Views You Can Use

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Education Trends

Districts from Coast to Coast Cut Summer School

Despite federal stimulus money for public education, thousands of school districts from coast to coast have pared down their summer education programs or have eliminated them altogether. Nearly every school system in Florida, for instance, has limited or eliminated summer school this year, and sweeping cuts have been reported in states from North Carolina and Delaware to California and Washington. This year, summer classes in New York City have been offered in 369 schools, down from 562 in 2008.

Through its stimulus package, the federal government has channeled $100 billion to public education, urging states and districts to spend some of the money to keep schools open this summer. But municipal government revenues have fallen so precipitously that, even after receiving stimulus dollars, local officials say they have had to make deep cuts to school budgets. Since the 1970s, the value of a rigorous summer school program has gained increasing recognition. Research has shown that low-income students who hold summer jobs or are idle forget more math and reading skills over the summer than their more affluent classmates, who often receive intellectual stimulation in summer camps and through other educational and social activities.

Sources: www.starnewsonline.com/article/20090702/ZNYT02/907023016?Title=Facing-Deficits-Some-States-Cut-Summer-School

U.S. Schools Fails to Provide Students with a Proficient Education

A new analysis of state-collected education data reveals that 84% of states fail to provide students access to a moderately proficient public education system. The data was summarized in *Lost Opportunity: A 50-State Report on the Opportunity to Learn in America,* a state-by-state study by the Schott Foundation for Public Education. The study analyzed student performance data reported by state departments of education to determine both the quality of and access to instruction provided in all 50 states and the District of Columbia. The Schott Foundation examined both academic proficiency (percentage of students scoring at or above proficient on eighth grade NAEP reading measures) and access (as measured by the Schott Foundation's Opportunity to Learn Index, or OTLI). More statistics are provided in the “By the Numbers” section.

Source: http://ednetnews.com/story-2696-3.html

Biotechnology Trends

Packaging Made from Mushrooms

Ecovative, a new biotechnology company in upstate New York, has created a strong low-cost biomaterial from mushrooms that could replace the expensive, environmentally harmful Styrofoam and other plastics used in wall insulation and packaging. The company, founded by two recent graduates from Rensselaer Polytechnic Institute, uses seed husks and other agricultural waste as the base for growing the mushrooms. Once the seed husks are wet, they are combined with mushroom roots, which act as a binding agent and use the husks as food. After two weeks of growth, the material is dried in an oven at between 100° and 150°F. It then can be shaped into packaging material for everything from televisions to medicine products. In addition to being cheaper and better for the environment than petroleum-derived products, the material can grow at room temperature and in the dark, doesn't require expensive manufacturing equipment, and can easily be tailored to different levels of strength and flexibility.

Source: http://earth911.com/blog/2009/05/11/making-magic-out-of-mushrooms

Spurring Adult Stem Cells into Action

Fate Therapeutics, a biotechnology startup company in California, has developed a novel drug to induce the growth of adult stem cells in bone marrow to help patients recover from certain kinds of leukemia and lymphomas. The drug, dubbed FT-1050, is based on a small molecule to treat blood-forming stem cells from cord blood before the cells are transplanted into humans.

In a clinical trial at Dana-Farber Cancer Institute in Boston, the drug is being tested in patients with blood or immune-system cancers whose bone marrow function, which is vital to blood production and the immune system, has been destroyed by chemotherapy and other cancer treatments. By activating certain genes in the stem cells, the drug is expected to boost the ability of the cells to multiply and take up residence in bone marrow. The drug is the first of many the company hopes to develop to spur the growth of adult stem cells in different parts of the body.

Sources: www.xconomy.com/san-diego/2009/05/27/fate-therapeutics-starts-first-clinical-trial-of-drug-to-boost-stem-cell-transplants/
www.technologyreview.com/business/23017/

Brain Research Trends

Pinpointing Where the Brain Processes 3-D Motion

Ducking a punch or moving out of the way of oncoming traffic require the human brain to process three-dimensional (3-D) motion, which is critical to survival. Neuroscientists at the University of Texas at Austin have now pinpointed where and how the brain processes 3-D motion by using specially developed computer displays and an fMRI (functional magnetic resonance imaging) machine to scan the brain. They found, surprisingly, that 3-D motion processing occurs in an area located just behind the left and right ears — long thought to only be responsible for processing two-dimensional motion (up, down, left and right). This area, known as MT+, and its underlying neuron circuitry are so well studied that most scientists had concluded that 3-D motion must be processed elsewhere.

For the study, the researchers had people watch 3-D visualizations while lying motionless for one or two hours in an MRI scanner fitted with a customized stereovision projection system. The fMRI scans revealed that the MT+ area had intense neural activity when participants perceived objects (in this case, small dots) moving toward and away from their eyes. The tests also revealed how the MT+ area processes 3-D motion: it simultaneously encodes two types of cues coming from moving objects.

Source: http://cns.utexas.edu/communications/2009/07/3d_motion.asp

Nanotechnology Trends

DNA Lockbox Complete with Keys

Researchers in Denmark used DNA to construct a nanosize lockbox along with a set of DNA keys. Such a container could be adapted for a wide range of applications, from drug-delivery devices to components for electronics.

To design the box, the researchers developed a computer program to generate a continuous single-stranded DNA sequence that, along with smaller DNA fragments which act as staples, self-assemble into the desired shape. They then used a virus to manufacture copies of the DNA sequence design, which folds in predictable ways according to its sequence. To make the lid lockable, the researchers designed two tiny DNA latches with sticky ends. Under normal circumstances, the latches adhere to the box, holding it shut. But when the two corresponding DNA keys are added, the latches bind to the keys instead, allowing the lid to swing open. A pair of dye molecules, one affixed to the box's rim and another to its lid, glow red when close together and green when far apart, providing an easy way to detect whether a box is closed or open.

Source:
www.technologyreview.com/printer_friendly_article.aspx?id=22600&channel=biomedicine&section=

By the Numbers

Lost Opportunity: A 50-State Report on the Opportunity to Learn in America offers some sobering statistics (see Education Trends for story).

- Only eight states are providing a moderately proficient, high-access public education to all.
- Eight states appear to provide low-proficiency and low-access education.
- Sixteen provide a moderately proficient education for most students, but demonstrate low access when providing that education to historically disadvantaged students.
- Seventeen states provide high-access but low-proficiency education to their students.
- Only six states offer black students an equal opportunity to learn, compared to their white non-Latino peers.

- Forty states (80%) fail to offer Latino students a good opportunity to learn, while nearly 80% fail to offer low-income students a strong opportunity to learn.

State-by-state data, disaggregated by race, ethnicity, and income, can be found at www.otlstatereport.org.

Source: http://ednetnews.com/story-2696-3.html