SCIENCE Matters
National Science Teachers Association

CONNECTICUT SCIENCE CONNECTION

April 2014

THE CONNECTICUT BUILDING A PRESENCE FOR SCIENCE NETWORK IS SUSTAINED THROUGH THE ADVOCACY OF THE CCAT, CONNECTICUT SCIENCE SUPERVISORS ASSOCIATION, AND THE CONNECTICUT SCIENCE TEACHERS ASSOCIATION

State Coordinator.David Lopath lopath@comcast.net
List Moderator..Eloise Farmer eloise@cssaonline.net

Resouces and Events

CSDE's science curriculum web site.
More on Standards at:
http://www.nextgenscience.org/

NSTA Releases Position Statement with Recommendations for Successful Implementation of the *NGSS*

To get all the latest happenings at the Connecticut Science Center, click on the link to its newsletter! newsletter@ctsciencecenter.org

NASA HAS MANY RESOURCES AVAILABLE TO EDUCATORS…MANY MORE THAN WE CAN DESCRIBE IN THIS NEWSLETTER. PLEASE EXPLORE WHAT IS AVAILABLE BY CLICKING ON http://www.nasa.gov/audience/foreducators/index.html

Eli Whitney Museum April 2014 Vacation Programs:
Earth Week
April 14, 15, 16, 17, 18
9am - 3pm
Extended day hours available.
Descriptions of the following programs and images of projects are available on the Museum website at: **Earth Week Vacation Programs 2014**

OPPORTUNITIES FOR TEACHERS:

Bitten! **Climate Change and Insect-Borne Disease Investigations !**
Yale Peabody Museum of Natural History **DEADLINE: April 30, 2014**
Each year scientists discover two new mosquito-transmitted viruses worldwide that infect humans. **Mosquitoes and pathogens can expand their ranges due to global trade, human travel, and warming climates. Dengue ("breakbone fever") outbreaks now occur regularly in Key West and southern Texas. Chikungunya ("that which contorts") – a virus endemic in Africa and Asia – first emerged in the Western Hemisphere this winter and is spreading through the Caribbean. The same *Aedes aeqypti* mosquito species transmits both diseases, in addition to yellow fever.**

We invite grade 7-12 science educators to teach standards-based STEM curriculum mini-units in the classroom. Yale Peabody Museum and Connecticut teachers designed modular units about climate's effect on the spread of emerging insect-borne diseases such as dengue fever, West Nile virus, malaria and leishmaniasis. *How does an infectious disease establish itself in a new environment? Does climate change play a role? How far could dengue spread across the southern U.S.?*

Lessons address middle and high school life science standards:

- **experimental design**
- **structure and function; size and scale**
- **microorganisms; immune system and infectious diseases**
- **ecosystem change; ecology and population dynamics**

Benefits for teachers:

- **FREE 3-day Summer Institute: July 14-16, 2014**
- **FREE science kit and standards-based curriculum mini-units**
- **Behind-the-scenes tour of the Peabody's Entomology Collection**
- **$400 stipend after teaching and assessing mini-units in your classroom**
- **One required half-day refresher workshop on Saturday, 10/4/14**
- **Ongoing classroom support from museum educators**
- **Peabody Museum family membership (with free admission to 280 science museums)**
- **FREE bus for one class visit to the Peabody or to CT Agricultural Experiment Station laboratory**
- **26 hours credit toward state-mandated professional development requirement**

This program is funded by a *Science Education Partnership Award* (SEPA) from the National Institutes of Health. SEPA projects immerse students in science practices; increase science literacy and numeracy; and encourage biomedical careers and partnerships between scientists and educators. To apply, visit http://peabody.yale.edu/climate-summer (deadline: April 30, 2014). This is a competitive application process.

SUBJECT: AEROSPACE SHARE-A-THON

Please join us for the first ever: NSTA Aerospace Share-a-Thon Saturday, April 5 10:00 AM–12:00 PM

The Westin Boston Waterfront, Grand Ballroom C-E

From airplanes to asteroids, join teachers, industry, and organizations to discover innovative ways to connect students to STEM through aerospace! Kit refractor telescopes are available on a first-come, first-served basis while supplies last. Enter a drawing for an NSTA membership -- must be present to win. Please bring friends!

PROJECT LEARN WORKSHOPS

Participating in "productive discourse" helps students make sense of text readings and science investigations. It also helps them learn to critique the quality and source of evidence, and gets them thinking about the reasonableness of explanations. For the complete flier with full information, please click on: **LEARN WORKSHOPS** Contact Terry Contant at tcontant@learn.k12.ct.us with questions or for more information.

We know in this less-than-perfect economy, some of our teacher and administrator friends might not be able to get to NSTA in Boston. So, we're going to bring Boston to you!

We'll be updating Boston NSTA content daily! Science Companion's Virtual NSTA April 2 - 5, 2014 . If you're in Boston, come to booth 406 to pick up your NGSS I Wonder Circle Poster!

www.sciencecompanion.com

I have files of zoology and genetics materials if any teacher is interested.
From: Valerie Gange , Reply-To: gange@comcast.net
Phone: 860-306-8051

Join Us for the 11th Biennial Long Island Sound Educator's Conferenc
The Maritime Aquarium at Norwalk
Friday, April 25, 2014
8:00 a.m. – 4:00 p.m.
Register by April 1, 2014 for an early bird discount!

The Southeastern New England Marine Educator's Association (SENEME), in association with its partners, New York State Marine Educator's Association (NYSMEA), and The Maritime Aquarium at Norwalk, is excited to announce the 11th Biennial Long Island Sound Educator's Conference at The Maritime Aquarium at Norwalk on Friday, April 25th from 8:00 a.m. to 4:00 p.m. The conference is sponsored, in part, by The Long Island Sound Study and Connecticut Sea Grant.

Featuring keynote speaker, Dr. Charles Yarish, Professor of Ecology & Evolutionary Biology and Marine Sciences, UCONN

"An introduction to Seaweed Aquaculture in Long Island Sound and Other Urbanized Estuaries in North America"

Dr. Yarish has developed an internationally known laboratory for seaweed research and aquaculture at the UCONN Stamford campus. He has published extensively and has received numerous extramural grants and awards. Seaweeds have significant value in US agriculture as organic fertilizers, feeds, as well as functional foods, nutraceuticals, and alternative medicinal products. The lecture will be an introduction to seaweed aquaculture systems that are relevant to meeting market demands in Northeast America and improving water quality through nutrient bioextraction in US coastal waters. Yarish recently co-edited a new book *Long Island Sound: Prospects for the Urban Sea*. Two signed books will be raffled off following his talk!

The Conference also features the IMAX theater presentation, "Great White Shark", behind-the-scenes-tours at the Maritime Aquarium, a marine life study cruise opportunity, and a variety of workshop sessions conducted by local educators representing schools, universities, museums, and other organizations leading the way in estuarine education.

(view trailer) Register before April 1, 2014 to receive an early bird discount! Registration includes admission to The Maritime Aquarium at Norwalk, the IMAX theater presentation, parking, participation in workshop sessions, and a one year membership or renewal in SENEME or NYSMEA. Link to Great White Shark Trailer:
http://www.maritimeaquarium.org/imax-movies-section/471-great-white-shark
Link to bio: http://stamford.uconn.edu/yarish-charles/

Link to registration
http://events.constantcontact.com/register/event?llr=6t9mnbeab&oeidk=a07e8y7wd1bd54237aa

CREC REPEAT OFFERING

Due to popular demand, CREC has opened a second session of Integrating Common Core ELA and Mathematics standards in middle school science. See CRECAPRIL.PDF and contact Eric Boehm for information:

Eric Boehm
Educational Specialist
Institute of Teaching and Learning
CREC (Capitol Region Education Council)
111 Charter Oak Avenue, Hartford, CT 06106
O: 860.240.6627 | F: 860.241.6956
eboehm@crec.org | www.crec.org/tls

SAN LUIS OBISPO: MODELING WORKSHOPS IN MECHANICS & CHEMISTRY Two > concurrent Modeling Workshops, in mechanics and in chemistry, will be offered at Cal Poly - San Luis Obispo.

June 16-27, 2014

Meet daily, all day, Monday through Friday Peer leaders: mechanics: Jon Anderson, of Minneapolis, MN chemistry: Brenda Royce, co-developer of Modeling Chemistry curriculum, of Fresno CA

A biology workshop will be held also, on the same dates, same location. It is model-centered inquiry, and is led by Sue Johnson, UC Santa Barbara. (She has not taken a Modeling Workshop, but she trained extensively in MUSE at the University of Wisconsin, which is modeling-friendly. She taught high school biology in Madison, WI for 3 decades & helped develop MUSE.)

REGISTRATION IS OPEN for high school and post-secondary teachers worldwide.

Priority (free) registration & $500 stipend are provided for high school teachers in San Luis Obispo and North Santa Barbara Counties, California.

Questions? and to register: Sarah Hegg: SHegg@calpoly.edu

Registration Link: http://edventionpartners.k12oms.org/1197-80868

Cost: $250. (Make checks payable to Cal Poly Corporation) Parking and lunch are provided daily . Contact info for all motels, suites, bed & breakfasts, & a HOSTEL in San Luis Obispo: http://visitslo.com/Library/SLOHotels.2012.pdf

Reserve ASAP, to avoid conflict with Cal Poly Commencement on June 14 & 15 (Sat & Sun.). Ask for a long-term rate.

* San Luis Obispo Airport (SBP) is served by United Express and US Airways. Non-stop flights from Los Angeles, San Francisco and Phoenix.
* Amtrak from Seattle and San Diego.
* Greyhound buses.

Please make registration checks payable to: Cal Poly Corporation

Checks can be mailed to:
Sarah Hegg/CESaME
California Polytechnic State University
1 Grand Avenue
San Luis Obispo, CA 93407

> Registration fees must be received by June 1.

COURSE DEVELOPER NEEDED!

The Center for 21st Century Skills at EDUCATION CONNECTION is an innovative team of educators that recognizes the need for creativity and technical expertise in our fast-paced global society. We are seeking a forward-thinking educator or organization to develop a Digital Engineering blended learning course. For information about the RFP please see the following link.
http://form.jotformpro.com/form/40684452016956
Questions about the RFP should be directed to Jane Donn, Managing Director for Curriculum, at donn@educationconnection.org
Thank you for your consideration.

Matt Mervis
Director , Center for 21st Century Skills at EDUCATION CONNECTION
(860) 567-0863 Mobile: (413) 717-2939

MORE FROM THE PEABODY

Dear Educators, Please forward this widely, particularly to all your favorite high school History, Social Studies, Spanish and Art teachers! The Indigenous Atlantic: Encounters, Exchanges and Endurance, June 30 (evening) to July 3 (midday)
For High School teachers. This summer teacher institute will focus on the lives and experiences of the indigenous societies of the Caribbean and New England: their encounters with Europeans and Africans; the resulting exchanges of cultures, ideas, foods, and technologies; and the endurance of indigenous peoples to the present day. Museum educators will share successful strategies for object-based learning and primary-source study. Designed to enrich the 21st century classroom, the Institute will enhance teaching resources and expand students' knowledge through the integration of national and state curriculum standards such as the National Council for the Social Studies, the Common Core, and C3. For complete information and to register, CLICK HERE. Best wishes, and may spring arrive soon!
David Heiser
Head of Education and Outreach
Yale Peabody Museum of Natural History
PO Box 208118, New Haven, CT, 06520-8118
(203) 432-3777

WANT TO LEARN BIO IN BERMUDA? Could you please pass this on to any contacts that you feel might be interested in this educator workshop,that I am teaching in Bermuda? Information found by clicking on: Bermuda Bio
Thank you. .Ed Argenta

The Connecticut Center for Advanced Technology, Inc. (CCAT) and the University of Hartford are inviting teams of secondary (6-12) educators who are interested in learning how to develop and implement **interdisciplinary STEM curriculum units** to participate in the PROMISE: Promoting Mastery in STEM Education **professional development** program. Additional information and an application are located at http://education.ccat.us/promise. Space is limited.

Participate in Field Testing of Elementary, Middle, and High School Science Assessment Items

AAAS Project 2061 is developing assessment items to measure elementary, middle, and high school students' understanding of ideas about energy and recruiting teachers willing to field test multiple-choice test items with their students in Spring 2014.

- Students must be in 4th-12th grade
- Test may be administered online or in paper format
- Test should take no more than a single class period
- Registration deadline is April 9, 2014. Go to http://www.aaas.org/news/teachers-needed-science-assessment-field-tests for information and registration.

AAAS Project 2061 Professional Development Workshops

Developing and Using Assessments Aligned to Science Learning Goals
May 29-30 and Oct. 8-10 in Washington, DC, AAAS Headquarters

Drawing on more than a decade of research and development focused on science assessment, Project 2061 offers this workshop to share its experience and resources with teachers, researchers, and assessment specialists. The three-day workshop introduces Project 2061's approach to science assessment and its criteria and procedures for developing effective items that are carefully aligned to science ideas.

Understanding and Using K-12 Science Learning Goals
July 10-11 and Oct. 20-21 in Washington, DC, AAAS Headquarters: The AAAS Project 2061 team can help you tap into a set of tools, resources, and strategies for meeting the challenges of NGSS implementation. During this two-day workshop you'll explore NGSS and take a hands-on approach to using the new standards to improve curriculum, instruction, and assessment.

Smithsonian Science Education Academies for Teachers (SSEATs)

Registration is now open for the 2014 SSEATs.

Join us for the following SSEATs!

Biodiversity Academy on June 22-27, 2014

The Biodiversity Academy consists of a service of unique experiences designed to introduce teachers to the variety of life and enhance teacher understanding of concept related to biodiversity. Teachers participate in inquiry-based content sessions lead by scientists, curators, and museum educators.

Energy: Past, Present, & Future on July 13-18, 2014

This academy explores the history of energy development and use in the United States, current energy needs, and alternative energy sources for the future. Topics will include fossil fuels, solar power, wind power, nuclear energy, and alternative energy sources. Each day participants will engage with scientists, curators, engineers, and educators at the Smithsonian and other local venues. Participants will engage in hands-on content sessions that take them behind the scenes, and will learn of current research in sustainable energy resources.

Earth's History and Global Change Academy on July 27-August 1, 2014

This academy looks at change from the perspective of the history of Earth from its formation through the origin of life. Topics will include planetary processes, volcanism and plate tectonics, the oceans and atmosphere. Each day participants will engage earth scientists at the Smithsonian and elsewhere in hands-on content sessions that take them behind the scenes and explore current research on our planet's past environments.

Learn More and Register

FOR YOU PHYSICS TEACHERS: Plotly: Free Online Graphing And Analytics For Your Science Classes! Plotly is a graphing and analytics platform for science education and applications. Plotly is free, online, requires no installation, and is focused on two things: Letting you make and share beautiful graphs, and Being a centralized platform where you can analyze data, make and share graphs, and collaborate. A few details: Plotly does fits, functions, stats, and error bars.

1. You can import and stream data with a copy and paste, or from excel, csv, txt, or Google Drive.
2. We have APIs for Python, R, MATLAB, Julia, Perl, REST, Arduino, Raspberry Pi.
3. You can publish interactive plots in papers, or on websites or blogs (like the Washington Post).

HHMI at NSTA..a must see!

I was wonder if you could email out (to CSSA membership and others) the attached flier for Howard Hughes Medical Institute's BioInteractive events at next weeks NSTA conference in Boston. The movie night is a must do for biology teachers and the workshops will present some really great resources. For details, click on:
HH_BIOINTERACTIVE
Thanks! Valerie May

Can You Meet Me in Boston?

I will be holding a one-day, project-based learning workshop in Boston on April 6th, 2014 the day after the National Science Teachers Association Annual Conference. Our focus will be on using case studies to cover all content and skills required for an advanced level science course with examples taken from biology, genetics, ecology, community health, anatomy and physiology. Teachers of other courses who are interested in using a hands-on approach to learning are welcome to join us--the structure and methods for curriculum design will be applicable to any field of science.

Using Case Studies and Project-based Learning in AP and IB Biology
8am-3pm, Sunday, April 6th, 2014
Seaport Boston Hotel, 1 Seaport Lane, Boston, MA, Cost: $90
Registration Form, We will spend the day: Performing a series of activities that convey content and help students practice Common Core and Next Generation Science Standards under a single unifying theme

- **Brainstorming ideas for case study topics that suit your courses**
- **Designing curricula to cover your content and skills objectives**
- **Looking at examples of activities, videos and projects created by students currently using the case studies approach in IB Biology and AP Biology courses All training will be experiential, with example activities that demand the use of different learning styles--so, come ready to participate!**

If you would like to see some examples of how a case studies or project-based learning approach can be used in a full-year course, feel free to examine the table of contents and sample activities below:
Activities from *AIDS: A Case Study for Advanced Biology*
Activities from *Diabetes: A Case Study for Advanced Biology*
Activities from *Hemoglobin: A Case Study for Advanced Biology*
If the attachments do not work for any reason, you can download sample lesson plans from the "Case Studies" page of my Web site:
www.catalystlearningcurricula.com
Please alert me by email if you are sending your registration form by USPS so I can hold a space for you. I hope to see you there! Kristen Daniels Dotti
kristen.dotti@catalystlearningcurricula.com 828-687-0807

http://us3.campaign-archive1.com/?u=b879af3b1a2cf3a43fa395206&id=759a9a5897&e=67194ac8df

FREE CURRICULUM GUIDE: LOOK TO SEE!
http://www.facingthefuture.org/?utm_source=eNews+Subscribers&utm_campaign=759a9a5897-Free_MC_Teachers_Guide_3.10.2014&utm_medium=email&utm_term=0_9495bbbad9-759a9a5897-115221245

Garden enthusiasts—check this site for Free Milkweed plants to support Monarch butterflies.
http://monarchwatch.org/bring-back-the-monarchs/milkweed/free-milkweeds

STILL MORE FROM THE PEABODY!!
Strength in Numbers: How to Use Museum Specimen Data in the Classroom
July 17 & 18. For high school teachers (limit 10) Variation, both within and between species, is at the very heart of evolutionary biology, and analysis of variation is a fundamental way to detect evolutionary change. Museum collections, with their large depth and breadth, can provide a unique resource for investigating this variation. In this two-day workshop for high school educators, learn how to analyze the variation in available datasets and images, and how to relate the results to evolutionary principles. The workshop will also show that the biological "backyard" is available as a classroom, whereby students and teachers can measure and observe easily obtained specimens. For complete details and to apply, CLICK HERE.
We love summer camp here at the Peabody, and we are seeking an **Education Coordinator** who will work closely with the Camp Director and a second Education Coordinator to plan and carry out many of the educational activities. For a link to the job description, which includes directions for applying, CLICK HERE (Education

Coordinator). We are also hiring for **Counselor** positions if you or anyone you know might be interested – for the job description, CLICK HERE (Counselor).

Tiny Titans: Dinosaur Eggs and Babies is now open, and we have developed a standards-linked guided program for elementary school students. The exhibition website includes a live stream of our emu-cam, and the eggs may hatch as early as March 10! Once they hatch, the emu chicks will be here through the end of March, but the exhibit is up through the summer. If you want to schedule a field trip, please contact our scheduler Elizabeth: peabody.education@yale.edu.

Finally, we have a bunch of great upcoming events and public programs!

Greetings to all,

I invite you to consider joining us in the following TQP funded Professional Development. Ideally a team participates, including an administrator/leader from the school and 2-3 teachers. We are also flexible in accepting some smaller groups or possible single teachers.

This project spans 17 months (Summer 2014-Summer 2015) with most of the workshops this summer, and offers an intensive 64 hours of instruction. Please see the attached information sheet about dates and compensation.

Please feel free to contact me with any questions.
Laurel Kohl

CT Green LEAF Professional Learning Communities Grant

Connecticut Green LEAF Schools has been awarded a **Teacher Quality Partnership Grant** through the CT Office of Higher Education. The purpose of this grant is to support intensive and effective professional development in core academic subjects for Connecticut in-service teachers and school administrators. We invite you and your teachers to participate in this great opportunity!

We are **creating Professional Learning Communities (PLCs) among our CT Green LEAF schools (and schools wishing to join!)** These PLCs will span K-12 and explore the topics that Green LEAF encourages you to include in your school's curricula at the appropriate levels to match standards. The program will provide participants with

- **Academic knowledge about the topics** and
- **Support your skills to integrate Common Core skills and Next Generation Science standards into your lessons.**

Each participant will choose a PLC track of specific interest to them. Tracks include—

Schoolyard Science: Using your school grounds as a learning laboratory. This area includes understanding the biome, methods to help student explore this space, incorporation of citizen science activities (such as Operation Bud Burst.)

Using School Gardens in the Curriculum. This area includes the sciences of growing, food, and nutrition integrating science and social sciences with gardens, food system awareness and community outreach.

School Resources as Topics in the Curriculum. This area will help schools explore the topics of energy, water, waste, transportation and purchasing, focusing on the school as the learning laboratory

Our partners in presenting this information for teachers and administrators includes faculty/staff from Eastern Connecticut State University, Central Connecticut State University, Southern Connecticut State University, and many of our professional and program resources, such as DEEP's Project WET, and Food Land and People; Project Learning Tree; CT Energy Education; eeSmarts; and CT Audubon.

Please see the attachment for specific dates (still being finalized) and other information about the program.
Feel free to contact me with questions.

More information about Connecticut Green LEAF Schools can be found at www.ctgreenleaf.org

Energy Education Specialist
Institute for Sustainable Energy
Eastern Connecticut State University
Mailing Address: 83 Windham Street, Willimantic, CT 06226
Office: 372 High Street, Wilimantic, CT
Laurel Kohl, Phone: 860-465-0256 Fax: 860-465-0261 Web: www.sustainenergy.org *Is your school a Connecticut Green LEAF School? Join us today www.ctgreenleaf.org*

Just ASK
Teachers Helping Teachers
http://justaskateacher.com

Questions, comments, suggestions? We would like to hear from you. Use our "Contact Us" link on our website or just use the Email above

NGSS NSTA STEM STARTS HERE

NGSS_NSTA for info from NSTA

Continuing education opportunity for Physics and Physical Science teachers to be offered at the University of Wisconsin - River Falls, in conjunction with the American Association of Physics Teachers' PTRA program.

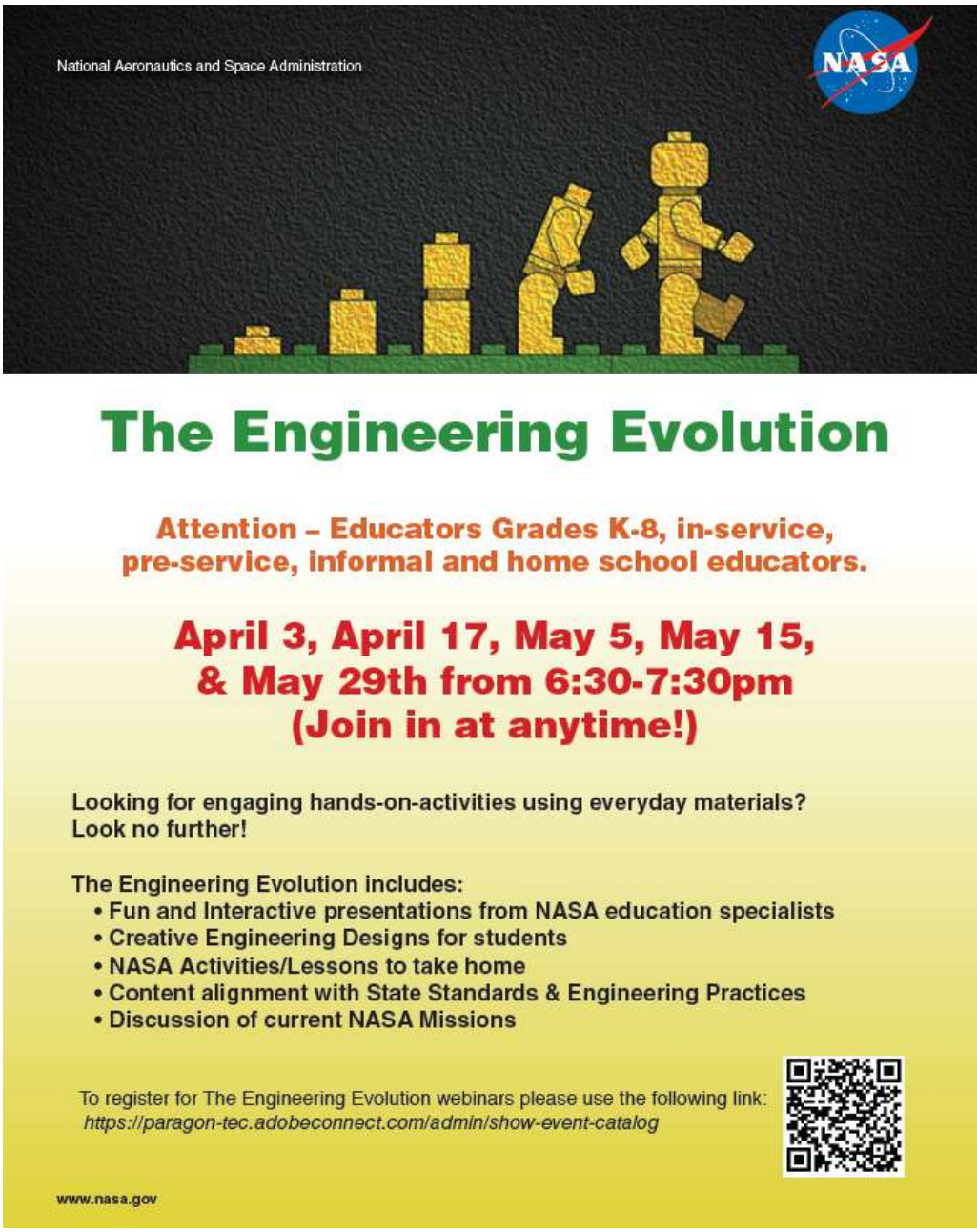
This workshop will be of particular interest to teachers whose districts are already planning for the adoption of the Next Generation Science Standards (NGSS).

Forces and Interactions: NGSS for Physics and Physical Science Teachers
June 16-27, 2014 M-F 9:00 AM - 4:00 PM

The Physics department at the University of Wisconsin - River Falls and the American Association of Physics Teachers' PTRA program have provided in service teachers with high quality, in depth, and useful educational experiences for nearly 30 years. This two week workshop focuses on teaching Physics and Physical Science courses that help students meet and exceed the Next Generation Science Standards for Forces and Interactions. Emphasis will be on Physics content knowledge, active learning techniques, and engineering design applications specific to the NGSS. The course is jointly taught by university faculty and AAPT's Physics Teaching Resource Agents (PTRAs). The workshop may be taken as continuing education or to earn 3 graduate credits.

For more information and to register, please go to:
www.uwrf.edu/PHYS/Summer.cfm

Please contact Lowell McCann (Lowell.McCann@uwrf.edu) with any questions about this workshop.



OPPORTUNITIES FOR STUDENTS

Structural View of HIV/AIDS: A Video Challenge for High School Students

RCSB PDB invites high school students to create short videos that tell a story about HIV/AIDS using molecules from the PDB. All qualified submissions will be eligible for awards. HIV and AIDS have been the focus of intense scientific study for over three decades. Findings from these studies have contributed to our current understanding of the disease and helped design ways to treat it. In particular, atomic level structures of HIV/AIDS-related proteins have played an important role in the discovery of many treatments. With today's combination therapies, HIV/AIDS has become a manageable chronic illness. However, cases of new HIV infection continue to be reported, demanding broader awareness and understanding of HIV/AIDS. Videos may want to explore:

The partial or complete life cycle of HIV

1,HIV vs the human immune system: presenting the scenario of what likely happens in an individual upon exposure to HIV. 2.HIV testing: to detect infection and monitor post treatment 3. Anti-HIV treatment options and the challenges of drug resistance 4. HIV vaccines 5. HIV and cancer. 6. Any other aspects of HIV/AIDS of interest

The video must include a visualization/animation of two or more molecular structures from the PDB. All images, animations and narrative used in the video should be original, used with permission, or available for reuse under a Creative Commons license.

http://www.pdb.org/pdb/101/static101.do?p=education_discussion/educational_resources/videochallenge/video_challenge_2014.html

NEW CHALLENGE! Chemical Educational Foundation® (CEF), a nationally recognized non-profit organization dedicated to enhancing grade K-8 students' appreciation of the science and value of chemistry. CEF has created a series of *You Be The Chemist*® (YBTC) programs, including the YBTC Challenge, an academic competition for grade 5–8 students.

The YBTC Challenge is an exciting academic competition that engages grade 5–8 students in learning about important chemistry concepts, scientific discoveries, and laboratory safety. The Challenge is organized into three competitive levels: local, state, and national. Local and state competitions take place throughout the school year, and culminate in a national competition held each June in Philadelphia, PA (see our YouTube video for a look at the National Challenge).

This year the Challenge will celebrate its tenth anniversary with over 23,000 participants in 30 states. Connecticut currently has three Local Challenge sites in New Haven County, Fairfield County, and Waterbury. For more information, including information about our YBTC Activity Guides (available for FREE online download) and YBTC Essential Elements workshops, please visit www.chemed.org.

SALLY RIDE SCIENCE

Get a free download of "Science Can Take Them Places," a booklet our founder, Dr. Sally Ride, helped create for educators and student parents alike. Subtitled "Encouraging a Child's Interest in Science, Technology, Engineering, and Math," it provides information and insight on helping kids stick with STEM--in school, and as a career path. And you can get it for free, in English or Spanish or both. **Click here to download "Science Can Take Them Places"** (and/or "La ciencia puede llevarlos a lugares").
Sally Ride Science www.sallyridescience.com

Did you know that plastics account for 80% of all ocean pollution?

It's one of the most pressing challenges facing the ocean. There is so much plastic in the ocean that it can get carried on currents and form giant ocean garbage patches, and each day it kills countless sea animals and birds that ingest or become entangled in it.

This is one of the most pressing challenges facing the ocean. Right now, there is more plastic in the ocean than phytoplankton, a microscopic plant creature that sustains life for the entire food chain!

Plastics pose a huge threat to the ocean ecosystem because they do not biodegrade. Instead, they continue to break into smaller and smaller pieces, which litter the ocean and its beaches. Countless sea animals and birds die each day from ingesting and getting entangled in plastic debris.

For this year's contest, we want you to explore the major questions surrounding ocean plastic pollution. Why is there so much plastic in our oceans? Where does it come from? How does it affect ocean animals and ecosystems? Is this a problem worthy of international attention? Are there alternatives to plastic that could help alleviate the ongoing problem of ocean pollution? How does our "throwaway culture" impact the amount of plastic in our oceans?

We invite you to explore these questions and more in the 2014 Ocean Awareness Student Contest, which runs through June 15, 2014. You may work alone or in a group, and submissions can take one of the three following forms

Art, Essay, or Advocacy. Get all your needed information at

http://www.fromthebowseat.org/details.php

Climate Change LIVE! is a distance learning adventure for K-12 students running during the 2013-2014 school year that will provide an amazing collection of science-based, climate education resources and programs and will include live electronic field trips during the school year as a way to learn about climate change science directly from climate experts and educators. Interact with them during webcasts and on social media. Register today!
http://www.climatechangelive.org/

STEM FOR GIRLS!
Educators with an interest in inspiring and preparing greater numbers of girls to pursue advanced studies and careers in STEM fields know the important influence of role models. The http://www.gsofct.org/pages/STEM.php describes the April 28th conference aimed at developing, enhancing, and accessing STEM mentors and role models in formal and informal education settings. QUESTIONS: CONTACT ELLYN SAVARD at Girl Scouts of Connecticut: esavard@gsofct.org or 203-334-3145 ext. 3018. Liz Buttner Science Education Consultant

2014 Thacher Environmental Research Contest Focuses on Refuges, Parks and other Protected Areas

The Institute for Global Environmental Strategies invites U.S. high school students to participate in the 2014 Thacher Environmental Research Contest. This annual contest allows students the opportunity to show off their science and technology skills by submitting research projects focused on the use of remote sensing and analysis tools. Students are asked to identify a U.S. protected area of interest, and design a research project that identifies why the area is unique, why it significantly contributes to our society, how this area has changed over time, and ways remote sensing and geospatial tools can be used to monitor these environmental treasures.

Cash Awards from $200 to $2,000
Participation is open to all U.S. students in grades 9-12. Entries may be submitted by individuals or student teams. Three cash prizes will be presented, with the first place student or team receiving $2,000, along with a feature in the magazine Apogeo Spatial. In addition to prizes for the winning students, the teacher/coach of the 1st, 2nd, and 3rd place entrants will receive a $200 Amazon.com gift card. Entries must be postmarked or emailed by May 5, 2014 For full contest rules and to enter, please visit http://bit.ly/Lt6CnN .

Grants and Opportunities For K-12 Teachers

Would you like a complete list of grants that has been provided by the National Science Teachers Association? NSTA has put these grant and their deadlines in an easy to follow calendar. It includes: deadline date, description, category, and grade level. To view this list, please visit:
http://www.nsta.org/publications/calendar/

REQUEST FOR PROPOSALS
2014 Connecticut STEM Conference, Monday, October 6, 2014, Connecticut Science Center, Hartford, CT. The 3rd Annual Connecticut STEM Conference is seeking presenters for our October 6, 2014 conference. The conference draws teachers, administrators, and educational policymakers interested in engaging young people in the STEM fields. Our presenters participate fully in the conference day. They receive a waiver of conference fees, breakfast and lunch, and validated parking. Please submit the **Presenter Information** and **Session Proposal Forms** to enhp@hartford.edu no later than April 7, 2014. All proposals will be reviewed by the STEM Conference Committee. Notification of proposal acceptance will be delivered via email by May 5, 2014. To get the proposal form and view the flyer, please click on: STEM 2014

RESOURCES:

Materials Available to Connecticut Middle Schools! *Free Online Teaching Materials & Professional Development for Connecticut Public School Students and Educators through June 2016.* Sea Research Foundation, based in Mystic, Connecticut, is home to Mystic Aquarium, JASON Learning and the Ocean Exploration Center. Through the support of the **Connecticut Department of Economic and Community Development,** Connecticut middle schools have access to a set of multimedia instructional materials and professional development free of charge through the 2016-17 academic school year.

a. ***Online access*** to the gated, JASON Expedition Center featuring curricular resources, videos, digital labs and games, simulations, and more.

b. ***Professional development workshops*** in JASON curricula including teacher and student print editions, and DVD.

Best suited for Grades 5-9, the curricular themes include:

Climate, Weather, Geosphere, Ecology, Forces and Motion, and Energy.

Visit http://www.jason.org/roll-outs/ct-statewide to sign up to receive free access to the JASON Expedition Center and to learn more about professional development

workshops being offered throughout the state. **For more general information about JASON Learning and its programs, visit http://www.jason.org or call 1-888-527-6600**

Want to be a NOAA-it-all about the weather and oceans? Explore these fantastic FREE NOAA resources and print publications click here to shop our entire NOAA publications collection.

In the News Too busy to sift through the news in search of interesting stories? Click on the link to read current news stories collected for you by NSTA staff members.

Good way to learn oxidation numbers …Mahjong Chemistry Game http://www2.stetson.edu/mahjongchem/

FROM THE CORNELL ORNITHOLOGY LAB:

Great New FeederWatch Website: Our team just relaunched the Project FeederWatch website with some great new features: a nifty Common Feeder Birds tool to help you find out which birds to expect and what foods they like; revamped Tricky Bird ID pages; a better way to send us photos; and cool ways to look at your data.
Project FeederWatch is a fun and easy citizen-science project. Participants watch their feeders roughly two days per week and report their counts online.

Triangle Coalition has many STEM articles of interest to science educators: to read these articles, go to: **TRIANGLE COALITION**

Dear CASE Bulletin Subscribers,

The Spring 2014 issue of the CASE Bulletin (Vol. 29, No. 1) is now available **here**. In this issue:

- **Feature Article:** ***Yale's Robert Shiller Awarded Nobel Prize for Research in Asset Price Analysis***
- West Hartford's New Children's Museum Offers a Host of Programs
- Recently Elected Connecticut Members of the National Academies
- News from the National Academies
- IN BRIEF: Science and Engineering Notes from Around Connecticut

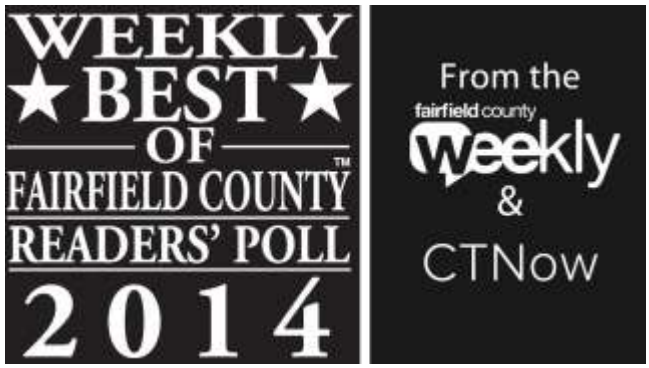
Sincerely,

Ann G. Bertini
Assistant Director for Programs
Connecticut Academy of Science and Engineering
860-571-7132, anngbertini@ctcase.org

MUSEUMS and INSTITUTIONS:

Connecticut's Beardsley Zoo Newsletter April 2014

We Need Your Vote!



Will you please take a few moments to vote for us? Last year, we won **Best Local Attraction** and **Best Park**. With your help, we can do it again! Voting ends April 2, 2014.

Click here now.

Party for the Planet

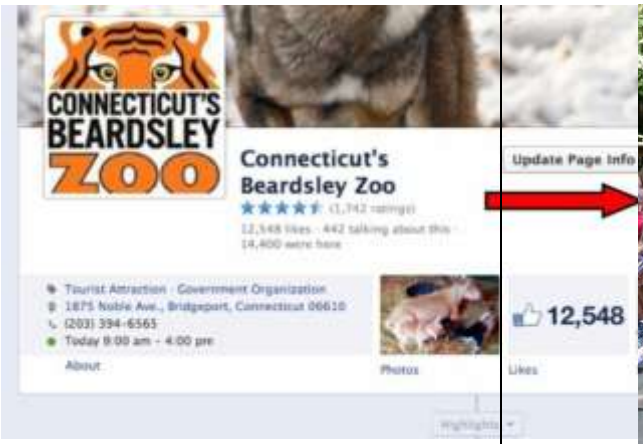
Join us on **Saturday, April 26 and Sunday, April 27** from 10 am to 3 pm to celebrate the 44th anniversary of **Earth Day**! We encourage local, organic, earth-friendly choices as a way of promoting better health for our planet and ourselves. Environmentally friendly vendors will be on hand with everything from green cleaning products and recycled fashion accessories to better lawn care for you and wildlife. We'll have a special citizen science corner to learn about online science projects you and your family can participate in.

Call for Volunteers

Our Spring Class for Adult Volunteers is coming soon. Interviews in advance are required. Please call Volunteer Coordinator Tracy Benham at 239-330-6046 if you are interested in learning more.

Stay in Touch...Online

Facebook has made changes to what you see in your newsfeed. Select "Get Notifications" under the Like button on our Facebook page to ensure you don't miss any announcements.



Aquarion Environmental Champion Awards

Aquarion Water Company, a community partner with conservation and education at its heart, is seeking nominations for its Environmental Champion Awards. Maybe you know an individual, company or nonprofit that is doing something remarkable for the environment, or maybe you're doing something special yourself!

Make your nomination online here by May 7. And watch for the winners to be announced at our Wild Wine, Beer, and Food Safari on June 7.

Registration is OPEN for Zoo Patrol

If your children love animals, the environment and being outdoors, then they'll love our summer Zoo Patrol. The weekly program offers Zoo Keeper talks, behind-the-scenes tours, animal encounters, hands-on learning, games, crafts and more!

Registration is NOW OPEN for the fun-filled weeks offered July 1 through Aug. 15 for children ages 6 to 14 years old.

Click here to read details about Zoo Patrol and to download the Registration Forms.

Events

April 8 & 9 (10:30 am) -- Zoo Tots. This 45-minute program for children 22 months to 4 years may include stories, games, activities, crafts, and live animals. This session, entitled "Fur, Feathers, and Scales" will explore the differences between mammals, reptiles and birds. $10/members and one child; $15/non-members and one child. Pre-register at 203-394-6563.

April 16 (7 pm) -- Evening Lecture Series: Exploring Galapagos. Stefanie Morton will guide us on an unforgettable journey to the Galapagos Islands. Beautiful photos will illustrate the unique geology and biology of these remote islands, including Blue-footed Boobies, Giant Land Iguanas, and Galapagos Sea Lions. Suggested $5 donation includes refreshments. In our Hanson Exploration Station. Click here to see all this year's lectures.

April 26 & 27 (9 am -3 pm) -- Party for the Planet. See article.

SAVE THE DATE: Our annual Wild Wine, Beer, and Food Safari is Saturday, June 7.

Click here for event details and our full calendar.

Conservation Quote

"When we heal the earth, we heal ourselves."

--David Orr

FCBuzz at Westport Country Playhouse

We partner with other organizations and the Cultural Alliance of Fairfield County to present FCBuzz Goes Live -- Connecting you to great events every month!

Join us on **Saturday, April 12** from 4-7 pm at the Westport Country Playhouse for the 2014 Season Kick-off Block Party. Details.

Animal Fact:

I can purr like a cat or spray like a skunk, but I am neither. Can you guess who I am?

Take a guess, then click here for the answer.

Connecticut State Museum of Natural History presented by the UConn Department of Physics and the Connecticut State Museum of Natural History. 860.486.4460 - www.mnh.uconn.edu

New England Aquarium & Faneuil Hall Marketplace, Boston
Saturday, April 5
Advance registration required: Bus Fee $45 ($35 for Museum members)
Departing from UConn Storrs Campus (directions will be sent to participants)
All ages are welcome. Children must be accompanied by an adult.

Explore Boston's New England Aquarium, a global leader in ocean exploration and marine conservation. The Aquarium has completed a renovation of its main building and a top-to-bottom transformation of its iconic 200,000-gallon Giant Ocean Tank. Exhibits also include the Amazon Rainforest, Atlantic Harbor Seals, Blue Planet Center, Coral Reef Center, Marine Mammal Center, Penguins, the Shark and Ray Touch Tank, and IMAX Theater.

A short walk from the Aquarium you will find the historic Faneuil Hall Marketplace. Explore unique, locally loved, and nationally recognized retail shops. Check out the world-famous Quincy Market and experience different foods from across the globe at the restaurants, pubs, and booths. Enjoy the street performers and musicians as you stroll along the cobblestone walkways.

The bus will leave Storrs at 8 am. The bus will depart Boston for UConn at 5 pm. Please arrive and be prepared to board the bus prior to departure times. **Admission to the Aquarium is not included and should be paid at the door or online.** For a preview, and prices for admission packages, visit the New England Aquarium website www.neaq.org. To find out about Quincy Market shopping, dining, street theater, and other events, visit www.faneuilhallmarketplace.com.

Presented by the Connecticut State Museum of Natural History and Connecticut Archaeology Center, part of the College of Liberal Arts and Sciences at UConn. 860.486.4460 - www.mnh.uconn.edu

New Series: Exploring Connecticut's Towns – Manchester!
Susan Barlow, Manchester Historical Society
Saturday, April 12, 10:30 am to 12:30 pm
Manchester, CT (directions will be sent to participants)
Advance registration required: $15 ($10 for Museum members)
Adults and children ages 8 and above. Children must be accompanied by an adult.

The natural and cultural history of Connecticut, in each of its 169 towns, has a unique story to tell. From the indigenous peoples arriving after the glaciers receded 10,000 years ago and the European explorers and settlers establishing colonies in the "New World," to the innovators of the industrial revolution leading to the present day, Connecticut is steeped in history. Join us as we explore Connecticut's towns and learn about the people and places that have shaped and continue to shape the Constitution State.

The first town to be explored in the series is Manchester, "A City of Village Charm." From its farming community beginnings as part of Hartford and then East Hartford, Manchester was incorporated in 1823 and became an important industrial center that included the E.E. Hilliard Company Woolen Mills, Union Cotton Mills, and the Cheney Brothers silk manufacturing company. The Case Brothers left their mark on Manchester, operating successful paper mills and establishing the Tonica Springs water-bottling plant, with international distribution of "Highland Rock Water." The Case Family was also known for sharing their wilderness land with the public for numerous outdoor activities, with the hiking trails of Case Mountain still popular to this day.

Join Susan Barlow from the Manchester Historical Society, along with a few special guest speakers, and explore the grounds of A. Wells Case's mansion. A. Wells Case was the Case brother who established the carriage paths, stairs, and bridges in the Case Mountain area. Learn how the Case family rebuilt after fires and floods. Then climb to the summit of Case Mountain for remarkable views of Manchester and Hartford, and learn about the Eastern Border Fault that cuts through the state.

This hike may be challenging for some, and will include a 2.5-mile walk, a steep hill, and some rocky and bumpy terrain.

Presented by the Connecticut State Museum of Natural History and Connecticut Archaeology Center, part of the College of Liberal Arts and Sciences at UConn. 860.486.4460 - www.mnh.uconn.edu

Wild Habitats and Intro to Letterboxing
Heather Alexson, Office of State Archaeology Staff Assistant
Saturday, April 26, 10 am to 12 noon
Willington, CT (directions will be sent to participants)
Advance registration required: $10 ($5 for Museum members)
Adults and children ages 6 and above. Children must be accompanied by an adult.

Come kick off the hiking season by exploring the forests and wetlands of the Fenton-Ruby Park and Wildlife Preserve. We will learn about letterboxing as we explore these wild habitats and their inhabitants. Letterboxing is a fun outdoor quest combining puzzle-solving and navigation, either through landmarks and landscape features or orienteering using a compass. You will learn all you need to know to get started letterboxing to continue on your own adventures. Letterboxing can suit all ages and experience levels. All that is needed is weather-appropriate clothing and long pants, comfortable hiking shoes, and an eye for "treasure" hunting.

Presented by the Connecticut State Museum of Natural History, part of the College of Liberal Arts and Sciences at UConn. 860.486.4460 - www.mnh.uconn.edu

Special Member Event!
Coming this June, Museum Members will be invited to join us for an exclusive members-only tour at the Connecticut River Museum. This event will include a sail aboard the historic

schooner *Mary E*. with an environmental educator and a special tour of the recently acquired Samuel Lay House. Stay tuned for more information!

Presented by the Connecticut State Museum of Natural History and Connecticut Archaeology Center, part of the College of Liberal Arts and Sciences at UConn. 860.486.4460 - www.mnh.uconn.eduwww.mnh.uconn.edu

. **THE MARITIME AQUARIUM AT NORWALK**, 10 N. Water Street, Norwalk, CT; (203) 852-0700, www.MaritimeAquarium.org. Hours: 10 a.m. to 5 p.m. daily.. IMAX® theater offers the largest movie screen in Connecticut. The name of the Aquarium's new research vessel will be R/V Spirit of the Sound – chosen through a recent Name the Boat contest open to Norwalk school students. A Brien McMahon sophomore wins the contest's top prize for submitting the name.

Education News from the National Research Council

Join Our Mailing List

As Connecticut moves toward embracing the "3-Dimensional" vision of science teaching and learning articulated in the NRC Science Framework and the Next Generation Science Standards, recently-released NRC research reports and presentations listed below will be influential in shaping state and district transition plans:

Developing Assessments for the Next Generation Science Standards

This report from the Board on Testing and Assessment and the Board on Science Education, describes the types of new assessments that will be needed to gauge student progress under the new science education standards. The report recommends a systems approach, one that uses a range of assessments that complement one another to yield information that can guide decisions of teachers, policymakers, and others. The report also offers examples of the types of questions and tasks that will be needed to assess student learning.

Sponsors: S.D. Bechtel, Jr. Foundation, The Carnegie Corporation of New York, and the William and Flora Hewlett Foundation

More Information | **Report Brief**

STEM Integration in K-12 Education: Status, Prospects, and an Agenda for Research

This report from the Board on Science Education and the National Academy of Engineering, examines current efforts to connect the STEM disciplines in K-12 education. It identifies and characterizes existing approaches to integrated STEM education, in both school and out-of-school settings and reviews the evidence for the impact of integrated approaches on various student outcomes. The report also proposes a set of priority research questions to advance the understanding of integrated STEM education.

Sponsors: S.D. Bechtel, Jr. Foundation and Stephen Bechtel Fund

More Information

Successful Out-of-School STEM Learning

Recent NRC reports such as *A Framework for K-12 Science Education: Practices, Crosscutting Concepts, and Core Ideas* have highlighted ways that informal and afterschool STEM learning can support student achievement in STEM. A new committee under the Board on Science Education will explore successful out-of-school STEM learning based on evidence of successful practice. The committee will hold a public workshop that will consider criteria for identifying highly successful practices in the area of STEM education in out-of-school settings, with a focus on designed settings and programs targeted at children and youth. The workshop is planned for June 3-4 in Washington, DC.

Sponsor: National Science Foundation

More Information

NSTA National Conference

This year's conference, which is being held on April 3-6 in Boston, MA, will explore ideas and practices that enhance teaching and learning as articulated in the *Next Generation Science Standards* (NGSS). The NGSS describes the science content and practices all K-12 students should learn and is based on a 2012 report from the Board on Science Education, *A Framework for K-12 Science Education*.

You can find our work discussed at the following session:

Integrated STEM Education: Findings from a National Academies Study
Friday, April 4
3:30 - 4:30 pm
The Westin Boston Waterfront, Griffin

Please stop by booth 1236 and learn more about

- *Next Generation Science Standards*
- *A Framework for K-12 Science Education* and
- *Developing Assessments for Next Generation Science Standards*.

Liz Buttner
Science Education Consultant
Math/Science Partnership (MSP) State Coordinator
Presidential Awards for Excellence in Teaching (PAEMST) State Coordinator
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CT State Department of Education web site
Bureau of Teaching and Learning web site
Science Home Page

What Is Science Matters? Science Matters is an initiative by the National Science Teachers Association (NSTA) to bring content, news, and information that supports quality science education to parents and teachers nationwide. ***Science Matters builds on the success of the Building a Presence for Science program, first launched in 1997 as an e-networking initiative to assist teachers of science with professional development opportunities. Building a Presence for Science—now Science Matters—reaches readers in 34 states and the District of Columbia. Why does Science Matter? Science is critical to understanding the world around us. Most Americans feel that they received a good education and that their children will as well. Unfortunately, not many are aware that international tests show that American students are simply not performing well in science when compared to students in other countries. Many students (and their parents!) believe that science is irrelevant to their lives. Innovation leads to new products and processes that sustain our economy, and this innovation depends on a solid knowledge base in science, math, and engineering. All jobs of the future will require a basic understanding of math and science. The most recent ten year employment projections by the U.S. Labor Department show that of the 20 fastest growing occupations projected for 2014, 15 of them require significant mathematics or science preparation to successfully compete for a job. This is why Science Matters. Quality learning experiences in the sciences—starting at an early age—are critical to science literacy and our future workforce. Feel free to publish this information in school newsletters and bulletins, and share it with other parents, teachers, and administrator***s