

CONNECTICUT SCIENCE CONNECTION

JULY 24, 2007 ISSUE

THE CONNECTICUT BUILDING A PRESENCE FOR SCIENCE NETWORK IS SUSTAINED THROUGH A GRANT FROM BRISTOL-MYERS SQUIBB AND THE ADVOCACY OF THE CONNECTICUT ACADEMY FOR EDUCATION

STATE COORDINATOR..DAVID LOPATH
LIST MODERATOR..ELOISE FARMER

LOPATH@CTACAD.ORG
ELOISE@CSSAONLINE.NET

NAMES AND E-MAIL ADDRESSES OF OUR POINTS OF CONTACT AND KEY LEADERS ARE NOT SHARED WITH ANY OTHER ENTITY

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WE NOW GO TO SUMMERTIME MODE, WHERE WE WILL PUBLISH THE NEWSLETTER EVERY OTHER WEEK OR EVEN LESS, DEPENDING ON NEW INFORMATION WE RECEIVE. PLEASE UPDATE YOUR CONTACT INFORMATION AS A POINT OF CONTACT OR KEY LEADER BY SENDING ANY CHANGES TO: CHARTSHORN@CTACAD.ORG.



JOIN the CONNECTICUT SCIENCE CENTER website's online mailing list! You will receive important announcements regarding the Science Center, its special offers and its resources. The link to the page is <http://www.ctsciencecenter.org/ewnewsletter.php>.

Teacher Appreciation

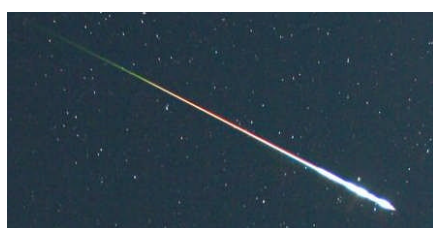
Sweepstakes! Register for a chance to win the grand prize, a trip for 2, 5 First Prizes of \$100 Big Lots Gift Cards, 115 Second Prizes of School Supplies (a \$75 value). See official rules and details at web site or in store. <http://www.biglots.com/teachers>

IMPORTANT NEW and TIMELY INFORMATION!



Back to School with Project Learning Tree For K – 5th grade educators! Wednesday, August 22, 2007, 9:00 a.m. – 3:00 p.m.

Connecticut Forest & Park Association, Middlefield: Bring the outdoors into your classroom and your students out into the schoolyard. Project Learning Tree, an award-winning environmental education curriculum teaches students how to think, not what to think about their environment. Discover classroom-ready, engaging activities that use inquiry and critical-thinking skills to explore the connection between science and the outdoors. Help your students develop the enthusiasm, interest and confidence of learning science by using the world outside the classroom window. Participants will receive the Project Learning Tree PreK-8 Activity Guide; 0.5CEU's; \$35/participant. Financial assistance is available through CFPA's Paul F. Pikula Education Fund. To register or for more information, contact CFPA at 860-346-2372 or info@ctwoodlands.org. Visit www.ctwoodlands.org to learn more about Connecticut's lands, hiking trails, and environmental education programs. Back to School with Project Learning Tree meets scientific inquiry and scientific literacy standards of CT's Core Science Curriculum Framework.



CALENDAR HANDY? CIRCLE

THIS DATE: Sunday, August 12th. Next to the circle write "**all night**" and "**Meteors!**" Attach the above to your refrigerator in plain view so you won't miss the 2007 Perseid meteor shower. "It's going to be a great

show," says Bill Cooke of NASA's Meteoroid Environment Office at the Marshall Space Flight Center. "The Moon is new on August 12th--which means no moonlight, dark skies and plenty of meteors." How many? Cooke estimates one or two Perseids per minute at the shower's peak. For more information, check out http://science.nasa.gov/headlines/y2007/11jul_greatperseids.htm?friend

ARE YOU INVOLVED IN CURRICULUM DESIGN? Useful curriculum design archives may be found at: [http://www.curriculumdesigners.com/index.php?Path=Public/\[03\]%20Resources/\[07\]%20Conference%20Archive](http://www.curriculumdesigners.com/index.php?Path=Public/[03]%20Resources/[07]%20Conference%20Archive)

SCIENCE COMPLIANCE is a new science resource for K-8 schools provided by AccuWeather Education. They are searching for consultants to write and review lesson plans aligned to national and state K-8 science standards. Work would require approximately 10-35 hours per week with average hourly pay @ \$25/hour. Lesson plans follow a designated structure: lesson description, objectives, background information, classroom activities, duration, a description of necessary graphics, applicable worksheets, and a short quiz. Content topics are comprehensive in scope, covering Astronomy, Biology, Earth Science, Forces & Energy, et al.

Required Skills & Experience:

- * Science teaching experience
- * Familiarity with K-8 standards
- * Excellent writing ability
- * Ability to write or edit content under strict deadlines
- * Proficiency using the Internet
- * Background in curriculum development is preferred

Please Reply to Mary Beth Toczek at Toczek@AccuWeather.com
<http://education.accuweather.com>



Applications are now available for educators interested in joining NASA Explorer Schools during the 2008-2009 school year. Schools from the 50 states, the District of Columbia, Puerto Rico and the Virgin Islands may apply for the NES 2008-2009 school year. NES offers unique opportunities designed to engage and educate the future scientists who may someday advance U.S. scientific interests through space exploration.

Teams composed of full-time teachers and a school administrator develop and implement a three-year action plan to address local challenges in science, technology and mathematics education for grades 4-9. Schools that are selected are eligible to receive funding during the three-year partnership to purchase technology tools. The project also provides educators and students with content-specific activities that can be used within the curricula to excite students about science, technology, engineering, and math. Applications are due **Jan. 31, 2008**. For more information, visit

<http://explorerschools.nasa.gov/portal/site/nes/menuitem.3a9dc5f6e0302a448258f708c41a5ea0/>

Ready When You Are — **FOR FREE! You're teaching a subject for the first time, or for the first time in a long time. You need a content refresher now. Where can you find help that's engaging, high-quality, easy to access—and affordable, too? From NSTA's latest ready resource: Science Objects!**

With support from sponsors, including [NASA](#), [NOAA](#), [FDA](#), [the NHTSA](#), [the Hewlett Foundation](#), and [the GE Foundation](#), Science Objects provide all teachers of science open access to these valuable new resources—at no cost! [\[Learn More\]](#)

Free for All from NSTA: NSTA offers many resources and services at no charge; some are available only to NSTA members, but many are available to all. To read about what NSTA has to offer, visit <http://science.nsta.org/enewsletter/2007-06/high.htm>.



The NSTA New Science Teacher Academy, co-founded by the Amgen Foundation with a three-year, \$3 million grant, is a professional development initiative created to help strengthen quality science teaching, enhance teacher confidence and classroom excellence, and improve

teacher content knowledge. The Academy will initially support up to 200 science teachers across the nation each year. There are two tiers of participation in the New Science Teacher Academy, NSTA Fellows and NSTA Associate Fellows. Both fellowship programs will include a year-long immersion in a host of science-related activities and professional development opportunities. In addition, NSTA Fellows and Associate Fellows will receive a comprehensive NSTA membership package and financial support to attend and participate in NSTA's National Conference on Science Education. <http://www.nsta.org/academy/>



In support of **Earth Science Week 2007 (October 14-20)**, the American Geological Institute (AGI) is publishing its "The Pulse of Earth Science" Toolkit to enable teachers, students, and the public alike to actively participate in this year's event. This year's Toolkit includes a wide array of resources, including a new edition of its popular Earth Science Calendar filled with activities and important geoscientific dates. These activities, supplied by AGI member societies and other organizations, engage students in learning about the earth sciences. The U.S. Geological Survey (USGS) has provided both "Facts on Disc," a CD-ROM which includes all of the USGS fact sheets from the last twelve years and the brochure "USGS Education Resources for Teachers." The Toolkits also contain materials from NASA including the CD-ROM "Exploring Ice" and an "Earth and Space Explorers Series" poster. ESRI has provided a copy of its "GIS Solutions for Education" CD-ROM. NOAA is also providing information on student opportunities and careers within the earth sciences. In collaboration with the National Park Service, AGI has published the "Volcanoes in the National Parks" poster. This poster, which is included in the 2007 Toolkit, describes with stunning visuals the volcanoes one can visit while touring the National Parks of America. On the reverse side of the poster, a classroom activity on society and volcanisms is provided. **The Toolkit can be pre-ordered now. Shipping will begin in early August.** Individual kits are available for the cost of shipping and handling (\$6.95 in the United States). Bulk pricing is available. Visit <http://www.earthsciweek.org/materials/index.html> to order the 2007 Earth Science Week Toolkit. Earth Science Week is an annual event held the second week of October to promote an understanding and appreciation of the earth sciences. It is coordinated by the American Geological Institute with generous support from the U.S. Geological Survey, the AAPG Foundation, and the National Park Service. To learn more about this event, please visit <http://www.earthsciweek.org/>.

FOR OUR HIGHER EDUCATION READERS... WANT TO EXPERIENCE HYPERGRAVITY?: NASA's Reduced Gravity Student Flight Opportunities Project provides a unique academic experience for undergraduate students to successfully propose, design, fabricate, fly and evaluate a reduced-gravity experiment. The overall experience includes scientific research, hands-on experimental design, test operations, and educational and public outreach activities. The reduced-gravity aircraft generally flies 30 parabolic maneuvers over the Gulf of Mexico. This parabolic pattern provides about 30 seconds of hypergravity (about 1.8-g's to 2-g's) as the plane climbs to the top of the parabola. Once the plane starts to "nose over" the top of the parabola to descend toward Earth, the plane experiences about 25 seconds of microgravity. Interested students should submit a letter of intent by **Sept. 19, 2007**. The letter of intent is optional, but serves as an introductory notice that a team plans to submit a proposal for the upcoming competition. Final proposals are due **Oct. 31, 2007**. For more information, visit: <http://microgravityuniversity.jsc.nasa.gov/>

WANT LOWER ELECTRIC BILLS? The information below came from Connecticut Energy Education www.ctenergyeducation.com

"Summer Saver Rewards Program: Summer Saver Rewards is a new summer energy conservation reward program in which Connecticut residents reduce their energy consumption by at least 10% compared to last summer. All customers of The Connecticut Light and Power Company and The United Illuminating Company are eligible to receive a credit of 10%, 15% or 20% on the generation portion of their electric bill by reducing the amount of electricity used this summer. On top of the incentive you will also be saving the 10% - 20% on you electric bill. Here's how the program works: CL&P and UI will compare the electric consumption at your home or business from July 1, 2007 through September 30, 2007, to the electric consumption for the same period in 2006. If you reduce your 2007 consumption by 10%, you will receive a 10% credit on the generation portion of your electric bill for the 2007 summer period; If you reduce your 2007 consumption by 15%, you will receive a 15% credit on the generation portion of your electric bill for the 2007 summer period;

- If you reduce your 2007 consumption by 20% or more, you will receive a 20% credit on the generation portion of your electric bill for the 2007 summer period.

This conservation incentive program is approved by the DPUC and was authorized under House Bill 7432, There is no cost or risk associated with participation.

Customers can call toll free, 1-877-WISE-USE (1-877-947-3873) to enroll and to receive information about the program and the steps to take to succeed in reducing their electric consumption."

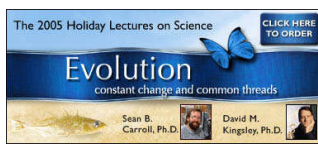


From a teacher on the NSTA list-serv- Here are some great environmental resources (see the resources for teachers and students at the foot of the page.)

I especially like <http://www.soil-net.com/> It has some great activities that work well with many of our lessons---soils, biomes, stream tables, etc.

For short videos available online there is of course the WGBH Evolution website. Go to <http://www.pbs.org/wgbh/evolution/library/> and click the button for "video" in the search box and then click "go." You will get a list of about 50 video clips edited out of the Evolution mini-series. Another nice source for molecular genetics videos is "Secret of the Sequence" series at http://www.pubinfo.vcu.edu/secretsofthesequence/playlist_frame.asp. There are 50 titles available here as well.

You'll find some neat and useful ideas at <http://www.indiana.edu/~ensiweb/lessons/unt.n.s.html>. Scroll down to The First Days, and don't forget to check out the other ideas for introducing your kids to the real Nature of Science, on that page, and back on the Teaching Units page (link at top of the page).



4 videocasts on the evolution..free CDs upon request. Go to:

[HTTP://WWW.HHMI.ORG/BIOINTERACTIVE/EVOLUTION/](http://www.hhmi.org/biointeractive/evolution/)

In an attempt to keep the CSC at readable length, the following links will allow you to access offerings in Previous Issues (Return to Table of Contents)



<http://www.cssaonline.net/CSCJuly10.doc>
<http://www.cssaonline.net/CSCJune19.doc>
<http://www.cssaonline.net/CSCJune26.doc>

The U.S. Department of Energy (DOE) and the British Library, along with eight other participating countries, has opened an Aonline global gateway to science information from 15 national portals. The gateway, WorldWideScience.org <http://www.worldwidescience.org/>, gives citizens, researchers and anyone interested in science the capability to search science portals not easily accessible through popular search technology such as that deployed by Google, Yahoo! and many other commercial search engines. The U.S. contribution to WorldWideScience.org is Science.gov <<http://www.science.gov/>>, the U.S. government's one-stop searchable portal to major science databases of federal science agencies. In addition to the U.S. and the U.K., the inaugural WorldWideScience.org portal provides access to research information in English from Australia, Brazil, Canada, Denmark, France, Germany, Japan and the Netherlands. The intent is for WorldWideScience.org to become a world-class Web facility that lets any scientist, any citizen, anywhere, easily find the research results of any nation in any language. DOE's Office of Science is the single largest supporter of basic research in the physical sciences in the nation and helps ensure U.S. world leadership across a broad range of scientific disciplines. Additional information is available at the Office of Science <<http://www.science.doe.gov/>>.



We have just learned that one of our Points of Contact is a published author! Mary Corcoran, who teaches in Ridgefield, has written a book entitled "The Quest to Digest," it is a book on the human digestive system, and has received an award from the Parent's Choice Foundation. The AAAS gave the book a "highly recommended" rating in "Science Books & Films", and Mary also received an award, Children's Choices for 2007, from the Children's Book Council and International Reading Association at: http://www.reading.org/downloads/choices/cc2007_bookmark.pdf

Mary has another book, "The Circulatory Story," which will be released in 2009. Congratulations, Mary! You may contact Mary to find out more about her books at: thequest2digest@yahoo.com

Get some great teaching ideas and have some fun, too, watching the Exploratorium's broadcast of "The Iron Science Teacher"! http://www.exploratorium.edu/iron_science

KNOW OF SOMEONE LOOKING FOR A TEACHING POSITION? SEND THEM TO:

<http://www.cssaonline.net/employmentopportunities.htm>



THE FOLLOWING MATERIAL COMES FROM THE STATE DEPARTMENT OF EDUCATION AND IS INTENDED TO ASSIST EDUCATORS IN IMPLEMENTING THE FRAMEWORKS:

From Liz Buttner at the State Department of Education:

For Frameworks ideas on the senses, go to the NSTA Brain and Senses website. <http://www.nsta.org/publications/interactive/nerves/>. In addition, since I've been passing along a lot of NSTA resources, I thought you might want information about an institutional membership for your school. It's inexpensive and membership brings many benefits, such as access to professional development, teaching resources, books, grant opportunities, tradebooks, etc. Here is the membership information link:

<http://www.nsta.org/pdfs/MembershipApplicationInstitutional.pdf>

LEARNING ABOUT DOING EXPERIMENTS: by Liz Buttner

To cut, or not to cut...that is the question I hear a lot from elementary teachers about to start the Soggy Paper curriculum-embedded performance task.

In order to enrich the learning of inquiry thinking skills in Soggy Paper, I recommend that you do not pre-cut the paper squares for the children. YOU may know that the papers must be the same size; but the students have not learned this yet. You can give them an opportunity to learn this important aspect of doing science experiments by not doing the advance cutting for them.

Make a variety of different papers available in whatever size sheets they come in. Since the goal of the performance task is to help students learn about why one needs to keep everything the same in order to make a "fair test", it is best to let the students conduct the experiment in their own way. From prior experiences, some students may realize that the size of the squares or the number of plies will make a difference when comparing absorbency. Students who have not had these experiences need an opportunity to see the varied results that occur when the sizes or plies are different. There is great learning value in "discrepant data", perhaps even more value than if everyone in the class produces the same findings.

During your post-lab discussion, post results from each lab group on chart paper or an overhead. This enables students to see how varied their results were. Start the conversation by asking the class "What could explain why each lab group got such different results?" They will soon be talking with each other, comparing their experimental methods. Even young children recognize that they cannot compare their results fairly if everyone used different size paper squares (or different amounts of water). Follow-up with "What could we do differently so that our results come out more alike?"

Experiment #1 is intended to be a guided exploration from which students will learn why it's important to keep things the same to make a fair test. In Experiment #2, they'll have a chance to apply THEIR new knowledge as they design a second experiment. So, save yourself time, and teach your students a lasting lesson about experimental design.

DISTRIBUTION LIST UPDATE: If I don't already have the contact info for a science leader in each of your district's schools, you may want to send me names and e-mail addresses for principals, assistant principals or other designated science contacts in your district who might benefit from being on my distribution list.

Many districts have expressed an interest in upgrading their science instructional materials to include inquiry-based kits supported by nonfiction tradebooks. This balanced approach to learning science gives students opportunities to pose questions and collect evidence to help answer those questions by manipulating materials as well as by reading, writing and speaking with others about science ideas. Research suggests that students improve their literacy skills when those skills are practiced in the engaging, tangible contexts of scientific investigations.

I've been asked by those who have decided to invest in inquiry science kits for guidance in making important decisions about which materials to purchase. While the Connecticut Department of Education does not endorse any commercial products, the attached list may help you focus your search for Earth Science kits that are aligned with framework standards for inquiry and content knowledge. I've also attached contact info for the kit publishers as well as a list of nonfiction tradebook publishers, all of whom have soft-cover 6-packs and "Big Books" of science titles. You may contact the reps and ask them to show you samples. In addition, a statewide Science Materials Showcase event is being planned for Fall 2007 (no details available yet).

Please note that no single published science program has all the kits to cover the standards, so it is not wise to purchase an entire program "off the shelf". A more practical (and cost effective) approach is to select appropriate kits from different publishers and

gradually work them into each grade level, adding one kit per year until each grade has three or four kit-based units.

I haven't completed the list of kits for other standards yet, but if you'd like similar information for physical, life and STS standards, let me know and I will send it along to you as soon as I've compiled it.

Here are links to the documents I have prepared: www.cssaonline.net/NonfictionPublishers.doc, www.cssaonline.net/KitMatrix-ES.doc and www.cssaonline.net/InquiryLearningMaterials.doc

You may have missed the newscast on CNN named Danger, Poisoned Food to use with Framework 7.4, but can get the lessons and links that go with the program. Go to:

<http://www.cnn.com/2007/EDUCATION/06/04/cnnpce.poisoned.food/index.html>

Your district may be planning to offer science professional development at the beginning of the new school year. You may want to consider contacting some of our in-state staff developers:

The Connecticut Academy for Education - curriculum development, embedded tasks: <http://www.ctacad.org/> **PIMMS** - embedded tasks, science content: <http://www.wesleyan.edu/pimms/>

RESCs: ACES, CES, CREC, Education Connection, EASTCONN, LEARN and SERC, have science specialists who offer embedded task training as well as curriculum support.

CT Science Center - Inquiry Institutes, science content workshops, science notebooking workshops: <http://ctsciencecenter.org/>

In addition, some of our university science education faculty offer district workshops in science content, pedagogy and the use of embedded tasks. I'm compiling a more complete list which I will share with you shortly, but in the meantime, you may want to contact: **Marsha Bednarski**, Ph.D. Associate Professor of Science Education, Coordinator of Science & Science Education, Central Connecticut State University, (860) 832-2943, bednarskim@ccsu.edu **Jeanelle Day**, PhD, Associate Professor of Science Education, Eastern Connecticut State University, (860) 465-4532 dayj@easternct.edu <<mailto:dayj@easternct.edu>>



ESPECIALLY OF INTEREST TO K-8 TEACHERS! From Liz Buttner: The National Science Teachers Association (www.nsta.org) offers many excellent materials for teaching science and for professional development. The NSTA Learning Center offers on-line professional development modules linked to science concepts commonly taught at elementary, middle and high school. You may want to check out "Science Objects" and "SciPacks" among the PD offerings. If you're looking for on-line lesson plans, unit plans, background information, etc., you'll want to take a look at "SciGuides" (<http://sciguides.nsta.org/>). To get you started, there is a free SciGuide called "Science and Our Food Supply" that is related to Connecticut Content Standard 7.4 about bacterial growth and its effect on foods we eat.

FROM BIOED ONLINE: FOR GRADES 4 AND 6, 4.3 AND 6.4: Create a Lasting Water Cycle: Just posted to BioEd Online, an engaging activity to help your students begin to understand the importance of the water cycle in their daily lives.

FOR K-5 BioEd Online for K - 5 (<http://www.bioedonline.org/k%2D5/>) features resources that may be especially useful to elementary teachers. Secondary teachers also may find strategies that can be adapted to meet the needs of learners with varied abilities in their classrooms.

FRAMEWORKS!! GRADE 9: Materials World Modules Program presents interdisciplinary modules on topics in materials science -- composites, ceramics, concrete, biosensors, biodegradable materials, smart sensors, polymers, food packaging, and sports materials. Modules are inquiry based and hands-on. They incorporate concepts from chemistry, biology, physics, and mathematics. (Northwestern University, National Science Foundation) http://www.materialsworldmodules.org/modules/Teacher_Sampler.pdf

AN IMPORTANT DOCUMENT: www.cssaonline.net/GLE.doc introduces the Grade Learning Expectations for the Frameworks.



Barbara Morgan, Educator Astronaut Poster: Educator Astronaut Barbara Morgan makes her first spaceflight on STS-118. Educator Astronauts are teachers with expertise in K-12 classrooms who are selected by NASA to become fully qualified astronauts. With their backgrounds, they will help lead NASA in the development of new ways to connect space exploration with the classroom and to inspire the next generation of explorers. The back of the poster lists information for teachers on how and where to obtain NASA resources. Download the Barbara Morgan, Educator Astronaut poster from the following location:

http://www.nasa.gov/audience/foreducators/topnav/materials/listbytype/Barbara_Morgan_Poster.html



Here is a web site that every Middle School and High School teacher should bookmark and plan to use. It is: http://www.pbs.org/race/005_MeMyRaceAndI/005_00-home.htm and is based on a 3 part series that PBS aired in 2003. This allows teachers and students to explore race and ethnic diversity interactively. You can take a quiz to guess someone's race based on a photograph, or view a slideshow where people talk about how race affects them.

This site has released test items in math and science from TIMMS. A great resource: <http://nces.ed.gov/timss/educators.asp>

PUMAS (**po**' • mas) -- is a collection of one-page examples of how math and science topics taught in K-12 classes can be used in interesting settings, including everyday life: <http://pumas.jpl.nasa.gov:80/>

Check Out the NEW Smithsonian Website! It now aligns more than 1,200 free educational resources to standards of learning in every state. Simply by entering the name of the state into the search engine, teachers can find lesson plans, virtual exhibitions, photographs and artworks, and databases of research information that apply to their curriculum. The state standards are correlated to all subjects-from language arts and social studies to mathematics and technology. Visit <http://www.SmithsonianEducation.org> today!



NASA OPPORTUNITIES: To find out all of the opportunities offered by NASA for Educators and their students, go this this link: <http://www.nasa.gov/audience/foreducators/topnav/actnow/>

IF YOU CHANGE SCHOOLS OR YOUR EMAIL ADDRESS OR SUMMER ADDRESS CHANGES, PLEASE SEND AN EMAIL TO CHARTSHORN@CTACAD.ORG LISTING YOUR NEW EMAIL AND/OR SCHOOL NAME AND IT WILL BE UPDATED ON THE DATABASE.

We are presently funded by Bristol-Myers Squibb
<http://www.bms.com/landing/data/index.html> MANY THANKS TO OUR SPONSOR