



Career Cornerstone News

Volume VII, Issue V

Fall, 2011

Issue Sponsor:



Career Cornerstone News is a Publication of the Sloan Career Cornerstone Center, the Premier Online Resource for Exploring Career Paths in Science, Technology, Engineering, Mathematics, and Medicine.

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NASA Listens to College Students' Ideas

NASA recently hosted an education forum with college students in Orlando, FL. The event focused on their vision for the future of America's space program. "We want our student participants to feel free to have an open dialogue about what is important to them in the context of space exploration, aeronautics, technology, and robotics," said NASA Associate Administrator for Education Leland Melvin. "These young people are our next generation of scientists, engineers, and explorers. We encourage them to reach higher, and we are anxious to hear what exciting pursuits they

envision for the future."

In addition to witnessing shuttle Atlantis' launch, the student participants toured NASA's Kennedy Space Center in Florida and met a NASA astronaut.

The agency began holding regular pre-launch education forums in August 2007 with the STS-118 shuttle mission that carried teacher-turned-astronaut Barbara R. Morgan. NASA has a broad education program



to encourage students to study science, technology, engineering, and mathematics.

NASA also has lots of educational opportunities for precollege students. Find out more about NASA programs and other precollege opportunities at www.careercornerstone.org/pcprogproj.htm.

Tech Levels Key to College Selection

According to the 21st-Century Campus Report, which surveyed more than 1,200 college students, faculty, IT staff, and administrators about the role of technology in higher education, 87% of college students surveyed said they considered their institution's technology when selecting their college. A related report found that 92 percent of current high school students say technology is an important consideration as they evaluate colleges.

Other findings:

- ◆ Tech use is up: Students are using technology more often while in class. Thirty-one percent use technology as a learning tool every day, up from 19 percent last year.
- ◆ Mobility makes an impact: Faculty and IT staff report that e-readers, media tablets, and smartphones are essential technologies 21st-century campuses.
- ◆ Faculty still struggle with technology: Students, faculty, and admins all report that the biggest challenge to campus technology is that faculty don't know how to use it.



Student View: One Year Out of High School

One year after graduating from high school, most members of the Class of 2010 believe that earning a college degree is "definitely" worth it, according to a survey by the College Board. The survey on college readiness and affordability, "One Year Out," explores how young Americans assess their high school experience and its role in preparing them for life after graduation. While these recent graduates have a generally favorable view of their time in high school, almost all of them admit there is at least one thing they would change or do differently. For example, 44% students wish they had taken more math, science and

writing-intensive course work in high school to prepare for the rigors of college and the workforce. Nearly half (47%) say, with the benefit of hindsight, they wish they had worked harder in high school, and more than a third (37%) say the requirements for graduating high school should be made more difficult. An overwhelming majority (86%) feel that a college degree is worth the time and money — including a large majority not currently enrolled in college (76%). Also, 90% agree with the statement: "In today's world, high school is not enough, and nearly everybody needs to complete some kind of



education or training after high school." The full study is online at www.collegeboard.org/OneYearOut. Ideas for precollege prep including course suggestions are at www.careercornerstone.org/precolprep.htm.

Degree Profile: Physics

Physicists conduct research to understand the nature of the universe and everything in it. These scientists observe, measure, interpret, and develop theories to explain celestial and physical phenomena using mathematics. From the vastness of space to the infinitesimal scale of subatomic particles, they study the fundamental properties of the natural world and apply the knowledge gained to design new technologies. Physicists generally specialize in one of many specialty areas such as Acoustics, Astronomy, Biophysics, Cryogenics, Electromagnetism, Geophysics, or Metallurgy.

Physicists explore and identify basic principles and laws governing the motion, energy, structure, and interactions of matter. Some

physicists study theoretical areas, such as the nature of time and the origin of the universe; others apply their knowledge of physics to practical areas, such as the development of

advanced materials, electronic and optical devices, and medical equipment.

Physicists design and perform experiments with sophisticated equipment such as lasers, particle accelerators, electron microscopes, and mass spectrometers.

In terms of preparation, because most jobs are in basic research and development, a doctoral degree is the usual educational requirement for physicists and



astronomers. Master's degree holders qualify for some jobs in applied research and development, whereas bachelor's degree holders often qualify as research assistants or for other occupations related to physics.

Physicists and astronomers hold about 16,000 jobs in the United States with median annual earnings of about \$103,000.

Find out more about physics at www.careercornerstone.org/physics/physics.htm.

Researchers Explore Regenerating Teeth

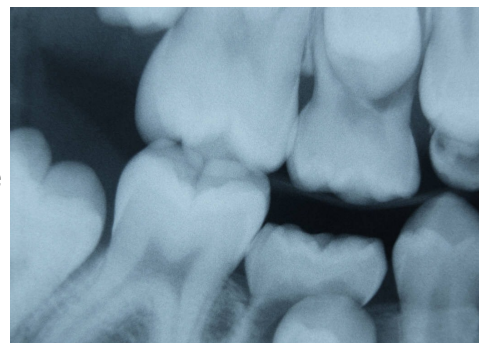
Researchers at the University of Leeds have discovered a pain-free way of tackling dental decay that reverses the damage of acid attack and re-builds teeth as new. The pioneering treatment promises to transform the approach to filling teeth forever. Tooth decay begins when acid produced by bacteria in plaque dissolves the mineral in the teeth, causing microscopic holes or 'pores' to form. As the decay process progresses these micro-pores increase in size and number. Eventually the damaged tooth may have to be drilled and filled to prevent toothache, or even removed. The researchers' solution is to arm dentists with a peptide-based fluid that is literally painted onto the tooth's surface. The

peptide technology is based on knowledge of how the tooth forms in the first place and stimulates regeneration of the tooth defect.



It contains a peptide known as P 11-4 that - under certain conditions - will assemble together into fibres. In practice, this means that when applied to the tooth, the fluid seeps into the micro-pores caused by acid attack and then spontaneously forms a gel. This gel then provides a 'scaffold' or framework that attracts calcium and regenerates the tooth's mineral from within, providing a natural and pain-free repair. The technique was recently taken out of the laboratory and tested on a small group of adults whose dentist had spotted the initial signs of tooth decay. The results from this small trial have shown that P 11-4 can indeed reverse the damage and regenerate the tooth tissue.

"This may sound too good to be true, but we are essentially helping acid-damaged teeth to regenerate themselves. It is a totally natural non-surgical repair process and is entirely pain-free too," said Professor Jennifer Kirkham, from the University of Leeds Dental Institute, who has



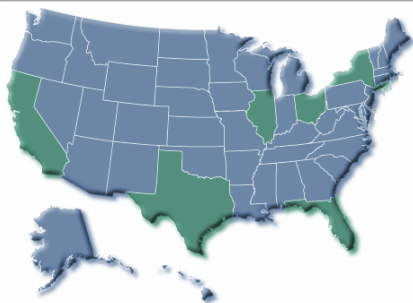
led development of the new technique. "The results of our tests so far are extremely promising," said Professor Paul Brunton, who is overseeing the patient testing at the University of Leeds Dental Institute. "If these results can be repeated on a larger patient group," said Professor Paul Brunton, who is overseeing the patient testing at the University of Leeds Dental Institute, "then I have no doubt whatsoever that in two to three years time this technique will be available for dentists to use in their daily practice."

Find out more about careers in chemistry and dentistry at www.careercornerstone.org.

Sloan Career Cornerstone Center State Portals

STATE PORTALS

Sloan Career Cornerstone Center



Support from Texas Instruments has made possible a new state pathways through Sloan Career Cornerstone Center resources. Explore local resources, salary data, employment figures, activities, programs and projects, summer camps, and more to help you chart a path to a career in STEMM (science, technology, engineering, mathematics, or medicine).

Find out more at www.careercornerstone.org/states

Why STEMM Competitions Matter...

Precollege students interested in careers in science, technology, engineering, mathematics, and medicine (STEMM) should augment classroom learning with projects and competitions that add an extra layer of learning to coursework.

These competitions and programs usually encourage students to work in teams, problem solve, present ideas, and work on technological challenges involving computers, mechanical devices, and mathematics. They also often involve members of the professional community — sometimes fostering mentoring relationships that support a student as they move through college and into a career.

Many schools offer clubs or programs in robotics or participate in other programs and projects. Students should explore what their



high school offers, but also explore others that may be available regionally or online. The best idea is for a student to find a program or project that relates to a STEM field of particular interest to them — and pursue it. By following on a line of interest, a student will get a chance to explore hands on experiences that will shed a light on what a career in these fields might be like. And, the experience of working with like-minded students and networking with professionals working in the field is very important.

A good example is Toshiba/NSTA ExploraVision, which challenges teams of 2-4 students to research scientific principles and current technologies as the basis for designing innovative technologies that could exist in 20 years. FIRST Robotics offers a annual robotics challenge to students. MATHCOUNTS is a national middle school club and competition program. And, the Math League has Math Contests for Grades 4 through 8, High School Students, and Algebra 1 students. And, the Mathematical Association of America is currently celebrating 60 year of mathematical competitions.

There are many programs to choose from — a good list can be found along with other tips at www.careercornerstone.org/pccproj.htm.

Internships: Paid vs. Unpaid

More than half of the internships undertaken by the college Class of 2011 were paid, according to a new study conducted by the National Association of Colleges and Employers (NACE). Among the 20,000 graduating seniors taking part in NACE's 2011 Student Survey, 52.5 percent reported having taken part in an internship at some point in their college career, and more than half of those were paid. The study also found that the majority of interns (62%) were interested in working full time for their internship employer, regardless of whether they were actually paid as interns. Pay, however, does appear to correlate to the student's ability to get a job offer. More than 61 percent of students who did a paid internship in the for-profit sector had a job offer at the time of graduation. In comparison, approximately 38 percent of students performing an unpaid internship in the for-profit sector had a job offer, and just one-third of students who did not have any type of internship experience had a job offer. Among respondents to the survey, paid interns spent more time on professional tasks while unpaid interns were more likely to perform clerical work.

Internships and coops provide students with hands on experience in their degree and career field. Find out about the importance of internship and coop programs at www.careercornerstone.org/coopsint.htm.

