

CONNECTICUT SCIENCE CONNECTION

October 2017

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

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

Resources



Science Professional Development Opportunities! Are you interested in high quality, low cost, Teacher Professional Development opportunities? Visit the [CSTA website](http://csta.org) and click on Opportunities. You will not be disappointed. Contact us if you have questions.



Click on the link to learn more about JPSS! <https://scijinks.gov/subscribe/>

Green Teacher

Green Teacher has recently launched a YouTube Channel. In time, we hope this will grow into a valuable resource for educators.

<https://greenteacher.com/check-out-these-videos/>

Upcoming webinars: Check out these webinars at the following site: <http://greenteacher.com/webinars/> Look at flier for new book on climate later in this newsletter.



https://www.nasa.gov/audience/for_educators/index.html



CONNECTICUT ACADEMY OF SCIENCE AND ENGINEERING

The Fall issue of the CASE Bulletin is [now available](#). In this issue:

- Quantum Computing: Faster Solutions to Previously Impossible Calculations, Cybersecurity Advances and More
- Children's Museum of Southeastern Connecticut
- News from the National Academies:
 - Strengthening the Disaster Resilience of the Nation's Academic Biomedical Research Community
 - Survey of income and Program Participation
 - Applying Risk Analysis, Value Engineering, and Other Innovative Solutions for Project Delivery
 - Identifying Potential Biodefense Vulnerabilities Posed by Synthetic Biology: A Proposed Framework
 - Global Health and the Future role of the US
 - Pain Management & the Opioid Epidemic: Balancing Societal and Individual Benefits & Risks of Prescription Opioid Use
 - NSF Urged to Develop Plan Specifying Social, Behavioral, and Economic Sciences Research Priorities
- IN BRIEF: Science and Technology News from Around the State

FALL OF FUN & DISCOVERY

Mysterious Mushrooms, the Hammonasset Festival, Archaeology Field Workshop, Mr. Darwin: Big Man on Campus, Historic Cedar Hill Cemetery Walk, August First: A West Indian Jubilee in America, Exploring Connecticut's Towns—South Windsor, Black Bears in Connecticut, and Recent Discoveries from the Office of State Archaeology are some of the activities and talks being offered this season by the Museum and Archaeology Center. Don't miss out on exciting special events, workshops, field learning programs, and notable presentations. For a full listing of programs and registration information visit www.cac.uconn.edu/mnhcurrentcalendar or call 860.486.4460



I encourage you to visit my website at www.aviornstein.com. Feel free to use the weekly puzzles and the "Interesting Excerpts" in whatever way you find to be useful!

Avi Ornstein, Classical Magnet School, Hartford, CT

\$1100 Scholarships for Amazon

Rainforest PD Workshop

Educator Academy in the Amazon

Rainforest. The July 1-11, 2018

Educator Academy in the Amazon

Rainforest of Peru is a cross-curricular professional development workshop for K-12 formal and informal educators to learn and use:

21st Century Instruction: 5E Lesson Design ~ Inquiry-Based Exploration ~ NGSS ~ STEM

Inquiry Protocols & Resources:

Project Learning Tree ~ Cornell Lab of Ornithology ~ & More!

Global and Cultural Perspectives:

Service Learning ~ Sustainability ~ Global Education

Join Al Stenstrup, Project Learning Tree; Dr. Nancy Trautmann, Cornell Lab of Ornithology; Kristie Reddick, The Bug Chicks; along with scientists Dr. Steve Madigosky, Widener University; and Randy Morgan, Curator/Entomologist, Cincinnati Zoo as you:

Work side-by-side with scientists and researchers ACTSPeru **Rainforest Canopy Walkway** ..Explore conservation and sustainability via hands-on workshops with **indigenous communities**. Spend a day in an **Amazon village** and explore the role of education in creating a sustainable future for Amazon children.

Work with fellow educators and develop strategies for using the Amazon as a vehicle PLT Certification, BirdSleuth, and other resources included. Academic Credit and Machu Picchu Extension optional. \$1100 scholarship deadline February 1, 2018. With a scholarship, Academy Program fees are \$1395 + air. Space is limited to 30 educators - Register early to secure your spot! Get the details and download a syllabus and scholarship application at:

www.amazonworkshops.com/educator-academy

Contact Educator Christa Dillabaugh, christa@amazonworkshops.com



Please save the date for our 9th annual

BENEFIT GALA

HALEY MANSION SATURDAY
THREE WILLIAMS AVENUE NOVEMBER 4, 2017
MYSTIC, CT 06355 SIX O'CLOCK

JOIN US FOR AN EVENING OF FUN,
FRIENDS, AND FUNDRAISING.

TICKETS & SPONSORSHIPS
WWW.NESSF.ORG/GALA

Join us for our 9th annual [Benefit Gala](#) on Saturday, November 4th at Haley Mansion in Mystic, CT! Tickets and sponsorships are available for purchase [online](#).



_____ CT DEEP is designing some new opportunities for educators to access professional development that helps build understanding of science, environment and sustainability. Part of the development includes improved communication about trainings, webinars and programs offering stipends to educators or schools. We will be using a newsletter, **The Trillium**, to keep educators informed. [Trillium Registration](#)



SAM RHINE'S 2017-18 GENETIC UPDATES:

PROGRAMS FOR HIGH SCHOOL STUDENTS AND THEIR TEACHERS

Cancer Mutations: Oncogenes & Tumor Suppressors

Cancer Stem Cells / Asymmetric Mitosis / Cell Cycle Control

#1 Source of Human Cancer Causing Mutations is.....

Inherited Predispositions? / Environmental Factors? / Copy Errors?

CRISPR Update: gene editing in human embryos

at: Plainville High School - Oct 27th

Program runs from 9:00 am to 12:30 pm / Lunch on your own

Pre-register on line at: www.samrhine.com

**DATE CHANGE IMPORTANT!!! Science Safety Workshop
Calendar change!**

The Science Safety and Liability Workshop will take place on Thursday, October 12 from 9am-12pm (instead of September 21). More details can be found here -

<http://wesleyan.edu/greenstreet/professionaldev/sciencesafety.html>

NEXT GENERATION SCIENCE- CT

(NGSS Short Course) Looking for a free resource for NGSS science? Next Generation Science-CT known as the NGSS Short Course is an introduction to Next Generation Science Standards (NGSS) and a broad overview of the changes to science teaching and learning envisioned in the Framework for K-12 Science Education (National Research Council, 2012). No-cost; web-based; self-paced; this is an excellent opportunity to develop a PLC regarding NGSS. The eleven (11) modules that are complete will provide many hours of instruction. The link is as follows:

<http://ngss.ccat.us/course> [Next-Gen: Course categories - Next-Gen Science CT](#) Professional Learning with our implementation partner CT Science Center.. Next Gen Science Exemplar System Part I (NGSX)

- Hands-on, Expert-facilitated
- 6 module series over 4 ½ days
- Tuition fee of \$1500
- 30-36 hours of seminar-style

learning

NGSX Part II Taking it Back to the Classroom

- Hands-on, Expert-facilitated
- Focus on analyzing lesson sequence/adapt storylines
- Tuition based (stipend available)

• 20-25 hours of seminar-style learning

• Plans for several opportunities during 2017-2018
PLANS - Principals Learn About, Network, and Support 3-Dimensional Science Learning

- Awareness PD designed for Administrators/Evaluators
- Expert facilitated
- 1 1/2 days

The link is as follows:

<https://ctsciencecenter.org/education/mandell/ngsx-info/> [Next Gen Science Exemplar System \(NGSX\) | Connecticut ... ctsciencecenter.org](#)



SENEME Fall Conference: The Next Generation of Marine Science

When: Saturday, September 30, 2017 from 10:00 AM to 4:00 PM EDT

Where: Marine Science Magnet High School

Groton, CT 06340

Hello friends of SENEME! We'd like to formally invite you to join SENEME for their annual fall conference. *The Next Generation of Marine Science* SENEME Conference will offer a variety of presenters to choose from on all things aquatic education-related and many with NGSS-alignment. Our keynote speaker is Marc Zimmer, PhD, a chemistry professor at Connecticut College, and an expert in the fascinating field of glowing presentation, "Can Light Save our Oceans? Jellyfish and Algae Revolutionize Science." 9 different workshops on NGSS, Ocean Literacy, and STEM in relation to traditional science classrooms, marine science and informal education! Visit our exhibitors to learn all about fabulous opportunities and resources for your classroom, and join the fun of bidding in our Silent Auction! Please click on the link below to register or RSVP. [Get more information](#) [Register Now!](#) [I can't make it](#)

American Museum of Natural History

Curriculum Collections

Collections of activities, articles, videos and more, for educators, families, students and anyone interested in teaching or learning about science.

<https://www.amnh.org/explore/curriculum-collections>

FREE TO ALL PHYSICS TEACHERS/STUDENTS:



Force Diagram is an Excel-based program that is designed to help students learn how to construct force diagrams (free-body diagrams). It consists of ten conceptual exercises in which students are asked a series of open-ended but leading questions to help them identify if a force acts on the system specified in the exercise. The student will also have to identify the

type of force present and its agent and pick an arbitrary length of the vector to represent the force and correctly identify the direction of the force. Additionally students will have to determine if each system is accelerating or not and if it is, the force diagram must be consistent with the direction of that acceleration, meaning that the student might have to adjust the lengths of one or more vectors. This portion of the program is reminiscent of FREEBODY by Physics Academic Software which is now defunct and is no longer compatible with current technology.

In addition, there are 79 quantitative drill-and-practice problems designed for independent mastery covering the Free Particle Model (equilibrium), Constant Force Particle Model (non-equilibrium), and Central Force Particle Model (uniform circular motion & universal gravitation). These mastery problems generate new numbers each time the student attempts the problem and also provides the answers. Here is a link to a Youtube Video showing some of the features of the program: <https://youtu.be/5zryWgXXv0Y> Mark Lenfestey Physics Teacher, Homestead High School, Fort Wayne, IN 46814
School email: mlenfestey@sacs.k12.in.us

NATIONAL INSTITUTE OF ENVIRONMENTAL HEALTH SCIENCES (NIEHS) recently developed **a Climate and Health learning module** for use in high school classrooms interested in exploring the health impacts of climate change. It promotes learning about the complex interactions between climate change, the environment and human health and uses content from the US Global Change Research Program's 2016 report, ***The Impacts of Climate Change on Human Health in the United States: A Scientific Assessment***. The materials are free of charge and can be adapted for other grades and informal educational settings. The module integrates multiple science and engineering practices, disciplinary core ideas, and cross cutting concepts for earth and life science.

NSTA Safety Blog!

Science, technology, engineering, and math (STEM) students will be participating in hands-on activities and demonstrations, which means that safety must be addressed. For a safer and more memorable learning and teaching experience, check out the NSTA Safety Blog:

<http://nstacommunities.org/blog/category/safety>

How to Use Phenomena to Drive Instruction: An NGSS Transition Workshop October 19-20, 2017

The NRC Science Framework and NGSS calls for fundamental shifts in the way we teach and engage students from *learning* about science to *figuring out* science and sense-making. During our session, we will engage as learners and educators to explore phenomena to figure out science and build sense-making experiences for the students in our classroom.

Cornell Lab of Ornithology Now accepting applications for the 2017-18 school year

Ithaca, NY--The Cornell Lab of Ornithology and Alaska[®] Organic Fertilizer are once again teaming up to support school gardens around the United States. BirdSleuth, the Cornell Lab's K-12 education program, is building on last year's successful School Garden Grant Program by distributing \$25,000 in grants to 20 schools that create or revitalize a garden that supports local wildlife, healthy living, environmental education, and Science, Technology, Engineering, and Math (STEM) learning. Grants range from \$500 to \$2,000 and will include BirdSleuth's popular ***Habitat Connections*** unit as well as gardening supplies from Alaska[®] Fertilizer.

"We're so excited to continue supporting schools and their efforts to get kids outside for meaningful hands-on learning," says Jennifer Fee of the Cornell Lab's BirdSleuth program. "Gardens are a great place for students to participate in citizen-science projects, to conduct their own science investigations, and to develop skills and interests that can last a lifetime."

Research shows that students who participate in school gardens and spend time outside are not only happier and healthier but also score significantly higher on science achievement tests. However, many educators struggle to find the necessary funding and support to establish a school garden.

"These types of projects are especially important in urban settings where children are reluctant to work outside and get 'dirty' because they are not exposed to it," says Andrea Hernandez of the Children's Museum of Houston, a past Garden Grant recipient. "The difference it makes when these opportunities are made available...is tremendous. This exposure goes way beyond the project itself once the students start to realize how they can positively affect the environment."

The deadline for submitting grant applications is **October 8, 2017 at 11:59 pm Eastern Time**.

For more information on BirdSleuth's Garden Grant program, please visit:

www.birdsleuth.org/garden-grants

Email birdsleuth@cornell.edu with any questions.

Teaching Teens about Climate Change

We're excited to announce that Green Teacher's newest book will be published later this month. If you peruse the table of contents below, you will see that this 80-page book brings together 12 articles and activities to aid any educator working with high school-aged students. The activities have the capacity to take teens from despair to empowerment, help them appreciate the difference between cap and trade and carbon taxes, explore the environmental impacts of the tar sands, provide options for sustainable transportation, and much more. But don't take our word about it: see below what other educators think about the book.

Before October 12th, you can take advantage of our pre-publication discounts to obtain one or more copies of either the **print** or **ebook** versions. (As always, we also offer significant discounts on purchases of multiple copies.) Until then, you can purchase the print version for \$11.95 each (vs \$15.95 after) and the digital version for \$8.99 each (vs \$10.99 after). The book will also be available soon as a smartphone-friendly **epub** from Smashwords.

Even better, the third purchaser of the book in each province will pay only for the shipping. **Their copy of the book will be free.** And to be transparent about it, we'll

post the names of the free copy winners on our website. (While all purchasers will pay the regular price for the book when they order it, we'll only charge them for the shipping when we close the order.)

Four ways to order:

1. [Online](#).

(If you wish to order more than one copy, please contact us directly using one of the options below. We regret that the online ordering system cannot apply discounts for multiple-copy orders.)

2. Mail payment to:

Green Teacher
95 Robert Street
Toronto, ON M5S 2K5

or

Green Teacher
PO Box 452
Niagara Falls, NY
14304-0452

3. Call us at:

[416-960-1244](tel:416-960-1244) or [1-888-804-1486](tel:1-888-804-1486)

from 9 am to 5 pm EST.

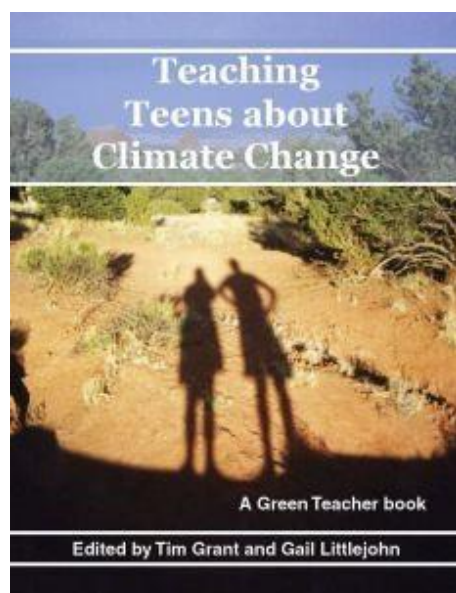


Table of Contents

Fear of Facing the Future

by Richard Kool

Encourage students to step back from our collective fears about the future, and discuss with them the attitudes and skills that we all need to thrive.

Unleashing Blessed Unrest as the Heating Happens

by David Selby and Fumiyo Kagawa

How learning can help us to avoid the worst scenarios, and four activities to fully engage young people's emotions and intellect in this pursuit.

Climate Change Summits for Teens

by Janice McDonnell, Laura Bovitz, Carrie Ferraro, Rachel Lyons, and David Robinson

Increase global awareness by hosting a climate and environmental change summit

Teaching Carbon Regulation in the High School Classroom

by Bruce Taterka

Students play the roles of utility companies and learn the differences between carbon taxes, cap and trade, and government regulation.

The Environmental Impact of the Tar Sands

by Patrick Clarke

A research project that helps middle and high school students determine the severity of the impacts of oil and gas development and what should be done about them.

Children's Rights and Climate Change

by Paula Gallo and Barbara Strang

Helping young people everywhere realize their right to a healthy planet.

First Person Singular: Documenting Climate Change Through First-Person Narratives

by Lauren G. McClanahan

Teens in a remote Alaskan village share their observations in order to motivate those elsewhere to take climate change seriously.

Going off-Ramp: A Car Trip Reduction Plan for Schools

by Arthur Orsini

Cycling for a Better World

by Gilles Bélisle

A fundraising ride enables students to take action on climate change both locally and globally.

What Cool Schools Can Do

by Tom Yohemas

No-cost activities that students and staff can undertake to reduce their school's carbon footprint, and technical initiatives that need to be implemented by maintenance personnel.

From Gridlock to Global Warming

by Rebecca Watts Hull

A high school unit investigating the link between local transportation issues and global climate change.

Investigating Public Transit

by Tim Grant, Gail Littlejohn and Arthur Orsini

Activities that enable teens to explore public transit issues and how increased use of public transit could benefit their communities.

SINCE I AM UNABLE TO CONVERT PDF FILES TO FIT IN THIS NEWSLETTER, THE FOLLOWING PAGES ARE THE FLIERS FOR IMPORTANT UPCOMING EVENTS. PLEASE CONTINUE ON SO YOU WILL NOT MISS THESE GREAT EVENTS!





How to Use Phenomena to Drive Instruction: An NGSS Transition Workshop

October 19th & 20th, 2017

The NRC Science Framework and NGSS calls for fundamental shifts in the way we teach and engage students from *learning* about science to *figuring out* science and sense-making. During our session, we will engage as learner and educators to explore phenomena to figure out science and build sense-making experiences for the students in our classroom.

Open to classroom teachers, grades K-12. Participants are encouraged to come with grade-level peers.

Registration Deadline: October 5, 2017

Registration fee: **\$25**

To register, please call our Reservations Department at 203-852-0700, ext. 2206 or visit our website at <http://maritimeaquarium.org/fun-learning/teachers-groups/professional-development>.

This workshop will take place at The Maritime Aquarium at Norwalk. Limited to 20 participants. Lunch and a light breakfast are included.

10 North Water Street • Norwalk, CT 06854 • (203) 852-0700 • Fax (203) 838-5416 • www.maritimeaquarium.org



Connecticut Science Educators Conference - Saturday, November 18

[Register](#)

[Exhibitor Information](#)

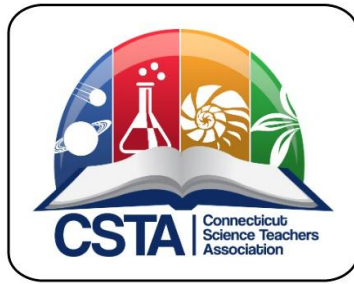


Paul Andersen - Keynote Speaker

More information: BozemanScience.com

[NGSS videos](#)

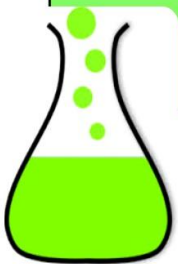
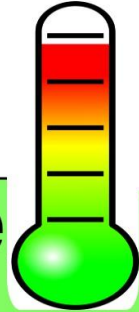
[YouTube Channel](#)



Free!

Elementary & Middle School NGSS

Extravaganza!



Saturday, October 21, 2017

Registration: 9:00 am

Doors open 9:30 to 11:30 am

Sacred Heart University

University Commons

5151 Park Ave, Fairfield, CT 06825

Prizes!

Fun!

Discover engaging and fun, content-specific science activities that you can use in your classroom.

Why attend?

***Obtain lesson ideas from master teachers to engage students in science & STEM**

***Win Prizes**

***Optional Activity: NGSS and STEM lessons, questions and concerns for exchange of ideas with colleagues.**



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 administrators.