent Global Science Scholars Competition - [www.iie.org/programs/lucent](http://www.iie.org/programs/lucent)

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