



Views You Can Use

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With the school year in full swing, we have several excellent professional development opportunities for education leaders and teachers alike. Our *How to Achieve AYP and More Symposium for Grades 6-12*, on November 3-5 in Atlanta, will showcase best practices and provide planning time for teams of educators to work on school improvement goals with assistance from practitioners and International Center consultants. Register a team of five or more and the rate is \$295 — a \$200 per person savings. For additional information on this Symposium, our February Symposium for Grades K-12 in San Diego, and the 2008 Model Schools Conference in Orlando, please use the links to the right.

Sincerely,

Bill Daggett

Nanotechnology Trends

Power in a Sheet of Paper

Energy can now be stored in a piece of paper. Researchers at Rensselaer Polytechnic Institute have developed a new energy storage device made from carbon nanotubes and cellulose, the plant-based material used to make paper. Along with its ability to function in temperatures up to 300 degrees Fahrenheit and down to 100 below zero, the integrated device can be rolled, twisted, folded, or cut into any number of shapes with no loss of mechanical integrity or efficiency. The paper batteries also can be stacked, like a ream of printer paper, to boost the total power output. Along with use in small handheld electronics, the paper batteries' light weight could make them ideal for use in automobiles, aircraft, and boats.

Source: <http://news.rpi.edu/update.do?artcenterkey=2280>

Biotechnology Trends

A Closer View

The world's most detailed movable computer model of a human body has been created by researchers and graphic artists at the University of Calgary in Canada. Dubbed the CAVEman, the model allows scientists to "step inside" their experiments by translating medical data into "four-dimensional" (4D) images. Doctors can use the image to plan complex surgeries or show patients what ailments look like inside their bodies.

CAVEman resides in a virtual reality room, where it is projected from three walls and the floor below. The image encompasses more than 3,000 body parts, all viewed in a booth that gives the image height, width and depth. CAVEman also plots the passage of time — the fourth dimension.

Seen through three-dimensional glasses, the computer image appears to stand in front of the viewer. As in a video game, the controller using a joystick can manipulate it and focus on body parts — skin, bones, muscles, organs, and veins. The closer the image becomes, the further into the body the viewer appears to travel. The image can be loaded onto regular computers, to be viewed offsite.

Sources: www.reuters.com/article/scienceNews/idUSN2325171220070524
www.ucalgary.ca/news/may2007/CAVEman

Tailoring a Virus to Kill Lethal Brain Tumor Cells

A tailored virus destroys brain tumor stem cells that resist other therapies and cause lethal re-growth of cancer after surgery, according to a research team led by scientists at the University of Texas M. D. Anderson Cancer Center. The virus, called Delta-24-RGD, was tested against the most aggressive brain tumor — glioblastoma multiforme, which originates in human glial cells that surround and support neurons. This type of tumor is highly resistant to radiation and chemotherapy and so invasive that surgery almost never eliminates it. Patients suffering from this cancer live on average for about 14 months with treatment.

The researchers developed the virus to prey on a molecular weakness in tumors. They altered the virus so it could not replicate in normal tissue. They have shown that the virus eliminated brain tumors in 60% of mice that received injections directly into the tumors. The virus spreads in a wave through the tumors until there are no cancer cells left, and then it dies.

Source: <http://www.sciencedaily.com/releases/2007/09/070911163338.htm>

Laser Blasts Viruses in Blood

A laser method for zapping viruses out of blood has been developed by researchers from Johns Hopkins Medical Institutions. The technique, which holds promise for disinfecting blood for transfusions, uses a low-power laser beam with a pulse lasting fractions of a second. Building on the idea that vibration destroys a virus' outer shell, the scientists found that their low-power laser selectively destroys viruses and spares normal human cells around them, while stronger beams kill almost everything. The researchers speculate that laser vibrations could destroy drug-resistant and sensitive viruses alike.

Source: www.ccnmag.com/index.php

Economic Trends

Global Economy Works Both Ways

The emerging Chinese middle class has developed a taste for California produce and nuts, particularly figs, grapes, dates, almonds, walnuts and pistachios. With California's reputation for strict food regulations and amid the food safety concerns stemming from their own country, many Chinese don't seem to mind paying the extra price. Golden state produce costs about twice as much as China-grown versions. Still, last year alone, China imported 28,000 tons of grapes. That's about one-fifth of the grapes California exported. Overall, U.S. agricultural exports to China have jumped about 150% over the last five years and now total more than \$6.5 billion. "Give it five more years ... then you'll really see China as a agriculture market equal to Europe

and equal to Japan for the U.S.,” says Ed Gresser, trade expert with the Progressive Policy Institute.

Source: <http://marketplace.publicradio.org/shows/2007/09/10/AM200709107.html>

Foreign Investment: Saudis Acquire GE Facility

The Saudi Basic Industries Corporation (SABIC) acquired General Electric Plastics facility in Selkirk, N.Y., for \$11.6 billion. The acquisition is the largest ever in the Persian Gulf and second biggest in the Middle East. SABIC has doubled sales since 2002 because of the company's access to the world's biggest reserves of oil, used as raw material for plastics and petrochemicals. GE, by contrast, put its plastics unit up for sale in January after the soaring cost of crude cut into earnings. The late Saudi King Khalid bin Abdulaziz established SABIC in 1976 with the aim making Saudi Arabia less dependent on oil. Once run from a small office with a handful of employees, it has grown to become the largest public company in the Middle East, employing 17,000 people.

Source: *Times Union*, Albany, N.Y., September 9, 2007

Economics by the Numbers

Here are some interesting numbers regarding Saudi Basic Industries Corporation (SABIC):

- SABIC is the largest public company in the Middle East and one of the largest petrochemical companies in the world. Petrochemicals are compounds derived from oil or natural gas.
- With the acquisition of GE Plastics, SABIC has 30,000 employees and is expected to make \$30 billion in sales this year.
- In the first six months of 2007, SABIC's profit totaled \$3.4 billion, a 45% increase over the same period last year.
- SABIC's U.S. headquarters have been in Houston for 20 years. The company has had joint ventures with Exxon Mobile and Shell for more than two decades.

Source: *Times Union*, September 9, 2007