

HUNLetter

A Newsletter from the Houston Urban Network for Science, Technology, Engineering and Mathematics ([HUNSTEM](#))

Best Links:

- [Carnival of Education.](#)
- [NSTA Express.](#)
- [AAAS EurekaAlert.](#)

Inside Stories:

Tech Story	2
Science Story	3
Math Story	4
Blog Story	5
Ed Stories	6
Backpage Story	

This is the first HUNLetter

This is the first HUNLetter, the monthly newsletter from the Houston Urban Network for Science, Technology, Engineering and Mathematics (HUNSTEM). HUNSTEM is a learning community that includes schools, informal science institutions, professional societies, and institutions of higher learning working together to promote **STEM** in the Houston area.

HUNSTEM brings a wealth of resources together through

an interactive gateway that is extensive, user-friendly, and quality controlled via the integration of national ([NCTM, 2000](#); [NRC, 1996](#)), state ([TEKS](#)), and local mathematics and science standards.

HUNSTEM is unique in its approach because it concentrates on community, not just providing **STEM** curricula, and because it fosters collaboration between all facets of the learning community rather than just

acting as liaison.

HUNLetter will bring you highlights from the Houston community and the world. We will find articles of interest from the web and local organizations and bring them together here. We'll be sending this letter out on a monthly basis, but if you don't want to read it, just [let us know](#).

Tech Story: It's del.icio.us

Taken from Andy Carvin at [Learn.now:](#)

I would guess that for every teacher who knows about [del.icio.us](#), there are probably another 50 or 100 teachers scratching their heads, having no idea what we're talking about. So let's take a look at the wonderful world of [del.icio.us](#).

[del.icio.us](#) (yes, it's pronounced "delicious," and written in lower case) is a community bookmarking tool. By "community," I mean the entire online community - everyone with

Internet access. [del.icio.us](#) allows you to share your bookmarks with the entire world, accessible from any online computer. This means that you could get on an airplane today, travel 36 hours to some small cybercafe in rural Indonesia (or perhaps more realistically, the computer lab down the hall), and access your list of favorite websites instantly.

You can use [del.icio.us](#) in your classroom to store links to lessons that you find at home, or from anywhere else. The possibilities are

endless

You can get in on the action, too. Go to [del.icio.us](#) and set up a free account.

I'm hoping all of you will use this feature responsibly - we've entered a new world in which anyone can contribute their ideas to the online community. But as Spiderman says, with great power comes great responsibility. So I hope all you superheroes out there use this power responsibly - and have some fun with it as well.

Quantum Quandaries, Batman!



I really enjoyed [Sean Carroll's blog on quantum interrogation at Cosmic Variance](#).

He used a puppy sleeping in a box, similarly to the Schrodinger's Cat paradox, to show how quantum states can be ascertained without making measurements! Geeesh! This stuff is so cool! I'm an evolutionary scientist partly because the counter-intuitive aspects of it make it fun, but if I knew then what I know now, I might have become a quantum physicist instead.

Inevitably in almost every class I teach I need to cover the basics of atoms and molecules and how they interact. I always try to shy away from the quantum level of explanation, but it is really tuff, because this stuff is so cool! Heisenberg's Uncertainty Principle, Entanglement, Spooky Action at a Distance, Is the Moon Really There If Nobody is Looking! Neat, neat stuff.

I won't go into all of this

here, either, but check out [Wikipedia](#) or [How Stuff Works](#) to learn more. What I do want to say is this, there will come a day when this stuff is part of our standard curriculum much like the wonders of relativity and thermodynamics are now taught and taken for granted. students?

The future holds amazing things, such as quantum computers, that we are just beginning to imagine. Your students will make these discoveries! Don't shy away from planting seeds of curiosity into their growing imaginations.

"...it has been established mathematically that soccer goals are contagious."

Math at the World Cup

According to a news report in the June 15, 2006 *Nature*, it has been established mathematically that soccer goals are contagious, statistically speaking: scoring one goal increases the probability that your team will score more. Michael Hopkin, who wrote the piece, calls this "one of soccer's classic clichés," and attributes the result to Martin Weigel (Herriot-Watt University, Edinburgh) and his colleagues Elmar Bittner, Andreas Nussbaumer and Wolfhard Janke, all at Leipzig University. The four have posted a [preprint](#) on arXiv.org with the

title "Football fever: goal distributions and non-Gaussian statistics." As they put it: "modifying the Bernoulli random process underlying the Poissonian model to include a simple component of self-affirmation seems to describe the data surprisingly well and allows to understand the observed deviation from Gaussian statistics." They analyzed "historical football score data from many leagues in Europe as well as from

international tournaments, including data from all past tournaments of the 'FIFA World Cup' series" and concluded: "The best fits are found for models where each extra goal encourages a team even more than the previous one: a true sign of *football fever*."

Read the entire article at [Math in the Media](#): a monthly magazine from the American Mathematical Society.

Let's Blog!



There are many education blogs on the internet. Many written by teachers in the trenches. Others are by policy makers, scientists, parents, and others interested in education and student learning. We have our own blog, called [HUNBlog](#), and we blog about different issues each week. You

can blog through [HUNBlog](#) as a guest blogger, if you'd like. Just let me know at hogeb@uhd.edu, and I'll get you connected.

One way to catch up on the education blogosphere from scratch is to visit the Carnival of Education. The

Carnival collects blogs from all over into one place each week. This week's Carnival is at [The Education Wonks](#).

Spellings: Encourage Girls in Science Ed

New York Times

May 15, 2006

BWASHINGTON (AP) -- Low participation in math and science activities by girls is keeping them from achieving their full potential and weakening the nation's ability to compete, Education Secretary Margaret Spellings said Monday.

"We need definitive insights into what goes wrong, when and why," Spellings said. She asked her department's Institute of Education Sciences to review existing research and determine why girls are not as well represented in the sciences as boys.

Schools have put more emphasis on math in the past five years because of the No Child Left Behind law, which requires testing and yearly progress in the subject.

"This is all about global competitiveness," Sen. [Ron Wyden](#), D-Ore., said at conference sponsored by the Education Department and the National Science Foundation. "We cannot do what we need to do to create high-skill, high-wage jobs for our country if we write off the prospects of half our population."

Government data show that

girls fall behind boys in math and science as they progress through school. In the fourth grade, 68 percent of boys and 66 percent of girls say they like science, according to the National Center for Education Statistics.

But only one-third of high school students enrolled in Advanced Placement physics classes are girls, Spellings told summit attendees. At the college level, she continued, fewer than one-fifth of engineering majors are women.

Continued on pg. 5



Immigrant Students Lag, but Less So in U.S.

By BEN FELLER, AP Education Writer

Monday, May 15, 2006

WASHINGTON, (AP) Immigrant 15-year-olds in the United States don't do as well in math, reading or science as native-born children, and many have only basic skills, a study finds. But immigrants aren't as far behind in the U.S. as they are in some other major nations.

The findings are based on the Program for International Student Assessment, a test that measures the literacy of 15-year-olds and how well they apply skills to the real

world. It is given to students in many industrialized countries and considered an international benchmark.

In the United States, first-generation immigrants, who were born outside the country just like their parents, are almost a year behind in math.

Second-generation immigrant kids — who were born in the United States but whose parents were not — are about a half-year behind, a smaller deficit.

Similar but slightly larger performance gaps exist in reading and science, according to an analysis released Monday of how immigrants performed on the most recent test in 2003.

A troubling number of immigrant children are at the bottom end of the achievement scale, which has implications for their work life and integration into society.

Continued on pg. 5

"They're excited about going to school. They have high expectations for themselves. Now the next step is, how can we make sure that they realize those expectations for themselves? That's where the gap is.."



Gameboys in the classroom?

“Technology is coming. Are you prepared?”

Technology is entering the classroom, and teachers will have to keep up with the latest techniques for integrating technology into their lessons. Not only will we have to learn how to use the new technology ourselves, but we're going to have to incorporate the use of technology into our lesson planning and assignments. There is "frame of mind" necessary for

this type of teaching which may be as important in changing the way we teach as any other development in methodology.

Many schools already provide laptops for students and teachers, but believe it or not, laptops may soon become obsolete. Hand held computers may become the most effective way of

integrating technology into the classroom. They are more affordable, easier to carry, and more versatile for today's students. Here is an article from EurekaAlert that describes how they might be used.

[Read the Article here!](#)

Technology is coming. Are you prepared?

The Science Job Market

Do we have a shortage of scientists and engineers? If not now, will we soon? Why, if we have such an outcry from government and industry about the need to train more scientists and engineers are so many qualified scientists still languishing in prolonged postdocs?

The answer to these questions are sort of like the answers to predictions about climate change.

Yes, the models predict a precipitous drop in the number of scientists and engineers in the near future, due to attrition and declining numbers of students majoring in STEM fields. I've talked to presidents of energy companies, and they are truly concerned about the lack of geoscience majors and engineers in the pipeline. I've heard presidents of aeronautics companies claim that they could hire every single engineer graduating from every college in the U.S. and still not fill their needs. I've even seen projections that academia will soon face a

huge need for new assistant professors.

So, where're the opportunities right now? The geosciences are desperate for people, right now. Certain Engineering fields are desperate for people, right now. Academia is not desperate, yet. Nor are many biomedical fields, or pure research fields, yet.

Will there be a greater demand in the future, and if so, when? This is where I think the job market is a lot like climate change. There will certainly be a need, but exactly where and to what extent is almost impossible to say with true certainty. There will be areas where there will still be a glut of people entering the field, and even some areas where there will be a decline in demand for new people. There will, however, be other areas where the demand will outstrip the supply.

Two factors will play out to

determine how this demand for more scientists and engineers will play out. We are not currently seeing a huge increase in salaries offered to new graduates since there are enough foreign born scientists and engineers to fill available spots. This situation may eventually equalize as other countries offer competitive incentives, and as the number of positions in other countries increase. We may see some areas of STEM offering more incentives to students from the U.S., including higher salaries, more scholarships and internships, and even more cash incentives offered to students in High Schools to pursue STEM careers.

So what do I recommend? Students, take MATH! There is nothing that prepares you better for varied career choices!!

Teachers, teach through INQUIRY! Students who can solve problems using higher level thinking skills will be the ones to take advantage of the coming opportunities.

“Do we have a shortage of Scientists and Engineers?.”



Spellings: Encourage Girls in Science Ed - Continued

Continued from pg. 3

Former astronaut Sally Ride suggested several strategies for keeping girls interested in math and science, including involving them in after-school or summer programs. She also recommended introducing girls to women scientists.

"Allow them to put a female face on these careers," she said.

Ride emphasized the importance of involving parents and preventing perpetuating stereotypes that girls are not good at math or science.

Spellings said mothers can inadvertently send signals to their daughters that math skills are not important. Educators must change the culture so it is not acceptable for women to brag about not being able to balance their checkbooks, she said.

A National Mathematics Advisory Panel created by Bush last month is scheduled to issue an initial report on how to improve math teaching by the end of next January and a final report a month later.

San Francisco Chronicle



Girls need to see women as role models in science and engineering careers

Immigrant Students Lag, but Less So in U.S. - Continued

By age 15, students have typically reached grade nine or 10 and are nearing the end of mandatory schooling.

For example, in math, at least three in 10 U.S. immigrant students have only the most basic skills. That means they often cannot apply math concepts to everyday situations.

On the positive side, immigrant students, particularly those who started their schooling outside the U.S., report high levels of interest in core subjects and in school generally.

"They want to learn," said Gayle Christensen, co-author of the study and a research

associate at the Urban Institute. "They're excited about going to school. They have high expectations for themselves. Now the next step is, how can we make sure that they realize those expectations for themselves? That's where the gap is."

The language of home life makes a big difference. U.S. immigrants did just as well in math as native-born children when English — the language of instruction at school — was spoken regularly at home. When it wasn't, immigrants did significantly worse.

Countries with smaller learning gaps between immigrants and native

students tend to have well-established language support programs with clear goals and standards, the study found.

The review covered 17 nations. Fourteen are members of the Organization for Economic Cooperation and Development, a coalition of industrialized nations that runs the test. Three partner countries also took part: the Russian Federation, Hong Kong-China and Macao-China.

The United States fared favorably compared with Germany, France and other nations in terms of the academic performance of immigrants. Australia and

Canada posted better marks.

Immigration has become a dominant issue for Congress and for President Bush, as lawmakers try to tighten the country's borders but also improve the paths to citizenship and work. Immigrants and their supporters have staged rallies and boycotts to demand fair treatment.

An estimated 53 percent of U.S. immigrants come from Latin America; 25 percent are from Asia, 14 percent from Europe and 8 percent from other areas, according to the Census Bureau.

HUNSTEM

University of Houston
Downtown

One Main St., Suite N725
Houston, TX 77001

PHONE:
(713) 221.8289

FAX:
(713) 221-8528

E-MAIL:
hoge@uhd.edu

Science in a nutshell by : The third ward monster

Science is like mountains and valleys
It has its walkways and its alleys
It has its straight places and has its rounds
And of course it has its up and downs
But you cant stop it, you cant put it in a muzzle
Because too many people have added pieces to the puzzle
From gravity to cavities, its all around
Its in anatomy, moving at the speed of sound
From the sky to the ground
So many things that can be found
Science is nothing but a big mural of art
Take it to heart

Join in and be a part
And it all adds up like a big equation
With things going in and out like a huge train station
If you don't buy it jus try it
Make it your color, you can dye it
Customize it and do it so its fitting to you
And come to find out how all of if it is so so true
Too much to learn, too much to earn
So hop on the magic school bus and take your turn
Science can be simple or it can be complicated
Short cuts for long ways make it abbreviated
And science never finishes

never diminishes
I can go on and on with these rhyming sentences
From the lowest level of dirt all the way to the sun
So much that can be done and it can be real fun
So don't reject it
Respect it and collect it
Then look back and reflect it
Follow the right signs and be directed
Don't turn your back on it and be in defiance
Don't be scared like its a angry mob of terrible giants
Be one of its interested main clients
And maybe you will form an alliance with science

(Written by a student in our Summer START Program.)

About HUNSTEM

We believe that inquiry-driven, problem-based STEM (science, technology, engineering and mathematics) lessons are the best teaching method to attain increased science literacy. HUNSTEM promotes the use of inquiry-driven, problem-based science curricula in all classrooms in the Houston area. HUNSTEM encourages problem-based curricula through collaboration between teachers, school administrators, curriculum directors and developers, and the ISE and professional resources of the Houston community. HUNSTEM spreads the message of inquiry-driven, problem-based science throughout the Houston area by establishing a vanguard of effective teachers who will encourage and support beginning and science-shy teachers in their schools. HUNSTEM provides the resources and training for all K-12 teachers of science to become more confident and effective. Houston is rich in professional organizations dedicated to promoting STEM. HUNSTEM builds professional networks in each area of STEM in the Houston area. HUNSTEM connects these organizations to teachers and families more effectively than they can do through their own efforts.

We're on the Web!

See us at:

<http://hunstem.uhd.edu>