

From: Carl Hussey <c.hussey@ieee.org>
To: FCIEEE<r3-fl-council@ieee.org>
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Subject: Educational Activities Committee Report to the
Fall Meeting of the Florida Council of the I.E.E.E.
Region 3 Semi-Annual Meeting, Hilton Atlanta Airport, GA-Fri., Oct. 15,'04

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.

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. For more information on Boeing, visit www.boeing.com.

TRIANGLE COALITION BOARD MEMBER PROFILE: WILLIAM R. SPEER

William R. Speer is a Professor of Mathematics Education at the University of Nevada, Las Vegas(www.unlv.edu). He is also an Emeritus Professor of Mathematics and Computer Education at Bowling Green State University, Bowling Green, OH. His B.S. and M.S. Ed. degrees were achieved at Northern Illinois University while his Ph.D. was granted by Kent State University. Dr. Speer is the primary author of the Wiley text, TODAY'S MATHEMATICS, eleventh edition, focusing on content/teaching methods for the elementary and middle grades. He authored numerous articles and has served as editor of the IDEAS section for the Arithmetic Teacher journal and editor of the INVESTIGATIONS section of Teaching Children Mathematics journal. He has also served on the Editorial Board for the research journal FOCUS on the Learning and Teaching of Mathematics.

Dr. Speer is a Past President of the Ohio Council of Teachers of Mathematics, the Ohio Mathematics Education Leadership Council, the Nevada Mathematics Council(two terms), the Nevada Association of Teacher Educators(two terms), the Research Council on Mathematics Learning (www.unlv.edu/RCML), and the School Science and Mathematics Association (www.ssmma.org). He was a member of the NCTM Commission that released the landmark publication entitled Professional Standards for Teaching Mathematics and is one of two university-level representatives nation-wide on the Professional Teaching Standards Task Force. Dr. Speer has been a Fulbright Scholar to the Bahamas, and a Visiting Professor at Northern Arizona University's Science and Mathematics Learning Center. He has lectured extensively throughout the United States, as well as Canada, Mexico, Puerto Rico, the Virgin Islands, Costa Rica, England, Scotland, Belgium, Germany, the Netherlands, Hungary, the People's Republic of China, Australia, New Zealand, and Malawi. Perhaps most importantly, he has had teaching experience at each grade level and enjoys sharing and learning about how research informs teachers and how the classroom lends itself to generative studies of teaching and learning.

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.

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.

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.

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.

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.

"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) 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.

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

Space Camp - www.spacecamp.com

Boeing - www.boeing.com

University of Nevada, Las Vegas - www.unlv.edu

Research Council on Mathematics Learning - www.unlv.edu/RCML

School Science and Mathematics Association - www.ssma.org

Christopher Columbus Awards - www.christophercolumbusawards.com

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

Council of Chief State School Officers - www.ccsso.org

Lucent Technologies Global Science Scholars Summit - www.lucent.com/social/2004GSS.html

National Medal of Science - www.fastlane.nsf.gov/honawards

What Works Clearinghouse - www.whatworks.ed.gov

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.

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.

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. Optional credit is also available.

TRIANGLE COALITION BOARD MEMBER PROFILE: DR. KENDALL N. STARKWEATHER

Dr. Kendall N. Starkweather is Executive Director of the International Technology Education Association(ITEA). ITEA(www.itea.org) is the only major association in North America existing solely for the purpose of promoting technological literacy in US schools. As Executive Director, Dr. Starkweather is involved in association activities designed to advance ITEA's mission. He is publisher of the association's journals, "The Technology Teacher" and "Technology and Children," which contain curriculum and instructional materials dealing with all aspects of technology. His background includes high school teaching experience and nearly a decade of teacher education work at the University of Maryland. Dr. Starkweather's efforts have been directed towards educational materials on such topics as problem-solving and technology, controlling technological systems, and the impact of technology on people and the environment. During this time, ITEA has grown in national and international prominence effecting a transition toward technology teaching.

Dr. Starkweather has been involved in an advisory capacity for such groups as the North Atlantic Treaty Organization, National Association for Science, Technology and Society, National Research Council, National Academy of Sciences, National Academy of Engineering, American Association for the Advancement of Science, National Science Foundation, National Science Teachers Association, Junior Engineering Technical Society, Challenger Center, and the National Aeronautics and Space Administration. Dr. Starkweather has been a member of the Board of Directors for the Autodesk Foundation, and for the Foundation for Technology Education. He has spoken on technology education in most states and provinces in North America, and has spoken or consulted in Australia, Canada, England, Greece, the Netherlands, Japan, New Zealand, and Taiwan.

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; for general program information, visit www.nsf.gov/pubsys/ods/getpub.cfm?nsf03608.

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.

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) 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.

CONFERENCE CALENDAR

The Triangle Coalition maintains an online conference calendar at 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

TCEB LINKS

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

World Renewable Energy Congress and Exposition - www.nrel.gov

World Year of Physics - www.physics2005.org

Annenberg/CPB Channel Professional Development Courses -
www.learner.org/channel/workshops/register_info.html

International Technology Education Association - www.iteawww.org

NSF 2004 East Asia and Pacific Summer Institutes Program -
www.nsf.gov/pubsys/ods/getpub.cfm?nsf03608

NASA Network of Educator Astronaut Teachers - www.nasa.gov

American Nuclear Society - www.ans.org

"About Nuclear" - www.aboutnuclear.org

Triangle Coalition Conference Calendar - www.trianglecoalition.org

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, or directly through <http://convergence.mathdl.org>.

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. To download 2005 Davidson Fellow application materials, visit www.davidsonfellows.org.

TRIANGLE COALITION BOARD MEMBER PROFILE: ROWENA DOUGLAS

Rowena Douglas is the National Science Teachers Association's (NSTA) first Assistant Executive Director for Professional Development. The new position is a result of NSTA's increased efforts to bring professional development opportunities to all teachers of science. Douglas's responsibilities include working to develop and implement a broad-based professional development component across all NSTA programs and products, including conventions, publications, and the new NSTA Institute. For more information about NSTA, visit www.nsta.org. Douglas recently came to NSTA from NSF where she was a program director with the Division of Elementary, Secondary, and Informal Education. At NSF, she divided her time between the Teacher Enhancement Program and K-8 Science Instructional Materials Development and was director of the Presidential Awards for Excellence in Mathematics and Science Teaching (PAEMST) Program.

Prior to her work with NSF, Douglas served as state science supervisor for the Ohio Department of Education. She was a graduate teaching assistant at the University of Cincinnati while pursuing her Ph.D. in Science Education, Curriculum, and Instruction, and served as an assistant professor at California State University, Long Beach, CA and as a visiting professor at Miami University in Oxford, OH. Douglas has taught both science and mathematics at the elementary, middle, and secondary levels; served as a mentor teacher in California; and has worked extensively with elementary science methods programs.

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.

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.

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.

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.

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>.

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.

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

Davidson Institute for Talent Development - www.davidson-institute.org

2005 Davidson Fellows Program - www.davidsonfellows.org

National Science Teachers Association - www.nsta.org

Siemens Westinghouse Competition in Math, Science & Technology - www.siemens-foundation.org

Delta Education, LLC - www.delta-education.com

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

Teachers for a Changing Society" - 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

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.

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/dysec>.

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.

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.

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.

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.

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>.)

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. 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.

TCEB LINKS

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

Albert Einstein Distinguished Educator Fellowship Program - 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

Play Attention - www.playattention.com

Economic Policy Institute - www.epinet.org

The Condition of Education 2004 - <http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2004077>

PBS TeacherLine - www.pbs.org/teacherline

Practice Learning Online with TeacherLine - http://teacherline.pbs.org/teacherline/modules/learning_online.cfm

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 or call 1-800-USA-LEARN.

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.

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.

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.

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.)

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>.)

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.

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.

TCEB LINKS

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

NCLB Teacher-to-Teacher Initiative - www.teacherquality.us

BioTeach - www.massbio.org

"Measuring Up 2004: The National Report Card on Higher Education" -
www.highereducation.org

Teach For America - www.teachforamerica.org/studies.html

American Diploma Project - 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

NSTA Conference "Linking Science and Literacy in the Classroom" - www.nsta.org/conventions

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 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.

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.

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. 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.

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>.

**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. 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.

**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.

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.

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.)

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

BEST Robotics Inc. - www.bestinc.org

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

No Child Left Behind Act - www.ed.gov

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

MET Grants - www.nctm.org/about/met

"Education at a Glance 2004" - www.oecd.org/edu/eag2004

Edutopia - 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
