SCIENCE Matters
National Science Teachers Association

CONNECTICUT SCIENCE CONNECTION

August/September 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

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IMPORTANT ANNOUNCEMENT!

Please note my change of email address above in the heading. Also new is the website and web address of the Connecticut Science Supervisor's Association, which uploads the newsletter to the NSTA Science Matters site. After over 10 years, I have stepped down as CSSA webmaster, and the organization now has a new webmaster and new web site address. Chris Baker has graciously agreed to take on the work of the web site as well as the membership duties for CSSA. The new web site address is www.cssaonline.org . Please visit and while you are there, register to join CSSA. If you are reading this newsletter, you belong with CSSA, the science educator leadership association. You can now join on line using a credit card. You also can conveniently pay for all four membership meetings along with membership! These meetings provide excellent professional development for leaders in science education as well as delicious meals.

Resources

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

EQuIP Rubric for Science Released!

The Educators Evaluating the Quality of Instructional Products (EQuIP) Rubric for Lessons & Units: Science was released today. The Rubric provides criteria with respect to the NGSS.

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

Visit the NGSS@NSTA Hub :

The NGSS@NSTA Hub now offers a dynamic version of the *Next Generation Science Standards.* Standards can be accessed via a simple matrix, then displayed in a clear and easily understood format. Accompanying each standard are student performance expectations, and the corresponding science and engineering practices, disciplinary core ideas, and crosscutting concepts. The hub also provides key connections to the *Common Core State Standards* in literacy and mathematics.

WHAT'S APPENING: 100 APPS FOR EDUCATION

by eSchool News Staff
July 3rd, 2014

"See what's APPening in education" offers a look at some of the apps available in the Windows Store. great apps are in the PDF resource.

CK12, Math and Science, Grades 6-12, Free
Our Windows 8 App helps you use over 15+ modalities including videos, images, quizzes, practice, and fun
interactive learning objects to learn and also teach math and science effectively. Our math library covers topics ranging from algebra, analysis and arithmetic to statistics, probability and geometry. Our science library ranges from Earth, life and physical science to biology, chemistry and physics.

3. Corinth Micro Engine, Science, Grades 6-12, Free
Have you ever been interested in types of engines and how do they work? This ground-breaking 3D interactive
educational app offers all the facts you are looking for in a visually outstanding, easy-to-understand and fun package.

7. MasteryAssess, Classroom Tools, Grades K-12, Free
MasteryAssess allows students to take assignments, tests, quizzes, and common formative assessments. Teachers save time in grading student assignments and assessments. Teachers can easily create and upload an assessment/assignment in any format (Word, PDF, etc.) and deliver them automatically to the device.

8. MyHomework, Classroom Tools, Grades 6-12, Free
MyHomework is a planner app that helps students stay organized by tracking classes, assignments and tests on Windows and other devices.

10. SolveIT, Reference, Grades 6-12, Free SolveIT provides example collaborative assessment activities for students. Collaborative assessments are new types of online assessments where students must work together to solve problems. Students pick a task and then use chat and interactive actions to work together on the task. When they are finished a score is awarded for both how well they completed the task and how well they collaborated together to solve the task

OPPORTUNITIES FOR TEACHERS:

Long Island Sound Mentor- Teacher Workshop
Seine the Sound with Next Generation Science Standards Date/Time:

Friday, September 26, 2014

8:45 am to 3:15 pm (Downpour will reschedule to Tuesday, September 30) **Location:** Meigs Point, Hammonasset Beach State Park, Madison, CT **Who should attend:** Grade 4-12 Teachers & Informal Science Educators

Take-Home Materials include: Get Started! Teacher Curriculum Resource Guide, seine net, several field guides including a $40 Guide to life in LIS, geology tools, posters, multimedia and more! You will LOVE this day!

COST: ONLY $10!

Contact: Donna Rand drand@crec.org to register or to obtain more information www.longislandsoundkids.wordpress.com

The workshop is open to first 20 people who return $10 payment.

LEARN

A Regional Educational Service Center working with and for its member districts to improve the quality of public education for all learners.

Formative Assessment in the Science Classroom

September 15 & 16, 2014
8:30 am – 3:30 pm

LEARN Regional Educational Service Center
44 Hatchetts Hill Road
Old Lyme, CT 06371
www.learn.k12.ct.us

A two-day workshop for K-12 educators and administrators presented by Anne Tweed, an internationally known science education professional developer and author, from McREL.

$300 - includes tuition for two days of face-to-face professional development and a follow-up webinar. Morning refreshments and lunch will be provided both days.

Formative assessment is actually assessment for learning and needs to be planned for and embedded in instructional practices. This workshop is designed to help attendees understand how to use a formative assessment process to meet the needs of all students and move their science learning forward. The formative assessment process involves identifying and communicating learning goals, identifying and communicating success criteria, and providing descriptive feedback. Activities and discussion will be aligned to the Connecticut Science Standards and infused with of the first two dimensions and the Engineering Design Process introduced by A Framework for K-12 Science Education: Practices, Crosscutting Concepts and Core Ideas, that informed the development of the Next Generation Science Standards. Participants will also learn how to develop examples of formative assessments they can use in their science classrooms as the state transitions toward CT science education of the future.

44 Hatchetts Hill Road Old Lyme, CT 06371 Phone: 860-434-4800
For more information contact Terry Contant at tcontant@learn.k12.ct.us
www.learn.k12.us
www.facebook.com/LEARN

LEARN

UPCOMING EVENTS:

The **Connecticut Science Education Conference** is **November 22, 2014** at Hamden Middle School. The conference serves science educators in grades K-12, so there will be sessions of value to you. All disciplines, from general interest/general science, to biology, physical science, chemistry, earth and environmental science, and physics are welcome . This is your chance to network with your colleagues, visit exhibitors, and update your information. Please put the date on your calendar now and apply for your district's Professional Development support .

CT SCIENCE SAFETY NETWORK WORKSHOP SERIES:

- September 11 – Science Lab Safety, Security and Liability: Required by OSHA for NEW Science Teachers and Updating of Veteran Science Teachers
    - October 2 – Introduction to Globally Harmonized Systems
    - October 23 – Hazardous Chemical Management 101 for 7-12 Chemical Hygiene Officers, Science Teachers and Supervisors
    - November 13 – OSHA's Chemical Hygiene Plan: The Path to a Safer Science Lab
    - December 11 – Chemical Hygiene Officer Training: Responsibilities and Liabilities!
    - February 12 – STEM Safety (new)
    - March 5 – Safety in the Arts (new)
    - March 19 – Science Safety for Special Education Teachers and Paraprofessionals (new)

FOR INFORMATION, CONTACT:
Sara MacSorley
Director of the Green Street Arts Center and Project to Increase Mastery of Mathematics and Science (PIMMS
smacsorley@wesleyan.edu
860-685-7870

Understanding and Using K-12 Science Learning Goals 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.

Grants For K-12 Teachers

CT Green LEAF Professional Learning Communities Grant
www.sustainenergy.org
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!)** 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. More information about Connecticut Green LEAF Schools can be found at www.ctgreenleaf.org
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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/

OPPORTUNITIES FOR STUDENTS

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 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). 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) www.chemed.org.

Cool Career Cards: A Fun, Easy, and Free Way to Connect Students to Careers in STEM
At Sally Ride Science, everything we do is about connecting your students to careers in STEM.

With these *Cool Careers in STEM* activity cards, kids match job titles to images and--in the process--are introduced to the wide array of careers only STEM offers.

By seeing that a rewarding career awaits them, students are more likely to stay engaged with STEM.

Get your download here. **Engaging Teacher Activity Guides** that provide classroom plans and state standard-aligned exercises for students
Visit Sally Ride Science today for your Cool Careers in STEM cards and to learn more about the site license.

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

RESOURCES:

Smithsonian
Science Education Center

(click logo for more fun!)

Check out our newest game, HABITATS!

HABITATS is available to play for free online.

Do you know where the red-eyed tree frog calls home? Play this game based on animal habitats to learn! Explore the desert, coral reef, jungle, and marsh to discover where many animals live by matching each animal to their correct habitat!

Learn More

A Message from Sten:

Hello Everyone!

As you may know, NASA has dramatically changed how it funds its education programs during this fiscal year and perhaps beyond. SpaceMath@NASA has been generously supported through two consecutive NASA education grants, but the last of these grant monies have now expired. Consequently, SpaceMath@NASA is no longer an active resource with new updates as of July 1, 2014

NASA has long been a proponent of finding ways to leverage its resources in the commercial sector, and encourages education programs that it funds to make every effort to insure that the program can be expanded and maintained without further NASA financial support which they consider to be seed money and not intended to be permanent support. To that end, I am offering a way to continue supporting the development of mathematics resources based on real-world space science and discovery themes.
The Astronomy Café (http://www.astronomycafe.net) has begun the design of math resources that integrate Common Core Mathematics Standards with popular space science topics taken from press releases and other sources.

This is an experiment. If we receive little or no support for these products at Astronomy Cafe, I will abandon this program altogether as a privately extended venture. All that will remain will be a largely archival form of SpaceMath@NASA with little or no further problem development in the coming years. Moreover, after February 2015 the entire website will be taken down because for IT Security reasons, NASA cannot have public-facing websites that are not sponsored by NASA-affiliated civil servants or contractors.
Numerically, over 35,000 people visit SpaceMath@NASA every month, and since its inception in 2004 have downloaded over 9 million mathematics files and problems. I am still committed to providing Educators with these popular resources. Please support the resources at The Astronomy Café:
The Astronomy Café main page: http://www.astronomycafe.net
Educator Store: http://www.astronomycafe.net/store/storeEducation.html
I have also set up a Facebook page for Space Educators so that you can provide comments and suggestions, and read new announcements about current and future resources. Please visit this page and 'Like' it to give us a sense of how many of you want to continue to support the creating of future math-science real-world resources. Facebook: https://www.facebook.com/pages/Space-Educators/509952452445504?ref=hl

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Dr. Sten Odenwald
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A MESSAGE FROM LIZ BUTTNER, CONNECTICUT STATE DEPARTMENT OF EDUCATION: Welcome back to a new school year! It has been a very busy summer for SDE and the science education community as we continue to build a foundation of understanding Next Generation Science in Connecticut.

- Two exciting summer learning academies brought together K-12 teachers from 23 districts and science education faculty from 8 universities to learn about a Next Generation Science approach to teaching and learning. These MSP-funded projects are engaging CT science educators in developing Next Gen Science on-line short courses that will be available as learning tools for district-based PLCs to use by late 2015.

- Three new Next Gen Science stakeholder engagement committees have been formed with representatives of nearly 100 school districts participating. The State Assessment Advisory Committee met on July 15; the Performance Task Development work group met during the week of August 4th; and the District Advisory Council met on August 18. These committees will continue to meet during the 2014-15 school

year. Additional opportunities to become involved in Next Gen Science focus groups and work groups will be announced in the coming months.

Listed below are a variety of professional learning opportunities and resources that may be of interest to you as you think about your professional goals for the 2014-15 school year:

1. **NSTA'S** NEXT GENERATION SCIENCE IN THE CLASSROOM
District Science Coordinators and K–5 teachers will not want to miss NSTA's upcoming series of web seminars focused on teaching the *Next Generation Science Standards* (*NGSS*) in elementary school. Each month from September through February, we will focus on a particular grade level, kindergarten through 5th grade. Presenters will review the general architecture of the *Next Generation Science Standards* and the specific expectations for each elementary grade level. Then participants will learn how to use the standards to plan curriculum and instruction. During each of these 90-minute web seminars, you will also have an opportunity to deepen your understanding of:

how the three dimensions of *NGSS* (practices, core ideas, and crosscutting concepts) are designed to blend together during classroom instruction;

dive into one or two examples of what the teaching and learning to achieve *NGSS* looks like in a specific grade; and

discuss instructional practices with other teachers of the same grade level; and

begin the development of a grade-level community in the NSTA Learning Center to support students learning.

Find more information and/or register:

Teaching *NGSS* in Elementary School—Kindergarten, Wednesday, September 17, 2014

Teaching *NGSS* in Elementary School—First Grade, Wednesday, October 22, 2014

Teaching *NGSS* in Elementary School—Second Grade, Wednesday, November 19, 2014

Teaching *NGSS* in Elementary School—Third Grade, Wednesday, December 17, 2014

Teaching *NGSS* in Elementary School—Fourth Grade, Wednesday, January 21, 2015Teaching *NGSS* in Elementary School—Fifth Grade, Wednesday, February 18, 2015

2. NSTA Archived Webinars

full archive of past programs can be accessed for free.

3. BirdSleuth CURRICULUM - Cornell Lab of Ornithology, in partnership with the Connecticut Audubon Society, is having offering two BirdSleuth curriculum workshops at the CAS Birdcraft Museum, 314 Unquowa Road, Fairfield on September 12th and 13th, 2014. BirdSleuth is an inquiry-based science curriculum that engages kids in scientific study and real data collection through the Cornell Lab of Ornithology's exciting citizen science projects. BirdSleuth provides educators with kits that:
   - Encourage kids to answer their own questions about nature using the scientific process
   - Spend time outdoors, connecting with nature by focusing on the fascinating sights, sounds, and behaviors of birds
   - Motivate kids by the real-world importance of the data they enter online, which scientists use to understand and conserve birds

   You are invited to apply for one of **25 scholarships** to attend a BirdSleuth workshop and receive teaching materials.
   Click here to register:
   http://www.birdsleuth.org/event/connecticut-birdsleuth-workshop/
   Michelle Eckman
   Director of Education
   Connecticut Audubon Society
   314 Unquowa Road
   Fairfield, CT 06824
   203-259-6305 x 107
   Wishing you a successful and fulfilling school year!

Liz Buttner, 165 Capitol Avenue,P.O. Box 2219, Hartford, CT 06106, PHONE: 860-713-6849 FAX: 860 713-7018

From NABT News and Views, July 2014: New Tool To Compare State Standards With NGSS

The new *State Science Education Standards Comparison Tool* was recently released to assist states and districts that are considering revision or adoption of science standards. The tools guides users through a series of questions comparing two sets of standards. Because new science standards documents, including the *Next Generation Science Standards (NGSS)*, differ greatly in structure and intent from other existing sets of standards, a traditional standards "crosswalk" document (which focuses on a one-to-one comparison of content standards) may not fully capture the extent of the differences between standards. Thus, the purpose of the comparison tool is to accompany a standards crosswalk document to help users gain a more thorough understanding of how two sets of standards compare on various aspects of knowledge development.

The tool will be beneficial to individuals and teams with some familiarity with both sets of standards being compared. Primary participants in the comparison process are likely to include staff members of a state education agency, but the tool might also be useful to district administrators, teachers, and developers of instructional materials or assessments. Other stakeholders in standards adoption processes, including representatives from the higher education and business communities, along with members of the public, might also be involved in a district or state's use of the tool. At the end of this process, users should have a clear understanding of how each set of standards was developed and how they each address important aspects of science education.

The *State Science Education Standards Comparison Tool* is available for download in both PDF and Word formats at http://www.nextgenscience.org/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**

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.

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

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.

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

MUSEUMS and INSTITUTIONS:

The following 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

Special Trip: Meadowcroft Rockshelter and Historic Village, Avella, PA
Friday, October 10 through Sunday, October 12
Advance registration required: $325 (double room) or $420 (single room)
Adults and children ages 12 and above. Participants under 18 must be accompanied by an adult.

The 16,000-year-old Meadowcroft Rockshelter is the earliest known site of continuous human habitation in North America! Property owner and museum founder, Albert Miller, discovered the first prehistoric artifacts found at Meadowcroft in 1955. In 1973, the first professional excavation of the Rockshelter was conducted by the Cultural Resource Management Program (CRMP) of the University of Pittsburgh and directed by Dr. James M. Adovasio. Today, ongoing research and excavation continues under the direction of Dr. Adovasio through the Mercyhurst Archaeological Institute (MAI). The excavation protocols used at Meadowcroft are considered state-of-the-art and widely regarded as one of the most carefully excavated archaeological sites. Don't miss this special opportunity to explore this National Historic Landmark and Meadowcroft Village, which recreates an Upper Ohio Valley village from the mid-19th century.

The fee includes round trip bus transportation (gratuity included), two nights' accommodations at Hilton Garden Inn, two upgraded full breakfast buffets, entrance to the Meadowcroft Rockshelter and Historic Village, boxed lunches during the Meadowcroft Rockshelter visit, and a tour led by Dr. James M. Adovasio of the Mercyhurst Archaeological Institute (MAI).

This trip is sponsored by the Friends of the Office of State Archaeology (FOSA) and the Connecticut State Museum of Natural History and Connecticut Archaeology Center at UConn. Advance registration with full payment is required by August 1, 2014. **To request a Meadowcroft Rockshelter and Historic Village trip registration form, please contact David Colberg at david.colberg@uconn.edu or 860.486.590.**

Connecticut's Beardsley Zoo is closer than you think and open daily from 9:00 am to 4:00 pm. Adult admission

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

For more information about The Maritime Aquarium's educational programs, or its exhibits and IMAX movies, go to www.maritimeaquarium.org or call (203) 852-0700.

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.