51st Science and Engineering Fair of Houston

The Science and Engineering Fair of Houston (SEFH) is celebrating its 51st year.

This year the SEFH welcomes two new partners who have helped, and will help make the 51st SEFH bigger and better than ever. The Consumer Energy Alliance (CEA) has joined The Greater Houston Partnership (GHP), The Engineering, Science and Technology Council of Houston (ECH), and The Houston Museum of Natural Science (HMNS) as a sponsor of the SEFH.

HISD also worked with Schlitterbahn to promote science fairs through a wonderful promotion that invited students to the Schlitterbahn Galveston Park to learn about science and explore science fair ideas.

HUNSTEM continues to help teachers connect to STEM professionals in their areas. We help teachers organize and run science fairs in their schools. We help students find mentors and facilities in their communities. And, we help find judges for local fairs.

Let us know what we can do to help you send more of your students to the 50th SEFH!

The SEFH is the second largest regional fair in the U.S. with the largest number of exhibits actually displayed on the exhibit floor. Over 1300 students from 142 schools in the Greater Houston Area entered this rigorous and exciting competition in 2009. The 20 Categories include all areas of Science, Technology, Engineering and Mathematics (STEM) including our newest category: Energy & Transportation.

Science Fairs support the Texas Essential Knowledge and Skills and thereby the TAKS. From the Texas Administrative Code (TAC), Title 19, Part II, Chapter 112. Texas Essential Knowledge and Skills for Science:

In Biology, Chemistry, and Physics students conduct field and laboratory investigations, use scientific methods during investigations, and make informed decisions using critical-thinking and scientific problem-solving. Investigations are used to learn about the natural world. Students should understand that certain types of questions can be answered by investigations, and that methods, models, and conclusions built from these investigations change as new observations are made.

In understanding scientific processes the student uses critical thinking and scientific problem solving to make informed decisions. The student is expected to analyze, review, and critique scientific explanations, including hypotheses and theories, as to their strengths and weaknesses using scientific evidence and information.

Watch the introductory video, and pass it along:

http://www.wrksolutions.com/video/HoustonScienceEngineeringFair.WMV

(produced with help from the Houston-Galveston Area Council and Texas Workforce Solutions)

Visit the website to learn more about the SEFH:

http://hunstem.uhd.edu/SEFH

From the HUN-STEM Calendar:

- Earth Day Houston!
- HMNS Exhibit Opening: Magic: the Science of Wonder
- CMH Lunar New Year Leap!
- Feather, Fins, and Fur: Natural History Illustrations of the 19th Century—at the MFAH
- Go to HUNCal to learn more!

Inside this issue:

City of Houston Water Festival
CASE ASAP Partnership Fair
TESTA Spring Conference—Texas Underground
Twitter With HUNSTEM
STAT Flash
Another example of the Best of HUNBlog
City of Houston Water Festival

May 6, 2010 at the Downtown Aquarium

The city of Houston would like to invite you and your group to join them for the 17th annual City of Houston Water Festival.

The Water Festival is a free outdoor educational event about water pollution prevention, drinking water and wastewater treatment processes, water-related career opportunities and more! (Suggested minimum grade level is 3rd grade)

10 a.m. to 2 p.m., Thursday, May 6, 2010 at the Downtown Aquarium, 410 Bagby, between Prairie and Preston Streets

Students and adults will participate in fun, interactive and thought-provoking activities related to the festival theme: “Protecting Our Water Resources”

Visit www.waterworksforhouston.org for additional information, or contact Susan Smyer at: Susan.Smyer@cityofhouston.net.

T-Shirt Contest

The City of Houston is also sponsoring a T-Shirt Art Contest in conjunction with its 17th annual Water Festival. Your students are encouraged to submit original works of art based on their interpretation of the festival theme, “Protecting Our Water Resources.”

Deadline to submit artwork: March 30th.

Who may enter: Third through eighth-grade students in the Houston region

Contest Rules:
The design/image is required to be the student’s own original work of art on paper.

Submittals should be standard letter-sized (8 ½” x 11”) paper.

The design should contain images and a title emphasizing the theme of the art contest and the 2010 Water Festival: “Protecting Our Water Resources.”

On the reverse side of the completed design, please print the following information:
Student’s name, grade level, school and district, teacher and principal, and teacher’s phone number.
Teachers of the first, second and third place winners will be notified by April 9.

Winning Designs and Recognition:
The first place winner’s design will become property of the City of Houston and will be reproduced on the festival T-shirts.

The first place winner and his/her classmates will receive T-shirts prior to the event and are encouraged to wear them to the festival.

The first place winner’s school will be entitled to be reimbursed for the rental cost of one school bus for the class trip to the May 6 Water Festival at the Downtown Aquarium.

First, second and third place artwork will be prominently displayed at the festival.

The three students whose art places in the top three will be recognized during the festival ceremony.

Contact Person: Susan Smyer—832-395-3783; susan.smyer@cityofhouston.net

Please mail artwork to:
Susan Smyer
City of Houston Water Festival T-Shirt Art Contest
12121 North Sam Houston Parkway East
Humble, Texas 77396
CASE ASAP Partnership Fair

CASE is the Cooperative for After School Enrichment, and ASAP is the City of Houston After-School Achievement Program. On April 1, 2010, they will come together to host their annual Partnership Fair.

The high energy vendor area at the fair will promote service providers that deliver academic and enrichment programming.

Workshops are held throughout the day to inform educators, administrators and parents comprehensive and supplemental funding for after school.

The fair is the largest gathering of its kind in Texas.

For more information contact Ramie Johns
rjohns@hcde-texas.org
713.696.1330

TESTA Spring Conference—Texas Underground

April 9 – 11, 2010
Caverns of Sonora, Texas

Sessions Include:

Underground Classroom – Cavern Formation & Speleology, Preservation, Cave Biology, Texas Geology, and Fossils.

Orienteering – Compass and Map reading, Pacing, GPS Technology, Geocaching, and Topographic Mapping.


Caverns of Sonora – Tour of the spectacular caverns and photo opportunities.

Sunday Morning Activities Include:

TEXAS Rocks! – Geologic Puzzles, Steno’s Laws, Relative Dating, Road Cuts and Fossil Collecting. (Texas Room & Road cuts between Sonora & Junction, Texas.

Optional Sunday Activities Include:

Discovery Challenge
(Maximum of 8 participants) – Off trail caving and rappelling – 4 Hours - $125.00 per person.

Single Rope Technique and Cave Safety – Ascending and Climbing - $7.00 per person.

Conference Fee - $ 150.00
Conference fee includes two nights hotel - double occupancy, meals on Saturday and Sunday morning, all conference activities except Optional Sunday Activities. Transportation is not included.

Registration: Conference is limited to a maximum of 48 participants.

For more information go to the TESTA website at:
http://hunstem.uhd.edu/TESTA

Housing: Days Inn - Devil’s River - Sonora, Texas (Friday & Saturday Night) - Double occupancy.

Meals - “Sonora County Steakhouse” - Saturday & Sunday Breakfast, Saturday Night Dinner. Saturday Lunch at the Caverns of Sonora. All other meals on your own.
Twitter with HUNSTEM

We hope you signed up for our Twitter updates after reading the last HUNLetter, but we also want to remind you to check out our Twitter Home Page occasionally too!

HUNSTEM follows over 40 of the best sources for science and science education news on the web through Twitter. Each of these organizations post their tweets to the HUNSTEM Twitter Home Page where you can scroll through them to find news, announcements of events, and info on activities. Here are a few of the groups we are following:

- National Science Teachers Association
- Wired Science
- eSchool News
- EarthSky.org
- National Science Digital Library
- Edge.org
- Teachers
- PBS National Science Foundation
- Exploratorium
- Steve Spangler Science
- Dig Science
- Tech Museum
- Tech Crunch
- Science News
- NPR Science Friday
- Houston Public Library
- Houston Zoo
- Science Buddies
- Science News
- COSI
- NY Hall of Science
- Science Channel
- KidSpace Museum
- Year of Science 2009

If you haven’t signed up for HUNSTEM Twitter feeds yet, you can do that here: http://twitter.com/HUNSTEM

Go to the Home Page to follow the groups listed here, and more!

STAT Flash

If you’re not a member of STAT, Science Teachers Association of Texas, and/or one of its affiliate societies, you should be! Here’s their latest news flash:

The Texas Education Agency announced new curriculum requirements for Texas students. The State Board of Education has adopted amendments to the Texas Administrative Code regarding graduation requirements to be implemented beginning in the 2010-11 school year. These requirements include an update on Integrated Physics and Chemistry (IPC) and the career courses that will count as a 4th science credit.

STAT encourages you to review the correspondence explaining these changes to graduation requirements available here: http://ritter.tea.state.tx.us/taa/stanprog012510.html.

Stay up-to-date through additional detailed information and frequently asked questions which will be available on the following website soon: http://www.tea.state.tx.us/graduation.aspx

Also in the News: Commissioner of Education Robert Scott announced yesterday that the STAAR—State of Texas Assessment of Academic Readiness—will replace the TAKS tests beginning in the 2011-2012 school year. STAAR includes 12 end-of-course exams in the four core subject areas in high school. Current seventh-grade students will be the first class required to meet end-of-course testing requirements to graduate. State ratings are being developed and, following a suspension in 2012, will be introduced in 2013.
The Best of HUNBlog

Here’s another entry from The Best of HUNBlog!

January 25, 2006

Cartoon Science

I like using cartoons to teach science. Cartoons are funny because something in them is ridiculously wrong or out of place. In order to find a cartoon based on science funny, therefore, you must understand what would be correct. You can base entire lessons around a single cartoon.

One of my favorites is a Far Side cartoon by Gary Larson in which three fish are peering at a baseball just ashore. One of them is carrying a bat and they are all three looking at the ball with the same emotion in their expressions each of us has felt when our own balls or Frisbees went over fences or onto roofs.

The reason this is funny is that it suggests that the fishes’ motivation to crawl onto land to retrieve the ball will lead to the evolution of lobed-fins into limbs. We know that evolution does not work this way, it is guided by the “Invisible Hand” of nature, not by motivation, no matter how much we might want it to.

There is also historical irony in this cartoon. It was once thought that acquired traits could be passed on to later generations. This idea was forwarded by Jean-Baptiste Lamarck at about the same time as Darwin’s theory of natural selection. Natural selection won out even before we understood the genetic mechanisms involved, but we still see remnants of the misconception of evolution by acquired traits today. This painful state of current understanding, or lack of understanding, of evolution adds even more irony to the cartoon.

So, wrapped up in this simple cartoon are lessons on the history of science, paleobiology, comparative anatomy, genetics and evolution.

Another of my favorites is a cartoon by Sidney Harris in which a scientist has scribbled a complex equation on a blackboard. In the middle of the long and complex equation are the words “then a miracle occurs”. A colleague standing next to the scientist is saying, “I think you should be more explicit here in step two.”

This cartoon certainly portrays the feeling all scientists have felt at some point when trying to elucidate a complex problem, but for me this cartoon is funny because of its theoretical implications. Sidney Harris may not have been referring to the mathematics of quantum mechanics when he drew this cartoon, but the first time I saw this cartoon coincided with my study of quantum mechanics and the idea of the “measurement problem”.

In quantum mechanics, there is a paradox between the possible attributes quantum particles can express, as described by their wave functions, and the actual attributes measured in any interaction. What determines which attributes actually “collapse” is unclear. One speculation is that consciousness causes the wave function collapse. Which then suggests that the attributes of our universe are set only once they are observed by a conscious mind. This led Einstein to ask “Do you really think the moon isn’t there if you aren’t looking at it?”

Much has been learned since the proposition of this explanation, and the consciousness causes collapse theory is rejected by most physicists as unverifiable, but it still holds fascination for many scientists and artists. It has been claimed that the theory meshes well with ancient Eastern mysticism and philosophy, for instance, including that of Buddhism which includes a belief in the transitory, interconnected nature of all things and the illusion of separation of thought and existence. This is one of the major themes of the book The Dancing Wu Li Masters.

Sidney Harris’ cartoon encapsulates all of this philosophical wrangling in twelve words. Wow!

You don’t have to know this much about science to find cartoons funny, however. You can still use cartoons with young kids. Looney Tunes contain great violations of natural laws to create humor. The Laws of Cartoon Physics have been compiled by Paco Hope on his site, The Funny Pages. There are also web sites dedicated to the Physics of Superheroes, (check out the videos), and much more!
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.

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.

To contact HUNSTEM, E-mail Dr. Brad Hoge, Director: hogeb@uhd.edu Call: (713) 221-8289 Or Write: HUNSTEM University of Houston— Downtown One Main St., Houston, TX 77002-1001