



Views You Can Use

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Over the last six months as I've traveled the country, the number-one issue on the minds of educators is meeting AYP for all students while operating in a system that was designed for the past, when only the elite few had to be educated to high standards. Our 2007 Symposium in Atlanta will hit this issue head-on. Teachers will hear about best practices and strategies for meeting the needs of the hardest-to-serve students. Administrators will focus on whole school reinvention, creating a culture for change, and instructional leadership to establish a learning environment in which all students can achieve. A central feature of the Symposium is the opportunity for each school/district team to work on its specific issues and formulate an action plan, with assistance from model school practitioners and International Center experts.

Sincerely,

Bill Daggett

Education Trends

U.S. Opts Out of Global Assessment

Citing budget constraints and the small number of participating countries, the U.S. Department of Education has declined for the first time to participate in an international study designed to show how advanced high school students around the world measure up in math and science. The Trends in Mathematics and Science Study (TIMSS)-Advanced 2008 will test students taking physics and upper-level math classes at the end of their secondary school years. So far, nine countries have agreed to participate: Armenia, Iran, Italy, Lebanon, Russia, Netherlands, Norway, Sweden, and Slovenia. The subject areas that will be assessed are: algebra, calculus, geometry, mechanics, electricity and magnetism, heat and temperature, and atomic and nuclear physics.

It has been 12 years since any major international assessment has looked at the performance of the world's most talented math and science high school students — the group most likely to become the next generation of scientists and engineers. "Not participating in this worldwide assessment will deprive us of data that cannot be gathered through any other means," said Francis "Skip" Fennell, President of the National Council of Teachers of Mathematics. Countries have until the end of November to commit to the study, although field tests are under way this year in some nations.

Source: *Education Week*, August 1, 2007

No Time Left for Science, History, and Art

In preparing students for the mathematics and reading tests mandated under NCLB, nearly half of the nation's school districts have cut the time spent on teaching other subjects, such as science, history, and

art, according to a report released by the Center on Education Policy. The report, based on a survey of 349 districts, showed that 44% of the districts have taken a significant amount of time away from other subjects to focus on math and reading. Time lost totaled about 141 minutes per week across all subjects, or almost 30 minutes per day. The report supports arguments that NCLB should be expanded to include tests in science, social studies, and other subjects. "This report matches everything we've seen," said Gerald F. Wheeler, executive director of the National Science Teachers Association. "We need to be more intelligent about what it means to educate the whole child."

Source: *Education Week*, August 1, 2007

Information Technology Trends

Starting Up the Semantic Web

Metaweb Technologies, a company based in San Francisco, is one of a handful of start-up companies incorporating new technologies that offer new ways for users to interact with the World Wide Web in what has been defined as the "Semantic Web." This new type of online system is an extension of the World Wide Web that would offer new information resources and services by enabling computers to interpret meaning through new artificial intelligence (AI) technologies. Sophisticated information technology is incorporated in the search engines of such commercial entities as Google to conduct searches better. But, that's not the same as understanding what the words mean. In contrast, the Semantic Web would serve more as a guide rather than an electronic library. For example, a user could punch in a couple of phrases and the server would return links that make up a single vacation package based on preferred air flight schedule, age of children, number of people, and general interests. In this case, the computer almost acts as a personal travel agent.

Source: *The New York Times*, March 9, 2007

Nanotechnology Trends

On the Smallest Scale: Witnessing the Self-Assembly Process

A Cambridge University-led team of scientists have produced video footage that shows how carbon nanotubes form on top of crystalline nickel. More than 10,000 times smaller in diameter than a human hair, carbon nanotubes have the potential to enhance and further miniaturize everyday electronic devices, from computers and mobile phones to medical devices. Carbon nanotubes can carry large amounts of electrical current without losing heat, making them ideal materials for nanoscale wires. Scientists can grow nanotubes, but so far cannot accurately control their structure. The video observations provide scientists with greater insights into how these nanoscopic structures self-assemble.

The researchers used X-rays and a specialized electron microscope to observe and record a process called catalytic chemical vapor deposition, which involves heating a carbon-rich compound at high temperatures until it vaporizes. As the material cools, carbon deposits directly on the metal surface (in this case, nickel) in the form of nanotube arrays.

Source: www.admin.cam.ac.uk/news/dp/2007030203

Biotechnology Trends

More Precise than a Human Hand

Researchers at the Johns Hopkins Urology Robotics Lab have developed a motor without metal or electricity that can safely power a remote-controlled robotic medical device used in conjunction with magnetic resonance imaging (MRI). Metals are unsafe in MRIs because the machine relies on a strong magnet, and a device with an electric current would distort MR images. Researchers in the lab have built a nonmetallic robot called MrBot, guided by MRI for use in cancer biopsies and therapies, but needed a power source that also was free of metal in order for it to work as intended. The motor, dubbed PneuStep and made from plastic, ceramic, and rubber, can be so precisely controlled by computer that movements are steadier and more precise than a human hand. Driven by light and air, the device consists of three pistons connected to a series of gears. The gears are turned by air flow, which is controlled by a computer located in a room adjacent to the MRI machine. The motor is equipped with fiber optics, which feeds the information back to the computer in real time, allowing for guidance and readjustment, as the robot moves alongside the patient in the MRI scanner.

Source: www.sciencedaily.com/releases/2007/04/070406145338.htm

Under Your Skin — the Pros and Cons

The American Medical Association released a report that outlined the pros and cons of radio frequency identification (RFID) tags — implanted devices the size of a grain of rice that are used to store medical information. The devices could give emergency room doctors quick access to the records of chronically ill patients and reduce medical errors, the report said. But implanting the tags also may compromise patient privacy. In addition, their small size could allow them to move to other parts of a person's body. They may also cause interference with electrical devices such as defibrillators.

Made from a microchip and a copper antenna encased in a glass capsule, the device transmits a unique 16-digit number that can be read by a handheld scanner. The number is used to locate a medical record stored on a secure Web site. VeriChip Corp. of Delray Beach, Fla., is selling kits containing scanners and the large-bore needles used to insert the chips. The company has sold about 2,500 chips worldwide for use in people, and several hundred have been implanted, including about 100 in the United States. The devices, originally developed to track livestock, have been implanted in more than six million cats and dogs to trace lost or stolen pets.

Sources: www.rfidjournal.com/article/articleview/3487/
www.washingtonpost.com/wp-dyn/content/article/2006/03/14/AR2006031402039.html

Drug Delivery with a “Pop”

University of Utah researchers have developed a targeted drug delivery method that uses ultrasound to locate a tumor and deliver medicine at the same time via “nanobubbles.” Tiny bubbles injected in mice delivered potent cancer drugs to tumors without harming surrounding tissue. When injected in the bloodstream, the bubbles loaded with a chemotherapy drug congregate around the tumor. Once in the tumor, the nanobubbles combine to form larger bubbles, which can be seen on an ultrasound. Ultrasound radiation is then targeted at the tumor, popping the bubbles and releasing the medicine. Researchers expect to start clinical trials within three years.

Source: http://fe29.news.re3.yahoo.com/s/nm/20070711/sc_nm/cancer_bubbles_dc

By the Numbers

The nation's minority population has topped 100 million for the first time and now makes up about a third of America, according to the U.S. Census Bureau. "The melting pot in America is really bubbling at the younger age," says William Frey, demographer at the Brookings Institution.

- Hispanics remain the largest minority group at 44.3 million and accounted for almost half the nation's growth of 2.9 million from July 1, 2005, to July 1, 2006.
- The Caucasian school-age population dropped 4% since 2000, while the number of Hispanic school-age children increased by 21%.
- Nevada had the fastest-growing population under age 15, and Hispanic youths accounted for 67% of those gains. One in four residents in the state was Hispanic in 2006, compared with one in five in 2000.
- There are 2.5 million more Asian Americans since 2000, a 24.4% increase to 12.9 million.
- Immigration accounts for more than 40% of the nation's growth since 2000.

Source: www.usatoday.com/news/nation/census/2007-05-17-minority-numbers_N.htm