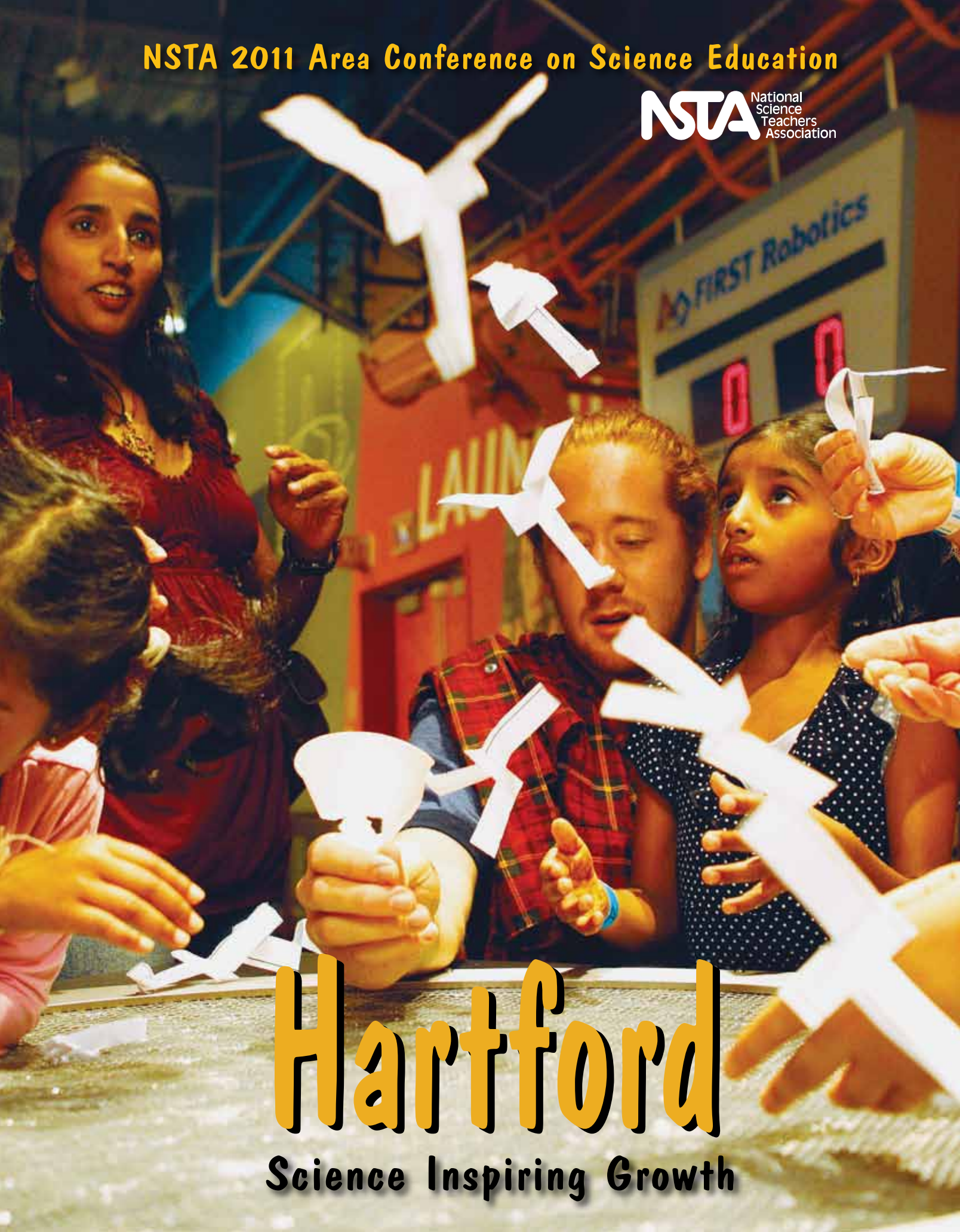
NSTA 2011 Area Conference on Science Education

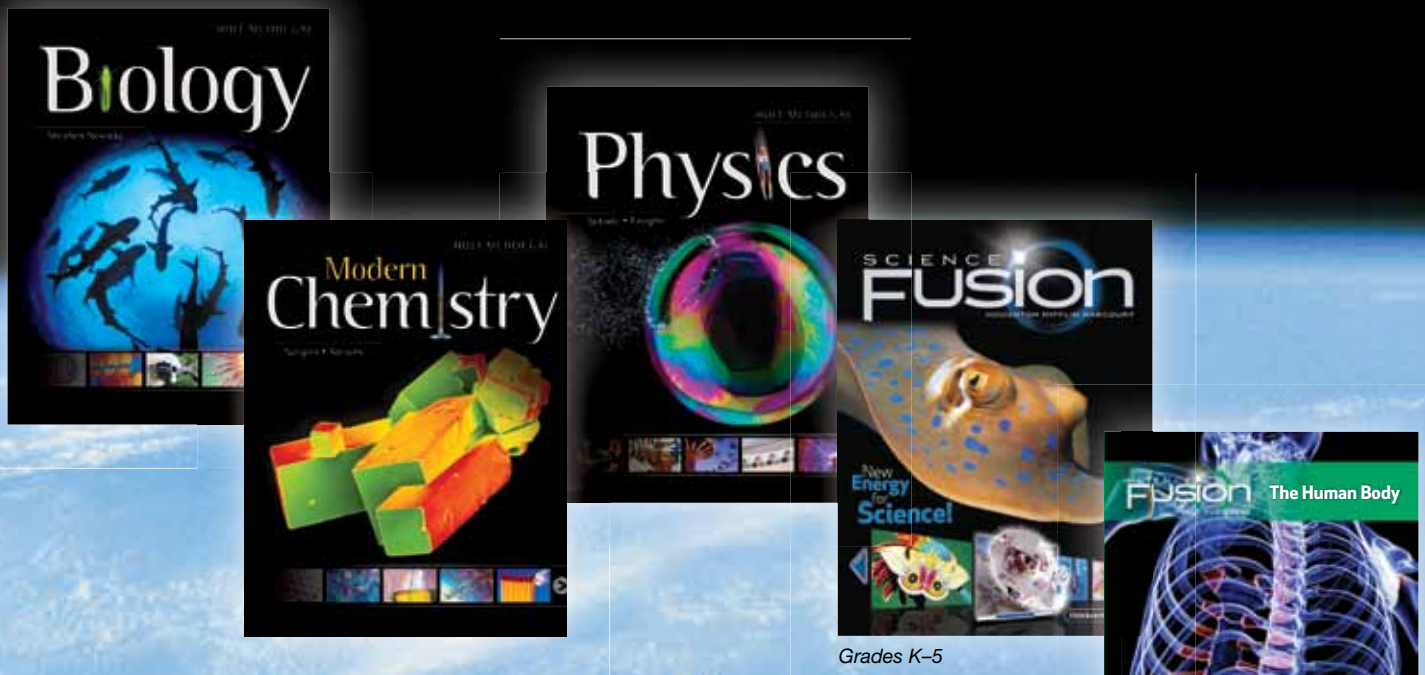
National Science Teachers Association



Hartford

Science Inspiring Growth

OUR NEW K–12 PROGRAMS ARE *OUT OF THIS WORLD!*



Grades K–5

Grades 6–8

Houghton Mifflin Harcourt believes in a multimodal approach to instruction—repeatedly exposing students to core science concepts and skills in a variety of formats to promote deeper understanding.

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FRIDAY, OCTOBER 28TH | ROOM 21	
8:00 – 9:30 AM	K-8 Science with Vernier
10:00 – 11:30 AM	Exploring Science with Vernier
12:00 – 1:30 PM	Exploring Science with Vernier
2:00 – 3:30 PM	Exploring Science with Vernier

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NSTA

Atlantic City
May 17–19, 2012

STEM

Forum & Expo

Tools for STEM Education
for Elementary and Middle School Educators

The first NSTA STEM Forum & Expo will bring together nationally renowned STEM experts and practitioners and hands-on educators interested in learning about successful approaches and implementation of Science, Technology, Engineering, and Mathematics education into our schools and districts. STEM best practices, content, and integration processes are critical aspects for creating well-trained elementary and middle school educators who will need to radically increase student literacy in these STEM subjects. Join this very important discussion on STEM.

Who Should Attend?

- K–8 educators who want to expand their understanding of STEM and learn how to integrate it into their own classrooms and schools.
- High school and college educators knowledgeable about what secondary and college-level students need to be successful in STEM course work.
- Stakeholders and administrators who must educate their teaching staff on the most current and successful STEM practices.

Register by **MARCH 23** and save.

For more information, visit
www.nsta.org/stemforum

NSTA

NSTA 2011 Area Conference on Science Education

Hartford, Connecticut • October 27–29, 2011

Registration, Travel, and Hotels

Conference Resources

National Science Teachers Association
1840 Wilson Blvd.
Arlington, VA 22201-3000
703-243-7100
E-mail: *conferences@nsta.org*
www.nsta.org

Cover Photo

The helicopter was invented right here in Connecticut. At the Connecticut Science Center, you can try your hand at designing your very own heliflyer, and then test it out with a flight. Photo courtesy of Connecticut Science Center.

Conference Resources, cont.

Conference Program

Indexes

NSTA Affiliates

Association for Multicultural Science Education (AMSE)
Association for Science Teacher Education (ASTE)
Association of Science-Technology Centers (ASTC)
Council for Elementary Science International (CESI)
Council of State Science Supervisors (CSSS)
National Association for Research in Science Teaching (NARST)
National Middle Level Science Teachers Association (NMLSTA)
National Science Education Leadership Association (NSELA)
Society for College Science Teachers (SCST)

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Welcome to Hartford

Patricia O. Ruane

Rachael Manzer

Sandra M. Justin

The Hartford conference committee is delighted to welcome you to Connecticut for what promises to be a fabulous NSTA conference. Our keynote speaker, James Garvin, chief scientist at NASA Goddard Space Flight Center, and other renowned featured speakers will address selected topics related to the conference strands:

- *From the Roots to the Fruits of STEM*
- *Sustainability: Green Is Growing!*
- *Integrating Literacy: Cross-pollinating the Curriculum*

The committee has planned a program filled with dynamic speakers, engaging presenters, and inspiring field trips. Whether a first-timer or veteran conference attendee, you will experience professional growth that will both rejuvenate and transform your science teaching. The opportunity to bring together a wealth of research, teaching strategies, and networking opportunities for our attendees has been driven by the need to attract a new generation of students to careers in science.

Our convention center overlooks the river and is adjacent to the new Connecticut Science Center. Downtown Hartford boasts the oldest museum in the United States, as well as great restaurants and shops…all within walking distance of the conference.

So, welcome to Hartford as we explore "Science Inspiring Growth."

2011 Hartford Area Conference Committee Leaders
Patricia O. Ruane, Rachael Manzer, and Sandra M. Justin

We at NSTA wish to express our heartfelt thanks to the members of the Connecticut Science Teachers Association for the many hours of time they volunteered in planning this conference, and to the members of the Massachusetts Association of Science Teachers for their collaborative efforts.

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Hartford Conference Committee

Program Committee

Strand Leader: Integrating Literacy: Cross-pollinating the Curriculum
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New Canaan Public Schools
New Canaan, CT

Strand Leader: Sustainability: Green Is Growing!
Laurel Kohl
Institute for Sustainable Energy
Eastern Connecticut State University
Willimantic, CT

Strand Leader: From the Roots to the Fruits of STEM
Terry Contant
LEARN
Old Lyme, CT

District I Representative
Marilyn Richardson
Fitchburg State College
Fitchburg, MA

Program Representative
Shawna L. Young
Massachusetts Institute of Technology
Cambridge, MA

Local Arrangements Committee

Exhibits Liaison
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Hartford, CT

Field Trips Manager
Marilyn Odell
Hamden, CT

Guides Manager
Sandra Inga
Hartford Public Schools
Hartford, CT

Manager of Services for People with Disabilities
Harry Rosvally, Jr.
Danbury School System
Danbury, CT

Publicity Manager
Josiah Hills
Danbury High School
Danbury, CT

Volunteers Manager
Eloise Farmer
New Hartford, CT

"Generation Swift"...

now goes from the classroom into the field!

Swift's next generation of microscopes, the M3 Series lends itself to a wide variety of field activities from gross dissection to cell identification. Re-chargable illumination allows up to 40 hours of use on a single 8 hour charge. Sturdy detachable tripod legs fold for easy storage. Multiple stage positions allow for micro and macro viewing. Includes stage plate for viewing micro specimens and black/white contrast plate and clear collection container for viewing macro specimens. Ergonomic carry handle, promotes proper handling. Top and bottom LED illumination provides energy-efficient, white light with virtually no heat and lasts up to 50,000 hours. Quality manufacturing and all-metal internal parts ensure durability.

M3-B*

M3-B is a micro/macro scope that can be used in the classroom and out in the field. It can be used to see microscopic samples and switched to examine larger objects.

M3-F: View left, left/right comparison, or right.

M3-F

M3-F is a comparison scope, used to compare specimens, and popular with forensics science (but not limited to this use).

*The M3 -B also is available in a monocular version.

Check out our Digital STEM workshops and visit us at booth #309

For more information, please call 1.877.967.9438

www.swiftoptical.com

Visit our website by using your Smartphone QR reader.

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President's Welcome

Spirit, Opportunity, and Innovation: Science Education for a Smarter Planet

Welcome to the NSTA 2011 Hartford Area Conference on Science Education! This year, it has never been more critical to engage you in the dynamic professional conversation about outstanding science teaching. We are glad you could join us at this conference, one of the primary venues for communicating with all educators about the latest innovations in science teaching, to deepen and strengthen our professional understanding of science pedagogy.

The conference team has built an outstanding program around the theme of *Science Inspiring Growth,* with the strands "From the Roots to the Fruits of STEM," "Sustainability: Green Is Growing!," and "Integrating Literacy: Cross-pollinating the Curriculum." The theme and strands allow us to address questions such as:

- What are the best science teaching practices and STEM education practices, and how do we implement them?
- How can we reach ALL of our students with the spirit and passion for learning science and integrating literacy?
- How do we engage all science education stakeholders to make outstanding science teaching happen…that is, science education for a smarter planet?
- What role will *A Framework for K–12 Science Education* and the Next Generation Science Standards play in science teaching and learning?

As we pursue answers to these questions, I encourage you to take full advantage of this opportunity to network with new and current colleagues and your elected Board and Council members, see our featured speakers, explore the exhibit hall and exhibitor workshops, sign up for special ticketed events, and attend outstanding teacher workshops and presentations.

Again, I welcome you to the Hartford conference and look forward to meeting you. We must reach all of our students and ignite and inspire their spirit and creative energy in disciplines about which we are all passionate—science and science education!

Patricia Simmons
2011–2012 NSTA President

Contributors to the Hartford Conference

NSTA and the Hartford Planning Committee are extremely grateful to the following companies and associations for their generous contributions to the NSTA Hartford Area Conference on Science Education.

American Association of Physics Teachers and the New England Section of AAPT

American Chemical Society

American Society for Engineering Education (ASEE)

Carolina Biological Supply Co.

Connecticut Center for Advanced Technology, Inc. (CCAT)

Connecticut Science Center

Connecticut Science Teachers Association

Kendall Hunt Publishing Co.

National Association of Biology Teachers (NABT)

Southwest Airlines Co.

The environment is important to science educators. These programs are recyclable and were printed on recycled paper.

NSTA Conferences Go Green!

The National Science Teachers Association is committed to meeting today's environmental challenges by adopting eco-friendly practices both in our own day-to-day operations and at our conferences, workshops, and other events. In addition, we strongly encourage our contracted conference facilities to follow green practices as well. Here are some of the ways NSTA's conference department has worked to minimize our impact on the environment:

Conference Previews

Gone are the days of bulky, newspaper-style advance programs. Brief conference previews allow us to be more focused in our conference content, since each preview is specific to a particular conference. As an added bonus, they are more environmentally friendly, as they dramatically reduce both our print and mailing requirements.

Online Conference Information and Personal Scheduler

Most of your conference arrangements can now be accomplished online *(www.nsta.org/conferences)*. Register and make your housing reservations on the web. Program details are available to you on our website using the Session Browser/Personal Scheduler. Scheduling information on our website is up to date and more complete than that available through a printed piece.

Final Conference Programs by E-Mail

Conference registrants are now given the option of receiving an electronic version (PDF) of the final conference program by e-mail approximately two weeks prior to the conference, further reducing print and shipping requirements.

Recycled Paper and Sustainable Print Services

Conference previews and final conference programs are now printed on recycled paper. In addition, Walsworth Print Group, the printer for our conference materials, is in strict compliance with all environmental laws and exceeds these standards in many areas. Wherever possible, Walsworth Print Group works to reduce and recycle waste, use reduced or low-VOC chemicals, increase the recycled content of raw materials, and use soy- and/or vegetable-based inks. Walsworth Print Group has also obtained chain-of-custody certification for paper products to ensure they are being harvested from environmentally responsible sources.

Environmentally Friendly Exhibition Practices

Our conference partner, Hargrove, Inc., offers many green product options and services in the production of our conference exhibitions, including 100% recyclable carpet and padding, recycled exhibit structures, a "reclaimer" that recycles 92% of all solvents the company uses in production of graphics, use of LP natural gas in 75–90% of show-site vehicles, and many biodegradable and recycled products such as trash bags and wastebaskets. Their green efforts are extended operationally with reductions in electricity, heating fuel, and water usage, as well as a move to 100% recyclable and biodegradable products.

Green Initiatives at the Connecticut Convention Center

The Connecticut Convention Center is the centerpiece of an award-winning brownfield development project that transformed a vacant 30-acre industrial site into an exciting riverfront district known as Adriaen's Landing. From the design and maintenance of the building to a new online ordering system, the Convention Center demonstrates its commitment to the world's environment and to its own Hartford neighborhood by:

- **Recycling** all cardboard, office paper, glass, aluminum, plastic, trash, and cooking oils.
- Using extensive **Energy Conservation Programs** for escalators, lighting, and HVAC, supported by natural lighting in public areas and motion detection systems in restrooms, meeting rooms, and ballrooms. The Convention Center also has installed metal halide and low fluorescent exhibition hall lighting.
- Offering free shuttle bus service on New England's **first hydrogen fuel cell bus.**
- **Upgrading Restrooms** with nontouch paper towel dispensing systems and coreless toilet tissue.
- Switching to **Online Exhibitor Services** to reduce paper transactions.

"Go Green" at the Hartford Conference!

- Recycle your conference programs in the clearly marked recycle bins located throughout the Convention Center.
- Recycle or reuse your plastic badge holders—you can either turn them in at the NSTA Registration Counter or use them at future conferences.
- In advance of the conference, presenters are encouraged to post their presentations and handouts on the Session Browser/Personal Scheduler.
- If you prefer to bring handouts to your session, use double-sided printing and/or recycled paper.
- Walk or use public transportation when possible at the conference.
- Bring your own refillable water bottle to the conference.
- Evaluate sessions attended via your smartphone or online.

How can I motivate my students to love science?

Teachers submitting the most team projects win a Toshiba Tablet!

The Science of A-ha!

Today's Young Minds Drive Tomorrow's Innovation

celebrating 20 years of ideas

TOSHIBA | NSTA ExploraVision

- ExploraVision, the world's largest K-12 science competition, offers teams of students an opportunity to create and explore their visions of future technologies.
- Up to $240,000 in savings bonds is awarded each year, plus expense-paid trips to Washington, DC for national winning students and their parents. Schools, coaches, and mentors win too!
- Your students can reach that incredible "A-ha!" moment – when all their real-world learning comes together in problem-solving, critical thinking, collaboration, and recognition.

TOSHIBA NSTA

Leading Innovation >>>

Through Toshiba's shared mission partnership with NSTA, the Toshiba/NSTA ExploraVision competition makes a vital contribution to the educational community.

Visit www.exploravision.org/regionalconference for details.

1-800-EXPLOR-9
exploravision@nsta.org

www.Facebook.com/ToshibaInnovation

@ToshibaInnovate

Registration, Travel, and Hotels

—Photo courtesy of Greater Hartford Convention &Visitors Bureau

Meeting Location and Times

The conference co-headquarters hotels are the Hartford Marriott Downtown and Hilton Hartford. Conference registration, the exhibits, the NSTA Avenue, the NSTA Science Bookstore, exhibitor workshops, and some sessions will be located at the Connecticut Convention Center. Other sessions and events will be held at the Hilton, Marriott, and the Connecticut Science Center. The conference will begin on Thursday, October 27, at 8:00 AM, and end on Saturday, October 29, at 12 Noon.

Registration

Registration is required for participation in all conference activities and the exhibits. The lapel badge mailed to you with your confirmation, or issued to you at registration on-site, is your "ticket of admission" to the Exhibit Hall and all conference activities except those for which a separate fee is stated (e.g., short courses, field trips, and networking events).

The NSTA Registration Area, located in Hall A/B of the Convention Center, will be open during the following hours:

Wed., Oct. 26	5:00–7:00 PM
Thu., Oct. 27	7:00 AM–5:00 PM
Fri., Oct. 28	7:00 AM–5:00 PM
Sat., Oct. 29	7:30 AM–12 Noon

If you misplace your badge or tickets, present your personal ID at the Badge Reprint Counter in the Registration Area and you will be issued replacements. Only one replacement badge will be issued.

Purchasing Ticketed Events

The Hartford Planning Committee has scheduled a variety of ticketed events. Each of these events requires a separate fee and ticket. You may purchase tickets for these events, space permitting, in the NSTA Registration Area. See the Conference Program section (starting on page 34) for details. Note that some events may have required advance registration.

Airlines

The toll-free numbers to contact NSTA-designated airlines are as follows:

AirTran	866-683-8368	NSTA11*
American	800-433-1790	47H1BA
Continental	800-468-7022	ZJZE-606816**
Delta	800-328-1111	NM87Y
United	800-521-4041	510CK
Amtrak Rail	800-872-7245	X40F-919

** For phone reservations only*
*** $25 fee per ticket for phone reservations*

Ground Transportation to/from Airport

Bradley International Airport (BDL) is located 12 miles from Hartford. Some hotels have shuttles that service the airport and/or Downtown Hartford. CTTransit operates an airport shuttle between Bradley, the Convention Center (suggested stop for Marriott guests), and Union Station (suggested stop for Hilton guests) seven days a week. The current fare is $1.25 each way. Visit *www.cttransit.com/routesschedules/bradleyflyer.asp* for schedules and more information. If this schedule does not meet your needs, visit *www.bradleyairport.com/transport/limo.aspx* for information on airport limousine service. Taxi service is also available for approximately $42 each way.

Getting Around Town

Enjoy a FREE ride aboard the Hartford Star Shuttle. This bus loops Downtown Hartford encouraging you to discover Hartford's many hotels, restaurants, and entertainment venues.

Meeting Express Shuttle

The Star Shuttle will be supplemented with a limited Meeting Express shuttle with service between only the Hilton and the Convention Center (operated by DATTCO). See facing page for a map with the route, stops, and operating hours.

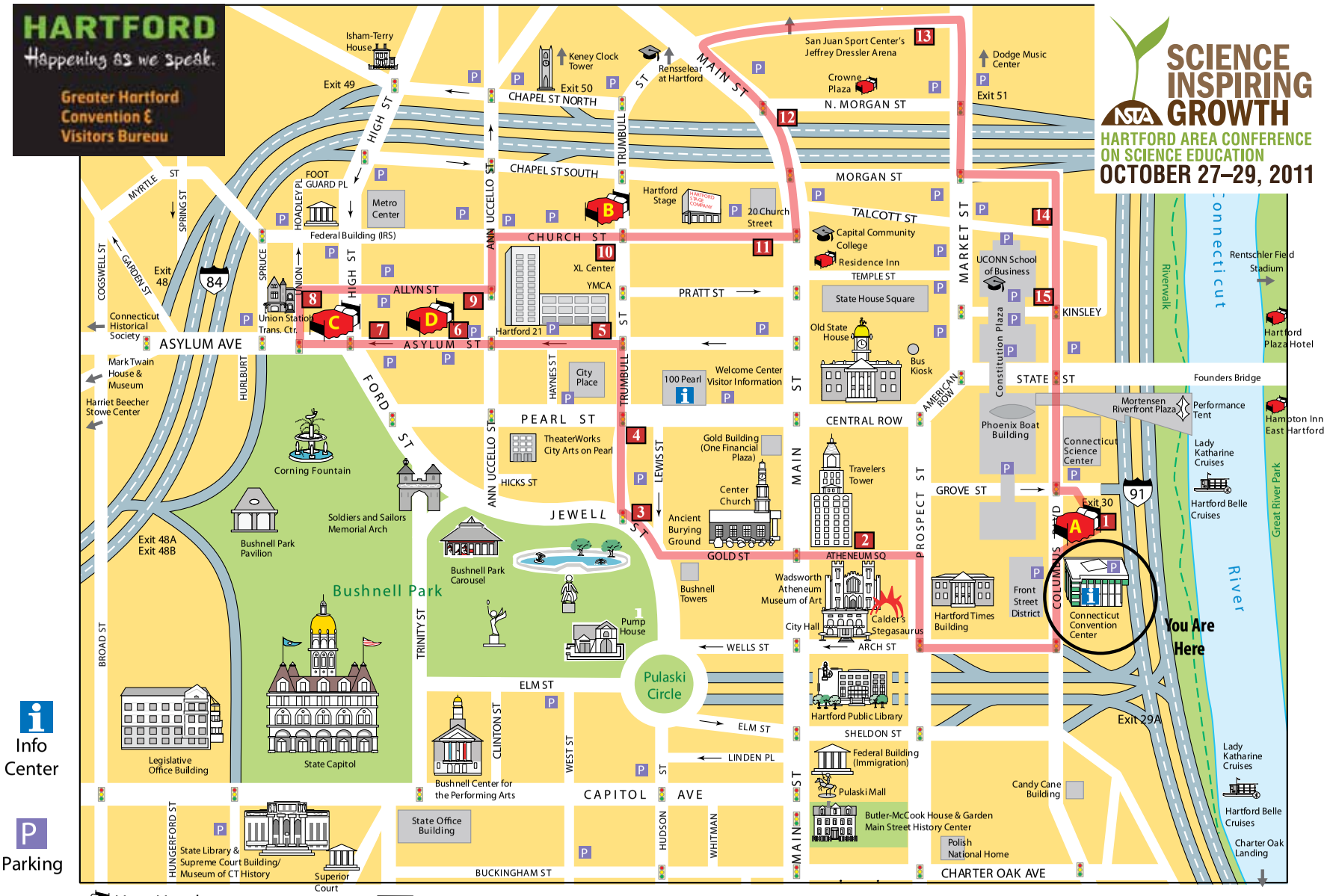
Parking

See facing page for a map that includes parking locations throughout Hartford. Typically the rates are $5–$19 depending on where you park and for how long. The maximum fee is $19 for 24 hours at the Marriott/Convention Center.

Discounted Rental Cars

The toll-free numbers to contact NSTA-designated car rental companies are as follows:

Enterprise	800-593-0505	32H7476
Hertz	800-433-1790	CV#031C0016



Host Hotels

A- Hartford Marriott Downtown
B- Hilton Hartford Hotel
C - Homewood Suites Downtown
D - Holiday Inn Express Downtown

Star Shuttle Stops

Multiple buses, loops #1-#15
---Wed 10/26, 7:00 a.m. - 11:00 p.m.
---Thur 10/27, 6:30 a.m. - 12mid
---Fri 10/28, 6:30 a.m. - 12mid
---Sat 10/29, 7:00 a.m. - 12mid

The Star Shuttle will be supplemented with a **limited Meeting Express shuttle** with service between **only** the Hilton and CTCC. (operated by DATTCO)
---Wed 10/26, 4:30 p.m. - 7:30 p.m.
---Thur 10/27, 6:30 a.m. - 6:30 p.m.
---Fri 10/28, 6:30 a.m. - 6:30 p.m.
---Sat 10/29, 7:00 a.m. - 1:00 p.m.

Don't forget to visit the NSTA Science Bookstore. We offer a wide range of books as well as "I Love Science" products.

NSTA Exhibits

NSTA exhibits are an essential feature of every NSTA conference. Here you will find the latest textbooks, computer hardware and software, laboratory equipment, industry-supported educational materials, summer opportunities, and many other exhibits that are designed to enhance your knowledge and teaching skills.

The lapel badge mailed to you with your confirmation, or issued to you at registration on-site, is your "ticket of admission" to the Exhibit Hall and all conference activities. A complete list of exhibitors and contact information starts on page 122. A foldout map of the Exhibit Hall floor plan is available at Program Pickup.

Exhibit Hall Hours. Located in Hall A/B of the Convention Center, exhibits will be open for viewing during the following hours:

Thu., Oct. 27	11:00 AM–5:00 PM
Fri., Oct. 28	9:00 AM–5:00 PM
Sat., Oct. 29	9:00 AM–12 Noon

Ribbon Cutting. An opening ceremony is scheduled on Thursday at 11:00 AM at the entrance to the NSTA exhibits.

Leads Retrieval. NSTA exhibitors use leads retrieval, a paperless tracking system that allows them to receive fast, accurate information about conference attendees who have visited their booths. With the leads retrieval system, an exhibitor scans your badge as you visit the booth. This allows exhibitors to send information to you while the conference is still fresh in your mind.

Exhibitor Workshops. Exhibitor-sponsored workshops for science teachers are offered throughout the conference. These workshops give you an opportunity to use a variety of commercial instructional materials. Attendance is on a first-come, first-served basis. See page 141 for a complete listing of exhibitor workshops.

NSTA Avenue

Stop by NSTA Avenue and learn about NSTA's benefits, products, services, programs, and partners…and free gifts, too! Share with others, expand your knowledge, and earn rewards for you and your students. See page 135 for a complete list of NSTA services and programs.

NSTA Science Bookstore

Award-winning professional development titles; the newest books for 2011; and "I Love Science" T-shirts, mugs, and gifts galore stock the shelves in NSTA's bookstore. Located directly opposite registration, you're invited to examine just-released *Science the "Write" Way, Learning and Teaching Scientific Inquiry,* and *Models-Based Science Teaching,* new books with a fresh perspective. For science educators looking for content knowledge, scientific methods, or a handbook on STEM, we carry the titles you've asked for. And topping it off, you can talk to many authors about their work and get a signature on your personal copy.

Don't forget—all conference attendees enjoy a 20% discount on NSTA Press® titles along with free shipping for online orders placed during the conference.

Information Desk

The Greater Hartford Convention & Visitors Bureau has an Information Desk located in the motor lobby of the Convention Center. Here you'll find information on tourist attractions, restaurants, and transportation. The desk will be staffed during conference registration hours.

Housing Questions or Concerns?

If you have any questions or concerns about your housing, please contact The Housing Connection toll free at 888-665-1368.

CSTA and MAST Booths

The Connecticut Science Teachers Association (CSTA) and Massachusetts Association of Science Teachers (MAST) booths are located in the lobby of Exhibit Hall B of the Convention Center. Stop by for information on the benefits of becoming a member of these organizations. Membership forms and information on association activities will be available. Stop by the booths to update your information, renew your membership, or become a member and enter in our drawings for prizes.

Presenters and Presiders Check-In

If you are presenting or presiding at a session, please check in and pick up your ribbon at the Presenters/Presiders booth in the Registration Area after you have registered for the conference and received your name badge.

Conference Evaluation

All conference attendees are invited to complete a conference evaluation form online at *http://ecommerce.nsta.org/2011har/conference_evaluation.asp.*

Lost and Found

All lost-and-found items will be turned in at the Exhibitor Registration counter at the Convention Center.

NSTA Mobile Website

We invite you to visit the NSTA Mobile Website, *m.nsta.org,* the best way to keep track of what's happening at the conference from your phone. It features a slimmed-down version of our popular session browser tool, allowing you to view sessions by Date/Time, Session Format, Subject, and Keyword, and to evaluate those you have attended. The site also includes a map of Hartford with bookmarks for the conference hotels and Convention Center, a link to the #nsta Twitter feed, NSTA news, and other important info. Please note that the site has been optimized for use with iPhone and Android devices.

If you have a barcode reader installed on your phone, point your phone's camera at the image in the ad below to go directly to the NSTA mobile site.

We welcome your feedback about the conference mobile website. (Note: This is not an app; it is a website optimized for viewing on phones.)

Audiovisual Needs

NSTA will fulfill AV needs originally requested on the program proposals as long as the request is within the limits of equipment that NSTA provides. For any last-minute AV needs, presenters must arrange and pay for their own equipment. Technology Express, the designated AV company onsite, will be located in the following rooms:

- Show Manager Suite A, Conv. Center
- Conference Room 6, Marriott
- Colt Room, Hilton
- Theater Production Office, Connecticut Science Center

Message Center

A Message Center for conference attendees is available in the NSTA Registration Area. No messages, except extreme emergencies, can be broadcast over the public address system.

First Aid Services

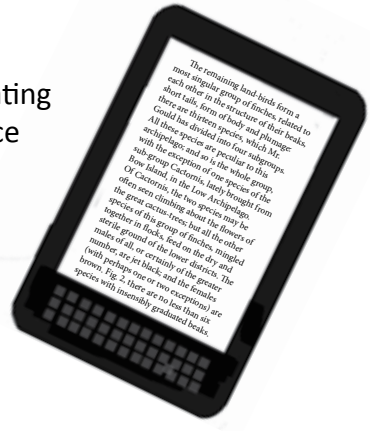
The First Aid room is located on the Exhibit Level of the Convention Center nearest the Riverside escalators in the Exhibit Prefunction space. Attendees in need of first aid may simply walk into the Business Center, which will be staffed by a Registered Nurse during the conference, or they may speak to Security staff or to any Convention Center staff.

Help us with your feedback...and get a chance for a free Kindle Fire

We're giving you one more reason to evaluate conference sessions.

When you log on to *www.nsta.org/conferences/evaluations* and fill out an evaluation, you get entered into a drawing for a chance to win a Kindle Fire, *courtesy of the NSTA Conferences Department*.

Your feedback helps us in creating the best conference experience for you and other attendees.



- **KINDLE FIRE GIVEAWAY**

- **MOBILE WEBSITE**

- You can also evaluate sessions via your smartphone at *m.nsta.org.*

NSTA National Science Teachers Association

Business Services

Located on the lobby level in the concourse that connects the Convention Center with the Marriott, the PSAV Business Center offers automated services 24 hours a day, including photocopying, scanning, faxing, use of computer work stations, and same-day shipping. Staffed 8:00 AM to 5:00 PM, Monday through Friday, the Business Center will also receive and hold items shipped directly to it for guests of the Marriott or for those attending Convention Center functions. For more information, please call 860-760-2325.

The Hilton has a business center located on the third floor, which is accessed with your room key. It is automated (self-service) and open 24 hours a day, seven days a week.

The following venue has extended a special offer for Hartford conference attendees.

Connecticut Science Center *www.ctsciencecenter.org*

The Connecticut Science Center (CSC) is dedicated to inspiring lifelong learning through interactive and innovative experiences that explore our changing world through science. Come experience CSC on a field trip of your design at a time that fits your schedule. Registrants of the NSTA Hartford Area Conference may purchase a one-time admission ticket for the nominal fee of $5, which allows you to visit CSC any time from 10:00 AM to 5:00 PM, Thursday through Saturday (October 27–29). In addition, 3-D theater tickets can be purchased ($6 each) to view movies during scheduled times throughout the day. Come see what all the excitement is about! Conference badge and photo I.D. required.

NEW! Online Session Evaluations and Tracking Professional Development

All attendees can now evaluate sessions via their smartphones or online while simultaneously tracking their professional development certification (based on clock hours).

Help NSTA's **GREEN** efforts by completing session evaluations online October 27 to November 9, 2011, via your smartphone *(m.nsta.org)* while the session is fresh in your mind! Or attendees can visit *www.nsta.org/evaluations* at a later time to complete a short online session evaluation for each session they attend. **And this year, we're giving away a Kindle Fire to one attendee who completes a session evaluation! Remember, the more sessions you attend and evaluate, the more chances you have to win!**

Concurrent session presenters may also complete evaluation forms for their own sessions in order to track professional development credit.

To evaluate a session via *www.nsta.org/evaluations:*

- Enter your badge number (if you don't remember your badge number, click "help me find my badge number").
- Type the beginning of the session title in the "Lookup Session" field, scroll down to find the correct session, and click the "Submit Session" button. The session information will appear and you can begin to evaluate the session.
- When finished evaluating the session, click the "Submit Evaluation" button.
- Repeat this process for each session attended.

To evaluate a session via your smartphone, visit *m.nsta.org* and:

- Locate the appropriate session by schedule, format, subject, or keyword search from the home page and then click on the "Evaluate This Session" button.
- Enter your badge number at the top of the form and then answer the nine questions.

A Professional Development Documentation Form is included following page 32 to help attendees keep track of sessions/events attended that are NOT available for online session evaluation. This form can also be used to take notes on sessions attended that are available for online session evaluation.

Beginning November 15, 2011, an attendee can view his or her transcript at the NSTA Learning Center *(learningcenter.nsta.org)* by clicking on "My PD Record and Certificates." Attendees can also document credit for activities that are not being evaluated (e.g., short courses, Exhibit Hall visits, featured speakers, meetings, etc.). Each attendee is responsible for tracking his or her own attendance at such events. The transcript can be printed here and presented to an administrator who requires documentation of participation in the conference. All information in these transcripts will be maintained (and can be accessed) indefinitely as part of an attendee's individual profile.

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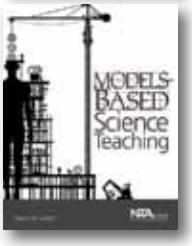
Learning and Teaching Scientific Inquiry

Grades K–8
Members: $23.96
Non-members: $29.95

Science the "Write" Way

Grades K–8
Members: $20.76
Non-members: $25.95

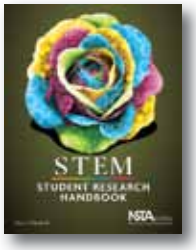


Models-Based Science Teaching

Grades K–12
Members: $23.16
Non-members: $28.95

Take-Home Chemistry

Grades 9–12
Members: $22.36
Non-members: $27.95



STEM Student Research Handbook

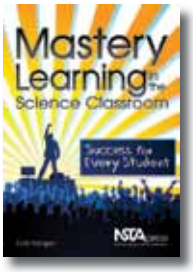
Grades 9–12
Members: $19.16
Non-members: $23.95

Uncovering Student Ideas in Life Science, Volume 1

Grades K–12
Members: $23.96
Non-members: $29.95

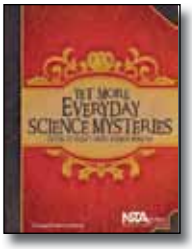
Schoolyard Science

Grades K–12
Members: $22.36
Non-members: $27.95



Mastery Learning in the Science Classroom

Grades K–12
Members: $11.96
Non-members: $14.95

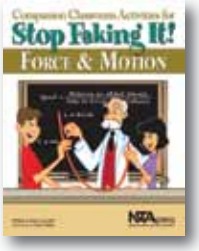


Yet More Everyday Science Mysteries

Grades K–8
Members: $20.76
Non-members: $25.95

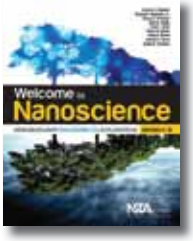
More Brain-Powered Science

Grades 5–12
Members: $26.36
Non-members: $32.95



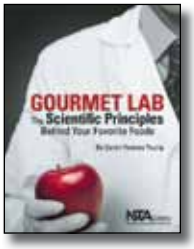
Companion Classroom Activities for Stop Faking It! Force and Motion

Grades 5–9
Members: $20.76
Non-members: $25.95



Welcome to Nanoscience

Grades 9–12
Members: $20.76
Non-members: $25.95



Gourmet Lab

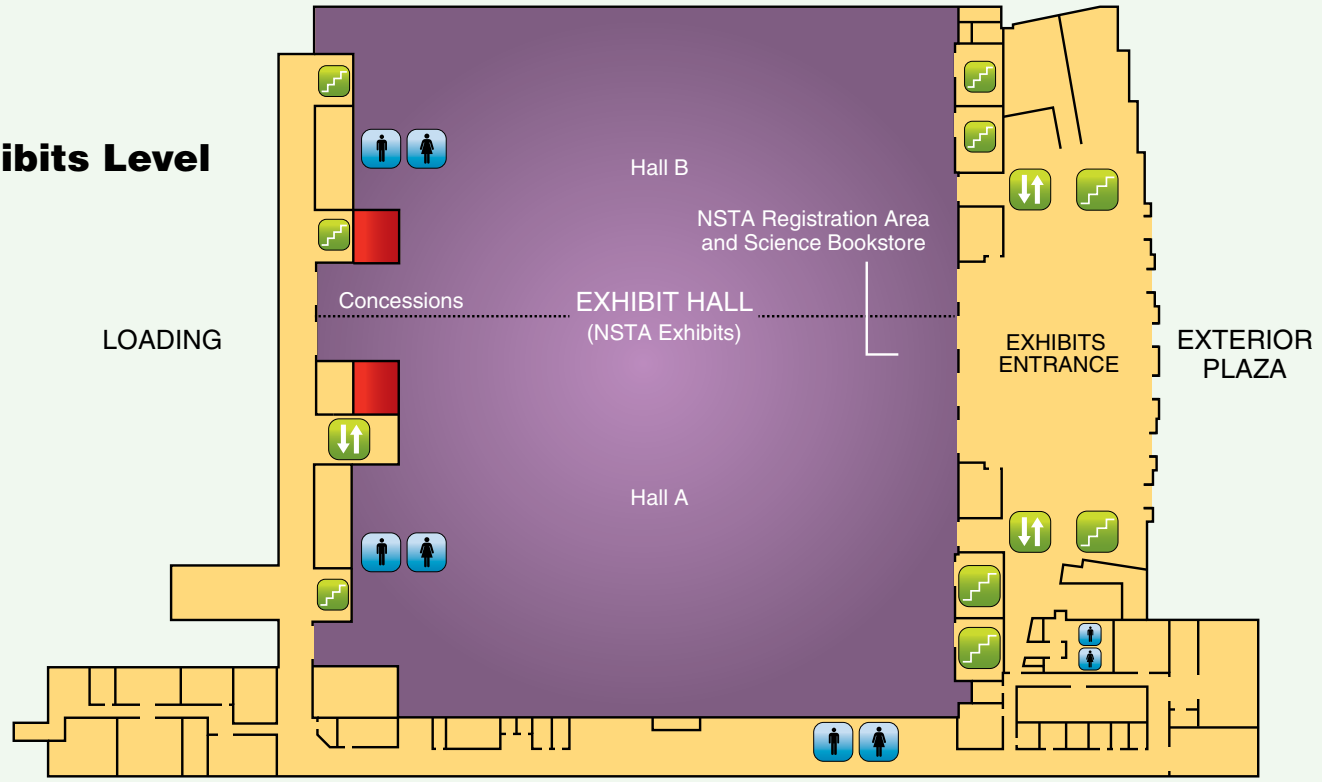
Grades 6–12
Members: $27.96
Non-members: $34.95

Visit the NSTA Science Bookstore or buy online at *www.nsta.org/store*.

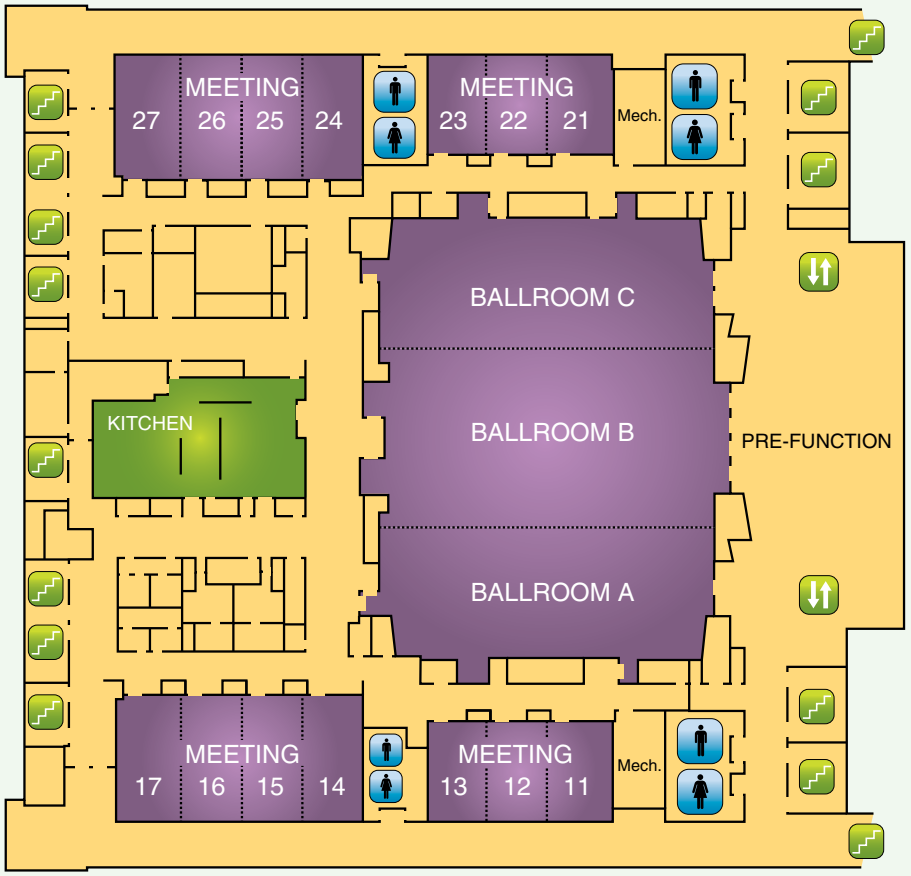
NSTA press
National Science Teachers Association

Connecticut Convention Center

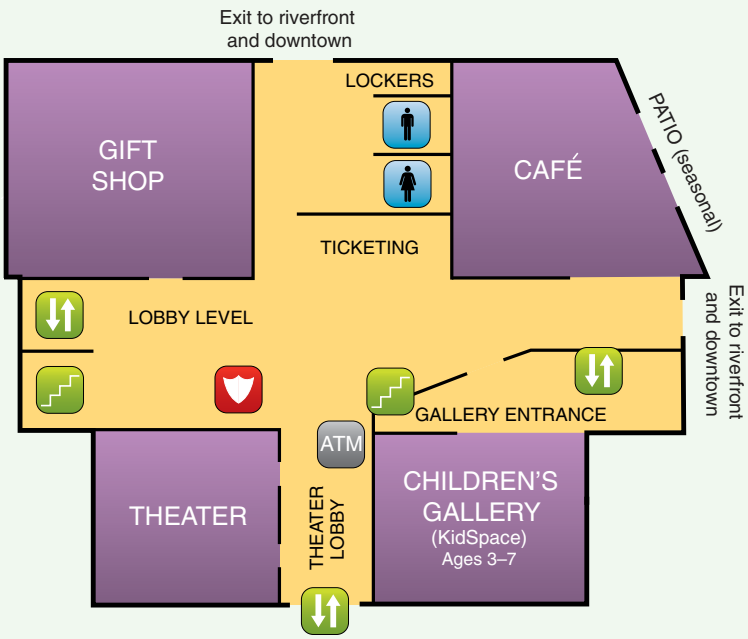
Exhibits Level



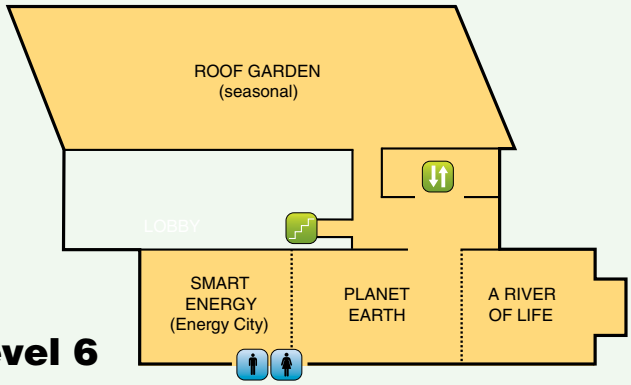
Ballroom Level (Level 6)



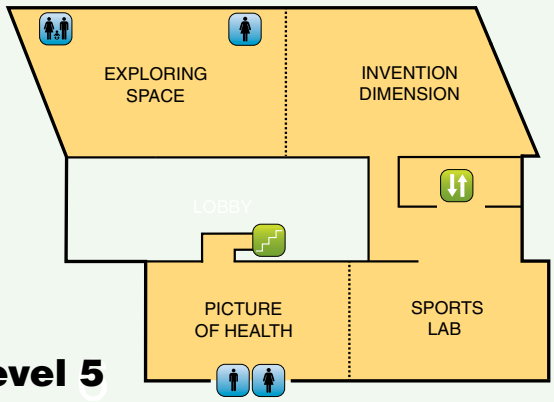
Connecticut Science Center



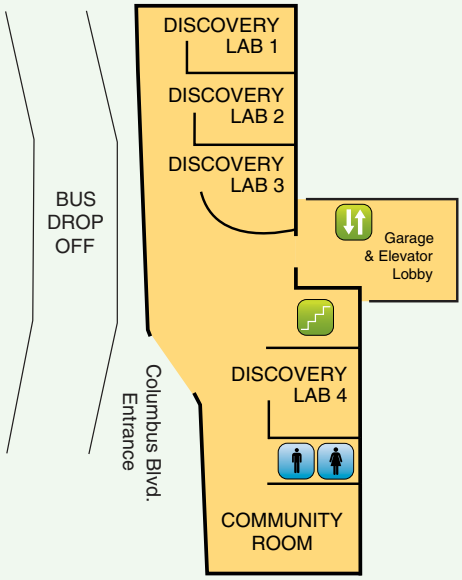
Note: Travelers Science Hall is on the second floor across from the entrance to the exhibit galleries.



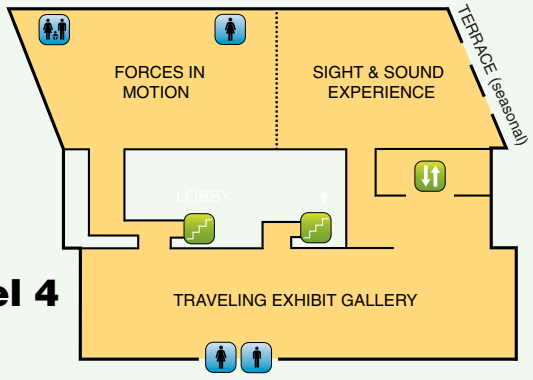
Level 6



Level 5



Level G

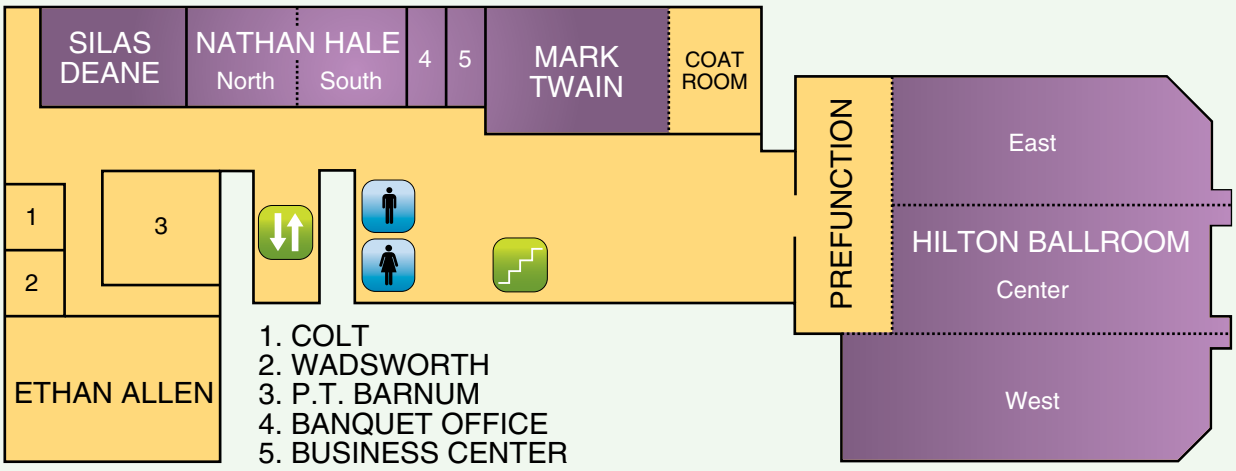


Level 4

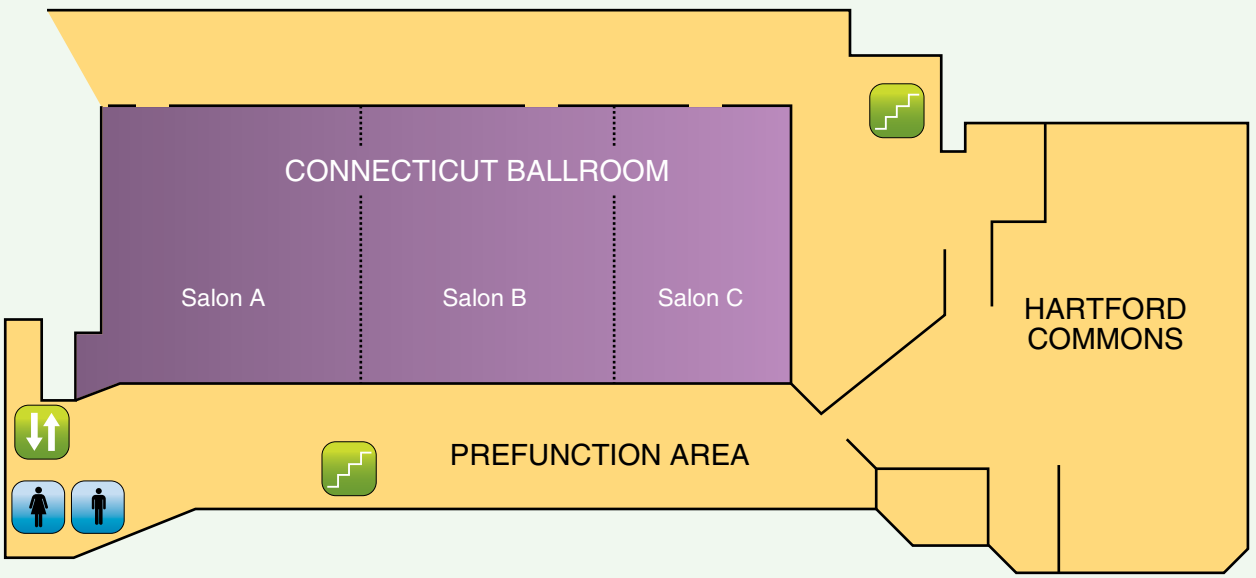
Access to labs is limited to scheduled groups and for special events.

Hilton Hartford

Third Floor

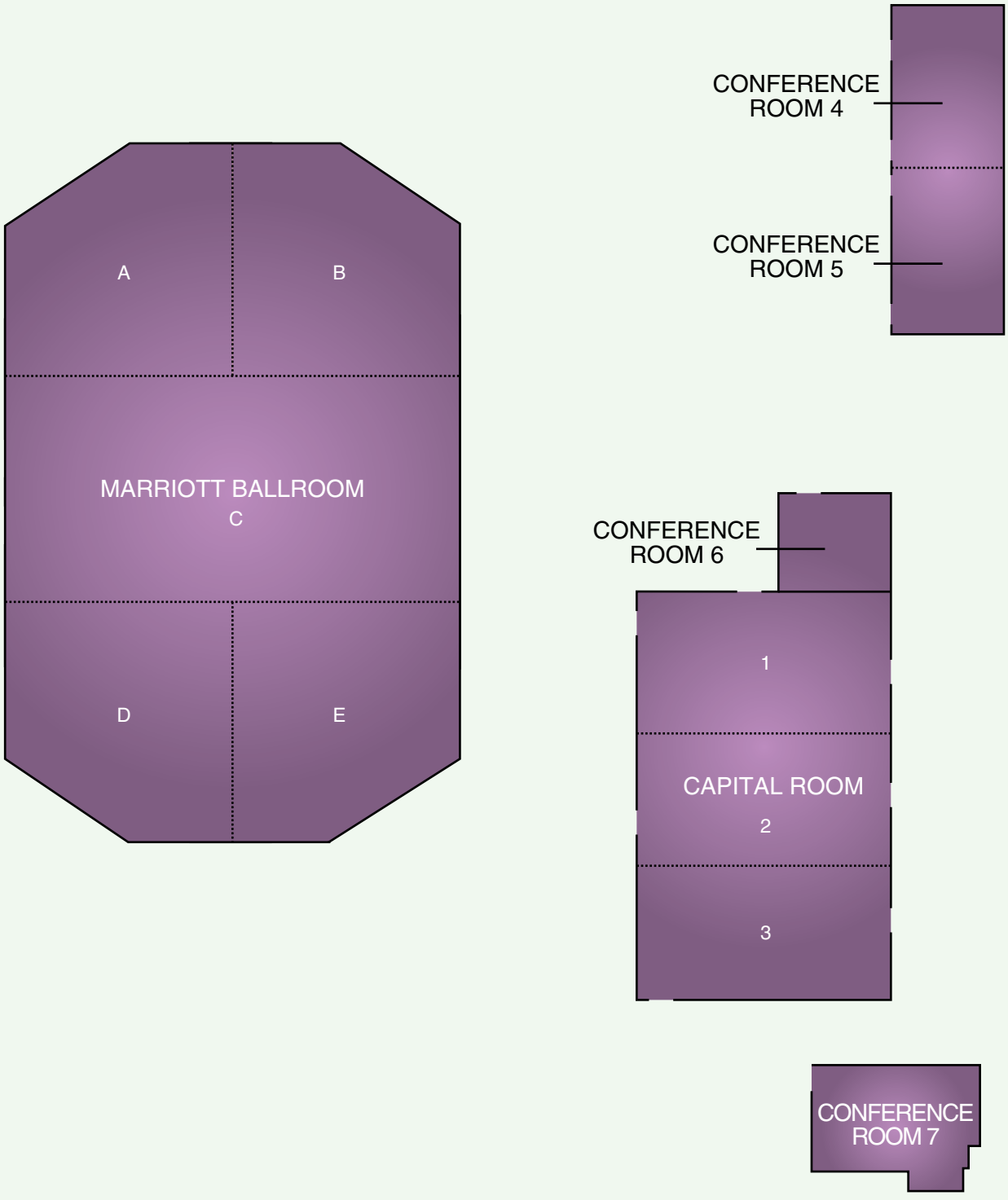


Second Floor



Saratoga (A and B) is located on the sixth floor.

Marriott Hartford Downtown



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NSTA Mission Statement

The mission of NSTA is to promote excellence and innovation in science teaching and learning for all.

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Brenda Wojnowski, NSELA
Brian Schmaefsky, SCST

All cities are subject to change pending final negotiation.

National Conferences on Science Education

Indianapolis, Indiana
March 29–April 1, 2012

San Antonio, Texas
April 11–14, 2013

Boston, Massachusetts
April 3–6, 2014

2012 STEM Forum & Expo

Atlantic City, N.J.
May 17–19

Area Conferences on Science Education

2011 Area Conferences

New Orleans, Louisiana
November 10–12

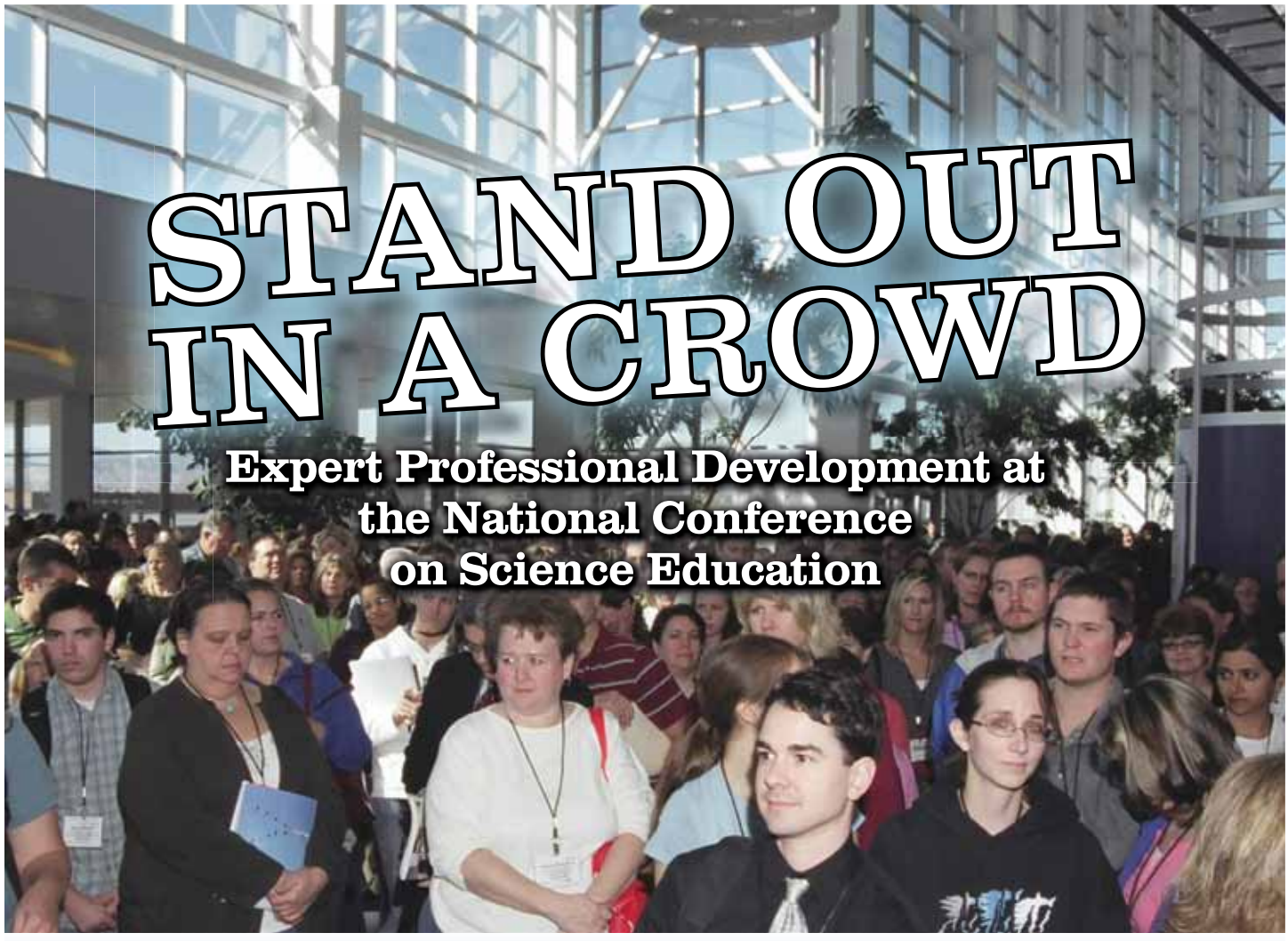
Seattle, Washington
December 8–10

2012 Area Conferences

Louisville, Kentucky
October 18–20

Atlanta, Georgia
November 1–3

Phoenix, Arizona
December 6–8



STAND OUT IN A CROWD

Expert Professional Development at the National Conference on Science Education

Indianapolis, IN
March 29 – April 1, 2012

Professional Development Strands:

- Mapping Our Way to Success Through the New Core Standards
- Pathways to a Sustainable Planet
- Merging Inquiry, Creativity, and Innovation Through STEM
- Traveling New Instructional Roads Through Technology

Attendees can access:

- Content knowledge and ready-to-use teaching techniques.
- Presentations from inspirational science personalities.
- Student and teacher award and grant competitions.
- 2,000 sessions, workshops, field trips, and short courses for K–16 educators.
- Exhibit Hall featuring new products and giveaways from more than 400 exhibitors.
- NSTA Science Bookstore with 100s of professional development books; attendees receive a 20% discount.
- A networking community that nurtures your passion for science.

Visit *www.nsta.org* for updates or call 800.722.6782

NSTA National Science Teachers Association

—Photo courtesy of Connecticut Science Center

Is This Your First NSTA Conference?

Yes, you say? Then you are invited to attend a special session on Thursday, 8:00–9:00 AM. Learn how you can gain the most from your conference experience and have fun doing it! See page 48 for details. Refreshments are courtesy of Carolina Biological Supply Company.

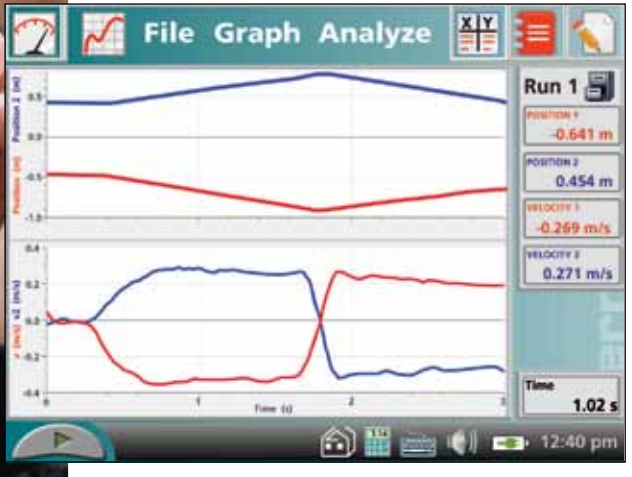
Ribbon-Cutting Ceremony

An opening ceremony is scheduled on Thursday at 11:00 AM at the entrance to the NSTA exhibits. See page 53 for details.

Remember the first time you fell in love with science?

We do. It is the reason we believe in hands-on scientific technology. It engages students in a meaningful way, develops keen analytical skills, and awakens a love for discovery.

Stop by our **booth 701**, or attend one of our FREE hands-on workshops. Enter the drawing to win a FREE Vernier LabQuest.



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The Hartford Conference Committee has planned the conference around the following three strands, enabling you to focus on a specific area of interest or need. Strand events are identified by icons throughout the daily program.

From the Roots to the Fruits of STEM

How do we pique students' interest in STEM (Science, Technology, Engineering, and Mathematics)? Today's world is filled with objects and processes designed to support and enhance our lives. STEM education offers students one of the best opportunities to make sense of our world holistically rather than in bits and pieces. The new science framework suggests that teachers provide students with opportunities to understand the design process and apply it in our world. The sessions in this strand will explore questions around STEM education, including: What is STEM and how should it be taught? When and where should students experience it? How can we encourage students to pursue STEM careers?

Sustainability: Green Is Growing!

To live green we must teach green and learn green. We need science-literate citizens for a sustainable global community. From schools as learning laboratories to No Child Left Inside, from exploring best uses of finite resources to creating sound alternatives, opportunities abound. This strand focuses on the innovations, transformations, global systems, and tools that teachers and students will need to support our green future.

Integrating Literacy: Cross-pollinating the Curriculum

Whether struggling or high achieving, all students continue to develop literacy skills (reading, writing, listening, speaking, viewing, and presenting). Teachers at all levels need to scaffold literacy skills to make science more accessible. Elementary teachers are looking for time to teach science. Science teachers at the middle school, high school, and college levels are now being asked to teach reading and writing in their classrooms. Science provides an engaging platform for students to practice and apply their literacy skills. This strand will focus on strategies to develop literacy skills through science and science understandings through literacy at all grade levels.

From the Roots to the Fruits of STEM

Thursday, October 27

8:00–9:00 AM
Teach Science Content and Inspire STEM Careers with FREE Online Web Adventures

A STEM Community?

8:00 AM–12 Noon
SC-1: Building Tomorrow's Workforce (Tickets required: $48)

12:30–1:30 PM
Suited for Spacewalking

2:00–3:00 PM
Featured Presentation: Brain-STEM: Blending Brain Research and STEM Education
(Speaker: Kenneth Wesson)

3:30–4:00 PM
SeaPerch: Integrating Ocean Exploration in the Classroom

5:00–6:00 PM
The Marshmallow Challenge: Using an Engineering Design Exercise to Get Kids Thinking Critically

Friday, October 28

8:00–9:00 AM
Promoting Community-based Environmental Sustainability Efforts via Student-led STEM Designs

Not a Fair…A Science and Engineering Festival

9:30–10:30 AM
Decoding Starlight—From Pixels to Images

11:00 AM–12 Noon
From Model Rocketry to Satellite Imaging to GIS for $25

12:30–1:30 PM
Simple Machines as Basic STEM Systems

3:30–4:30 PM
STEM Education: Planning for a STEM Program

Saturday, October 29

8:00–9:00 AM
Invent, Baby, Invent! Meeting STEM Standards in a Fun and Natural Way, K–8

9:30–10:30 AM
Diving In with Nautilus Live: A Real-Time Web Tool That Brings Ocean Exploration and Discovery into the Classroom!

11:00 AM–12 Noon
Wind Power

Sustainability: Green Is Growing!

Thursday, October 27

8:00–9:00 AM
Green Your School! Integrating Science with Service Learning

12:30–1:30 PM
Environmental Literacy Plans: Why, Where, and How

1:30–4:30 PM
SC-2: Developing a "Naturalistic" Approach in the Teaching of Science Concepts and Inquiry
(Tickets required: $72)

2:00–3:00 PM
The Role of Education in a Sustainability Paradigm Shift

3:30–4:30 PM
Featured Presentation: Teaching and Learning Our Way Toward a Sustainable Future
(Speaker: Jennifer Cirillo)

5:00–5:30 PM
Climate Literacy and Energy Awareness Network

Friday, October 28

8:00–9:00 AM
Climate Change, Global Connections, and Sustainable Solutions

9:30–10:30 AM
Fueling the Future: Energy Interconnections and Sustainable Choices

11:00 AM–12 Noon
Climate Change Classroom Toolkit

12:30–1:30 PM
Schoolwide Examples That Promote Stewardship and Sustainability

1:00–4:00 PM
SC-5: Adventures Beyond the Classroom: Exploring Local Biodiversity
(Tickets required: $18)

2:00–3:00 PM
School Energy Survey

3:30–4:30 PM
Forests, Carbon, and Climate Change

5:00–6:00 PM
Taking the Eco-Initiative: Using an Ecosystems Approach to Understand and Reduce the Ecological Footprint of Schools

Saturday, October 29

8:00–9:00 AM
How Sustainable Are You? Measuring Your Ecological Footprint

9:30–10:30 AM
Building a Green Team: Empowering Kids to Be Environmental Leaders in Your Community

11:00 AM–12 Noon
Common Ground and Sustainability: Planning for the Whole Community

Integrating Literacy: Cross-pollinating the Curriculum

Thursday, October 27

2:00–3:00 PM
Integrating Science into Elementary Language Arts Instruction

3:30–4:30 PM
I See What You Mean! Developing Visual Literacy

5:00–6:00 PM
Dual Task: Learning Language and Science

Friday, October 28

8:00–9:00 AM
Under the Lens: Discover Literacy and Science

8:30–11:30 AM
SC-4: Energy as an Interdisciplinary Tool for Meeting Literacy Requirements
(Tickets required: $18)

9:30–10:30 AM
Tapping In to Student Knowledge

11:00 AM–12 Noon
Featured Presentation: Science as a Context for Literacy
(Speaker: Lori Fulton)

12:30–1:30 PM
Integrating Nonfiction Trade Books with Science Standards in Elementary Classrooms

2:00–3:00 PM
Creating a Scientist's Notebook

3:30–4:30 PM
Integrating Literacy: Do It! Talk It! Read It! Write It!

Saturday, October 29

8:00–9:00 AM
Use Technology to Integrate Science and Math!

8:30 AM–12:30 PM
SC-6: Integrating Science, Literacy, and Technology to Create Dynamic Science
(Tickets required: $70)

9:30–10:30 AM
Promoting Scientific Discourse

11:00 AM–12 Noon
Reading the World

NSTA Exemplary Science Program (ESP)

Meeting the Reform Features Recommended in the National Science Education Standards

Friday, October 28, 12:30–2:30 PM
Ethan Allan, Hilton

The ESP series identifies people and places where the reforms recommended have emerged, including 1) Exemplary Science in Grades PreK–4; 2) Exemplary Science in Grades 5–8; 3) Exemplary Science in Grades 9–12; 4) Exemplary Science: Best Practices in Professional Development; 5) Inquiry: The Key to Exemplary Science; 6) Exemplary Science in Informal Education Settings; and 7) Exemplary Science for Resolving Societal Challenges. The exemplars are discussed in ESP symposia at all NSTA conferences.

The series was conceived by Robert E. Yager (1982–1983 NSTA President), who continues ESP searches and ways of recognizing classroom successes while also encouraging more to try!

Symposium Participants:

Coordinators: Patricia Simmons, NSTA President, and North Carolina State University, Raleigh; and LaMoine Motz, 1988–1989 NSTA President, and National School Science Curriculum and Facilities Planning Consultant, White Lake, Mich.

Inquiry: Changing the Teaching of Science (from ESP #5)
Holly Harrick, Connecticut Science Center, Hartford

Project-based After-School Science (from ESP #7)
Kabba E. Colley, Pace University, New York, N.Y.

Inquiry with Preservice Elementary Teachers (from ESP #5)
Thomas R. Lord, NSTA Director, College Science Teaching, and Indiana University of Pennsylvania, Indiana

A "HOLA" Approach to Learning Science (from ESP #7)
Theodora Pinou, Western Connecticut State University, Danbury

Engineering Day at NSTA

Sponsored by the American Society for Engineering Education

Thursday, October 27, 8:00 AM–6:00 PM
Ballroom A, Marriott

The American Society for Engineering Education (ASEE) has put together a public/private partnership to develop ways of engaging elementary, middle, and high school students in engineering. Participants will learn about innovative, hands-on, project-based engineering activities, courses, curriculum options, events, outreach programs, and competitions that both encourage students to pursue engineering careers and enable teachers to learn about and experience engineering. Presenters will share lessons learned and examples of inquiry and design activities that have been developed in partnership with middle school and high school science teachers for use in the classroom and in informal educational settings. The materials result from a collaboration of engineering educators and STEM professionals working with the U.S. Department of Defense, NASA, Robotics Education and Competition Foundation, and Autodesk.

8:00–9:00 AM	**eGFI: Engineering, Go For It!—Dream Up the Future** (p. 47)
11:00 AM–12 Noon	**NASA's BEST Students (Beginning Engineering, Science, and Technology)** (p. 54)
12:30–1:30 PM	**UTeach*Engineering:* NASA Design Challenges** (p. 58)
2:00–3:00 PM	**eGFI: Engineering, Go For It!—Dream Up the Future** (p. 63)
3:30–4:30 PM	**Inexpensive Robotics to Encourage Student Creativity and Help Produce the Next Generation of Engineers** (p. 70)
5:00–6:00 PM	**Inspire and Engage to Learn: Autodesk's Project-based Curriculum for Secondary Schools** (p. 74)

NSTA Membership

Become the Best Teacher You Can Be

Membership in NSTA delivers all the best professional development and resources a science educator needs.

- **Members select one or more of the idea-packed, peer-reviewed journals** designed for all grade levels. *Science and Children* (grades K–6); *Science Scope* (grades 6–9); *The Science Teacher* (grades 9–12), or *Journal of College Science Teaching*.
- **NSTA National and Area Conferences** are the world's largest gathering of science educators—an unparalleled professional development opportunity.
- **The NSTA Learning Center** offers year-round, face-to-face and online-learning opportunities with leading education providers.
- **NSTA Listserver Email Subscriptions** allow members to join any of 13 electronic lists to gain knowledge from industry professionals who gather online to share valuable information.
- **Members save with discounts** on insurance, Learning Center products, books, digital content and conference registration.
- **And stay informed with our publications; *NSTA Reports*, *NSTA Book Beat*, *SciLinks* web content and our E-newsletters.**

For more information or to become a member,
visit *www.nsta.org/membership* or call 1.800.722.6782

National Science Teachers Association

ACS Chemistry for Life™

Chemistry Day at NSTA

Sponsored by the American Chemical Society, Education Division

Equilibrium, Le Chatelier, and Rate

For Grades 9–12

Friday, October 28, 8:00 AM–4:30 PM
Ballroom East, Hilton

Engage in activities, discussion, analyses, and assessment that help understanding of the relationships among equilibria, Le Chatelier's principle, and rates and their roles in moving toward a more sustainable use of Earth's resources.

Education research indicates a positive correlation between teacher content knowledge and student learning. The goals of this special program are to enhance and enrich secondary chemistry teachers' knowledge of and interrelationships among equilibria, Le Chatelier, and rates through engagement in activities, discussion, and analyses that demonstrate how lessons on these concepts can be presented in a way that stimulates student thinking and prompts exploration of the complexity of the concepts as they relate to sustainability.

The content and structure of the program draws on several decades of experience the American Chemical Society has in activity-based curricula development that include incorporation of sustainability and Green Chemistry principles. Chemistry Day is a daylong series of lessons on equilibria, Le Chatelier's principle, and rates—topics central to understanding the behavior of matter and chemical change. A complementary theme is incorporating activities as part of the assessment of student learning.

8:00–9:00 AM	**Equilibrium and Concentration** (p. 79)
9:30–10:30 AM	**Equilibrium and Energy** (p. 85)
11:00 AM–12 Noon	**Rate** (p. 91)
12:30–1:30 PM	**Catalysis** (p. 96)
2:00–3:00 PM	**Light as a Reactant and/or Product** (p. 100)
3:30–4:30 PM	**Half-Life** (p. 106)

Middle School Chemistry Day

Sponsored by the American Chemical Society

Middle School Chemistry—
Big Ideas About the Very Small

Thursday, October 27, 8:00 AM–6:00 PM
Ballroom East, Hilton

Come to one, two, or as many sessions as you like during this full day of activities and information for teaching and learning middle school chemistry. Staff from the American Chemical Society (ACS) will introduce participants to the new free online resource *middleschoolchemistry.com*. Each of the six sessions will include hands-on activities and explanations from the website that participants can easily incorporate into their teaching to support their current textbook and curriculum. Handouts of the session activities will be available for all participants.

8:00–9:00 AM	**Solids, Liquids, and Gases: The Kinetic-Molecular Theory of Matter** (p. 48)
11:00 AM–12 Noon	**Changes of State: Evaporation and Condensation** (p. 54)
12:30–1:30 PM	**Density: A Molecular View** (p. 59)
2:00–3:00 PM	**The Periodic Table, Energy Levels, and Bonding** (p. 65)
3:30–4:30 PM	**Polarity of the Water Molecule and Its Consequences** (p. 70)
5:00–6:00 PM	**Chemical Change: Breaking and Making Bonds** (p. 75)

Biology Day at NSTA

Sponsored by the National Association of Biology Teachers

Friday, October 28, 8:00 AM–12 Noon
Ballroom West, Hilton

NABT is proud to present Biology Day. Join us for hands-on and informative sessions that highlight the resources and tools you need to excel as a biology and life science teacher. Sessions will include activities on the human immune system, viral transmission, and the effective use of clickers in the classroom.

From free resources to expert tips, Biology Day provides relevant information and pedagogy for every biology teacher at every level. Enhance your teaching, engage your students, and enjoy NABT Biology Day in Hartford!

8:00–9:00 AM	**FREE Resources and Interactive Models for Teaching Immunology and HIV/AIDS** (p. 77)
9:30–10:00 AM	**FREE Teaching Resources on Viral Outbreaks and the Science of Emerging Diseases** (p. 83)
11:00 AM–12 Noon	**Engaging Students in Learning Biology with Activities That Interest Students** (p. 91)

Physics Day at NSTA

Sponsored by the American Association of Physics Teachers (AAPT) and the New England Section of AAPT

Friday, October 28, 8:00 AM–4:30 PM
Ballroom Center, Hilton

The American Association of Physics Teachers offers a full day of physics content at the Hartford area conference. Physics Day consists of presentations on physics topics of current interest, physics demonstrations for the pre-college classroom, and a make-and-take session where participants can construct a piece of physics apparatus for use as a demonstration or laboratory experiment. Physics Day in Hartford is being organized by the New England Section of the American Association of Physics Teachers.

8:00–9:00 AM	**Physics Demo Workshop: Thermodynamics, Heat, and Pressure** (p. 79)
9:30–10:30 AM	**Science Education and Dangerous "Global Warming": Examining Claims Through Critical Thinking in the Classrooms** (p. 84)
11:00 AM–12 Noon	**Physics Demo Workshop: Mechanics, Motion, and Photography** (p. 91)
12:30–1:30 PM	**Zero Gravity Pendulum** (p. 95)
2:00–3:00 PM	**Photography and Physics: A Way to Enhance Student Engagement** (p. 99)
3:30–4:30 PM	**Physics Demo Show** (p. 104)

NSTA Press Sessions

NSTA Press® books offer new classroom ideas and standards-based strategies, from Earth science to nanoscience and from preK to college. Join NSTA Press authors for these sessions linked to the topics of their books.

Thursday, October 27

8:00–9:00 AM	Using Data to Solve "Earth Science Puzzles" (p. 48)
12:30–1:30 PM	Uncovering Students Ideas in Science: Formative Assessment for Teaching and Professional Development! (p. 57)
2:00–3:00 PM	Teaching for Conceptual Change (p. 64)
5:00–6:00 PM	Team Teaching Science: You Can Do It! (p. 73)

Friday, October 28

8:00–9:00 AM	*More Picture-Perfect Science Lessons, Grades K–4* (p. 79)
9:30–10:30 AM	*Picture-Perfect Science Lessons, Grades 3–6* (p. 85)
2:00–3:00 PM	Bringing Outdoor Science into Your Classroom (p. 100)
5:00–6:00 PM	Uncovering Student Ideas with *Everyday Science Mysteries* (p. 110)

NSTA Avenue Sessions

Visit the NSTA Avenue (Booth #708), our marketplace in the Exhibit Hall, to learn about NSTA's products and services. Meet staff, register for the Learning Center, or become a member. We're looking for connections to educators with a passion for science education, and we welcome you to our network.

Thursday, October 27

3:30–4:30 PM	America's Home Energy Education Challenge (p. 70)

Friday, October 28

8:00–9:00 AM	Toshiba/NSTA ExploraVision (p. 78)
9:30–10:30 AM	NSTA Teacher and Principal Awards and Recognitions: Learn How to Win a Free Trip to the National Conference (p. 84)
11:00 AM–12 Noon	Disney's Planet Challenge: Project Based Learning and Service Learning–based Lesson Development and Funding (p. 90)
12:30–1:30 PM	Communicate, Collaborate, and Create: Changing Your Classroom and the World (p. 96)
2:00–3:00 PM	The NSTA Learning Center: Free Classroom Resources and Opportunities for Educators (p. 99)
3:30–4:30 PM	America's Home Energy Education Challenge (p. 105)
	Explore Mars: Using Mars Exploration to Inspire Students (p. 105)

This form is for planning purposes only. Do NOT submit to NSTA.

NSTA 2011 Hartford Area Conference
Professional Development Documentation Form

All attendees can evaluate concurrent teacher and exhibitor sessions online while simultaneously tracking professional development certification (based on clock hours). Use this form to keep track of all sessions/events attended during the Hartford conference. Sessions/events such as field trips, short courses, featured speakers, the General Session, meetings, and exhibit hall visits are not available for online evaluation. However, these events still qualify for professional development.

Beginning November 15, 2011, Hartford transcripts can be accessed at the NSTA Learning Center *(learningcenter.nsta.org)* by logging on with your Hartford Badge ID# and then clicking on "My PD Record and Certificates." Keep this form and use it to add the following activities to your Hartford transcript. Completed transcripts can be printed from this website and presented to an administrator who requires documentation of participation in the conference. All information in these transcripts will be maintained (and can be accessed) indefinitely as part of an attendee's individual profile.

First Name: _____ **Last Name:** _____ **Badge ID#** _____

Visit ***m.nsta.org*** to evaluate sessions via your smartphone, or go to ***www.nsta.org/evaluations*** to evaluate sessions (workshops, presentations, and exhibitor workshops) online. See page 14 of the conference program for instructions. ***And don't forget, the more sessions you attend and evaluate, the more chances you have to win a Kindle Fire!***

Sample Questions:

1. I selected this session:
   a. for immediate classroom use.
   b. based on the reputation of the speaker.
   c. to improve my personal pedagogical knowledge/skill.
   d. to improve my science content knowledge.
2. The session met my needs.
3. The information presented was clear and well organized.
4. Safe practices were employed.
5. The session avoided commercial solicitation (n/a for exhibitor workshops and NSTA Press sessions).
6. The session should be repeated at another NSTA conference.

Sample Responses:
1=Strongly Agree 2=Agree 3=Neutral 4=Disagree 5=Strongly Disagree

Wednesday, October 26 8:00 AM–5:00 PM

Start Time	End Time	Activity/Event Title

We're giving a Kindle Fire to one lucky attendee who evaluates sessions that he or she attends. The more sessions you attend and evaluate, the more chances you have to win!

Thursday, October 27 8:00 AM–6:00 PM

Start Time	End Time	Activity/Event Title

Friday, October 28 8:00 AM–6:00 PM

Start Time	End Time	Activity/Event Title

Saturday, October 29 8:00 AM–12:30 PM

Start Time	End Time	Activity/Event Title

Wednesday, October 26

FOSS K–5 2012 Revision Meeting
(By Invitation Only)
Capital 2, Marriott..... 8:00 AM–5:00 PM

FOSS Middle School Institute
(By Invitation Only)
Capital 3, Marriott..... 8:00 AM–5:00 PM

FOSS Luncheon
(By Invitation Only)
Marriott Ballroom C, Marriott ..... 12 Noon–1:00 PM

Thursday, October 27

NSTA and UTC: STEM Partnerships That Work Reception
Connecticut Salon B, Hilton ..... 4:30–6:30 PM

CSTA/CSSA Meet and Greet
(By Invitation Only)
Marriott Ballroom C, Marriott..... 5:00–6:00 PM

Friday, October 28

Council for Elementary Science International (CESI) Breakfast
(Tickets required: M-1; $29)
Speaker: Loree Griffin Burns
Conference Room 7, Marriott .....8:30–10:30 AM

Preservice and New Teachers Luncheon
(Tickets required: M-2; $12)
Sponsored by Kendall Hunt Publishing Co.
Marriott Ballroom C, Marriott.....12 Noon–1:30 PM

Saturday, October 29

Science Matters Community Event
Exhibit Hall, Convention Center.....8:30–11:00 AM

The Picture-Perfect Science Preconference Workshop (C-1) is presented by Karen Ansberry and Emily Morgan, classroom veterans and award-winning authors of Picture-Perfect Science Lessons, Expanded 2nd Edition, 3–6 *and* More Picture-Perfect Science Lessons, K–4.

Tickets for this preconference workshop were available by preregistration only.

Picture-Perfect Science Preconference Workshop (C-1)

Karen Ansberry *(karen@pictureperfectscience.com),* Classroom Veteran and Award-winning Author of *Picture-Perfect Science Lessons, Expanded 2nd Edition, 3–6* and *More Picture-Perfect Science Lessons, K–4,* Mason, Ohio
Emily R. Morgan *(emily@pictureperfectscience.com),* Classroom Veteran and Award-winning Author of *Picture-Perfect Science Lessons, Expanded 2nd Edition, 3–6* and *More Picture-Perfect Science Lessons, K–4,* West Chester, Ohio
Level: Elementary
Date: Wednesday, October 26, 8:30 AM–3:30 PM
Location: Marriott Ballroom A&B, Marriott

STEM education begins in elementary school, but it can be difficult for elementary teachers to fit science into the school day. Picture-Perfect Science integrates science and reading in a meaningful way, so you can teach both subjects at once. In this workshop, you will participate in model lessons that integrate science and reading, learn the benefits and cautions of using children's picture books in science, become familiar with the BSCS 5E model, and receive a bibliography of recommended science-related picture books. All attendees will also receive a copy of *Picture-Perfect Science Lessons, Expanded 2nd Edition, 3–6,* a $36.95 value containing 20 classroom-ready lessons for grades 3–6. Come to this Picture-Perfect Science Workshop and rejuvenate elementary science instruction in your district or school!

Admission to NSTA short courses is by ticket only. Tickets, if still available, may be purchased at the Ticket Sales Counter in the NSTA Registration Area.

Building Tomorrow's Workforce (SC-1)

Arloa Woolford *(wimef@womeninmining.org),* Women in Minding Education Foundation, Winnemucca, Nev.
Level: Grades 4–9
Date: Thursday, October 27, 8:00 AM–12 Noon
Location: Discovery Center Lab 4, Science Center
Registration Fee: $48

Integrating science, math, and literacy can strengthen students' abilities to become tomorrow's workers and leaders. To make an informed decision required to keep our country strong, our leaders need a sound basis in understanding where things come from. Every career that will be available will require science, math, and technology to provide new insights into our ability to utilize our natural resources in a balanced and environmentally responsible way. Our integrated hands-on activities provide simple, inexpensive ways that involve teamwork within the areas of math, language arts, social studies, and even art to help students increase their awareness of Earth science and how it relates to our everyday lives. Our information on the many careers available in the natural science arena will provide many choices for students to do further inquiry before choosing a career. Attendees will leave with a CD of all activities, reference websites, and career information. Visit *www.womeninmining.org* for more information.

Developing a "Naturalistic" Approach in the Teaching of Science Concepts and Inquiry (SC-2)

William Klein, Western Iowa Tech Community College, Sioux City
Level: General
Date: Thursday, October 27, 1:30–4:30 PM
Location: Mark Twain, Hilton
Registration Fee: $72

Many of today's students lack knowledge of the natural world with some educators labeling them "nature deficient." Because they have never studied firsthand the most common organisms, students frequently have difficulty correlating concepts described in their texts with actual life cycles and adaptations/behavior of living organisms. Discover hands-on inquiry activities and strategies, which research has validated as effective, that you can use to enhance comprehension of science concepts for all learners—visual, aural, tactile, and ELL. Students employ basic science process skills and experience concepts in the context of their meaning.

The knowledge and skills gained through interaction with the natural world of lawns, gardens, waters, and creatures will benefit students the rest of their lives. Take home handouts, teaching strategies, and a CD.

Airplanes, Speed, and Motion (SC-3)

Caroline d'Otreppe *(caroline@neam.org)* and **Jason Archer** *(jasona@neam.org),* New England Air Museum, Windsor Locks, Conn.
Level: Grade 8
Date: Thursday, October 27, 1:30–5:30 PM
Location: Off-site (New England Air Museum)
Registration Fee: $55

Learn the laws of motion as they relate to airplane flight. Walk through the evolution of flight looking at airplane design and why airplanes have changed over time. Using flying models, carry out an experiment using the process of inquiry to design an airplane for speed. Leave with the resources to learn more about aviation.

Note: Please meet your instructor at the Motor Lobby of the Convention Center no later than 1:15 PM.

Energy as an Interdisciplinary Tool for Meeting Literacy Requirements (SC-4)

Todd Rogers *(info@need.org),* National Energy Education Development Project, Manassas, Va.
Level: Elementary–Middle Level
Date: Friday, October 28, 8:30–11:30 AM
Location: Community Room, Science Center
Registration Fee: $18

Although energy is an interdisciplinary topic that is based in science, it naturally fits into reading, math, and social studies as well. In this short course, participants will walk through a unit on the sources of energy using hands-on activities to understand the science behind the sources and how we get energy from these resources. Activities will include creating a generator, working with photovoltaic cells, and petroleum exploration. Nonfiction articles provide background on the sources and context for the activities. Once the science of the sources are understood, activities will move on to include fiction reading and writing, presentation, and math activities that expand understanding of the sources in small groups. The short course will culminate with a whole-group activity in which participants present energy plans to a panel to begin to understand the social aspect of energy. Activities spiral to provide opportunities to teach energy at every grade level, and materials presented are correlated to the National Science Education Standards and each state's science standards.

Adventures Beyond the Classroom: Exploring Local Biodiversity (SC-5)

Joanna Snyder *(joanna_snyder@berkeley.edu)* and **Erica Beck Spencer** *(ebspencer@berkeley.edu),* Lawrence Hall of Science, University of California, Berkeley
Level: Elementary–Middle Level
Date: Friday, October 28, 1:00–4:00 PM
Location: Community Room, Science Center
Registration Fee: $18

Educators and ecologists at the Lawrence Hall of Science developed Outdoor Biology Instructional Strategies (OBIS), a collection of activities designed to strengthen connections between the natural world and concepts being learned in both formal and informal learning environments. Experience inquiry-based outdoor instructional strategies that can help you authentically investigate your local biodiversity. Participants will learn strategies for managing students, examine case studies of schools that have changed their learning culture to incorporate the local environment, receive access to instructional resources created at the Lawrence Hall of Science, and plan next steps. Dress for the weather as most of this course will be outdoors, rain or shine.

Integrating Science, Literacy, and Technology to Create Dynamic Science (SC-6)

Jeanelle Day *(dayj@easternct.edu)* and **Susannah Richards,** Eastern Connecticut State University, Willimantic
Level: Elementary
Date: Saturday, October 29, 8:30 AM–12:30 PM
Location: Marriott Ballroom C, Marriott
Registration Fee: $70

With the increasing accountability for science instruction in the elementary and middle school, it is necessary to take an interdisciplinary approach to increase student exposure and interaction with scientific concepts. Therefore, education professors are modeling how to integrate science content into literacy instruction that utilizes current technologies. For example, in language arts students read nonfiction science texts to learn how to read and write expository text. In science, students watch Youtube or read science fiction to generate hypotheses before engaging in hands-on scientific inquiry. Using award-winning titles from the NSTA/CBC Outstanding Science Trade Books list, Sibert Award–winning titles, Web2.0 tools, videos, and literacy instructional routines, teachers can ignite young scientists while meeting the current literacy and technology standards.

Based on successful practice from a teacher quality partnership grant, Science Matters: Building Content and Literacy Knowledge, participants will explore a variety of strategies to integrate science content using literacy and technology instructional routines. Elementary and middle school grant participants will share examples of content integration in science, literacy, and technology that resulted from grant participation.

Tickets for field trips may be purchased (space permitting) at the Ticket Sales Counter in the NSTA Registration Area. Meet your field trip leader in the Motor Lobby of the Convention Center 15 minutes before departure time.

Hamilton Sundstrand $40*

***preregistration only**

#T-1 Thurs., Oct. 27 9:00 AM–1:15 PM

Hamilton Sundstrand (HS) *(www.hamiltonsundstrand.com)* is a global corporation that designs, manufactures, and supports aerospace and industrial products for worldwide markets. When you visit the Windsor Locks campus houses you will see the Product Center that showcases products made by HS; the manufacturing floor where environmental systems are put together; Space Lab where the life support system for the current NASA space suit is assembled and tested; and finally the Heritage room where historical artifacts from the nation's human space programs are restored.

CANCELED

Note: All attendees must be U.S. citizens and bring a valid government-issued photo ID, i.e., a driver's license. No open-toed shoes or cameras allowed in the building. Bring your own snack, if desired.

A Guided Behind-the-Scenes Tour of Mystic Aquarium $73

#T-2 Thurs., Oct. 27 10:00 AM–5:15 PM

Travel to Mystic Aquarium *(www.mysticaquarium.org)* where close encounters of the incredible kind happen every day. Reach in and touch a shark as it swims by; meet crabs and sea stars from Long Island Sound; and watch playful California sea lions Coco, Surfer, Boomerange, and Jetty in a sea lion show at the Marine Theatre. Dive into Challenge of the Deep, an exhibit conceived by renowned deep-sea explorer Dr. Robert Ballard, and discover the foreign world of the deep ocean, the emerging science of deepwater archaeology, and recent discoveries. Mystic Aquarium offers something unique for everyone. Receive a unique behind-the-scenes perspective as you participate in guided tours with aquarium educators. You will also have time to explore the indoor and outdoor exhibits and the aquarium gift store on your own. Please be sure to wear comfortable walking shoes, bring your camera, and dress for the elements as we have lots of outdoor exhibits. Time is built in for lunch on your own at the Penguins Café™.

—*Photo courtesy of Sea Research Foundation*

—*Photo courtesy of Tracy M. Brown*

Above are some of the sights you may see during the Behind-the-Scenes Tour of Mystic Aquarium (T-2).

Behind the Scenes at Yale Peabody Museum $57

#T-3 Thurs., Oct. 27 12:30–4:45 PM

Come see what the Yale Peabody Museum of Natural History has to offer! This museum is dedicated to educating a broad and diverse audience about the history of Earth and the life-forms that inhabit it. The Peabody Museum offers exhibits and programs on natural history topics to more than 35,000 students on school visits alone as well as to an additional 150,000 visitors each year who come to wander among our giant and very real dinosaurs, mineral collections, and other spectacular displays. On this field trip you'll get a guided tour of our most popular exhibits, including the Great Hall of Dinosaurs with the world-famous The Age of Reptiles mural; the new Hall of Minerals, Earth and Space, which is designed to fostering an appreciation for the wonders of

CANCELED

our planet and solar system; and the thriving leafcutter ant colony in the Discovery Room. We'll also fill you in on the many professional development opportunities and curricular resources available to educators. As a special treat, you'll go behind the scenes in one of our phenomenal collections and see firsthand some of the most breathtaking specimens that are not on display for the public. We'll provide a chance to ask questions and discuss possibilities over coffee at the end of the visit.

Elementary/Middle School Engineering and Inquiry Investigations: Annie Fisher STEM Magnet School $22

#T-4 Thurs., Oct. 27 12:35–3:40 PM

Annie Fisher STEM Magnet School is a new state-of-the-art STEM (Science, Technology, Engineering, and Technology) Elementary/Middle Magnet School designed to support advanced level inquiry investigations in Grades K–8. Visitors will tour three theme-based laboratories and an elementary LEGO robotics room, and observe inquiry-based classrooms. In addition, participants will engage in an inquiry-based lesson utilizing early engineering concepts. *Note:* Active wear and sneakers/closed-toe shoes are required.

Step into the Early Jurassic $29

#F-1 Fri., Oct. 28 9:00 AM–12:30 PM

Dinosaur Park is one of the premier dinosaur track sites in the U.S. Beneath our geodesic dome, you'll find more than 500 early Jurassic dinosaur footprints on view. Join us for an introductory 25-minute video and guided tour. Educational programs for all ages will be displayed and a demonstration of the classroom performance system used for school group lectures will be given. Our museum presents a bird's-eye view of the preserved Mesozoic floodplain covered with tracks, dioramas of Triassic and Jurassic environments, collections of fossils, and interactive exhibits. Don't forget to visit the gift shop (educators receive a 10% discount) and hike the nature trails surrounding our Exhibit Center on your own. There will be door prizes as well.

Note: No food is allowed in the building.

Forensics Close to Home $30

#F-2 Fri., Oct. 28 9:45–12:30 PM
#F-4 Fri., Oct. 28 1:30–4:15 PM

Did you know that insurance specialists use forensic science on all aspects of insurance losses? Visit the Travelers Forensic Laboratory for an overview of how forensic science helps in the analysis of fire debris, documents, lock and tool marks, boat sinking, and manufacturing defects. We'll tour the Industrial Hygiene Laboratory and Forensic Laboratory and see examples of forensic cases. You may see us investigate foreign objects in food, including cherry pits in a cherry pie or maybe something "wiggly" in food. If possible, the "Sting trailer," a trailer designed to crack down on cargo thefts, will be toured.

F-4: CANCELED

Waste Matters: An Interactive Tour of the CRRA Trash Museum $35

#F-3 Fri., Oct. 28 12:45–3:20 PM

Play "eye-spy" in the Temple of Trash; view up close the state-of-the-art single-stream recycling plant in action; meet red wigglers and learn about the importance of composting; play Recycle Match Game; see trash-to-treasure fine art; and discover how many hours your recycling can keep on a light bulb or a TV. Have fun as you learn about all aspects of integrated waste management, with an emphasis on reduce, reuse, recycle, recover, and rethink. For a unique shopping experience, there is also a gift shop where the items are made from recycled materials. Visit *http://crra.org/pages/Trash_Museum.htm* for more information on the CRRA Trash Museum.

Association of Science-Technology Centers (ASTC)

President: Margaret Glass

Thursday, October 27

9:30–11:30 AM	Immersive Professional Development Using the Work of Scientists	Travelers Science Hall, Science Center

Council for Elementary Science International (CESI)

President: Kay Atchison Warfield

Thursday, October 27

12:30–1:30 PM	Council for Elementary Science International Share-a-Thon	Ballroom C, Convention Center
2:00–3:00 PM	Council for Elementary Science International Presents Opportunities Galore	Ballroom C, Convention Center

Friday, October 28

8:30–10:30 AM	CESI Breakfast (Ticket M-1) Speaker: Loree Griffin Burns, Author, West Boylston, Mass.	Conference Room 7, Marriott

Council of State Science Supervisors (CSSS)

President: Peter McLaren

Thursday, October 27

3:30–4:30 PM	Interactive Inquiry: Effective, Fun, and Relevant	Community Room, Science Center

National Association for Research in Science Teaching (NARST)

President: J. Randy McGinnis

Friday, October 27

2:00–3:00 PM	Looking at Learning to Teach Science: Support for Student Teachers in Diverse High School Science Classrooms	Saratoga B, Hilton
3:30–4:30 PM	Digital Resources in the Elementary Science Classroom: TPACK in Action	Saratoga B, Hilton

National Middle Level Science Teachers Association (NMLSTA)

President: Rajeev Swami

Friday, October 28

9:30–10:30 AM	Classroom Demonstrations on a Budget	Discovery Center Lab 4, Science Center
11:00 AM–12 Noon	Science and Special Education: Instructional Strategies That Work	Discovery Center Lab 4, Science Center

National Science Education Leadership Association (NSELA)

President: Susan Koba

Thursday, October 27

12:30–1:30 PM	Tools for Science Leaders	Silas Deane, Hilton
2:00–3:00 PM	Preservice Teachers and Science Leadership: Collaborating in Support of New Teachers to Impact Student Learning	Silas Deane, Hilton

Society for College Science Teachers (SCST)

President: Brian Shmaefsky

Friday, October 28

9:30–11:30 AM	*Lecture-Free Teaching: A Learning Partnership Between Science Educators and Their Students*	Mark Twain, Hilton

FREE

HANDS-ON WORKSHOPS

Friday, October 28 • Room 15	
8:00am - 9:00am	Biology—Cell Respiration in Germinating Peas
9:30am - 10:30am	Physics & Physical Science—Investigating Motion
11:00am - 12:00pm	Middle School—Investigating earthquakes: Bringing Science and Technology Together *Featuring* Sally Ride Science - Key Concepts in Science
1:00pm - 2:00pm	Chemistry—Atmospheric Pressure
2:30pm - 3:30pm	Renewable Energy Exploration—Solar and Wind Power

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STEM EDUCATOR AWARD

NSTA National Science Teachers Association

8:00 AM–5:00 PM Meetings

FOSS K–5 2012 Revision Meeting
(By Invitation Only) *Capital 2, Marriott*

FOSS Middle School Institute
(By Invitation Only) *Capital 3, Marriott*

8:30 AM–3:30 PM Preconference Workshop

Picture-Perfect Science Preconference Workshop (C-1)
(Elementary) *Marriott Ballroom A&B, Marriott*
By Preregistration Only
Karen Ansberry *(karen@pictureperfectscience.com),* Classroom Veteran and Award-winning Author of *Picture-Perfect Science Lessons, Expanded 2nd Edition, 3–6* and *More Picture-Perfect Science Lessons, K–4,* Mason, Ohio
Emily R. Morgan *(emily@pictureperfectscience.com),* Classroom Veteran and Award-winning Author of *Picture-Perfect Science Lessons, Expanded 2nd Edition, 3–6* and *More Picture-Perfect Science Lessons, K–4,* West Chester, Ohio
For description, see page 34.

12 Noon–1:00 PM Luncheon

FOSS Luncheon
(By Invitation Only) *Marriott Ballroom C, Marriott*

8:00–9:00 AM Presentations

SESSION 1 (two presentations)
(Elementary–High School) *Connecticut Salon B, Hilton*

Using FLIPS to Solve Formula-based Problems in Science (Chem)
Malcolm S. Cheney *(cheneymac@comcast.net),* Retired Educator, Windsor, Conn.
FLIPS is a mnemonic in which each letter stands for the five steps for solving a formula-based problem typically found in physical and chemical science classes.

Using the Classroom Walk-Through to Improve Instructional Strategies (Gen)
Malcolm S. Cheney *(cheneymac@comcast.net),* Retired Educator, Windsor, Conn.
The Classroom Walk-through is a series of short visits to a classroom by a peer or supervisor to identify best instructional practices and improve the quality of instruction department-wide. Receive a check-off form and strategies to introduce the process in your school.

SESSION 2
Garage Physics (Phys)
(General) *Hilton Ballroom Center, Hilton*
Daryl Taylor *(booboo@darylscience.com),* Greenwich High School, Greenwich, Conn.
Using common household items—like toys, tools, and food—this fast-paced demonstration tour will arm you with more than 30 ideas to use in class next week. Freebies for all!

SESSION 3
The Language of Science Through Collaboration and Coaching (Gen)
(Middle Level–High School) *Nathan Hale, Hilton*
Patricia Aube *(aubep@fitchburg.k12.ma.us)* and **Bonnie Baer-Simahk** *(baer-simahkb@fitchburg.k12.ma.us),* Fitchburg (Mass.) Public Schools
Learn how partnerships between science and language teachers were developed in a multicultural district. We'll share tools to support participants in initiating teacher collaboration.

Science Area

A science area category is associated with each session. These categories are abbreviated in heavy type at the right immediately following the session title. On page 146 you will find the conference sessions grouped according to their assigned science area category.

The science areas and their abbreviations are:

(Bio) = Biology/Life Science
(Chem) = Chemistry/Physical Science
(Earth) = Earth/Space Science
(Env) = Environmental Science
(Gen) = Integrated/General Science
(Phys) = Physics/Physical Science

Strands

The Hartford Conference Committee has planned the conference around the following four strands, enabling you to focus on a specific area of interest or need. Strand events are identified by icons throughout the daily program. For strand descriptions, see page 26.


From the Roots to the Fruits of STEM


Sustainability: Green Is Growing!


Integrating Literacy: Cross-pollinating the Curriculum

Other Icons

The following icons will be used throughout this program.

NSTA Avenue Sessions


NSTA Press Sessions

SESSION 4

Science: The WRITE Way **(Phys)**
(Middle Level–High School) *Silas Deane, Hilton*
Nancy Gifford *(ngiffordqrs@hotmail.com),* Harwich Middle School, Harwich, Mass.
Carolyn Jacobs *(carolyn_jacobs@wgbh.org),* WGBH Teachers' Domain, Boston, Mass.
There *IS* something new under the Sun! Help your struggling readers and writers master science topics through interactive media and structured literacy activities.

SESSION 5 (two presentations)
(Elementary–High School) *Capital 1, Marriott*
Presider: Erica G. Ferland *(eferland@claremont.k12.nh.us),* Stevens High School, Claremont, N.H.
Bolstering Students' Understanding of Biodiversity **(Env)**
Cornelia Harris *(harrisc@caryinstitute.org),* Cary Institute of Ecosystem Studies, Millbrook, N.Y.
Using a school yard investigation that is easily replicated, we have developed a learning progression for teaching biodiversity in grades 6–12.

Twin State Mercury Project: Authentic Research in the Science Classroom **(Env)**
Jennifer Stainton, Woodstock Union High School, Woodstock, Vt.
Erica G. Ferland *(eferland@claremont.k12.nh.us),* Stevens High School, Claremont, N.H.
We'll share our experiences incorporating student-centered, long-term inquiry research projects on environmental mercury into our science classes.

SESSION 6

NOAA in Your Backyard **(Gen)**
(Elementary–High School) *Capital 2, Marriott*
Lindsay Knippenberg *(lindsay.knippenberg@noaa.gov),* Einstein Fellow, NOAA, Washington, D.C.
NOAA has hundreds of facilities and professional communicators across the nation. Get connected to NOAA guest speakers, field trips, and professional development in your area.

SESSION 7

Teach STEM? NASA Explorer Schools Can Help! (Gen)

(General) *Capital 3, Marriott*

Rob LaSalvia, NASA Glenn Research Center, Cleveland, Ohio

Presider: Jodie Rozzell, Director, NASA Explorer Schools, NSTA, Arlington, Va.

NASA Explorer Schools (NES) has searched thousands of materials on the NASA website to provide a comprehensive set of free STEM concepts teaching materials for grades 4–12.

SESSION 8

ASEE Session: eGFI: Engineering, Go For It!—Dream Up the Future (Gen)

(General) *Marriott Ballroom A, Marriott*

Stacie Harrison *(s.harrison@asee.org)* and **Dennis P. Cummings** *(d.cummings@asee.org),* American Society for Engineering Education, Washington, D.C.

Presider: William E. Kelly, American Society for Engineering Education, Washington, D.C.

The American Society for Engineering Education (ASEE) and university faculty will introduce teachers to innovative ways to introduce engineering into the K–12 classroom.

SESSION 9

Outstanding Print Resources, Science Literacy Skills, and Hands-On Investigations: Don't Settle for One Without the Others! (Gen)

(General) *Marriott Ballroom C, Marriott*

Donna L. Knoell *(dknoell@sbcglobal.net),* Educational Consultant, Shawnee Mission, Kans.

Receive an overview highlighting quality science print resources along with appropriate hands-on explorations to accompany them and literacy strategies to assist students in reading science texts with understanding.

SESSION 10 (two presentations)

(General) *Marriott Ballroom D, Marriott*

Teach Science Content and Inspire STEM Careers with FREE Online Web Adventures (Gen)

Yvonne Klisch *(yvonne.klisch@rice.edu)* and **Lynn Lauterbach** *(lynnlauterbach@gmail.com),* Rice University, Houston, Tex.

Spark your students' interest in STEM careers with interactive simulations of real jobs in science.

A STEM Community? (Gen)

Christopher Stone *(cstone@wallingford.k12.ct.us),* Pond Hill Elementary School, Wallingford, Conn.

David R. Baker *(david.baker@peoples.com),* Wallingford Education Foundation, Wallingford, Conn.

This session will provide participants with an opportunity to view a structure and take part in a strategy-based discussion for raising STEM awareness and importance in their communities. Participants will leave with a general implementation guide and potential resources to "hit the ground running" in their communities.

SESSION 11

The Magic Web: Outstanding Trade Books (Gen)

(Elementary) *Discovery Center Lab 1, Science Center*

Juliana Texley *(jtexley@att.net),* Palm Beach State College, Boca Raton, Fla.

Suzanne Flynn *(suzannemflynn@earthlink.net),* Lesley University, Cambridge, Mass.

Each year NSTA and CBC name outstanding trade books. Learn who wins and explore two units featuring mathematics, physical science, and great literature using winners.

SESSION 12

The Reflective Assessment Technique: 15 Minutes to Improved Instruction (Gen)

(Elementary–Middle Level) *Discovery Ctr. Lab 3, Science Center*

Kathy Long *(klong@berkeley.edu),* Lawrence Hall of Science, University of California, Berkeley

Arthur Camins *(arthurcamins@gmail.com),* CIESE/Steven Institute of Technology, Hoboken, N.J.

Learn a quick assessment technique that pinpoints what students need to learn next—without giving a quiz. See how it improved student performance and teacher effectiveness in a national study.

8:00–9:00 AM Workshops

Is This Your First NSTA Conference? (Gen)
(General) *Ballroom C, Convention Center*
NSTA Board and Council
Feeling overwhelmed by all there is to see and do at an NSTA conference on science education? Join us for an interactive walk through the conference program. By the end of the session, we guarantee you'll know just how to get the most from your conference participation. Door prizes! Refreshments courtesy of Carolina Biological Supply Company.

NSTA Press Session: Using Data to Solve "Earth Science Puzzles" (Env)
(Middle Level–High School) *Ethan Allen, Hilton*
Margie Turrin *(mkt@ldeo.columbia.edu)* and **Kim A. Kastens** *(kastens@ldeo.columbia.edu),* Lamont-Doherty Earth Observatory, Columbia University, Palisades, N.Y.
Empower your students to learn science the way scientists do—from collected evidence! Infuse Data Puzzles into your Earth and environmental science curriculum.

What Is Your Cosmic Connection to the Elements? (Chem)
(High School) *Hartford Commons, Hilton*
Cheryl Niemela, Bonney Lake High School, Bonney Lake, Wash.
Walk away with NASA activities and curricula that explore the origin of the periodic elements. Take home a workbook, poster, and *Imagine the Universe* DVD.

ACS Middle Level Session: Solids, Liquids, and Gases: The Kinetic-Molecular Theory of Matter (Chem)
(Middle Level) *Hilton Ballroom East, Hilton*
James H. Kessler *(jhkessler@acs.org),* American Chemical Society, Washington, D.C.
Explore solids, liquids, and gases on the molecular level to discover how heating and cooling affect matter.

Make-It and Take-It: The Unseen World of Macro (Gen)
(General) *Marriott Ballroom B, Marriott*
Mitchell E. Batoff *(mbatoff@aol.com),* Professor Emeritus, New Jersey City University, Nutley
Presider: Russ Harding *(russstar@juno.com),* Consultant, Stamford, Conn.
In this new hands-on workshop, you will go beyond the naked eye to explore an amazing world that few people experience and take samples of your work back to your classroom. You need to bring your digital camera and, if possible, the instruction booklet. This fascinating workshop is limited to the first 20 people.

Green Your School! Integrating Science with Service Learning (Gen)
(Elementary–High School) *Marriott Ballroom E, Marriott*
Joyce B. Tugel *(jtugel@mmsa.org),* Maine Mathematics and Science Alliance, Augusta
Rob Lindsay *(lindsr@portlandschools.org),* Lincoln Middle School, Portland, Maine
Learn how teachers and students can link science content with service learning to identify and research environmental science issues, explore solutions, and implement change.

8:00–9:15 AM Exhibitor Workshops

New Approaches to Basic Electrophoresis (Bio)
(Grades 7–College) *11, Convention Center*
Sponsor: Edvotek
Khuyen Mai *(info@edvotek.com)* and **Tom Cynkar** *(info@edvotek.com)*, Edvotek, Bethesda, Md.
Join us to explore and take back to your class the basics of gel electrophoresis. Load your own gels and perform electrophoresis. EDVOTEK Dye Molecular Biology experiments are designed for introductory biology college, high school, and upper middle school students. These experiments include DNA fingerprinting, paternity determination, and cancer diagnostics.

Dive into STEM with GEMS® Ocean Sciences Sequence (Gen)
(Grades 3–5) *13, Convention Center*
Sponsor: Carolina Biological Supply Co.
Carolina Teaching Partner
Create STEM connections with the new Ocean Sciences Sequence for Grades 3–5 from GEMS and the Lawrence Hall of Science. Explore the connections between man, nature, and the ocean while enforcing key STEM concepts. Complete hands-on activities and leave with samples and lessons for your classroom.

The Layered Earth! (Earth)
(Grades 5–12) *14, Convention Center*
Sponsor: Simulation Curriculum Corp.
Seth Meyers *(smeyers@simcur.com),* Simulation Curriculum Corp., Brooklyn, N.Y.
Join us for an interactive Earth science curriculum designed for today's classroom! What powers the internal processes that produce volcanoes, earthquakes, and mountains? What is the rock cycle and how does it work? What really is an earthquake, and when and where will the next earthquake be? Exactly how are volcanoes formed? Come experience The Layered Earth, a 3-D interactive geology curriculum.

Stop Teaching and Start Coaching AP Chemistry (Chem)
(Grades 9–12) *17, Convention Center*
Sponsor: Pearson
Ed Waterman, Retired Educator, Fort Collins, Colo.
Make the transition from AP Chemistry teacher to coach and help students score well on the Advanced Placement Chemistry exam, even with limited time. Acquire rich resources, including an AP Test Prep book that gets results. This session is correlated to *Chemistry, The Central Science* by Brown and LeMay.

STEM-focused Technology Activities Using Inquiry Investigations™ (Gen)
(Grades 7–12) *21, Convention Center*
Sponsor: Frey Scientific/School Specialty Science
Belinda Gaves, Consultant, Petersburg, Ohio
Conduct a STEM-focused activity that links science concepts and new USB U-Log™ data logging technology, which integrates technology and hands-on inquiry. Examine STEM-focused assets in this curriculum series and see how program software allows the integration of virtual labs and investigative activities, as well as the preparation of web-based content and individualized assessment.

Learning the Design Process—Experiment or Product? (Gen)
(Grades K–6) *22, Convention Center*
Sponsor: Delta Education/School Specialty Science
Johanna Strange, Consultant, Richmond, Ky.
Tom Graika, Consultant, Lemont, Ill.
Having trouble getting students ready for science fairs and STEM performances? Learn an effective method for teaching students to design experiments from simple investigations. The same process can help students crystallize engineering ideas. Learn about Delta products and take home resources.

Ecology Adventures: Motivating Students Through Project Based Learning (Gen)
(Grades 3–8) *25, Convention Center*
Sponsor: Houghton Mifflin Harcourt
Michael Heithaus, Florida International University, North Miami
Join Houghton Mifflin Harcourt author Mike Heithaus to learn about exciting new video-based lessons that take your class on scientific adventures! Videos of real scientists studying sharks, sea turtles, dolphins, and more guide students through all the steps of the scientific method. Challenge your students to develop hypotheses, join research teams as they collect data, and then conduct their own data collection and analysis.

Cool Tech Tools for Life Science: Really Easy Data Collectors (Bio)
(Grades 7–11) *26, Convention Center*
Sponsor: Science Kit & Boreal Laboratories
Robin Tomasino, Masconomet Regional School, Topsfield, Mass.
Join us for an interactive and energetic workshop that goes far beyond how to use the Really Easy Data (RED) units and focuses on how to integrate the RED technology into your classroom or laboratory. Engage in hands-on activities examining concepts such as phototaxis in animal behavior (using a light sensor) and muscle fatigue (using a gas sensor).

8:00–9:30 AM Exhibitor Workshop

Chemistry and the Atom: Fun with Atom-building Games! (Phys)

(Grades 6–12) *24, Convention Center*

Sponsor: CPO Science/School Specialty Science

Erik Benton, CPO Science/School Specialty Science, Nashua, N.H.

Our understanding of matter is so abstract that students have a hard time making sense of these fascinating concepts. In this workshop you will experience innovative games and activities that give students with different learning styles opportunities to explore and grasp atomic structure and the periodic table.

8:00–10:30 AM Exhibitor Workshop

Using Science Notebooks with FOSS (Gen)

(Grades K–8) *23, Convention Center*

Sponsor: Delta Education/School Specialty Science–FOSS

Brian Campbell and **Jessica Penchos,** Lawrence Hall of Science, University of California, Berkeley

Ellen Mintz, Charleston County Schools, Charleston, S.C.

Virginia Reid, Consultant, Olympia, Wash.

Learn essential components for implementing science notebooks in K–8 classrooms. Through active investigations using FOSS elementary and middle school program investigations, you'll explore how notebooks impact achievement by providing a tool for building students' conceptual understanding and for finding evidence of learning. Sample materials will be distributed.

8:00 AM–12 Noon Short Course

Building Tomorrow's Workforce (SC-1)

(Grades 4–9) *Discovery Center Lab 4, Science Center*

Tickets Required: $48

Arloa Woolford *(wimef@womeninmining.org),* Women in Minding Education Foundation, Winnemucca, Nev.

For description, see page 35.

9:15–10:30 AM General Session

Science at the Frontier of Space: Where We Are Going…

(General) *Ballroom B, Convention Center*

James B. Garvin, Chief Scientist, NASA Goddard Space Flight Center, Greenbelt, Md.

Presider: Patricia Simmons, NSTA President, and North Carolina State University, Raleigh

Platform Guests: James B. Garvin; Patricia Simmons; Alan J. McCormack, NSTA Retiring President, and San Diego State University, San Diego, Calif.; Karen Ostlund, President-Elect, and Retired Professor, The University of Texas at Austin; Patricia O. Ruane, NSTA Director, District I, Chairperson, NSTA Hartford Area Conference, and St. Augustine Cathedral School, Bridgeport, Conn.; Rachael Manzer, President, Connecticut Science Teachers Association (CSTA), Program Coordinator, NSTA Hartford Area Conference, and Annie Fisher STEM Magnet School, Hartford, Conn.; Lynn Gatchell, President, Massachusetts Association of Science Teachers (MAST), Oak Bluffs; Sandra M. Justin, Local Arrangements Coordinator, NSTA Hartford Area Conference, Vernon, Conn.; Francis Q. Eberle, NSTA Executive Director, Arlington, Va.

NASA's programs of scientific discovery have rewritten the textbooks multiple times over the past 50 years as we have struggled to learn of our place in the universe. Current space missions and those to come have catalyzed scientific revolutions about our home planet Earth, life beyond our planet, and the foundations of the physics of the Sun and universe. These missions have also discovered hundreds of planets orbiting nearby stars. Today we are on the frontier of science as we explore the accessible universe and prepare for a future with people and machines exploring together.

In his present position as chief scientist for NASA Goddard Space Flight Center, Dr. Garvin is responsible for development of multidisciplinary scientific strategies for Earth and planets. He has served NASA in his present position since late 2005. His work has led to development of new mission concepts and architectures for exploring Mars, Venus, the Moon, and asteroids.

9:30–11:30 AM Presentation

SESSION 1

ASTC Session: Immersive Professional Development Using the Work of Scientists (Gen)

(General) *Travelers Science Hall, Science Center*

Jim Short *(jshort@amnh.org),* American Museum of Natural History, New York, N.Y.

Explore what we know about effective professional development and the role informal science can play in using the work of scientists to develop resources and model learning experiences for teachers and students. We will examine how formal/informal collaborations can help improve inquiry-based teaching and student learning.

10:00–11:15 AM Exhibitor Workshops

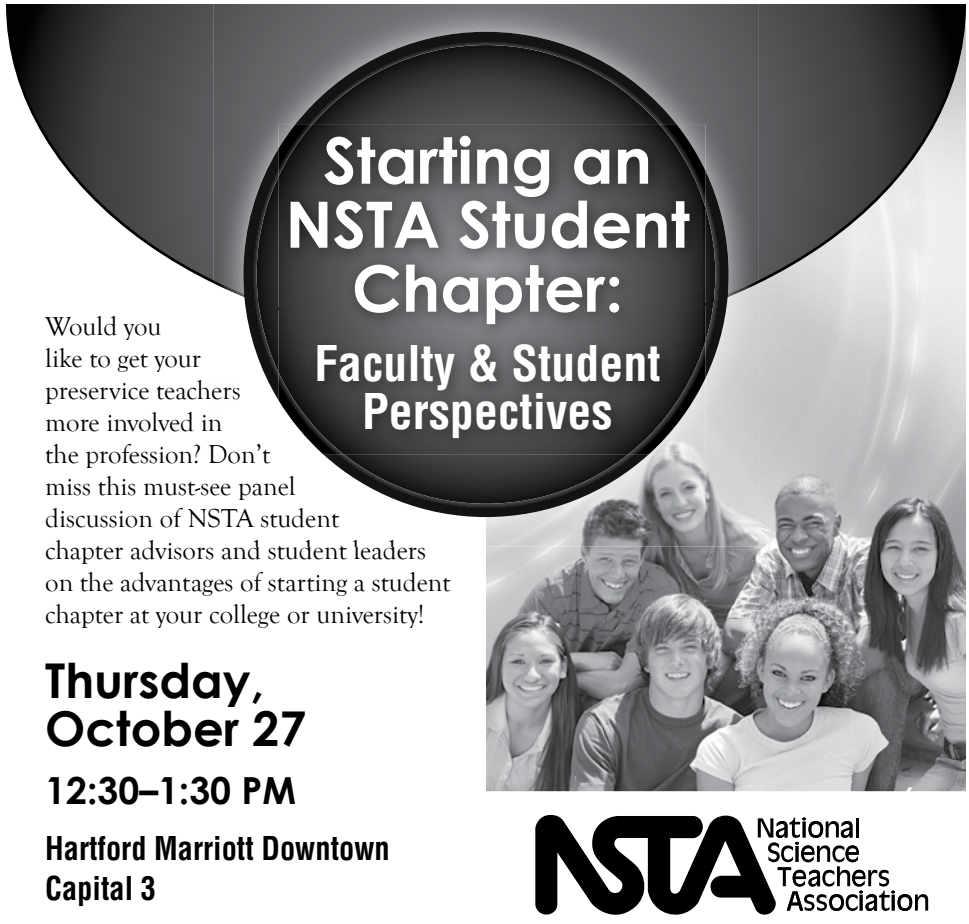
Whose DNA Was Left Behind? Are You Ready to Teach 30-Minute Forensics Experiments? (Bio)

(Grades 7–College) *11, Convention Center*

Sponsor: Edvotek

Khuyen Mai *(info@edvotek.com)* and **Tom Cynkar** *(info@edvotek.com),* Edvotek, Bethesda, Md.

The first part of this workshop focuses on procedures used in DNA fingerprinting as crime scene Ready-to-Load™ samples are compared against suspect samples. The second experiment covers principles and practice of blood type–based screening for suspects who may have been present at the crime scene. Your students can solve a crime!



Autopsy: Forensic Dissection Featuring Carolina's Perfect Solution® Pigs (Bio)
(Grades 8–12) *12, Convention Center*
Sponsor: Carolina Biological Supply Co.
Carolina Teaching Partner
Are you ready for a cutting-edge forensic dissection activity? Engage students and revitalize your instruction of mammalian structure and function with a "real" classroom autopsy! Dissect a Carolina's Perfect Solution pig by modeling the protocols of a forensic pathologist. Free materials and door prizes.

New Tools for STEM Education from Carolina™ Curriculum (Gen)
(Grades K–8) *13, Convention Center*
Sponsor: Carolina Biological Supply Co.
Carolina Teaching Partner
Explore new STEM resources, including STC–Secondary™, Building Blocks of Science® kindergarten units, and the elementary math intervention program, Math Out of the Box®. Engage in hands-on activities from newly released materials and leave with samples and lessons to use in your classroom.

Starry Night Education! (Earth)
(Grades 5–12) *14, Convention Center*
Sponsor: Simulation Curriculum Corp.
Seth Meyers *(smeyers@simcur.com),* Simulation Curriculum Corp., Brooklyn, N.Y.
Walk away with an interactive astronomy curriculum, lesson plans, and simulations for today's classroom! Join us as we explore the center of the Milky Way and examine the Sun and our solar neighborhood. Using the Starry Night curriculum, we'll examine star clusters and the black hole at the center of the Milky Way and demonstrate the power of this amazing interactive curriculum.

Teaching Chemistry with Molecular-Level Visualization and Simulation Tools (Chem)
(Grades 8–College) *15, Convention Center*
Sponsor: Wavefunction, Inc.
Jurgen Schnitker *(sales@wavefun.com),* Wavefunction, Inc., Irvine, Calif.
Widely recognized as a powerful teaching tool, molecular modeling is now a common component of introductory chemistry classes at the college level. Join us for this hands-on workshop and learn how to integrate state-of-the-art modeling into the high school curriculum for both regular and AP chemistry. Bring your own laptop (Windows or Mac OS X) or use a laptop provided for the workshop.

***Living By Chemistry:* Create a Table (Chem)**
(Grades 9–12) *16, Convention Center*
Sponsor: Key Curriculum Press
Jeffrey Dowling *(jdowling@keypress.com),* Key Curriculum Press, Emeryville, Calif.
Teach rigorous chemistry with guided inquiry! Let's explore activities that introduce the periodic table and other core chemistry concepts through a historical context. Take home free sample lessons and materials from the *Living By Chemistry* curriculum.

The Next Generation of Science Virtual Labs for the Entire Science Curriculum! No Cleanup (Gen)
(Grades 9–12) *17, Convention Center*
Sponsor: Pearson
Brian Woodfield, Brigham Young University, Provo, Utah
Brian Woodfield, author and creator of Pearson's *Virtual Lab* series, will demo some of his latest eye-popping virtual labs, which are so visually realistic you have to see them to believe them! Whether you are short on time or short on lab materials, virtual labs gives students the opportunity to experiment numerous times with various materials and no cleanup.

STEM-focused Forensics Activities Using Inquiry Investigations™ (Gen)
(Grades 7–12) *21, Convention Center*
Sponsor: Frey Scientific/School Specialty Science
Belinda Gaves, Consultant, Petersburg, Ohio
Conduct a number of STEM-focused forensic activities that link the scientific method with analysis and investigative skills to solve multifaceted "cases" involving fingerprint, trace, DNA, and document evidence. Examine additional STEM-focused assets and see how the program software allows the integration of virtual labs and investigative activities, as well as the preparation of web-based content and individualized assessment.

Delta Science Modules (DSM)…Never Heard of It? Want to Know More? (Gen)
(Grades K–7) *22, Convention Center*
Sponsor: Delta Education/School Specialty Science
Johanna Strange, Consultant, Richmond, Ky.
Tom Graika, Consultant, Lemont, Ill.
This workshop will involve you with all parts of the DSM program, including hands-on activities, literacy connections, kit components, assessments, and ideas for building a K–8 standards-based curriculum. Receive literacy samples and activity resources.

Connecting to Chemistry: Igniting Student Motivation with STEM Examples and Ideas (Chem)
(Grades 9–12) *25, Convention Center*
Sponsor: Houghton Mifflin Harcourt
Michael DiSpezio, Science Writer and Educational Consultant, North Falmouth, Mass.
Join Michael DiSpezio for this minds-on/hands-on overview of inspiring examples that integrate STEM into the chemistry curriculum. Learn ways to teach gas solubility based upon the bends and the building of the Brooklyn Bridge! Who is Synthia and is she proof positive that biochemists can create artificial life-forms? Will fuel cells propel us into the future? Find out how to hook your students on the STEM/Chem connection!

Chemistry In-the-Bag Inquiry Workshop (Chem)
(Grades 8–12) *26, Convention Center*
Sponsor: Science Kit & Boreal Laboratories
Bette A. Bridges and **Harvey Gendreau,** Laboratory Safety Institute, Natick, Mass.
Join us for this hands-on workshop and learn how to easily incorporate fun and exciting inquiry activities into your classroom with ScholAR's new In-the-Bag Inquiry Activity series. These easy-to-perform demonstrations are designed to engage your students and then incorporate guided inquiry exercises so they can further explore and understand the concept.

10:00–11:30 AM Exhibitor Workshop

Genetics: Crazy Traits and Adaptation Survivor (Phys)
(Grades 6–12) *24, Convention Center*
Sponsor: CPO Science/School Specialty Science
Patsy Eldridge, CPO Science/School Specialty Science, Nashua, N.H.
Students learn new vocabulary when they study genetics—such as traits, alleles, and genotypes. How can you predict the traits of offspring when you know the genetic makeup of the parents? These ideas will come alive as you create crazy creatures with a unique kit and study the resulting population.

11:00–11:05 AM Exhibits Opening/Ribbon Cutting Ceremony

NSTA Exhibits Entrance (Hall A/B), Convention Center

Presider: Patricia Simmons, NSTA President, and North Carolina State University, Raleigh

Welcoming Remarks: Patricia O. Ruane, NSTA Director, District I; Chairperson, NSTA Hartford Area Conference; and St. Augustine Cathedral School, Bridgeport, Conn.

Special Guests: Alan J. McCormack, NSTA Retiring President, and San Diego State University, San Diego, Calif.; Karen Ostlund, President-Elect, and Retired Professor, The University of Texas at Austin; Rachael Manzer, President, Connecticut Science Teachers Association (CSTA), Program Coordinator, NSTA Hartford Area Conference, and Annie Fisher STEM Magnet School, Hartford, Conn.; Lynn Gatchell, President, Massachusetts Association of Science Teachers (MAST), Oak Bluffs; Sandra M. Justin, Local Arrangements Coordinator, NSTA Hartford Area Conference, Vernon, Conn.; Francis Q. Eberle, NSTA Executive Director, Arlington, Va.; Rick Smith, NSTA Managing Director, Advertising, Exhibits, and Workshops, Arlington, Va.

11:00 AM–12 Noon Presentations

SESSION 1

Association of Presidential Awardees in Science Teaching Share-a-Thon (Gen)

(Elementary–High School) *Ballroom C, Convention Center*

Kristen A. Record, Bunnell High School, Stratford, Conn.
Fred Myers *(myersf@glastonburyus.org),* Glastonbury (Conn.) Public Schools
Linda L. Smith *(elementary.science.teacher@gmail.com),* Loudenslager Elementary School, Paulsboro, N.J.
Jane E. Callery *(jcallery@crec.org),* CREC Magnet Schools, Hartford, Conn.

Join Presidential Awardees as they share some of their favorite classroom demos and activities. Come network with us and take home engaging lessons that are ready to use in your classroom.

SESSION 2

Square Pegs: Science for Those Other Kids (Gen)

(Middle Level–High School) *Hartford Commons, Hilton*

Juliana Texley *(jtexley@att.net),* Palm Beach State College, Boca Raton, Fla.

"Alternative" education takes many forms in districts across the country. Unorthodox behaviors or learning styles make students "square pegs." Learn great science for them.

SESSION 3

Making Waves (Phys)

(High School) *Hilton Ballroom Center, Hilton*

Susan Fennelly *(sfennelly@wethersfield.k12.ct.us)* and **Carol Paskiewicz** *(cpaskiewicz@wethersfield.k12.ct.us),* Wethersfield High School, Wethersfield, Conn.

Join us for this interdisciplinary math/physics presentation focusing on wave characteristics. Watch and discuss a video of a lab activity. Handouts!

SESSION 4

CSI Web Adventures (Bio)

(General) *Hilton Ballroom West, Hilton*

Kristi G. Bowling *(kmg4@rice.edu)* and **Lynn Lauterbach** *(lynnlauterbach@gmail.com),* Rice University, Houston, Tex.

Engage students in technology, teach forensic science, and encourage STEM careers. Developed with CBS and the American Academy of Forensics, this free award-winning website provides rookie training plus cases for students to solve. Handouts!

SESSION 5

Nonfiction Science Books Add Value to Your Classroom (Gen)

(General) *Marriott Ballroom C, Marriott*

Donna L. Knoell *(dknoell@sbcglobal.net),* Educational Consultant, Shawnee Mission, Kans.

Find out the advantages of using nonfiction science trade books to teach science literacy skills, while helping students build essential science knowledge and conceptual understanding. Learn strategies to help students read informational text and discover outstanding science books for your classroom. Handouts provided.

11:00 AM–12 Noon Workshops

ACS Middle Level Session: Changes of State: Evaporation and Condensation (Chem)

(Middle Level) *Hilton Ballroom East, Hilton*

James H. Kessler *(jhkessler@acs.org),* American Chemical Society, Washington, D.C.

Explore the process of evaporation and condensation on the molecular level to discover how heating and cooling affect the rate of these processes.

ASEE Session: NASA's BEST Students (Beginning Engineering, Science, and Technology) (Earth)

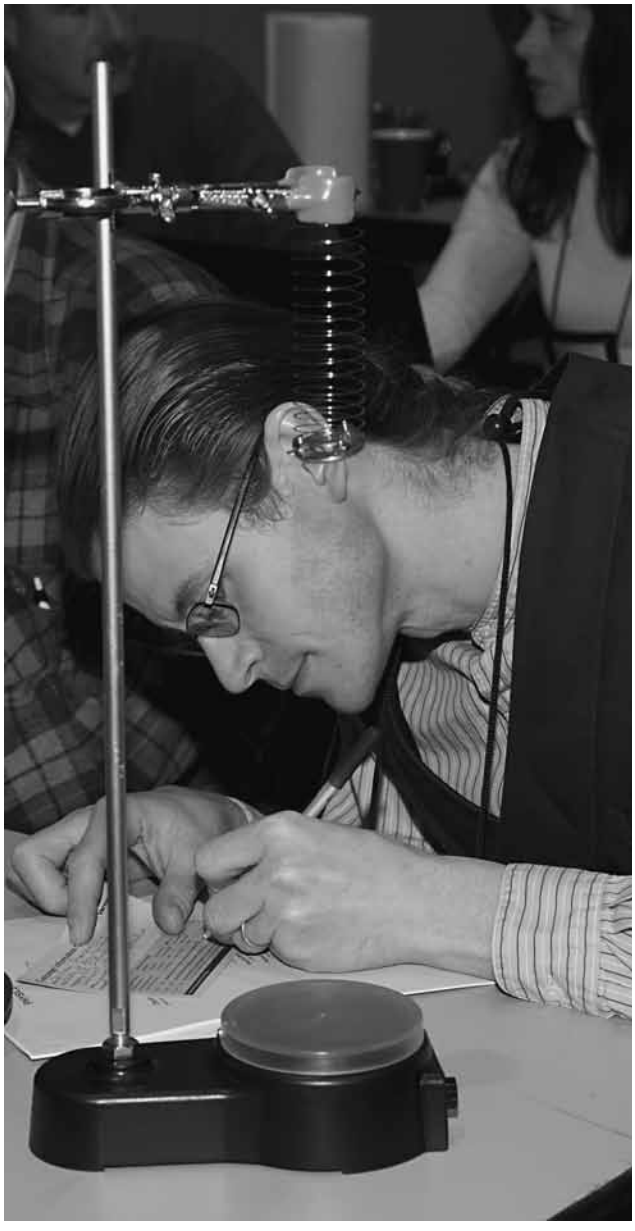
(General) *Marriott Ballroom A, Marriott*

Susan Hoban *(susan.hoban@nasa.gov),* NASA Goddard Space Flight Center, Greenbelt, Md.

Presider: William E. Kelly *(w.kelly@asee.org),* American Society for Engineering Education, Washington, D.C.

"*Nice Ride*!" Kids are natural engineers! Learn to capture the excitement of space exploration and engineering by designing and building an Exploration Buggy. *Zoom Zoom!*

Make It, Use It, and Take It Back to Your Classroom **(Gen)**
(General) *Marriott Ballroom B, Marriott*
Mitchell E. Batoff *(mbatoff@aol.com),* Professor Emeritus, New Jersey City University, Nutley
Presider: Ralph J. Yulo, Jr. *(oluy@aol.com),* Professor Emeritus, Eastern Connecticut State University, Willimantic
In this popular hands-on workshop—one of my best—you will construct a Rockcastle-type balance, solve the banana and raisin problems, experience SIX SURPRISES, and learn about a procedure that pervades all instrumentation in science and technology (A BIG IDEA). Get there early—the first 23 attendees will receive a set of materials!



11:05 AM–5:00 PM Exhibits

Hall A/B, Convention Center
Come see the most up-to-date science textbooks, software, equipment, and other teaching materials. Some exhibitors will offer materials for sale.

11:30 AM–1:00 PM Exhibitor Workshop

FOSS Program Evolution and the Next Generation Science Standards **(Gen)**
(Grades K–6) *23, Convention Center*
Sponsor: Delta Education/School Specialty Science–FOSS
Brian Campbell, Kathy Long, Larry Malone, and **Linda De Lucchi,** Lawrence Hall of Science, University of California, Berkeley
Learn about the latest developments in the FOSS elementary program to help schools address the Next Generation Science Standards. Focusing on the matter strand K–6, you will be introduced to the new FOSS, based on learning progressions and how the program incorporates science-centered language development, outdoor experiences, notebooks, and formative assessments.

12 Noon–1:15 PM Exhibitor Workshop

Incorporating Online Virtual Lab Solutions with Hands-On Science into Your Classroom **(Gen)**
(Grades 6–12) *21, Convention Center*
Sponsor: Frey Scientific/School Specialty Science
Belinda Gaves, Consultant, Petersburg, Ohio
Integrate technology and hands-on inquiry by linking e-learning with inquiry using web-based STEM-focused tools and the curriculum content of iNeo/SCI™. Participate and compare a plant pigment chromatography virtual and bench-top laboratory experience! Be able to provide your students with valuable hands-on laboratory experiences and AP, biology, and chemistry content that is standards correlated and student directed.

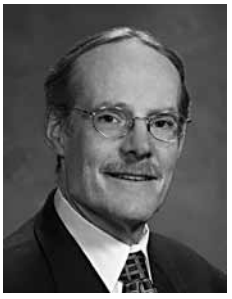
12 Noon–1:30 PM Exhibitor Workshop

Sound, Waves, and Music **(Phys)**
(Grades 6–12) *24, Convention Center*
Sponsor: CPO Science/School Specialty Science
Erik Benton, CPO Science/School Specialty Science, Nashua, N.H.
Come create and control beautiful standing wave patterns resonating on a vibrating string with CPO's wave machine. Use a synthesizer to explore the wave properties of sound. Play music on a set of PVC palm pipes and learn how to make sets of your own.

12:30–1:30 PM Featured Panel

Next Generation Science Standards **(Gen)**
(General) *Ballroom A, Convention Center*

Stephen L. Pruitt



Francis Q. Eberle

Panelists:

Stephen L. Pruitt *(spruitt@achieve.org),* Vice President for Content, Research, and Development, Achieve, Inc., Washington, D.C.

Francis Q. Eberle *(feberle@nsta.org),* NSTA Executive Director, Arlington, Va.

Presider: Liz Buttner, Connecticut State Dept. of Education, Hartford

Work is progressing to develop the Next Generation Science Standards. This informational session will provide an update on the development of these standards, including process and timeline for release of drafts and final documents, how science educators can be involved, and implications for science teaching.

With private funding from the Carnegie Corporation, the National Research Council (NRC) and Achieve—with support from NSTA and the American Association for the Advancement of Science (AAAS)—have embarked on a two-step cooperative process to develop the Next Generation Science Standards. The first step was to develop a conceptual framework that is grounded in current research on science and science learning and identifies the science all K–12 students should know. In July NRC released *A Framework for K–12 Science Education,* which now serves as the foundation for new K–12 science education standards. The next step will be the development of the standards. That state-led process is being managed by Achieve and will involve scientists, science teachers, policy makers, industry, and other interested parties. The standards are expected to be completed in late 2012.

Stephen Pruitt *was named vice president for Content, Research, and Development for Achieve, Inc., in November 2010. He joined Achieve as director of science in July 2010. In addition to his new role, he will continue to lead the development of the Next Generation Science Education Standards. Stephen began his career as a high school chemistry teacher in Georgia, where he taught for 12 years. In 2003, he joined the Georgia Department of Education as program manager for science. He served in that role for four years before becoming director of academic standards, where he oversaw the continued implementation of the Georgia Performance Standards in all content areas. In 2008 he became the associate superintendent of Assessment and Accountability, responsible for directing all state assessments and overseeing the No Child Left Behind accountability process.*

Francis Q. Eberle *is the executive director of the National Science Teachers Association, the world's largest professional organization representing science educators of all grade levels. Before joining the association's staff in September 2008, Dr. Eberle served as executive director of the Maine Mathematics and Science Alliance (MMSA), a 501(c)(3) nonprofit organization dedicated to improving mathematics and science education in that state. During his time there, he worked to develop state curriculum frameworks and provide professional development and resources to schools and teachers throughout Maine.*

12:30–1:30 PM Presentations

SESSION 1

Integrating Bioethical Case Studies into the Science Curriculum (Bio)

(High School) *Connecticut Salon A, Hilton*

Terry Maksymowych *(tmaksymowych@ndapa.org),* Academy of Notre Dame de Namur, Villanova, Pa.

The study of bioethics in the science classroom can encourage scientific literacy as well as the development of critical-thinking and problem-solving skills.

SESSION 2

Write Your Way to Success: Grant-writing Strategies for You and Your Chemistry Students (Chem)

(High School) *Connecticut Salon B, Hilton*

Kenetia Thompson *(k_thompson2@acs.org)* and **Marta Gmurczyk** *(m_gmurczyk@acs.org),* American Chemical Society, Washington, D.C.

Looking to fund your innovative ideas? We will give you pointers for writing a fundable proposal and share grant opportunities from the American Chemical Society.

SESSION 3

NSTA Press Session: Uncovering Students Ideas in Science: Formative Assessment for Teaching and Professional Development! (Gen)

(General) *Ethan Allen, Hilton*

Page Keeley *(pagekeeley@gmail.com),* 2008–2009 NSTA Preident, and Maine Mathematics and Science Alliance, Augusta

Learn how to use K–12 formative assessment probes to find out what your students (and teachers) really think about key ideas in science and how assessment data can fundamentally transform the classroom and professional development.

SESSION 4

Shall the Geeks Inherit Earth? Real-World STEM Career Pathways (Gen)

(Middle Level–High School) *Nathan Hale, Hilton*

Carolyn Jacobs *(carolyn_jacobs@wgbh.org),* WGBH, Boston, Mass.

Concerned about filling the STEM career pipeline? Explore how the Advanced Technological Education Television and *Engineer Your Life* programs showcase 21st-century technological careers.

SESSION 5

NSELA Session: Tools for Science Leaders (Gen)

(Supervision/Administration) *Silas Deane, Hilton*

Susan B. Koba *(skoba@cox.net),* NSELA President, Omaha, Neb.

Janey Kaufmann, NSELA Retiring President, Scottsdale, Ariz.

Elizabeth Allan *(eallan@uco.edu),* University of Central Oklahoma, Edmond

Jerry D. Valadez *(jdvscience@yahoo.com),* California State University, Fresno

Ted Willard *(twillard@aaas.org),* AAAS Project 2061, Washington, D.C.

Join us as we share tips, tools, and tactics that support various science leaders—from teacher leaders to district and state coordinators—in their efforts to support quality science teaching and learning. Small group sessions will focus on in-depth discussions on specific tools/ideas relating to a participant's context.

SESSION 6

Starting an NSTA Student Chapter: Faculty and Student Perspectives (Gen)

(General) *Capital 3, Marriott*

Howard Wahlberg *(hwahlberg@nsta.org)* Assistant Executive Director, Member, Chapter, and Customer Relations, NSTA, Arlington, Va.

Teshia Birts *(tbirts@nsta.org),* Senior Manager, Chapter Relations, NSTA, Arlington, Va.

Interested in getting your preservice teachers more involved in the profession? You won't want to miss this must-see panel discussion conducted by NSTA student chapter advisors on the advantages of starting an NSTA student chapter at your college or university.

SESSION 7

ASEE Session: UTeach*Engineering:* NASA Design Challenges (Earth)

(General) *Marriott Ballroom A, Marriott*

Lisa Guerra *(lisa.a.guerra@nasa.gov),* The University of Texas at Austin

Presider: William E. Kelly *(w.kelly@asee.org),* American Society for Engineering Education, Washington, D.C.

Receive an overview of the UTeach*Engineering* high school course being piloted, including how the NASA design challenges are being incorporated. Participants will learn about future replication plans and associated professional development.

SESSION 8

Visual Tools for Accelerated and Inclusive Learning (Gen)

(General) *Marriott Ballroom C, Marriott*

Roger Essley *(ressley@aol.com),* Independent Researcher, Newmarket, N.H.

Jonathan B. Moss *(jmoss@portsmouth.k12.nh.us),* Portsmouth High School, Portsmouth, N.H.

See how groundbreaking visual tools boost comprehension, focus discussion, and make content easier to grasp. Students' hands-on science visualizations accelerate learning and promote inclusion.

SESSION 9

Suited for Spacewalking (Gen)

(General) *Marriott Ballroom D, Marriott*

Richard S. Varner *(richard.s.varner@nasa.gov),* NASA Goddard Space Flight Center, Greenbelt, Md.

Thomas Stoecklin *(tom.stoecklin@hs.utc.com),* **Steve Dionne, Kevin Renfro** *(kevin.renfro@hs.utc.com),* **Robert Rossato** *(robert.rossato@hs.utc.com),* and **Dave Etter,** Hamilton Sundstrand, Windsor Locks, Conn.

NASA education specialists and Hamilton Sundstrand engineers provide hands-on classroom materials and apply STEM to the real world through demonstrations of actual NASA space suit hardware.

SESSION 10

Environmental Literacy Plans: Why, Where, and How (Env)

(Elementary–Middle Level) *Marriott Ballroom E, Marriott*

Meg K. Edstrom *(meg@fbes.org),* Ferry Beach Ecology School, Saco, Maine

Impact study results indicate that effective Environmental Literacy Plans instill environmental literacy by using school grounds, field trips, overnight programs, and hands-on field ecology. Discover how to create your own!

SESSION 11

Using Music to Teach Science (Bio)

(General) *Community Room, Science Center*

Keith D. Smolinski *(smolinsk.keith@snet.net),* Roger Ludlowe Middle School, Fairfield, Conn.

Learn strategies for using music to help your students learn their science content and vocabulary. Get practical interdisciplinary ideas.

SESSION 12

Create a Science Lab for Young Children—An Elementary STEM Program Model You Can Replicate (Gen)

(Elementary) *Discovery Center Lab 3, Science Center*

Donna I. Rand *(drand@crec.org),* East Hartford-Glastonbury Magnet School, East Hartford, Conn.

Your school can replicate an exciting science "inquiry- and standards-based" laboratory for young children! Low-cost resources, activities, and flexible scheduling create new scientists and engineers!

12:30–1:30 PM Workshops

CESI Session: Council for Elementary Science International Share-a-Thon (Gen)

(Preschool–Middle Level) *Ballroom C, Convention Center*

Barbara Z. Tharp *(btharp@bcm.edu),* Baylor College of Medicine, Houston, Tex.

Join CESI as we share a wealth of ready-to-use, classroom-tested, hands-on activities created just for the K–8 teacher. Handouts and website links!

"Seeing" the Invisible: Exploring the Electromagnetic Spectrum (Phys)

(Middle Level–High School) *Hilton Ballroom Center, Hilton*

Christine A. Royce *(caroyce@aol.com),* NSTA Director, Professional Development, and Shippensburg University, Shippensburg, Pa.

How do we "see" something that exists but is not visible? Participants will explore the properties of light waves—from radio to ultraviolet—in an effort to answer this question.

ACS Middle Level Session: Density: A Molecular View (Chem)

(Middle Level) *Hilton Ballroom East, Hilton*

James H. Kessler *(jhkessler@acs.org),* American Chemical Society, Washington, D.C.

Explore the density of different materials to understand how atoms and molecules affect the density of different substances.

Helping High School Students Write Their Own Scientific Experiments (Bio)

(High School) *Hilton Ballroom West, Hilton*

Kristen R. Dotti *(kristen_dotti@yahoo.com),* Christ School, Arden, N.C.

Writing lab experiments can be a huge leap for students accustomed to cookbook-style labs. Try it yourself during this session and you will see where the pitfalls occur and where the critical thinking begins. Take away lesson plans for a simple technique that can be used to guide your students through the process of developing high-quality scientific experiments in a step-by-step manner.

Your Source of Energy: Exploring the Fuels That Power Your State (Gen)

(Middle Level–High School) *Marriott Ballroom B, Marriott*

Laurel Kohl *(kohll@easternct.edu)* and **Laura S. Worthington** *(worthingtonl@easternct.edu),* Eastern Connecticut State University, Willimantic

Fossil fuels or renewables? Your state relies on both for electricity. Help your students understand where and how you get electricity. Visit *www.ctenergyeducation.com* for great data exploration with free resources.

Leveling the Playing Field in STEM **(Gen)**
(Elem.–Middle Level/Informal) *Discovery Ctr. Lab 2, Science Center*
Maryann Stimmer *(mstimmer@fhi360.org)* and **Ben Dworken** *(bdworken@fhi360.org),* Educational Equity Center at FHI 360, New York, N.Y.
Presider: Linda Colon, Educational Equity Center at FHI 360, New York, N.Y.
This NSF-funded project engages and levels the playing field for students from groups traditionally underrepresented in science. Activities and resources will be shared.

12:30–1:45 PM Exhibitor Workshops

Using the OHAUS Triple Beam Balance™ as a STEM-focused Skill Platform **(Gen)**
(Grades 5–10) *11, Convention Center*
Sponsor: Ohaus Corp. and Frey Scientific
Ken Rainis *(doug.boyd@ohaus.com),* Frey Scientific/School Specialty Science, Nashua, N.H.
Here's your opportunity to learn about STEM education and how to integrate the OHAUS Triple Beam balance in building critical STEM-focused skills like measuring! Learn how to use STEM-based virtual labs and bench activities to enhance student learning. By performing a STEM-focused activity, you will learn how to integrate STEM-focused measuring, balance theory, and data analysis skills into your curriculum. All participants receive a FREE OHAUS Triple Beam sampler containing STEM activities and one person will receive a FREE OHAUS Triple Beam balance.

Amplify Your Genetics Teaching Skills with Carolina's Inquiries in Science® Biology Kits (Bio)
(Grades 9–12) *12, Convention Center*
Sponsor: Carolina Biological Supply Co.
Carolina Teaching Partner
Want to help your students solve the mystery of genetics? Using a guided inquiry approach can improve student understanding of difficult concepts such as nucleic acids, genetic inheritance, and biotechnology. Inquiries in Science biology kits provide hands-on activities that make challenging topics effortless to teach. Free teacher materials and door prizes.

Learning to Read, Reading to Learn: Increasing Test Scores Through Literacy (Gen)
(Grades K–8) *13, Convention Center*
Sponsor: Carolina Biological Supply Co.
Carolina Teaching Partner
Increase test scores and student engagement through notebooking! Using materials from the STC Program™ and Carolina™ Curriculum, this session will explore how science notebooking can help students develop and improve math, social studies, and language arts skills. Free classroom materials provided.

Diagnosing Diabetes (Bio)
(Grades 6–College) *15, Convention Center*
Sponsor: Science Take-Out
Susan Holt *(contact@sciencetakeout.com),* Science Take-Out, Pittsford, N.Y.
Follow the real-life case of a young woman with diabetes. Conduct a simulated glucose tolerance test to determine if the patient has Type 1 or Type 2 diabetes. This hands-on Science Take-Out kit introduces students to concepts involved in homeostasis and the regulation of insulin and glucose levels.

Stream Ecology: Slimy Leaves for Clean Streams (Env)
(Grades 4–College) *16, Convention Center*
Sponsor: LaMotte Co.
Christina Medved *(cmedved@stroudcenter.org),* Stroud Water Research Center, Avondale, Pa.
Observe aquatic macroinvertebrate specimens, conduct experiments, learn classification skills, and calculate a biotic index in this hands-on introduction to stream ecology. Learn from the Stroud scientists. Door prizes!

Online Learning Exchange, Powered by Pearson: Our Content, Your Content, All in One Place (Gen)
(General) *17, Convention Center*
Sponsor: Pearson
Chuck McMillan, Pearson, Boston, Mass.
Visit an environment where high-quality content combined with tools enable you to exchange ideas, collaborate, and improve your teaching and your students' learning experience. Join us to learn how to build lessons easily, share your latest masterpiece, and discuss your areas of interest with others. Online Learning Exchange puts our content and your content all in one place!

Sparking Interest and Learning with Chemistry: A Part 1 Experience (Chem)
(Grades 9–12) *25, Convention Center*
Sponsor: Houghton Mifflin Harcourt
Jerry Sarquis, Professor Emeritus, Miami University, Oxford, Ohio
Mickey Sarquis, Terrific Science, Cincinnati, Ohio
Join Jerry and Mickey Sarquis, recognized leaders in chemistry education and authors of *Modern Chemistry,* for a session full of hands-on activities and engaging demos using inexpensive and readily available materials. Learn how to spark imagination and interest in chemistry with simple but powerful tricks and tips! (The Part 2 Experience will include a unique set of activities. See page 72.)

Cool Tech Tools for STEM (Bio)
(Grades 5–8) *26, Convention Center*
Sponsor: Science Kit & Boreal Laboratories
Ed Lisk, Chesire High School, Chesire, Conn.
Discover the unseen and microscopic world by learning how to use a simple digital microscope and then gain experience by performing three middle school–level activities.

1:00–2:15 PM Exhibitor Workshop

Flinn Scientific Presents Best Practices for Teaching Chemistry™: Experiments and Demos (Chem)
(Grades 7–12) *Ballroom B, Convention Center*
Sponsor: Flinn Scientific, Inc.
Irene Cesa, Flinn Scientific, Inc., Batavia, Ill.
Join us as we demonstrate the features and benefits of our new comprehensive Teaching Chemistry professional development program. Imagine the opportunity to learn best practices from 20 award-winning master teachers as they carry out their favorite experiments, demonstrations, and chemistry lab activities. The online *Flinn Scientific Teaching Chemistry eLearning* video series can help you build content knowledge and improve your pedagogical skills and confidence! Handouts.

1:00–2:30 PM Exhibitor Workshop

What's Going On in There? Inquiry Science for Supervisors, Trainers, and Teachers (Gen)
(Grades K–8) *22, Convention Center*
Sponsor: Delta Education/School Specialty Science
John Cafarella, Consultant, Canadensis, Pa.
Learn how to support and evaluate an inquiry-based science lesson/program. What should you look for while observing a science lesson? During this session, we'll define inquiry and look at the use of process skills, standards-based content and materials, notebooking, and assessment while engaging in interactive inquiry-based activities.

1:30–4:30 PM Short Course

Developing a "Naturalistic" Approach in the Teaching of Science Concepts and Inquiry (SC-2)
(General) *Mark Twain, Hilton*
Tickets Required: $72
William Klein, Western Iowa Tech Community College, Sioux City
For description, see page 35.

1:30–5:30 PM Short Course

Airplanes, Speed, and Motion (SC-3)
(Grade 8) *Off-site (New England Air Museum)*
Tickets Required: $55
Caroline d'Otreppe *(caroline@neam.org)* and **Jason Archer** *(jasona@neam.org),* New England Air Museum, Windsor Locks, Conn.
For description, see page 35.
Note: Meet your instructor at the Motor Lobby of the Convention Center no later than 1:15 PM.

2:00–3:00 PM Featured Presentation

Brain-STEM: Blending Brain Research and STEM Education (Gen)
(General) *Ballroom A, Convention Center*

Kenneth Wesson *(kenawesson@aol.com),* Educational Consultant, Neuroscience, San Jose, Calif.

Presider: Terry L. Contant, LEARN, Old Lyme, Conn.

As the car trunk closes, six ecstatic travelers turn to one another asking, "Where are we going? How do we get there? And how will we know we've arrived?"

Educational and business leaders crisscross the nation espousing their unequivocal support for STEM education, as journalists provide a steady stream of gleaming stories about innovative STEM classrooms around the country. Yet, one might notice a glaring lack of uniformity from one story to the next. However, despite the wide range of divergence in details and the vast number of variables, all of this gets overshadowed by the sudden renewal of student "excitement, enthusiasm, and engagement" we witness everywhere regardless of the surroundings. These "Three E's" are unmistakably the "constants," which are essential emotional elements in human learning.

This session will highlight the research on how the brain learns best, applying that research to meet the goals of STEM education. We will take STEM from "promising" to "operational" in 60 minutes..

Kenneth Wesson works as an educational consultant for preschool through university institutions and organizations. An expert on the neuroscience of learning and methods for creating classrooms and learning environments that are "brain considerate," Wesson regularly addresses educational organizations and institutions. His work is frequently referenced in Parents *Magazine and the journal* Brain World. *Wesson regularly addresses counseling associations, school districts, and parenting organizations on establishing "brain-considerate" learning environments.*

2:00–3:00 PM Presentations

SESSION 1

Dissection as a Culminating Activity (Bio)

(Middle Level–High School) *Connecticut Salon A, Hilton*

Michael J.V. Lazaroff *(mjvlazaroff@gmail.com),* Staples High School, Westport, Conn.

End your year with dissection! Find out ways to get all students involved, make the most out of it, and use it as a culminating activity. Learn strategies to create a safe environment, engage your students, and eliminate the need for alternative assignments.

SESSION 2

From Classroom Inspiration to Career Aspiration—Turning Students On to STEM Careers (Gen)

(High School/Informal Ed) *Nathan Hale, Hilton*

Susan Buckey *(susan_buckey@wgbh.org),* WGBH Educational Foundation, Boston, Mass.

Learn what research says about what attracts students to STEM careers and how *NOVA, Engineer Your Life*, and *Dot Diva* reveal a different side of science.

SESSION 3

NSELA Session: Preservice Teachers and Science Leadership: Collaborating in Support of New Teachers to Impact Student Learning (Gen)

(Supervision/Administration) *Silas Deane, Hilton*

Susan B. Koba *(skoba@cox.net),* NSELA President, Omaha, Neb.

Janey Kaufmann, NSELA Retiring President, Scottsdale, Ariz.

Elizabeth Allan *(eallan@uco.edu),* University of Central Oklahoma, Edmond

Jon Pedersen *(jep@unl.edu),* University of Nebraska–Lincoln

This session examines what new teachers are supposed to know and do, and what can be done to improve their skills and their students' performance.

SESSION 4

NASA CERES S'COOL Project: Be a S'COOL Cloud Observer! (Earth)

(Elementary–High School) *Capital 1, Marriott*

Eileen Poling *(eileenon@hotmail.com),* Tucker County Schools, Hambleton, W.Va.

Engage your students in making real-world cloud and weather observations for NASA. Become a S'COOL cloud observer! Plenty of handouts!

SESSION 5

Extraordinary Objects: Integrating Museum Visits into Your Classroom Curriculum (Earth)

(Elementary–High School) *Capital 2, Marriott*

Wendy Derjue-Holzer *(wderjue@oeb.harvard.edu),* Harvard Museum of Natural History, Cambridge, Mass.

Sarah Blodgett *(sbodgett@cdcps.org),* Community Day Charter Public School, Lawrence, Mass.

Classroom teachers and museum professionals share their experiences developing meaningful field trips focusing on minerals, fossils, and evolution that successfully integrate museum visits into the curriculum.

SESSION 6

Before and After Retirement: Practicalities and Possibilities (Gen)

(General) *Capital 3, Marriott*

Howard Wahlberg *(hwahlberg@nsta.org),* Assistant Executive Director, Member, Chapter, and Customer Relations, NSTA, Arlington, Va.

The NSTA Retired Advisory Board invites you to a vibrant and useful information-sharing session. Join your fellow colleagues and share your ideas about staying active both in and out of the profession.

SESSION 7

ASEE Session: eGFI: Engineering, Go For It!—Dream Up the Future (Gen)

(General) *Marriott Ballroom A, Marriott*

Stacie Harrison *(s.harrison@asee.org)* and **Dennis P. Cummings** *(d.cummings@asee.org),* American Society for Engineering Education, Washington, D.C.

Presider: William E. Kelly, American Society for Engineering Education, Washington, D.C.

The American Society for Engineering Education (ASEE) and university faculty will introduce teachers to innovative ways to introduce engineering into the K–12 classroom.

SESSION 8

LAB SAFETY: Are You COURTING Liability? (Gen)

(General) *Marriott Ballroom C, Marriott*

Ken R. Roy *(royk@glastonburyus.org),* Glastonbury (Conn.) Public Schools

Explore critical safety issues and strategies to protect yourself from liability when students do hands-on science!

SESSION 9

The Role of Education in a Sustainability Paradigm Shift (Env)

(General) *Marriott Ballroom E, Marriott*

James Malley *(chair@ctpse.org),* Professor Emeritus, Central Connecticut State University, New Britain

How do you define sustainability and sustainability education? Come explore the type of education that we need to develop to best prepare students to be able to work toward creating a more humane and sustainable world.

SESSION 10

SUCCESS Through Literacy: Students Understanding Climate Change and Earth System Science Through Literacy (Gen)

(Elementary) *Discovery Center Lab 1, Science Center*

William G. Schoenfeld *(schoenfeldw@wou.edu),* Western Oregon University, Monmouth

Reviews of K–6 climate change books and science inquiry activities have been combined to create integrated teacher's guides. I'll present a few of my favorites.

SESSION 11

Preschoolers Investigate Bones: Science Inquiry in Early Childhood Education (Bio)

(Preschool) *Discovery Center Lab 3, Science Center*

Sudha Swaminathan *(swaminathans@easternct.edu)* and **Niloufar Rezai** *(rezain@easternct.edu),* Eastern Connecticut State University, Willimantic

Cynthia DeJesus *(dejesusc@easternct.edu),* Margaret S. Wilson Child and Family Development Resource Center, Eastern Connecticut State University, Willimantic

We will describe our preschoolers' extensive inquiry into bones, particularly illustrating their use of science process skills and understanding of content knowledge with video documentation.

SESSION 12

Integrating Science into Elementary Language Arts Instruction (Gen)

(Elementary) *Travelers Science Hall, Science Center*

Jennifer DeRagon *(b32jdera@manchesterct.gov),* Nathan Hale Elementary School, Manchester, Conn.

Ann Johnston, Manchester (Conn.) Public Schools

Presider: Susan Sernoffsky, Manchester (Conn.) Public Schools

Fifth-grade teachers can educate their students about science content and language arts with this instructional unit. Reading, writing, and vocabulary lessons are based on the science study of light at a grade 5 level. Handouts provided.

2:00–3:00 PM Workshops

CESI Session: Council for Elementary Science International Presents Opportunities Galore (Gen)

(Preschool–Middle Level) *Ballroom C, Convention Center*

Barbara Z. Tharp *(btharp@bcm.edu),* Baylor College of Medicine, Houston, Tex.

Join CESI and get involved at home and internationally as we share a wealth of "ready to go" resources tailored to the K–8 teacher.

NSTA Press Session: Teaching for Conceptual Change (Gen)

(Elementary–Middle Level/College) *Ethan Allen, Hilton*

Page Keeley *(pagekeeley@gmail.com),* 2008–2009 NSTA Preident, and Maine Mathematics and Science Alliance, Augusta

Richard Konicek *(konmor@comcast.net),* Retired Educator, Amherst, Mass.

Learn about the features of conceptual change teaching and how to combine two NSTA Press series: *Uncovering Student Ideas in Science* and *Everyday Science Mysteries* to teach for conceptual change.

Chemical Nomenclature Rummy (Chem)
(Middle Level–High School) Hartford Commons, Hilton
Mark D. Greenman *(mgreenman2@verizon.net),* National Science Foundation, Arlington, Va.
Harriet T. Page, Marblehead High School, Marblehead, Mass.
Learn about basic rules for forming and naming ionic compounds while having fun using a Rummy-like card game.

A Different Look at an Old Model: Modeling the Spectrum (Phys)
(Middle Level–High School) Hilton Ballroom Center, Hilton
Christine A. Royce *(caroyce@aol.com),* NSTA Director, Professional Development, and Shippensburg University, Shippensburg, Pa.
Using materials from the Chandra mission, we will examine two different views of the electromagnetic spectrum model as well as pre- and post-activities in a unit.

ACS Middle Level Session: The Periodic Table, Energy Levels, and Bonding (Chem)
(Middle Level) Hilton Ballroom East, Hilton
James H. Kessler *(jhkessler@acs.org),* American Chemical Society, Washington, D.C.
Do an activity exploring the first 20 elements of the periodic table and take a fresh look at covalent and ionic bonding.

Lost in Translation: Exploring Protein Synthesis with Interactive Physical Models (Bio)
(High School–College) Hilton Ballroom West, Hilton
Tim Herman *(herman@msoe.edu),* Milwaukee School of Engineering, Milwaukee, Wis.
Discover the translation process from mRNA to protein, using hands-on innovative physical models of the insulin gene and protein.

Focus on Forests: Project Learning Tree's New Secondary Curriculum (Env)
(Informal Education) Marriott Ballroom B, Marriott
Al Stenstrup *(astenstrup@forestfoundation.org)* and **Jackie Stallard** *(jstallard@forestfoundation.org),* Project Learning Tree, Washington, D.C.
Learn about how secondary students can explore the major issues facing forests today—climate change, invasive species, fire, land ownership, management, and more. Take home Project Learning Tree's new *Exploring Environmental Issues: Focus on Forests* activity guide and resource materials.

Life on Earth...and Beyond? (Bio)
(Elementary–Middle Level) Discovery Ctr. Lab 2, Science Center
Deborah Vannatter *(deborah.vannatter@evsc.k12.in.us),* Evansville Vanderburgh School Corp., Evansville, Ind.
Discover NASA's guide to interactive investigations introducing core ideas about life on Earth: What is life? What does life require? Where can life be found?

2:00–3:00 PM Exhibitor Workshop

33 Ways to Integrate Science (Gen)
(Grades 2–4) 21, Convention Center
Sponsor: Delta Education/School Specialty Science–Seeds
Elizabeth C. Shafer and **Jacqueline Barber,** Lawrence Hall of Science, University of California, Berkeley
Discover how to increase reading comprehension and science knowledge simultaneously for ALL students. Take away 33 ready-to-use strategies for incorporating science trade books into your classroom. Learn integration strategies that provide a better way to teach both science and literacy. Free classroom materials!

2:00–3:30 PM Exhibitor Workshop

Light and Optics: A Series of EnLIGHTening Experiments! (Phys)
(Grades 6–12) 24, Convention Center
Sponsor: CPO Science/School Specialty Science
Erik Benton, CPO Science/School Specialty Science, Nashua, N.H.
Experience CPO's Optics with Light and Color kit complete with LED flashlights, lenses, a laser, a mirror, and more. Try color mixing, relate it to human vision, and examine different spectra. Shine a laser through a prism and see for yourself the phenomenon of total internal reflection. We make studying light exciting!

2:00–4:00 PM Exhibitor Workshop

Taking Science Outdoors with FOSS K–8 (Gen)
(Grades K–8) *23, Convention Center*
Sponsor: Delta Education/School Specialty Science–FOSS
Erica Beck Spencer and **Joanna P. Snyder,** Lawrence Hall of Science, University of California, Berkeley
Experience exciting new outdoor initiatives from FOSS that can expand your classroom walls and help you and your students embrace the school yard environment. Learn about helpful outdoor teaching techniques, proven outdoor investigations, and lessons learned from other successful school yard initiatives. We'll go outside to experience outdoor activities.

2:15–3:30 PM Exhibitor Workshops

Master of Science Degree in Geosciences Available Online Through the Teachers in Geosciences Program (Earth)
(Grades K–12) *11, Convention Center*
Sponsor: Mississippi State University
Kathleen M. Sherman-Morris *(kms5@msstate.edu),* Mississippi State University, Mississippi State, Miss.
Discover how you can earn an MS degree via distance learning from Mississippi State University. The 12-course graduate program includes courses in meteorology, geology, astronomy, oceanography, hydrology, environmental geoscience, and a 10-day capstone field course. We have alumni in all 50 states, and all students qualify for in-state tuition rates.

Hands-On Science with Classroom Critters (Bio)
(Grades K–12) *12, Convention Center*
Sponsor: Carolina Biological Supply Co.
Carolina Teaching Partner
Animals broaden inquiry-based explorations and student interest in science. Through fun, simple hands-on activities, participants learn about termites and insect pheromones; how isopods are great for teaching evolution, adaption, and behavior; and experiments that incorporate measuring into beetle activities. Workshop includes care and handling information, free samples, and literature.

Notebooking: Preparing Students for the 21st Century (Gen)
(Grades 6–8) *13, Convention Center*
Sponsor: Carolina Biological Supply Co.
Carolina Teaching Partner
Notebooking provides teachers with the tools to develop skills necessary for students to be successful in a 21st-century workplace. Learn how to incorporate notebooks using lessons from the research-based STC–Secondary™, developed by the Smithsonian Institution. Take away free materials to start integrating notebooking in your classroom.

New Ways to Prepare Your Students Using 21st-Century STEM Initiatives—GO DIGITAL! (Bio)
(Grades 9–College) *14, Convention Center*
Sponsor: Swift Optical Instruments, Inc.
David Doty *(david@swiftoptical.com)* and **Cynthia Syverson-Mercer** *(cynthia@swiftoptical.com),* Swift Optical Instruments, Inc., San Antonio, Tex.
The future of science classrooms and work places is digital technology. Prepare your students for this future by incorporating Motic software, Swift digital cameras, and microscopes into your STEM curriculum. Learn how to integrate digital technology and assessment into your current teaching. Get students involved digitally!

Genetic Testing for Huntington's Disease (Bio)
(Grades 6–College) *15, Convention Center*
Sponsor: Science Take-Out
Susan Holt *(contact@sciencetakeout.com),* Science Take-Out, Pittsford, N.Y.
Should a young woman with a family history of Huntington's disease have genetic testing? What are the benefits and risks of genetic testing? This hands-on Science Take-Out kit uses models, Punnett squares, pedigrees, and simulated DNA testing for the gene involved in Huntington's disease. Information provided about related activities.

Stream Ecology: Slimy Leaves for Clean Streams (Env)
(Grades 4–College) *16, Convention Center*
Sponsor: LaMotte Co.
Christina Medved *(cmedved@stroudcenter.org),* Stroud Water Research Center, Avondale, Pa.
Observe aquatic macroinvertebrate specimens, conduct experiments, learn classification skills, and calculate a biotic index in this hands-on introduction to stream ecology. Learn from the Stroud scientists. Door prizes!

Going Green: Economical and Environmentally Friendly Inquiry in Chemistry (Chem)
(Grades 9–12) *17, Convention Center*
Sponsor: Pearson
Ed Waterman, Retired Educator, Fort Collins, Colo.
Learn how to implement safe, simple, easy-to-set-up, material-conserving, time-efficient, and effective inquiry activities in chemistry with safety and differentiation built in. Each activity teaches core content and fosters problem solving, creativity, and invention. Encourage students to design and carry out original experiments not possible with traditional methods.

Engaging Students and Enhancing Learning Outcomes with Project-based Videos (Bio)
(Grades 9–12) *25, Convention Center*
Sponsor: Houghton Mifflin Harcourt
Michael Heithaus, Florida International University, North Miami
Grab students' attention with the cutting-edge research and fast-paced, high-quality production of *That's Amazing* project-based videos. Starting with a question about the bizarre, the cool, and the exciting, Mike Heithaus takes students on a scientific investigation with the experts, but it is up to the students to work with the data collected to solve the mystery or debate its merits! Learn more about this exciting teaching tool.

Cool Tech Tools for Middle School: Really Easy Data Collectors (Phys)
(Grades 5–8) *26, Convention Center*
Sponsor: Science Kit & Boreal Laboratories
William C. Metz, Retired Educator, Fort Washington, Pa.
Join us for this hands-on workshop that goes beyond how to use the Really Easy Data (RED) units and focuses on how to integrate the RED technology into your classroom. Engage in activities examining concepts such as cooling water (using a temperature probe), Cartesian diver or buoyancy (using a gas sensor), and pressure in a column.

3:00–4:15 PM Exhibitor Workshop

Flinn Favorite Biology Lab Activities and Games (Bio)
(Grades 7–12) *Ballroom B, Convention Center*
Sponsor: Flinn Scientific, Inc.
Maureen Hunt, Flinn Scientific, Inc., Batavia, Ill.
Students learn better and faster when they are actively involved in hands-on activities that are fun to try and that create learning opportunities along the way. We'll share some inquiry-based labs, interactive demonstrations, and collaborative games you can use to motivate your students. We'll focus on core topics like cell biology, genetics, ecology, and more. You're sure to find a Flinn Favorite that works for you! Handouts.

3:00–4:30 PM Exhibitor Workshop

Science Gnus: Scientists Famous and Forgotten… and Their Process Skills (Gen)

(Grades K–8) *22, Convention Center*

Sponsor: Delta Education/School Specialty Science

John Cafarella, Consultant, Canadensis, Pa.

Hear about fascinating and dramatic stories of scientists, their discoveries, and the process skills used. Plus, the sometimes fine line between being famous or being forgotten by history. We'll replicate notable activities, too. The stories in science are high interest for both teachers and students. Liberal doses of Science Gnus humor, too.

3:30–4:00 PM Presentation

SESSION 1

SeaPerch: Integrating Ocean Exploration in the Classroom (Phys)

(General) *Marriott Ballroom D, Marriott*

Kathryn E. Shroyer *(kshroyer@mit.edu),* Massachusetts Institute of Technology, Cambridge

The SeaPerch Remotely Operated Vehicle (ROV) program aids students' exploration of science, math, and engineering through the fabrication and deployment of a low-cost PVC underwater vehicle.

3:30–4:30 PM Featured Presentation

Teaching and Learning Our Way Toward a Sustainable Future (Gen)

(General) *Ballroom A, Convention Center*

Jennifer Cirillo *(jcirillo@shelburnefarms.org),* Director of Professional Development, Shelburne Farms, Shelburne, Vt.

Presider: Laurel Kohl, Institute for Sustainable Energy, Eastern Connecticut State University, Willimantic

As science educators we play a critical role in teaching toward a green and sustainable future. Jen will talk about using the lens of sustainability and "meeting the needs of the present without compromising the ability of future generations to meet their own needs" (Report of the Brundtland Commission) to transform school culture, improve campus practices, integrate curriculum, and innovate the educational system. She will address the sustainability movement in the U.S. and abroad and share stories from the country's first sustainability-themed magnet school. Jen will make the link between sustainability and science education and what we as educators can do to help build a "sustainability literate" society.

Jen Cirillo is director of professional development at Shelburne Farms and director of the Sustainable Schools Project where she works with schools and communities, locally and internationally, to use the ideas of sustainability as an integrating lens for curriculum development, campus practices, and community partnerships. As the director of Shelburne Farms' Sustainable Schools Project (SSP), she works with the Sustainability Academy at Lawrence Barnes—the country's first sustainability-themed magnet school—to develop and evaluate the project model, document promising practices, and outreach to other schools and communities.

Jen guides her practice by the belief that education should prepare young people for their role as actively engaged citizens with the knowledge of the complex interconnections between the environment, social equity, and the economy. In addition, she agrees wholeheartedly with John Dewey, in that "education is not preparation for life, education is life itself."

3:30–4:30 PM Presentations

SESSION 1

Bridging the Gap Between Teacher and Scientist (Bio)

(Elementary–High School) *Connecticut Salon A, Hilton*

Terrence M. Grant *(grant@caryinstitute.org),* Cary Institute of Ecosystem Studies, Towson, Md.

How can you maintain your content skills, keep current on new developments, and develop pedagogical skills? Using teacher fellowships, partnerships with scientists, and teacher as researcher experiences, we will explore avenues to achieve these goals.

SESSION 2

Potent Portable Demos (Chem)

(High School–College) *Hartford Commons, Hilton*

Bette A. Bridges *(babridges@comcast.net)* and **Harvey Gendreau** *(hgendreau@rcn.com),* Laboratory Safety Institute, Natick, Mass.

Excite your classes with these easy one-concept demos that use common materials. Easy to set up; easy to take down.

SESSION 3

Physics and Chemistry Boot Camp: A Professional Development Recipe for Success (Phys)

(Middle Level–High School) *Hilton Ballroom Center, Hilton*

Mark D. Greenman *(mgreenman2@verizon.net),* National Science Foundation, Arlington, Va.

Harriet T. Page, Marblehead High School, Marblehead, Mass.

A laboratory-based science content institute can make a BIG difference. Hear from a professional development institute about lessons learned for teaching middle school and high school chemistry and physics.

SESSION 4

We're Not Just Cloning Around: Professional Development for the Biotech Teacher (Bio)

(High School–College) *Hilton Ballroom West, Hilton*

Carolyn Jacobs *(carolyn_jacobs@wgbh.org),* WGBH, Boston, Mass.

David Vito *(drvito@ccri.edu),* University of Rhode Island, Providence

Come explore the new partnership between WGBH and the Amgen Bruce Wallace Biotechnology Lab program.

SESSION 5

Get That Textbook Out of My Classroom! (Gen)

(Middle Level–High School) *Nathan Hale, Hilton*

Sarah R. Young, Rowland Hall Middle School, Salt Lake City, Utah

Move away from textbooks and into a library. Use recent young adult literature to teach physical science principles.

SESSION 6

Teaching Online in Real Time (Phys)

(General) *Silas Deane, Hilton*

Steve Rapp *(srapp@hgs.k12.va.us),* A. Linwood Holton Governor's School, Abingdon, Va.

Hear how I teach my students via the internet using streaming video, interactive audio, synchronized web browsing, interactive white boards, and PowerPoint.

SESSION 7

MY NASA DATA: Using Earth Systems Data Visualization in the Classroom (Earth)

(Elementary–High School) *Capital 1, Marriott*

Eileen Poling *(eileenon@hotmail.com),* Tucker County Schools, Hambleton, W.Va.

Learn how to engage your students in using MY NASA DATA as a data visualization tool for NASA Earth Systems satellite data. Plenty of handouts!

SESSION 8

Marine Science Immersion (Gen)

(High School/Supervision) *Capital 2, Marriott*

Terry L. Contant *(tcontant@learn.k12.ct.us)* and **Scott Brown** *(sbrown@learn.k12.ct.us),* LEARN, Old Lyme, Conn.

Experience a virtual field trip to the Marine Science Magnet High School of Southeastern Connecticut. Learn about its innovative program—wet/dry days, ship simulators, aquaculture, and field work.

SESSION 9

Write for NSTA's Journals (Gen)

(General) *Capital 3, Marriott*

Ken Roberts, Assistant Executive Director, Journals, NSTA, Arlington, Va.

Meet with the editors of NSTA's award-winning journals to learn how to prepare and submit a manuscript for publication.

SESSION 10

ASEE Session: Inexpensive Robotics to Encourage Student Creativity and Help Produce the Next Generation of Engineers (Gen)

(General) *Marriott Ballroom A, Marriott*

Edward A. Petersen *(edward.a.petersen@us.army.mil)* and **Shahram Dabiri** *(shahram.dabiri1@us.army.mil),* U.S. Dept. of Defense, Picatinny Arsenal, N.J.

M. Jack Leffler *(jack.leffler@gmail.com),* Randolph Middle School, Randolph, N.J.

James Hofmann *(jhofmann@newtonnj.org),* Halsted Middle School, Newton, N.J.

Presider: William E. Kelly *(w.kelly@asee.org),* American Society for Engineering Education, Washington, D.C.

The U.S. Department of Defense has utilized its Ordnance Technology Consortium, the National Defense Education Program, and engineers from the Armament Research, Development, and Engineering Center at Picatinny Arsenal, New Jersey, to work with classroom teachers to develop low-cost, adaptable robot design and construction activities that allow students to exercise their creativity and experience engineering firsthand. From the Request for Proposal through virtual design to construction and testing, students can experience the disappointment of failure leading to the satisfaction of success.

SESSION 11

NSTA Avenue Session: America's Home Energy Education Challenge (Env)

(Elementary–Middle Level) *Marriott Ballroom E, Marriott*

Ray Ann Havasy *(homeenergychallenge@nsta.org),* Center for Science Teaching and Learning, Rockville Centre, N.Y.

Sponsored by the U.S. Department of Energy and administered by NSTA, America's Home Energy Education Challenge is designed to educate grades 3–8 students about energy usage and energy efficiency and engage students and their families in a save energy, save money campaign. Learn about energy-efficiency resources available to schools, teachers, students, and families. Find out how your students can earn an Energy Fitness Award from the U.S. Secretary of Energy.

SESSION 12

I See What You Mean! Developing Visual Literacy (Gen)

(Elementary–Middle Level) *Travelers Science Hall, Science Center*

JoAnne Vasquez *(jvasquez@helios.org),* 1996–1997 NSTA President, and Helios Education Foundation, Phoenix, Ariz.

Interpreting and understanding the visuals and illustrations students encounter in their science textbooks is more than just luck. See what the current research says.

3:30–4:30 PM Workshops

A Whale of a Tale Share-a-Thon (Env)

(General) *Ballroom C, Convention Center*

Lauren Rader *(lrader@oceanlogy.org),* Project Oceanology, Groton, Conn.

Diana Payne *(diana.payne@uconn.edu),* Connecticut Sea Grant, Groton

Regional ocean science organizations provide opportunities for networking, hands-on activities, take-home resources, and for learning about marine and aquatic programs for teachers and students.

ACS Middle Level Session: Polarity of the Water Molecule and Its Consequences (Chem)

(Middle Level) *Hilton Ballroom East, Hilton*

James H. Kessler *(jhkessler@acs.org),* American Chemical Society, Washington, D.C.

Investigate why water is a polar molecule and explore how water's polarity affects evaporation and dissolving.

GreenSchools! (Env)

(Informal Education) *Marriott Ballroom B, Marriott*

Al Stenstrup *(astenstrup@forestfoundation.org),* **Jackie Stallard** *(jstallard@forestfoundation.org),* and **James R. McGirt** *(jmcgirt@forestfoundation.org),* Project Learning Tree, Washington, D.C.

Project Learning Tree's (PLT) GreenSchools! program connects PLT classroom activities and environmental service-learning projects. Join us to learn more about the program, how to organize a GreenSchools! training, and how to get free access to PLT GreenSchools! resources and materials online.

CSSS Session: Interactive Inquiry: Effective, Fun, and Relevant (Bio)

(Middle Level) *Community Room, Science Center*

Tony Heiting *(heitingtony@yahoo.com),* Science Consultant, Panora, Iowa

Steve Weinberg, West Hartford, Conn.

This workshop will consist of hands-on/minds-on activities that exemplify specific inquiry skills that are effective, fun, and relevant.

Promoting Good Global Citizenship for Sustainability (Env)

(Preschool–Middle Level) *Discovery Center Lab 2, Science Center*

Julianne Schrader *(jschrader@ra.org),* Rainforest Alliance, New York, N.Y.

Join me in practicing Rainforest Alliance's dynamic activities that help students build environmental values and understand the powerful role we play in protecting natural resources.

3:30–4:30 PM Exhibitor Workshop

The 4 "It's" of Science **(Gen)**
(Grades 2–4) *21, Convention Center*
Sponsor: Delta Education/School Specialty Science–Seeds
Elizabeth C. Shafer and **Jacqueline Barber,** Lawrence Hall of Science, University of California, Berkeley
Do it. Talk it. Read it. Write it. Experience how Seeds of Science/Roots of Reading® provides teachers with systematic, explicit instruction and students with engaging materials for hands-on, resource-based investigations. A better way to teach science; a better way to teach literacy—proven results in both!

4:00–5:15 PM Exhibitor Workshops

Introduction to Electrophoresis **(Bio)**
(Grades 9–12) *12, Convention Center*
Sponsor: Carolina Biological Supply Co.
Carolina Teaching Partner
Explore the basics of electrophoresis as you load your own gels and perform electrophoresis, separating brightly colored dyes on Agarose gels to determine which dyes are present in an unknown mix. Gels are run using economical, sturdy gel boxes that can be powered by inexpensive power supplies or batteries.

Web 2.0 and Science **(Gen)**
(Grades K–8) *17, Convention Center*
Sponsor: Pearson
Don Buckley, The School at Columbia University, New York, N.Y.
Is Web 2.0 related to science teaching? Can it be used to teach science? Why should scientists use Web 2.0 tools? In this presentation, we'll define Web 2.0 and give examples of how to apply this 21st-century pedagogy to your science teaching.

Sparking More Interest with Chemistry: A Part 2 Experience (Chem)

(Grades 9–12) *25, Convention Center*

Sponsor: Houghton Mifflin Harcourt

Jerry Sarquis, Professor Emeritus, Miami University, Oxford, Ohio

Mickey Sarquis, Terrific Science, Cincinnati, Ohio

Roll up your sleeves with *Modern Chemistry* authors Mickey and Jerry Sarquis and prepare to become engaged in chemistry activities, demos, challenges, and tips to help spark your students' interest and facilitate their understanding of chemistry. This Part 2 Experience provides a different set of topics from Part 1 (page 61) but continues the emphasis on using inexpensive, readily available materials.

Cool Tech Tools for Physical Science: Really Easy Data Collectors (Phys)

(Grades 7–10) *26, Convention Center*

Sponsor: Science Kit & Boreal Laboratories

Julia T. Gooding, Hopewell High School, Aliquippa, Pa.

Join us for a hands-on workshop that goes beyond how to use the Really Easy Data (RED) units and focuses on how to integrate the RED technology into your classroom or laboratory. Engage in activities examining concepts such as buoyancy, friction, and centripetal force—all using the force probe—and pressure in a column.

4:00–5:30 PM Exhibitor Workshop

Genetics: Crazy Traits and Adaptation Survivor (Phys)

(Grades 6–12) *24, Convention Center*

Sponsor: CPO Science/School Specialty Science

Patsy Eldridge, CPO Science/School Specialty Science, Nashua, N.H.

Students learn new vocabulary when they study genetics—such as traits, alleles, and genotypes. How can you predict the traits of offspring when you know the genetic makeup of the parents? These ideas will come alive as you create crazy creatures with a unique kit and study the resulting population.

4:30–6:30 PM Reception

NSTA and UTC: STEM Partnerships That Work Reception

Connecticut Salon B, Hilton

NSTA and United Technologies Corporation (UTC) have collaborated to impact STEM education in Connecticut. Join science teachers and UTC engineers as "externship" experiences and classroom projects are shared.

5:00–5:30 PM Presentation

SESSION 1

Climate Literacy and Energy Awareness Network (Env)

(Middle Level–College) *Marriott Ballroom E, Marriott*

Kristen A. Record *(recordk@stratfordk12.org),* Bunnell High School, Stratford, Conn.

Come learn about the new NSF-funded, peer-reviewed digital collection of teaching materials related to climate and energy awareness. Hundreds of ready-to-use lessons!

5:00–6:00 PM Social

CSTA/CSSA Meet and Greet

(By Invitation Only) *Marriott Ballroom C, Marriott*

5:00–6:00 PM Presentations

SESSION 1

Invitations to Inquiry: Award-winning Science Trade Book Authors (Gen)

(Elementary) *Ballroom C, Convention Center*

Jeanelle B. Day *(dayj@easternct.edu)* and **Susannah Richards** *(richardss@easternct.edu),* Eastern Connecticut State University, Willimantic

Melissa A. Stewart *(hbeeprod@msn.com),* Children's Book Author, Acton, Mass.

Loree Griffin Burns *(lgb@loreeburns.com),* Author, West Boylston, Mass.

Hear award-winning science authors Loree Griffin Burns and Melissa Stewart talk about their lives as scientists and writers. We'll focus on how to use their books to ignite and support the scientific exploration in biology/life science.

SESSION 2 (two presentations)

(High School–College/Supervision) *Connecticut Salon A, Hilton*

American Chemical Society Guidelines and Recommendations for Teaching High School Chemistry (Chem)

Diane Krone *(kroned@alumni.stevens.edu),* Retired Educator, Toms River, N.J.

Bettyann Howson *(chemphun@gmail.com),* Retired Educator, Chatham, N.J.

Deborah H. Cook *(deborahcook72@gmail.com),* American Chemical Society, Pennington, N.J.

Join an interactive discussion on the revised American Chemical Society (ACS) Guidelines and Recommendations on Teaching High School Chemistry and how they can be used to enhance your program activities and leverage for resources.

Lessons from AP Chemistry Exams (Chem)

Fred Vital *(fvital@fairfield.k12.ct.us),* Ludlowe High School, Fairfield, Conn.

As we review common student responses to AP exam questions, you'll realize that these responses are a reflection of instruction and a means to improve student learning. What can teachers do to help students become more successful?

SESSION 3

NSTA Press Session: Team Teaching Science: You Can Do It! (Gen)

(General) *Ethan Allen, Hilton*

Ed Linz *(coachlinz@cox.net),* Retired Science Teacher and Author, Springfield, Va.

Mary Jane Heater *(mjheater@fcps.edu),* West Springfield High School, Springfield, Va.

An experienced team of co-teachers will discuss the challenges and rewards of team teaching K–12 science and present a game plan for success.

SESSION 4

Teaching Chemistry with Moodle: Create Your Own Course and Resources (Chem)

(General) *Hartford Commons, Hilton*

Linda Fanis *(lnfanis@wisc.edu),* University of Wisconsin, Madison

Lynn Diener, Mount Mary College, Milwaukee, Wis.

Marta Gmurczyk *(m_gmurczyk@gmail.com),* American Chemical Society, Washington, D.C.

Learn how to create online homework assignments and interactive web pages with integrated JMol molecules and video/images in your own Moodle course with content and resources from the ChemEd DL.

SESSION 5 (two presentations)

(High School–College) *Hilton Ballroom Center, Hilton*

Padlock Science Questions (Phys)

Peter A. Knipp *(peterknipp@juno.com),* Emmett O'Brien Technical High School, Ansonia, Conn.

We use combination padlocks to have students confirm the correctness of their answers to randomized questions while providing us with formative proof of understanding.

RoboBooks: A Science 2.0 Interactive Electronic Workbook (Phys)

Gary Garber *(ggarber@bu.edu),* Boston University Academy, Boston, Mass.

Ethan Danahy *(ethan.danahy@tufts.edu),* Tufts University, Medford, Mass.

Hear about RoboBooks, an interactive electronic workbook software that combines different technologies and provides teachers with an easy curriculum development and customization environment along with engaging learning tools.

SESSION 6

Let Your Forensics Students Have Their Day in Court! (Gen)

(Middle Level–High School) *Nathan Hale, Hilton*

Michael J.V. Lazaroff *(mjvlazaroff@gmail.com),* Staples High School, Westport, Conn.

Learn how to finish your forensics course with a two-week-long final crime scene and investigation, followed by a criminal trial during the final exam!

SESSION 7

Using Learning Progressions to Assess Students' Progress in Environmental Science (Env)

(Middle Level–High School) *Capital 1, Marriott*

Terrence M. Grant *(grant@caryinstitute.org),* Cary Institute of Ecosystem Studies, Towson University, Towson, Md.

The Math Science Partnership, an NSF-funded program, has developed three teaching modules that engage students in school yard–based activities and provide fast and effective assessment tools for teachers in the form of learning progressions, an innovative method of formative assessment.

SESSION 8

Big World, Small Planet: Climate Science Literacy with Digital Media (Env)

(General) *Capital 2, Marriott*

Heather Salemme, Groton-Dunstable Regional High School, Groton, Mass.

Christina DeYoung *(christina_deyoung@wgbh.org),* WGBH, Boston, Mass.

Presider: Christina DeYoung

Investigate the causes and impacts of climate change and other climate science topics with open educational resources, including short clips from public media programs.

SESSION 9

ASEE Session: Inspire and Engage to Learn: Autodesk's Project-based Curriculum for Secondary Schools (Gen)

(General) *Marriott Ballroom A, Marriott*

Matthew D. Allard *(matt.allard@autodesk.com),* Autodesk, Inc., Manchester, Mass.

Presider: William E. Kelly *(w.kelly@asee.org),* American Society for Engineering Education, Washington, D.C.

Compelling curricula connect real-world projects with sound learning. Dynamic materials incorporate video, animation, and gaming. Learn how to access these materials for free via the Autodesk Education Community.

SESSION 10

Designing Experiments: It Can Be Done (Gen)

(Middle Level) *Discovery Center Lab 1, Science Center*

Lynn Lauterbach *(lynnlauterbach@gmail.com)* and **Kristi G. Bowling** *(kmg4@rice.edu),* Rice University, Houston, Tex.

Using simple supplies of Post-it® Notes and a graphic organizer, learn how to guide your students in designing experiments. Handouts and free online support!

SESSION 11

Using an Organic Farm Collaboration to Enhance MST Preservice Teacher Education (Gen)

(Elementary/College) *Discovery Center Lab 3, Science Center*

Alexis M. Chestnut *(chestnua@newpaltz.edu)* and **Thais daCunha** *(dacunha@newpaltz.edu),* SUNY NEW Paltz, N.Y.

An undergraduate MST course was adapted to enhance the learning of MST onsite at an organic farm. Instructional topics included a combination of science and mathematics in the areas of environmental science and agriculture.

SESSION 12

Dual Task: Learning Language and Science (Bio)

(Middle Level–High School) *Travelers Science Hall, Science Center*

Eileen M. Gonzalez *(ejgonzo31@comcast.net)* and **Jennifer D. Green** *(jdgreen0605@yahoo.com),* University of Connecticut, Storrs

Hear an overview of techniques to make science accessible for diverse middle level and high school students, including struggling readers, English language learners, and special needs students.

5:00–6:00 PM Workshops

ACS Middle Level Session: Chemical Change: Breaking and Making Bonds (Chem)
(Middle Level) *Hilton Ballroom East, Hilton*
James H. Kessler *(jhkessler@acs.org),* American Chemical Society, Washington, D.C.
Explore the production of a gas, a precipitate, and changes in temperature as a result of chemical reactions.

Ocean Science in the High School Biology Classroom (Bio)
(High School) *Hilton Ballroom West, Hilton*
Mary Ford *(mford@ngs.org),* National Geographic Education Programs, Washington, D.C.
Dive in using real-world issues affecting our ocean. Bring the oceans to life for your high school biology students. Engage them in ocean science using real research, explorers, and National Geographic resources.

Drop the Lecture and Let the Students Pick Up the Learning in Environmental Science (Env)
(High School) *Marriott Ballroom B, Marriott*
Kristen R. Dotti *(kristen_dotti@yahoo.com),* Christ School, Arden, N.C.
Using a game of chance to simulate island biogeography, an "Olympic" committee to judge water quality, and a biogeochemical cycle group challenge, this session will add several new activities to your bag of tricks for teaching in-depth Advanced Placement Environmental Science (APES) topics in an engaging and memorable manner.

The Marshmallow Challenge: Using an Engineering Design Exercise to Get Kids Thinking Critically (Gen)
(General) *Marriott Ballroom D, Marriott*
Mary Lou Blanchette Smith, EASTCONN Regional Education Service Center, Willimantic, Conn.
Using spaghetti, string, tape, and a marshmallow, build the tallest freestanding structure. It's not just what you do, but what you don't do, that assures success!

Measuring Sea Level from Space (Earth)
(Middle Level) *Community Room, Science Center*
Carol A. Kraft *(carol_kraft@comcast.net),* Rockford Environmental Science Academy, Rockford, Ill.
The activity uses data from the TOPEX/Poseidon altimeter to investigate the relationship between the topography of sea surface and that of the seafloor.

Teaching Energy Conservation with an Emphasis on Biofuels (Gen)
(Elementary–Middle Level) *Discovery Ctr. Lab 2, Science Center*
Sue Kral *(spk@cdmfun.org)* and **Wayne Robinson** *(jwr@cdmfun.org),* Creative Discovery Museum, Chattanooga, Tenn.
Connecting environmental issues to the National Science Education Standards and current research, this session focuses on inquiry-based activities explaining biofuels as a future energy source.

Cross-Pollination: Using Science to Develop Similar Skills in Reading and Mathematics (Gen)
(Middle Level) *Discovery Center Lab 4, Science Center*
Christine A. Royce *(caroyce@aol.com),* NSTA Director, Professional Development, and Shippensburg University, Shippensburg, Pa.
The middle grades provide an ideal place to integrate subjects that are applied in science. Strategies that incorporate the use of reading/math skills in science will be modeled.


explOratorium
Inquiry
Eric Muller
NSTA

8:00–9:00 AM Presentations

SESSION 1

A Case Study of the Design and Implementation of PRS Problems in a Large Lecture Biology Course (Bio)

(General) *Connecticut Salon A, Hilton*

Johanna M. Fitzgerald *(johfitz@yahoo.com),* University of Massachusetts, Amherst

Join us for an interactive presentation on extending undergraduate science learning through model-based reasoning and visualization. We'll discuss use of causal diagrams in conjunction with personal response systems ("clickers") to promote biology education.

SESSION 2

Incorporating Nanotechnology into a High School Chemistry Class (Chem)

(General) *Connecticut Salon B, Hilton*

Evan P. Hurley *(ehurley@ksu.edu),* Kansas State University, Manhattan

Come learn how we taught high school students about nanotechnology and how to synthesize gold nanoparticles.

SESSION 3

NABT Session: FREE Resources and Interactive Models for Teaching Immunology and HIV/AIDS (Bio)

(High School) *Hilton Ballroom West, Hilton*

Anthony Bertino *(abertino@nycap.rr.co)* and **Patricia Nolan Bertino** *(nolanp@nycap.rr.com),* Retired Educators, Scotia, N.Y.

Get students actively involved in learning about antibodies, the immune system, and cell communication. Participants will receive classroom resources on DVD and CD-ROM, as well as model and demonstration directions.

SESSION 4

Resources and Research for Professional Development Providers (Gen)

(General) *Mark Twain, Hilton*

Christine A. Royce *(caroyce@aol.com),* NSTA Director, Professional Development, and Shippensburg University, Shippensburg, Pa.

Barbara Z. Tharp *(btharp@bcm.edu),* Baylor College of Medicine, Houston, Tex.

Join the Professional Development Committee for a roundtable discussion as they provide short synopses of the current literature and research available in the PD area.

SESSION 5

Virtual Worlds: Exploring the Natural World Through "The Cloud" (Gen)

(Elementary–High School) *Nathan Hale, Hilton*

Juliana Texley *(jtexley@att.net),* Palm Beach State College, Boca Raton, Fla.

David Adelstein *(dave.adelstein@gmail.com),* White Lake Middle School, White Lake, Mich.

For millions of children, a virtual world replaces the natural part of every day. There they inquire, explore, and grow. Visit and use their worlds for science.

SESSION 6

Geosciences Investigations: Bringing the Field into the Classroom (Earth)

(Middle Level–High School) *Capital 1, Marriott*

David M. Heiser *(david.heiser@yale.edu)* and **James Sirch** *(james.sirch@yale.edu),* Yale Peabody Museum of Natural History, New Haven, Conn.

Victoria L. Climie *(vclimie@branford.k12.ct.us),* Branford High School, Branford, Conn.

Check out these activities and virtual field investigations from the Yale Peabody Museum that make landforms come alive for students, in New England and beyond!

SESSION 7

Differentiated Science Inquiry (Gen)

(Elementary–High School) *Capital 2, Marriott*

Douglas J. Llewellyn *(dllewell@rochester.rr.com),* St. John Fisher College, Rochester, N.Y.

This presentation provides ways to differentiate an inquiry investigation into different levels based upon students' need for structure. By using choice as a motivator, students develop greater ownership of the investigation.

SESSION 8

NSTA Avenue Session: Toshiba/NSTA ExploraVision (Gen)

(General) *Capital 3, Marriott*

Brian P. Short *(exploravision@nsta.org),* Assistant Director, Science Education Competitions, NSTA, Arlington, Va.

ExploraVision is a K–12 competition that motivates students and challenges them to think creatively about scientific innovation 20 years into the future. Discover how students can win up to $240,000 in savings bonds for envisioning new technologies. Learn how ExploraVision supports classroom goals; illustrates connections between science and technology; and offers recognition, computers, and other prizes for schools, students, teachers, and mentors. Session participants have a chance to win a Toshiba product!

SESSION 9 (two presentations)

(General) *Marriott Ballroom D, Marriott*

Presider: Lawrence A. Bock, USA Science & Engineering Festival, Encinitas, Calif.

Promoting Community-based Environmental Sustainability Efforts via Student-led STEM Designs (Gen)

Carlos Antonio Charriez *(ccharriez@wilmingtonfriends.org)* and **Aaron Silver** *(asilver@wilmingtonfriends.org),* Wilmington Friends School, Wilmington, Del.

Learn how Stuff-ology, a multidisciplinary sixth-grade unit, uses the STEM design process and multimedia to engage students in developing sustainable solutions for their community.

Not a Fair...A Science and Engineering Festival (Gen)

Lawrence A. Bock *(biobock@mac.com),* USA Science & Engineering Festival, Encinitas, Calif.

Come learn how to create a science and engineering festival in your community.

SESSION 10

Literacy-based STEM Education at the Primary Level (Phys)

(General) *Discovery Center Lab 1, Science Center*

Christopher M. Ciuca *(chris.ciuca@gmail.com),* SAE International, Warrendale, Pa.

This presentation outlines the effective standards-based implementation of interdisciplinary literacy-based STEM educational experiences for students at the primary level.

SESSION 11

Addressing Concerns About Elementary Science Inquiry (Gen)

(Preschool–Elementary) *Discovery Center Lab 3, Science Center*

John C. Bennett *(jcbjr@engr.uconn.edu),* University of Connecticut, Storrs

Let's discuss ways to incorporate science inquiry into elementary classrooms. Attention will be paid to key concerns among teachers, such as time constraints given all other expectations associated with standardized tests and flagging confidence to facilitate science inquiry.

SESSION 12

Teaching Science in the Context of Substance Abuse with FREE Online Web Adventures (Gen)

(Middle Level) *Discovery Center Lab 4, Science Center*

Yvonne Klisch *(yvonne.klisch@rice.edu)* and **Lynn Lauterbach** *(lynnlauterbach@gmail.com),* Rice University, Houston, Tex.

Web adventures provide virtual experiments and visualizations to teach about body systems, neuroscience, and the biological effects of substance abuse.

8:00–9:00 AM Workshops

The Physics and Chemistry of Meteorology (Gen)
(Middle Level–College) *Ethan Allen, Hilton*
Brian Vant-Hull *(brianvh@ce.ccny.cuny.edu),* City College of New York, N.Y.
Susan Kelly, NASA Education Ambassador, Bridgewater, Conn.
Hands-on vivid meteorology examples showing cloud formation and large-scale circulation demonstrate physics and chemistry concepts.

CSI on a Shoestring: An Introduction to Forensic Science (Gen)
(High School–College) *Hartford Commons, Hilton*
Abigail P. Littlefield *(alittlefield@landmark.edu),* Landmark College, Putney, Vt.
Want to include forensic science activities in your classes but not sure where to start? Participants will engage in hands-on activities and walk away with ideas and exercises to implement immediately.

AAPT Session: Physics Demo Workshop: Thermodynamics, Heat, and Pressure (Phys)
(High School–College) *Hilton Ballroom Center, Hilton*
David Sturm *(sturmde@maine.edu),* University of Maine, Orono
Sam Sampere *(sampere@physics.syr.edu),* Syracuse University, Syracuse, N.Y.
Presider: Gary Garber *(ggarber@bu.edu),* Boston University Academy, Boston, Mass.
Experience classroom demonstrations in thermodynamics, fluids, and pressure, with how-to's from the Physics Instructional Resource Association.

ACS Session One: Equilibrium and Concentration (Chem)
(High School) *Hilton Ballroom East, Hilton*
Jerry A. Bell *(j_bell@acs.org),* American Chemical Society, Washington, D.C.
Visualizing the dynamic nature of equilibria is sometimes difficult for students. Putting the concepts in textbooks to work explaining observations from activities makes the Le Chatelier concept more tangible. Extension to quantitative studies further deepens understanding of equilibria. Bring your USB flash drive and take away the presentation and the activities to use in your classes.

NSTA Press Session: *More Picture-Perfect Science Lessons, Grades K–4* (Gen)
(Elementary) *Marriott Ballroom A, Marriott*
Emily R. Morgan *(emily@pictureperfectscience.com),* Picture-Perfect Science, West Chester, Ohio
Karen Ansberry *(karen@pictureperfectscience.com),* Mason (Ohio) City Schools
Learn how to use picture books to guide inquiry in the primary classroom.

Climate Change, Global Connections, and Sustainable Solutions (Env)
(Middle Level–High School) *Marriott Ballroom E, Marriott*
Pamela Whiffen *(pwpwr@aol.com),* NASA Educator Ambassador, Phoenix, Ariz.
Experience hands-on lessons that demonstrate the interconnectedness between natural systems and human actions using carbon footprints, emissions trading, and energy policy.

Facilitating Early Childhood Education with Project Learning Tree (Env)
(Preschool–Middle/Informal) *Discovery Ctr. Lab 2, Science Center*
Al Stenstrup *(astenstrup@forestfoundation.org)* and **Jackie Stallard** *(jstallard@forestfoundation.org),* Project Learning Tree, Washington, D.C.
Learn about and experience effective hands-on activities to introduce science concepts to young children using PLT's new early childhood curriculum. Each participant will receive PLT's Environmental Experiences for Early Childhood activity guide and accompanying music CD.

Under the Lens: Discover Literacy and Science (Gen)
(General) *Travelers Science Hall, Science Center*
Kathy Hanisko and **Deborah A. Fernandes,** Pond Hill Elementary School, Wallingford, Conn.
Identify commonalities between literacy and science skills through active participation designed to demonstrate the integration of reading, writing, and discourse with science.

8:00–9:00 AM Exhibitor Workshops

Bio-Rad—Genes in a Bottle™ Kit (Bio)
(Grades 6–College) *14, Convention Center*
Sponsor: Bio-Rad Laboratories
Sherri Andrews *(biotechnology_explorer@bio-rad.com),* Bio-Rad Laboratories, Hercules, Calif.
How do you fit a person in a bottle? Your DNA contains all of the information that makes you who you are. Isolate your own DNA and capture your unique essence in a stylish glass necklace!

Biology: Cell Respiration in Germinating Peas (Bio)
(Grades 9–12) *15, Convention Center*
Sponsor: PASCO Scientific
Fran Zakutansky, Retired Educator, Montvale, N.J.
This hands-on workshop applies PASCO's state-of-the-art science teaching solutions to one of the toughest aspects of biological investigations—cell respiration. Participate in standards-based probeware lab activities from PASCO's new biology curriculum. Be one of the first to experience how the SPARK Science Learning System can enhance your teaching practice and improve student understanding of your core topics.

Project-Based Inquiry Science/STEM Solution: Earth, Life, and Physical Science in Middle School (Gen)
(Grades 6–8) *27, Convention Center*
Sponsor: It's About Time
Presenter to be announced
Confused on what a STEM course is? Our PBIS™ presenter will clarify the confusion over what engineering means in STEM and show you the benefits of Project Based Learning for you and your students.

8:00–9:15 AM Exhibitor Workshops

Detecting Radiation in Our Radioactive World (Gen)
(Grades 5–12) *11, Convention Center*
Sponsor: American Nuclear Society
Toni Bishop *(outreach@ans.org)*, American Nuclear Society, La Grange Park, Ill.
Discover how to use Geiger counters to detect radioactivity and teach principles of nuclear science. Expand your knowledge of the ways nuclear technology is applied in the everyday life of our society.

Introducing Inquiry into the Chemistry Lab (Chem)
(Grades 9–12) *12, Convention Center*
Sponsor: Carolina Biological Supply Co.
Carolina Teaching Partner
Gain hands-on 5E (engage, explore, explain, elaborate, and evaluate) learning cycle experience to help your high school students master abstract concepts. Convert a cookbook lab into an inquiry in science experience and learn more about Carolina's Inquiries in Science® lab series. Free door prizes!

Teaching About the Rock Cycle and Earth Time (Earth)
(Grades 4–9) *13, Convention Center*
Sponsor: Lab-Aids, Inc.
Mark Koker, Lab-Aids, Inc., Ronkonkoma, N.Y.
Do your middle level students have trouble with complex concepts like the rock cycle and geologic time? Come experience motivating hands-on techniques and strategies for learning about these and related topics, like plate tectonics and continental drift. Support for literacy and technology will be addressed.

The Layered Earth! (Earth)
(Grades 5–12) *16, Convention Center*
Sponsor: Simulation Curriculum Corp.
Seth Meyers *(smeyers@simcur.com),* Simulation Curriculum Corp., Brooklyn, N.Y.
Join us for an interactive Earth science curriculum designed for today's classroom! What powers the internal processes that produce volcanoes, earthquakes, and mountains? What is the rock cycle and how does it work? What really is an earthquake, and when and where will the next earthquake be? Exactly how are volcanoes formed? Come experience The Layered Earth, a 3-D interactive geology curriculum.

From Science to Engineering **(Gen)**
(Grades K–8) *17, Convention Center*
Sponsor: Pearson
Kathryn Thornton, University of Virginia, Charlottesville
Typical science activities focus on demonstrating a science concept whereas engineering focuses on solving a problem. Brainstorm ideas on how to extend your science activities into engineering design.

Inquiring Minds Provide Spark for Science Lessons **(Gen)**
(Grades 2–8) *22, Convention Center*
Sponsor: Delta Education/School Specialty Science
Tom Graika, Consultant, Lemont, Ill.
Johanna Strange, Consultant, Richmond, Ky.
Inquiry is at the heart of science teaching. Using topics like magnetism and electricity, learn how inquiry strategies can provide a variety of learning opportunities for students. Participants will be involved in guided, challenge, and open inquiries. Take home a resource packet.

Misconception Mania: Exciting and Engaging Ways to Address Common Misunderstandings in K–8 Science **(Gen)**
(Grades K–8) *25, Convention Center*
Sponsor: Houghton Mifflin Harcourt
Michael DiSpezio, Science Writer and Educational Consultant, North Falmouth, Mass.
Join Houghton Mifflin Harcourt author Michael DiSpezio for an entertaining and eye-opening survey of common misconceptions in science. Expand your awareness of common science myths through game show–style interactions and engage in a variety of easy-to-repeat and inexpensive activities that effectively correct students' misunderstandings.

Chemistry In-the-Bag Inquiry Workshop (Chem)
(Grades 8–12) *26, Convention Center*
Sponsor: Science Kit & Boreal Laboratories
Bette A. Bridges and **Harvey Gendreau,** Laboratory Safety Institute, Natick, Mass.
Join us for this hands-on workshop and learn how to easily incorporate fun and exciting inquiry activities into your classroom with ScholAR's new In-the-Bag Inquiry Activity series. These easy-to-perform demonstrations are designed to engage your students and then incorporate guided inquiry exercises so they can further explore and understand the concept.

3-2-1 Blast Off! (Gen)
(Grades K–8) *Ballroom B, Convention Center*
Sponsor: Educational Innovations, Inc.
Tami O'Connor *(info@teachersource.com),* Educational Innovations, Inc., Norwalk, Conn.
Get a burst of energy! Join us for things that go bump in the day! Perfect for elementary or middle school educators teaching energy or Newton's laws. Door prizes and freebies!

8:00–9:30 AM Exhibitor Workshops

K–8 Science with Vernier (Gen)
(Grades K–8) *21, Convention Center*
Sponsor: Vernier Software & Technology
Matt Anthes-Washburn *(info@vernier.com),* Vernier Software & Technology, Beaverton, Ore.
Learn how easy it is for your students to use Vernier probeware to explore temperature, heart rate, magnetic fields, and more. Try experiments from two of our popular lab books, *Elementary Science with Vernie*r and *Middle School Science with Vernier.* Learn the advantages of using the Vernier LabQuest™ handheld or our low-cost line of Go! products.

Genetics: Crazy Traits and Adaptation Survivor (Phys)
(Grades 6–12) *24, Convention Center*
Sponsor: CPO Science/School Specialty Science
Patsy Eldridge, CPO Science/School Specialty Science, Nashua, N.H.
Students learn new vocabulary when they study genetics—such as traits, alleles, and genotypes. How can you predict the traits of offspring when you know the genetic makeup of the parents? These ideas will come alive as you create crazy creatures with a unique kit and study the resulting population.

8:00–10:30 AM Exhibitor Workshop

Assess Learning with Student Science Notebooks (Experienced Users) (Gen)
(Grades 2–8) *23, Convention Center*
Sponsor: Delta Education/School Specialty Science–FOSS
Ellen Mintz, Charleston County Schools, Charleston, S.C.
Virginia Reid, Consultant, Olympia, Wash.
Brian Campbell and **Jessica Penchos,** Lawrence Hall of Science, University of California, Berkeley
Already using student science notebooks? What more can you do with them? We will use materials from the FOSS Variables Module to look for evidence of student learning that can inform instruction, and we'll explore strategies for providing feedback to students. Sample FOSS materials will be distributed.

8:30–10:30 AM CESI Breakfast

Empowering Students with Citizen Science (M-1)
(Tickets Required; $29) *Conference Room 7, Marriott*

Loree Griffin Burns *(lgb@loree-burns.com),* Author, West Boylston, Mass.

Drawing on her experiences researching and writing about environmental issues from ocean pollution to the collapse of honey bee populations, Dr. Loree Griffin Burns proposes a formula for sharing these stories without scaring students—give them something meaningful they can do to help. From tallying beach debris (International Coastal Cleanup) and monitoring native bee populations (Great Sunflower Project) to tagging Monarch butterflies (Monarch Watch) and hunting ladybugs (Lost Ladybug Project), Burns has practiced citizen science in her own backyard, coordinated events in her community, introduced projects into schools, and observed events from Central Park to central Mexico. Over breakfast, she'll share her experiences and introduce teachers to a world of classroom-friendly projects that promote inquiry and empower students.

Loree Griffin Burns earned a BS from Worcester Polytechnic Institute and a PhD in biochemistry from the University of Massachusetts. This academic background includes research in the fields of biochemistry, genetics, and molecular biology.

Loree's first book for young readers, *Tracking Trash: Flotsam, Jetsam, and the Science of Ocean Motion,* was published as part of Houghton Mifflin's stellar "Scientists in the Field" series in 2007. In addition to starred reviews and a Boston Globe-Horn Book Honor Award, the book garnered an IRA Children's Book Award and was named an ALA Notable Book for Children.

Loree's upcoming books include *Citizen Scientists: Be a Part of Scientific Discovery from Your Own Backyard* (photographed by Ellen Harasimowicz and published by Henry Holt, February 2012) and a new "Scientists in the Field" book on Asian Longhorned Beetles (Houghton Mifflin, 2013).

Tickets, if still available, must be purchased at the Ticket Sales Counter in the NSTA Registration Area before 12 Noon on Thursday.

8:30–11:30 AM Short Course

Energy as an Interdisciplinary Tool for Meeting Literacy Requirements (SC-4)
(Elementary–Middle Level) *Community Room, Science Center*
Tickets Required: $18
Todd Rogers *(info@need.org),* National Energy Education Development Project, Manassas, Va.
For description, see page 36.

9:00 AM–5:00 PM Exhibits

Hall A/B, Convention Center

Come see the most up-to-date science textbooks, software, equipment, and other teaching materials. Some exhibitors will offer materials for sale.

9:30–10:00 AM Presentations

SESSION 1
Field Notes and the Classroom (Bio)
(Informal Education) *Connecticut Salon A, Hilton*
Michael R. Canfield *(canfield@fas.harvard.edu),* Harvard University, Cambridge, Mass.
Field notes can be used to hone students' observational and writing skills, and provide the primary documents of field science.

SESSION 2
NABT Session: FREE Teaching Resources on Viral Outbreaks and the Science of Emerging Diseases (Bio)
(General) *Hilton Ballroom West, Hilton*
Anthony Bertino *(abertino@nycap.rr.co)* and **Patricia Nolan Bertino** *(nolanp@nycap.rr.com),* Retired Educators, Scotia, N.Y.
Learn how researchers are using simple and sophisticated technologies to detect and fight infectious diseases such as dengue fever and SARS. Take home free classroom resources on DVD and CD-ROM.

9:30–10:30 AM Presentations

SESSION 1

Dazzling Deceptions: Discrepant Events That Dazzle and Mystify! (Gen)

(General) *Ballroom A, Convention Center*

Alan J. McCormack *(amccorma@mail.sdsu.edu),* NSTA Retiring President, and San Diego State University, San Diego, Calif.

Science experiences that seem contrary to "common sense" are great motivators! Pique children's interest and imagination, and build creative and logical-thinking skills with discrepant events.

SESSION 2

Engaging Students in Chemistry Outside the Classroom: A Look at ChemClub (Chem)

(College/Supervision) *Connecticut Salon B, Hilton*

Marta Gmurczyk *(m_gmurczyk@acs.org),* American Chemical Society, Washington, D.C.

Ami LeFevre *(amilef@d219.org),* Niles West High School, Skokie, Ill.

Chemistry students are provided enrichment through various activities in ChemClub. Join us to learn about this free, exciting program. Hear from club leaders.

SESSION 3

AAPT Session: Science Education and Dangerous "Global Warming": Examining Claims Through Critical Thinking in the Classroom (Phys)

(General) *Hilton Ballroom Center, Hilton*

Laurence I. Gould *(lgould@hartford.edu),* University of Hartford, West Hartford, Conn.

Presider: Gary Garber *(ggarber@bu.edu),* Boston University Academy, Boston, Mass.

Science education is fundamentally dependent on a critical examination of evidence. This tutorial (partially "hands on" with handouts) will subject claims about dangerous "global warming" to such an examination.

SESSION 4

VREP—Learning and Leading in 3-D (Gen)

(General) *Nathan Hale, Hilton*

Terry L. Contant *(tcontant@learn.k12.ct.us)* and **Doreen Marvin** *(dmarvin@learn.k12.ct.us),* LEARN, Old Lyme, Conn.

Learn about Virtual Reality Education Pathfinders (VREP), an initiative for high school students working in unique learning environments to spark career possibilities using virtual reality, 3-D technology.

SESSION 5

Oceans of Professional Development Opportunities Through NOAA (Gen)

(Elementary–High School) *Capital 1, Marriott*

Lindsay Knippenberg *(lindsay.knippenberg@noaa.gov),* Einstein Fellow, NOAA, Washington, D.C.

Are you looking for professional development opportunities for STEM, oceans, climate, or weather? NOAA has several opportunities varying from a weekend to an entire year.

SESSION 6

NSTA Avenue Session: NSTA Teacher and Principal Awards and Recognitions: Learn How to Win a Free Trip to the National Conference (Gen)

(Supervision/Administration) *Capital 3, Marriott*

Jerry D. Valadez *(jdvscience@yahoo.com),* California State University, Fresno

NSTA recognizes and rewards exemplary teachers and principals with cash, trips, science materials, and more. Learn how to apply! Win $10,000!

SESSION 7

NMLSTA Session: Classroom Demonstrations on a Budget (Gen)

(Middle Level) *Discovery Center Lab 4, Science Center*

Kathleen Brooks, Walter C. Polson Middle School, Madison, Conn.

Ideas will be shared for demonstrating science concepts to middle level students using everyday lab equipment and additional inexpensive materials.

9:30–10:30 AM Workshops

Activities from Across the Earth System (Earth)
(General) *Ballroom C, Convention Center*
Roberta Johnson *(rmjohnsn@nestanet.org),* National Earth Science Teachers Association, Boulder, Colo.
Lisa Alter *(alterl@yahoo.com),* New Haven (Conn.) Public Schools
Missy Holzer *(mholzer@monmouth.com),* Chatham High School, Chatham, N.J.
In this fast-paced workshop, educators and scientists share their repertoire of hands-on, inquiry-based activities spanning the five "spheres" of Earth system science. Handouts provided.

Science Facilities 101: Safe and Sustainable Facilities (Gen)
(General) *Ethan Allen, Hilton*
LaMoine L. Motz *(llmotz@comcast.net),* 1988–1989 NSTA President, and Science Education and Facilities Specialist, White Lake, Mich.
Juliana Texley *(jtexley@att.net),* Palm Beach State College, Boca Raton, Fla.
Sandra West Moody *(sw04@txstate.edu),* Texas State University, San Marcos
James T. Biehle *(biehlej@sbcglobal.net),* Inside/Out Architecture, Inc., Kirkwood, Mo.
Presider: LaMoine L. Motz
So you want new facilities. Does your curriculum define your science teaching facility? Hear from the experts on planning and designing safe, sustainable, and flexible facilities for inquiry/project-based science. Join the authors of *NSTA Guide to Planning School Science Facilities* (2nd Ed.) and learn the "basics" of science facility planning, designing, and budgeting.

Turn Kids (PreK–6) "ON" to STEM with Free Turnkey Resources from WGBH (Gen)
(General) *Hartford Commons, Hilton*
Susan Buckey *(susan_buckey@wgbh.org),* WGBH Educational Foundation, Boston, Mass.
Try activities and learn strategies for tweaking kids' curiosity with FREE resources from WGBH-produced programs like *Curious George, Peep*, *FETCH!, Design Squad*, and *Teachers' Domain*.

ACS Session Two: Equilibrium and Energy (Chem)
(High School) *Hilton Ballroom East, Hilton*
Jerry A. Bell *(j_bell@acs.org),* American Chemical Society, Washington, D.C.
Some chemical reactions produce energy and others require energy to proceed. Are energy and equilibrium related? How do we find out? Under what conditions can the energetics of a chemical system be changed and what are the consequences? Bring your USB flash drive and take away the presentation and the activities to use in your classes.

NSTA Press Session: *Picture-Perfect Science Lessons, Grades 3–6* (Gen)
(Elementary) *Marriott Ballroom A, Marriott*
Emily R. Morgan *(emily@pictureperfectscience.com),* Picture-Perfect Science, West Chester, Ohio
Karen Ansberry *(karen@pictureperfectscience.com),* Mason (Ohio) City Schools
Learn how to use picture books to guide inquiry in the upper elementary classroom.

Mapping Nest Success in Migratory Birds (Env)
(High School) *Marriott Ballroom B, Marriott*
Daniel J. Bisaccio *(daniel_bisaccio@brown.edu),* Brown University, Providence, R.I.
Geographic information system (GIS) is accessible to your students by using an authentic field-based context. Participants will craft artificial nests and eggs of migratory birds and investigate the impact of forest fragmentation on nesting success.

7 Billion and Counting: Lessons for Our Planet's Future (Env)
(Middle Level–High School) *Marriott Ballroom C, Marriott*
Polly Vanasse *(pvanasse@nbsc.org),* Nashoba Brooks School, Concord, Mass.
Engage in innovative activities to explore connections between human population growth, resource consumption, and the changing face of our planet. Free CD-ROM of activities. *Note:* Hands-on activities available for the first 40 participants.

Decoding Starlight—From Pixels to Images (Earth)
(General) *Marriott Ballroom D, Marriott*
Donna L. Young *(donna@aavso.org),* Chandra E/PO Office, Cambridge, Mass.
Pamela B. Perry *(pperry@lewistonpublicschools.org),* Lewiston High School, Lewiston, Maine
Experience data and image processing with actual data from the Chandra X-ray Observatory and learn how "representative colors" are used to produce images of supernovae.

Fueling the Future: Energy Interconnections and Sustainable Choices (Gen)
(General) *Marriott Ballroom E, Marriott*
Dave Wilton *(dave@facingthefuture.org),* Facing the Future, Seattle, Wash.
Pamela Whiffen *(pwpwr@aol.com),* Facing the Future Master Teacher, Phoenix, Ariz.
Experience hands-on lessons that demonstrate the interconnections between energy sources, human choices, economic challenges, and environmental impacts. Think critically about the science behind the headlines. Includes free curriculum!

Ramps and Pathways: An Inquiry-based Approach to Physical Science in Early Childhood (Phys)
(Preschool–Elementary) *Discovery Center Lab 1, Science Center*
Beth Van Meeteren *(beth.vanmeeteren@uni.edu),* University of Northern Iowa, Cedar Falls
Engage in active experimentation with ramps and pathways and learn how to support young children's learning about force and motion as well as inquiry.

Weaving Literacy and Song into the Science of Fabric (Gen)
(Preschool–Elementary) *Discovery Center Lab 2, Science Center*
Kelly M. Bornmann *(kbornmann@collegiateschool.org),* Collegiate School, New York, N.Y.
Learn how to integrate literature and song into a hands-on unit on fabric for your youngest scientists. Take home lesson plans and activities.

Tapping In to Student Knowledge (Gen)
(Elementary) *Travelers Science Hall, Science Center*
Nancy Chesley *(nchesley@mmsa.org)* and **Lynn C. Farrin** *(lfarrin@mmsa.org),* Maine Mathematics and Science Alliance, Augusta
Will Pidden *(piddenw@rsu5.org),* **Deborah Bartlett** *(bartlettd@rsu5.org),* **Bobbi Maunsell,** and **Tina Whalen** *(whalent@rsu5.org),* Durham Community School, Durham, Maine
Learn how to scaffold instruction for K–5 science notebooks by aligning each stage of inquiry with a notebook entry and by examining student notebooks.

9:30–10:30 AM Exhibitor Workshops

Physics and Physical Science: Investigating Motion (Phys)
(Grades 6–12) *15, Convention Center*
Sponsor: PASCO Scientific
Jason Sullivan, PASCO Scientific, Roseville, Calif.
Explore the differences between speed and velocity in this probeware-based hands-on workshop featuring PASCO carts and the new PAStrack. Your hands-on experience will include use of one of PASCO's standards-based SPARKlabs to improve student understanding of motion, a foundation topic in the study of physics and physical science. Additional activities will be demonstrated.

EarthComm: A New Edition! (Earth)
(Grades 8–12) *27, Convention Center*
Sponsor: It's About Time
Presenter to be announced
Introducing the newest edition of American Geological Institute's EarthComm! Discover the new features, including the Engineering Design Cycle and more from one of the most successful project-based Earth science programs available. Development by AGI education professionals ensures that the content is not only accurate but also based on the latest research.

9:30–11:30 AM Workshop

SCST Session: *Lecture-Free Teaching: A Learning Partnership Between Science Educators and Their Students* **(Gen)**

(High School–College/Supervision) *Mark Twain, Hilton*

Bonnie S. Wood *(bonnie.s.wood@umpi.edu),* University of Maine at Presque Isle

Using Dr. Wood's book *Lecture-Free Teaching* as a guide, participants will experience the role of students during a simulation of a typical class meeting.

9:30–11:30 AM Exhibitor Workshop

Bio-Rad—Forensic DNA Fingerprinting Kit (AP Biology Lab 6) **(Bio)**

(Grades 9–College) *14, Convention Center*

Sponsor: Bio-Rad Laboratories

Sherri Andrews *(biotechnology_explorer@bio-rad.com),* Bio-Rad Laboratories, Hercules, Calif.

Use molecular scissors to create a DNA fingerprint. Restriction enzyme digestion and DNA gel electrophoresis help determine which suspect committed the crime. In this workshop, you will get hands-on experience with micropipettes and DNA gel electrophoresis equipment. Extend this kit with a plasmid mapping activity.

10:00–11:15 AM Exhibitor Workshops

Rapid Single Antibody–based ELISA (Bio)
(Grades 8–College) *11, Convention Center*
Sponsor: Edvotek
Khuyen Mai *(info@edvotek.com)* and **Tom Cynkar** *(info@edvotek.com),* Edvotek, Bethesda, Md.
Learn about the simple and foolproof single-antibody ELISA (Enzyme-Linked Immunosorbent Assay) that can be completed in 40 minutes and analyzed by visual inspection or quantitatively using a microplate reader. This procedure is much more rapid than the traditional two-antibody ELISA.

Comparative Vertebrate Anatomy with Carolina's Perfect Solution® Specimens (Bio)
(Grades 6–12) *12, Convention Center*
Sponsor: Carolina Biological Supply Co.
Carolina Teaching Partner
Explore animal diversity by comparing and contrasting anatomical adaptations of the pig, rat, perch, and frog. Participants use hands-on dissection to identify characteristics of these popular vertebrates. This is an excellent comparative dissection activity featuring our very best Carolina's Perfect Solution specimens. Free dissection supplies and great door prizes.

Teaching About Gene Expression (Bio)
(Grades 6–12) *13, Convention Center*
Sponsor: Lab-Aids, Inc.
Mark Koker, Lab-Aids, Inc., Ronkonkoma, N.Y.
SGI Biology is the new high school biology course from Science Education for Public Understanding Program (SEPUP). Developed with NSF support, the course has five units: sustainability, ecology, cell biology, genetics, and evolution. In this workshop from the genetics unit, participants will use model chromosomes to explore how genes are "turned off and on" by transcription factors.

Molecular Modeling in Middle School and High School Science Classrooms: Engage Your Students! (Chem)
(Grades 8–College) *16, Convention Center*
Sponsor: Wavefunction, Inc.
Jurgen Schnitker *(sales@wavefun.com),* Wavefunction, Inc., Irvine, Calif.
Do you see your students struggle with the key concepts of molecular science? Would you like to teach more effectively with the help of molecular simulations that are scientifically sound? Attend this hands-on workshop and learn how to truly engage your students. Bring your own laptop (Windows or Mac OS X) or use a laptop provided for the workshop.

Destructive Forces of Nature: Earthquakes (Earth)
(Grades K–8) *17, Convention Center*
Sponsor: Pearson
Michael Wysession, Washington University in St. Louis, Mo.
Earthquakes are fascinating phenomena—dramatic and exciting. Many fear them because they are deadly and unpredictable. Scientists are drawn to them because of the important role they play in discovering how our planet works. Join us as professor Michael Wysession, a Pearson author and world-renowned seismologist, gives an exciting account of what we know about earthquakes and answers any questions you may have.

Integrating Science and Literacy: Grades 1–6 (Gen)
(Grades 1–6) *22, Convention Center*
Sponsor: Delta Education/School Specialty Science
Johanna Strange, Consultant, Richmond, Ky.
Tom Graika, Consultant, Lemont, Ill.
We'll show you various Delta products and strategies you can use to integrate reading and language arts into your science programs. Learn how your students can experience the enjoyment of learning science with Delta Science Modules and make the literacy connection. Receive a workshop packet and related Delta materials.

Effective STEM Challenges for the Classroom (Gen)
(Grades 3–8) *25, Convention Center*
Sponsor: Houghton Mifflin Harcourt
Michael DiSpezio, Science Writer and Educational Consultant, North Falmouth, Mass.
Join Michael DiSpezio for this high-energy, entertaining workshop that explores effective and realistic STEM construction challenges. Experience how a bit of guidance can direct student experience toward addressing specific content standards in science and math. Engineer and test models of air bag–cushioned Mars Landers. Engineer catapults and test your design against others. Join in the fun and leave with new ideas.

Promote Inquiry via Chemistry Demonstrations **(Chem)**

(Grades 9–12) *Ballroom B, Convention Center*

Sponsor: Flinn Scientific, Inc.

Irene Cesa, Flinn Scientific, Inc., Batavia, Ill.

Looking for new ways to incorporate more inquiry-based experiments in your chemistry classroom? Join us as we present classic demonstrations and describe a series of inquiry-based activities that were developed based on these demonstrations. We'll model the inquiry process, sharing a strategy that is used in the Flinn ChemTopic™ Labs series to integrate inquiry into every core curriculum topic. Take home a copy of *Oxidation and Reduction,* Volume 16 in the series.

10:00–11:30 AM Exhibitor Workshops

Exploring Science with Vernier **(Gen)**

(Grades 7–College) *21, Convention Center*

Sponsor: Vernier Software & Technology

Matt Anthes-Washburn *(info@vernier.com),* Vernier Software & Technology, Beaverton, Ore.

Use sensors and software to graph and analyze scientific data with state-of-the-art technology for your science classroom. In this hands-on session you'll learn from master teachers and technology experts about Vernier LabQuest™ handheld and Logger *Pro* software. Explore how probeware can help you teach core topics in physics, chemistry, biology, Earth science, and environmental science.

Chemistry and the Atom: Fun with Atom-building Games! **(Phys)**

(Grades 6–12) *24, Convention Center*

Sponsor: CPO Science/School Specialty Science

Patsy Eldridge, CPO Science/School Specialty Science, Nashua, N.H.

Our understanding of matter is so abstract that students have a hard time making sense of these fascinating concepts. In this workshop you will experience innovative games and activities that give students with different learning styles opportunities to explore and grasp atomic structure and the periodic table.

11:00 AM–12 Noon Featured Presentation

Science as a Context for Literacy **(Gen)**

(General) *Ballroom A, Convention Center*

Lori Fulton *(fultola@interact.ccsd.net),* Science Mentor, Clark County School District, Las Vegas, Nev.

Presider: Melinda Meyer, New Canaan (Conn.) Public Schools

Science engages students, excites them, and gives them something real to read, write, and talk about. As teachers we need to capitalize on this interest and engage students in developing their literacy skills through the science they love. In this session, we will explore how teachers can scaffold science talks and science notebooks to help their students develop rich scientific understandings.

Lori Fulton is a science mentor in a Title I school in Clark County School District in Las Vegas, Nevada. She has always had a passion for science, and has made it a central part of her curriculum as an elementary classroom teacher. While working as a project facilitator on the National Science Foundation–funded Mathematics and Science Enhancement (MASE) Project, Lori facilitated a number of professional development workshops working with teachers at different levels of experience.

During her time as a project facilitator, Lori had the opportunity to collaborate with individuals from across the country as a member of the Exploratorium's Institute for Inquiry and WestEd's Math and Science Leadership Academy. As part of the WestEd Academy, she facilitated a study group, consisting of K–5 fellow educators who were implementing science notebooks within their classrooms. This group explored how to utilize science notebooks in the classroom while maintaining integrity to the work scientists do with notebooks. As a result of that study group, Lori co-authored Science Notebooks: Writing About Inquiry *with Brian Campbell.*

11:00 AM–12 Noon Presentations

SESSION 1

Impact of High-Stakes Testing on Inquiry-based Science Instruction (Bio)

(Elementary–High School) *Connecticut Salon A, Hilton*

Jonathan A. King *(jaking@mit.edu)* and **Lisa A. Guisbond** *(guisbond@mit.edu),* Massachusetts Institute of Technology, Cambridge

Does high-stakes testing conflict with inquiry-based science? Learn about the impact of standardized assessment on science education and discuss how your experience compares with research.

SESSION 2

Get SIMulated! (Gen)

(Elementary–High School) *Saratoga B, Hilton*

Diane L. Kasparie *(dkasparie@quincynotredame.org),* Quincy Notre Dame High School, Quincy, Ill.

Online science simulations are research-proven, student-centered, relevant tools that empower great teaching and active learning! They are engaging and motivating, and aligned to state/national standards.

SESSION 3

The Sky Is NOT Falling! Debunking the 2012 Apocalypse Myth (Gen)

(General) *Capital 1, Marriott*

Kristine Larsen *(larsen@ccsu.edu),* Central Connecticut State University, New Britain

Have your students asked if the world is going to end on 12/21/12? Discover how to lead your students through a thorough debunking of this myth.

SESSION 4 (two presentations)

(General) *Capital 2, Marriott*

Science-focused Science Fairs: Lessons from New Haven (Gen)

Richard Therrien *(richard.therrien@new-haven.k12.ct.us),* New Haven (Conn.) Public Schools

This session will provide an overview of the New Haven Science Fair Program. Strategies and lessons learned from the past 11 years will be shared.

Field Trips: How to Maximize Learning (Gen)

Heather Harkins *(hharkins@ctsciencecenter.org),* Connecticut Science Center, Hartford

Millions of students are taken on science field trips each year. Find out what international and local research shows will optimize learning for your students.

SESSION 5

NSTA **NSTA Avenue Session: Disney's Planet Challenge: Project Based Learning and Service Learning–based Lesson Development and Funding (Env)**

(Elementary–Middle Level/Supervision) *Capital 3, Marriott*

Christiane Maertens *(christiane.maertens@disney.com),* The Walt Disney Co., Burbank, Calif.

Learn about Project Based Learning (PBL) opportunities from previous Disney's Planet Challenge participating teachers as they discuss their winning projects, provide tips for successfully engaging your students, and offer advice on how to secure grants and funding for your own classroom projects. Presenters will give insight into their experience in creating engaging and successful PBL and environmental service lessons. Join the discussion and learn what you can do to help your classroom!

SESSION 6

Making Science Understandable for ELLs in the Elementary Grades (Gen)

(Elementary) *Discovery Center Lab 1, Science Center*

Jennifer D. Green *(jdgreen0605@yahoo.com),* University of Connecticut, Storrs

Experience a short science lesson in a foreign language! A discussion will follow about methods/techniques to help elementary English language learners be successful in science.

SESSION 7

NMLSTA Session: Science and Special Education: Instructional Strategies That Work (Gen)

(Middle Level–High School) *Discovery Ctr. Lab 4, Science Center*

Kathleen Brooks, Walter C. Polson Middle School, Madison, Conn.

Elizabeth Battaglia *(ebattaglia@crec.org),* Capital Region Education Council, Hartford, Conn.

Strategies will be shared for science and special education teachers to use in middle school and high school science classes for the success of all.

SESSION 8

K–6 Science Instruction for All Students to Achieve Success (Gen)

(General) *Travelers Science Hall, Science Center*

Donna L. Knoell *(dknoell@sbcglobal.net),* Educational Consultant, Shawnee Mission, Kans.

Maximize student participation and learning in the K–6 science classroom. Learn ways of differentiating instruction to enable all students to inquire, explore, participate, and achieve success. Handouts.

11:00 AM–12 Noon Workshops

Climate Change Classroom Toolkit (Earth)
(General) *Ballroom C, Convention Center*
Roberta Johnson *(rmjohnsn@nestanet.org),* National Earth Science Teachers Association, Boulder, Colo.
Missy Holzer *(mholzer@monmouth.com),* Chatham High School, Chatham, N.J.
Explore the scientific foundations of what we know about climate change, greenhouse gases, and energy consumption through hands-on and data-rich classroom activities. Handouts provided.

Science Facilities 102: The Architects Have Started Without Me: What Do I Do Now? (Gen)
(General) *Ethan Allen, Hilton*
LaMoine L. Motz *(llmotz@comcast.net),* 1988–1989 NSTA President, and Science Education and Facilities Specialist, White Lake, Mich.
Juliana Texley *(jtexley@att.net),* Palm Beach State College, Boca Raton, Fla.
Sandra West Moody *(sw04@txstate.edu),* Texas State University, San Marcos
James T. Biehle, Inside/Out Architecture, Inc., Kirkwood, Mo.
Presider: LaMoine L. Motz
Is your district planning/designing new science facilities? Learn about budgeting, working with the architect, space requirements, technology, flexibility, safety, new types of spaces, and special adjacencies. In an advanced course (an extension of Science Facilities 101 session, page 85), the NSTA author team for *NSTA Guide to Planning School Science Facilities* (2nd Ed.) will present more detailed information and examples of functional, flexible science facilities for inquiry/project-based science. Resource packet available.

C S I—Creative Science Investigations (Gen)
(General) *Hartford Commons, Hilton*
Debra J. Venable *(venabledebra@gmail.com),* Wilson Public School, Henryetta, Okla.
Participants will get "down and dirty" with experiments and mysterious substances, while attempting to solve crimes and mysteries. This session will investigate the ways that creative science is able to connect clues from evidence left behind to see what actually happened at a certain place and time.

AAPT Session: Physics Demo Workshop: Mechanics, Motion, and Photography (Phys)
(High School–College) *Hilton Ballroom Center, Hilton*
David Sturm *(sturmde@maine.edu),* University of Maine, Orono
Sam Sampere *(sampere@physics.syr.edu),* Syracuse University, Syracuse, N.Y.
Presider: Gary Garber *(ggarber@bu.edu),* Boston University Academy, Boston, Mass.
Experience moving demonstrations in particular applications of imaging and stop-motion. Session includes idea and supply sources and how-to's.

ACS Session Three: Rate (Chem)
(High School) *Hilton Ballroom East, Hilton*
Jerry A. Bell *(j_bell@acs.org),* American Chemical Society, Washington, D.C.
Chemistry is about change. Some chemical changes are very slow and others are very fast. How are the rates (speeds) of chemical reactions measured? What are the factors that affect the rates? Are these factors the same as those that are responsible for changes in equilibria? Bring your USB flash drive and take away the presentation and the activities to use in your classes.

NABT Session: Engaging Students in Learning Biology with Activities That Interest Students (Bio)
(Middle Level–College) *Hilton Ballroom West, Hilton*
Jianyu Jenny Zheng *(jzheng@nvcc.commnet.edu),* Naugatuck Valley Community College, Waterbury, Conn.
This presentation will demonstrate how to use classroom response systems (clickers), Special Interest Modules (SIMs), and the laboratory to further enhance student learning.

From Model Rocketry to Satellite Imaging to GIS for $25 (Phys)
(High School–College/Informal) *Marriott Ballroom D, Marriott*
Vin Urbanowski *(mr.urbanowski@gmail.com),* Academy of Information Technology and Engineering, Stamford, Conn.
Using simple rockets, free ImageJ software, and inexpensive "spy" cameras, create and analyze "satellite" imagery with your students.

Opening Doors to CAREERS in Meteorology: Taking Summer Weather Camp Experiences Back to the Classroom (Earth)
(Middle Level–High School) *Marriott Ballroom E, Marriott*
H. Michael Mogil *(hmmogil@weatherworks.com),* How the Weatherworks, Naples, Fla.
Vernon Morris *(vmorris@howard.edu),* Howard University, Washington, D.C.
This presentation will showcase the Channeling Atmospheric Research into Educational Experiences Reaching Students (CAREERS) program. Experience multidisciplinary, hands-on summer weather camp activities that you can easily replicate in your classroom. We'll also provide the associated science-math background.

STEM Problem-solving Activities for PreK and Kindergarten Classrooms (Gen)
(Preschool–Elementary) *Discovery Center Lab 2, Science Center*
John W. Payne *(payne_jw@mercer.edu),* Mercer University, Lithia Springs, Ga.
Colleen P. Stapleton *(stapleton_c@mercer.edu),* Mercer University, Atlanta, Ga.
PreK and kindergarten teachers will have the opportunity to see how everyday activities can be turned into STEM problem-solving exercises for 4- and 5-year-olds.

Increasing Instructional Time for Science Through Integration of Literacy and Science: A Framework for Planning (Gen)
(General) *Discovery Center Lab 3, Science Center*
Mary Kay Kelly *(kellymaz@notes.udayton.edu),* **Shauna M. Adams** *(adamsshm@notes.udayton.edu),* and **Joni L. Baldwin** *(baldwijl@notes.udayton.edu),* University of Dayton, Ohio
Increase your instructional time for science by using our integrated planning framework to develop authentic, content-rich, inquiry-oriented science experiences for your elementary classroom.

11:00 AM–12 Noon Exhibitor Workshops

Investigating Earthquakes in Middle School: Bringing Science and Technology Together (Phys)
(Grades 6–8) *15, Convention Center*
Sponsor: PASCO Scientific
Carla Johnson, PASCO Scientific, Roseville, Calif.
Experience authentic STEM learning! Integrate technology in real science investigations as you explore plate tectonics, earthquakes, and force. Everyday materials, SPARK science technology, and Sally Ride Science SPARKlabs are used to develop a deeper understanding of STEM concepts and solve real-life problems.

STEM Solutions for Middle School and High School Classrooms (Gen)
(Grades 6–12) *27, Convention Center*
Sponsor: It's About Time
Presenter to be announced
It's About Time and Fourier Systems have teamed up to help you seamlessly integrate STEM into your science programs. Using a physics project-based curriculum as an example, learn how to implement probes, data logging, and analysis seamlessly with your students. Walk away with several examples of how to build your STEM classroom.

11:30 AM–1:30 PM Exhibitor Workshop

FOSS Planetary Science for Middle School (Gen)
(Grades 5–8) *23, Convention Center*
Sponsor: Delta Education/School Specialty Science–FOSS
Larry Malone, Alan Gould, *and* **Jessica Penchos,** Lawrence Hall of Science, University of California, Berkeley
How have we come to understand the solar system? How many other planetary systems are there and how can we find and explore them? Students engage these questions in the new FOSS Planetary Science Course. This introduction of the new edition will highlight new features, strategies, and content.

12 Noon–1:15 PM Exhibitor Workshops

Engage Students with the Hands-On Anatomy in Clay® Learning System (Bio)
(Grades 7–College) *11, Convention Center*
Sponsor: Anatomy in Clay Learning System
Chuck Roney, Retired Educator, Haddonfield, N.J.
Discover a new method of teaching anatomy. Through building body systems in clay, students begin to really understand and remember size, shape, location, purpose, and function of everything that they build. Published academic research shows higher retention and test scores when students learn hands on.

Strawberry DNA and Molecular Models (Bio)
(Grades 6–12) *12, Convention Center*
Sponsor: Carolina Biological Supply Co.
Carolina Teaching Partner
Remove your students' abstract notion of DNA structure and function through hands-on techniques. Follow a simple laboratory procedure to extract and visualize actual DNA from fresh strawberries. Then use models to show DNA structure. These kits will quickly make the fascinating world of DNA approachable and tangible in the classroom.

What Is the Difference Between Heat and Temperature? (Chem)
(Grades 9–12) *13, Convention Center*
Sponsor: Lab-Aids, Inc.
Mark Koker, Lab-Aids, Inc., Ronkonkoma, N.Y.
How many of your students can answer this question? We will show you a powerful, intuitive, and nearly foolproof way to teach this key idea in chemistry. The concept of heat and the flow of energy is a modern way to look at a core concept that appears in many of your standards. We will also use a new classroom-rugged probe system that stores data on a portable SD card!

eCYBERMISSION: Free STEM Competition for Middle School Students Offers Exciting Rewards (Gen)
(Grades 6–9) *16, Convention Center*
Sponsor: eCYBERMISSION
Katherine Smith *(katherine.smith@ecybermission.com),* eCYBERMISSION, Belcamp, Md.
Learn about eCYBERMISSION, a free web-based STEM competition for students in grades 6–9. Sponsored by the U.S. Army, eCYBERMISSION shares the importance of STEM education with tomorrow's leaders while offering students the opportunity to earn up to $8,000 in U.S. EE savings bonds.

***Marine Science: The Dynamic Ocean*: A New High School STEM Offering (Earth)**
(Grades 9–12) *17, Convention Center*
Sponsor: Pearson
Glen Schuster and **Meghan Marrero,** U.S. Satellite Laboratory, Inc., Rye, N.Y.
Meet the authors and learn how STEM pedagogical strategies help students understand integrated science content in the context of the ocean. This new course blends life, Earth, and physical science as well as presents Earth's greatest resource—our ocean. Discover it in the context of tracking marine animals and socio-scientific issues.

Extra, Extra! Read All About It! Taking Biology from the News to the Classroom (Bio)
(Grades 9–12) *25, Convention Center*
Sponsor: Houghton Mifflin Harcourt
Stephen Nowicki, Duke University, Durham, N.C.
Join Holt McDougal *Biology* author Steve Nowicki for this interactive session as he presents a variety of strategies for bringing the real world into the classroom. Emphasis will be placed on a full range of media resources to connect current events, recent scientific discoveries, and fun quirks of nature with your biology classroom and the everyday lives of your students.

Think Outside the Book with Discovery Education's Science Techbook (Gen)
(Grades K–8) *26, Convention Center*
Sponsor: Discovery Education
Patti Duncan *(patti_duncan@discovery.com),* Discovery Education, Silver Spring, Md.
Capture your students' attention with this dynamic, interactive resource. This session will show you the power of using computer simulations and digital media to either introduce or reinforce the hands-on experience—tying it all together in a nice, neat package that all students will want to unwrap!

Natural Differentiation Using Foldables® (Gen)
(Grades K–12) *Ballroom B, Convention Center*
Sponsor: Dinah-Might Adventures, LP
Nancy Wisker *(nancy@dinah.com),* Dinah Zike Academy, San Antonio, Tex.
Differentiation occurs naturally with Foldables as each student works at his or her level. Learn while transforming basic classroom materials into 3-D interactive learning and assessment tools. Material packets included.

12 Noon–1:30 PM Luncheon

Preservice and New Teachers Luncheon (M-2)

(Tickets Required; $12) *Marriott Ballroom C, Marriott*

Sponsored by Kendall Hunt Publishing Co.

Join us for this lively function where you'll learn about resources from NSTA for your science classroom and career. Enjoy lunch (generously sponsored by Kendall Hunt Publishing Company).

Tickets, if still available, must be purchased at the Ticket Sales Counter in the NSTA Registration Area before 12 Noon on Thursday.

Note: Tickets will be provided only to preservice teachers or teachers with up to five years of teaching experience.

12 Noon–1:30 PM Exhibitor Workshops

Exploring Science with Vernier (Gen)

(Grades 7–College) *21, Convention Center*

Sponsor: Vernier Software & Technology

Matt Anthes-Washburn *(info@vernier.com),* Vernier Software & Technology, Beaverton, Ore.

Use sensors and software to graph and analyze scientific data with state-of-the-art technology for your science classroom. In this hands-on session you'll learn from master teachers and technology experts about Vernier LabQuest™ handheld and Logger *Pro* software. Explore how probeware can help you teach core topics in physics, chemistry, biology, Earth science, and environmental science.

Light and Optics: A Series of EnLIGHTening Experiments! (Phys)

(Grades 6–12) *24, Convention Center*

Sponsor: CPO Science/School Specialty Science

Erik Benton, CPO Science/School Specialty Science, Nashua, N.H.

Experience CPO's Optics with Light and Color kit complete with LED flashlights, lenses, a laser, a mirror, and more. Try color mixing, relate it to human vision, and examine different spectra. Shine a laser through a prism and see for yourself the phenomenon of total internal reflection. We make studying light exciting!

12:30–1:30 PM Presentations

SESSION 1

A Framework for K–12 Science Education **(Gen)**

(General) *Ballroom A, Convention Center*

Helen Quinn *(quinn@slac.stanford.edu),* Emerita Professor of Physics, Stanford Linear Accelerator Center, Menlo Park, Calif.

Presider: Francis Q. Eberle *(feberle@nsta.org),* NSTA Executive Director, Arlington, Va.

In July 2011, the National Research Council (NRC) released *A Framework for K–12 Science Education: Practices, Crosscutting Concepts, and Core Ideas,* which identifies the key scientific ideas and practices all students should learn by the end of high school. These expectations will inform the development of new standards for K–12 science education and, subsequently, revisions to curriculum, instruction, assessment, and professional development for educators. This session will explore the vision, goals, structure, and implications of the framework.

SESSION 2

Medical Mysteries Web Adventures (Bio)

(General) *Connecticut Salon A, Hilton*

Kristi G. Bowling *(kmg4@rice.edu)* and **Lynn Lauterbach** *(lynnlauterbach@gmail.com),* Rice University, Houston, Tex.

Teach microbiology, reinforce process skills, and incorporate technology into your curriculum. Experience this free online adventure game that promotes scientific inquiry and STEM careers while teaching about infectious diseases, immunity, and the scientific method. Handouts!

SESSION 3

Teaching and Learning in the Digital Age: Chemistry Resources Teachers and Students Can Rely On (Chem)

(General) *Connecticut Salon B, Hilton*

Linda Fanis *(lnfanis@wisc.edu),* University of Wisconsin, Madison

Lynn M. Diener, Mount Mary College, Milwaukee, Wis.

Marta Gmurczyk *(m_gmurczyk@gmail.com),* American Chemical Society, Washington, D.C.

Discover the ChemEd DL's (Chemical Education Digital Library) innovative collection of reliable and free digital resources for high school teachers, including Models 360, ChemTeacher, and the award-winning Periodic Table Live!

SESSION 4

AAPT Session: Zero Gravity Pendulum (Phys)

(High School–College) *Hilton Ballroom Center, Hilton*

Gary Garber *(ggarber@bu.edu),* Boston University Academy, Boston, Mass.

We experimented with a simple pendulum on a NASA reduced-gravity flight and videotaped the results with accelerometer data. Learn how you can access and analyze the data in your classroom.

SESSION 5

NASA's High-Energy Vision—Chandra and the X-ray Universe (Earth)

(General) *Capital 1, Marriott*

Donna L. Young *(donna@aavso.org),* Chandra E/PO Office, Cambridge, Mass.

Pamela B. Perry *(pperry@lewistonpublicschools.org),* Lewiston High School, Lewiston, Maine

Listen to the latest discoveries from NASA's Chandra X-ray Observatory, including massive black holes, neutron stars, supernova events, stellar evolution, colliding galaxies, and dark matter.

SESSION 6

Be a NOAA Teacher at Sea! (Gen)

(General) *Capital 2, Marriott*

Lindsay Knippenberg *(lindsay.knippenberg@noaa.gov),* Einstein Fellow, NOAA, Washington, D.C.

NOAA's Teacher at Sea Program provides all teachers with the opportunity of working with scientists on board a NOAA research ship. Come learn how to apply and participate.

SESSION 7

NSTA Avenue Session: Communicate, Collaborate, and Create: Changing Your Classroom and the World (Env)

(General) *Capital 3, Marriott*

Patti Duncan *(patti_duncan@discovery.com),* Discovery Education, Silver Spring, Md.

Step in and learn how to transform teaching and learning in your classroom through simple online tools that allow you and your students to communicate, collaborate, and create. Take it a step further by providing an authentic audience and purpose to change your world through the Siemens We Can Change the World Challenge, the premier national K–12 student sustainability competition. We'll highlight the challenge process and wide variety of free resources available to help you and your class make an impact. For more information, visit *www.wecanchange.com.*

SESSION 8

Schoolwide Examples That Promote Stewardship and Sustainability (Bio)

(Elementary–High School) *Marriott Ballroom E, Marriott*

Aaron Schomburg *(aschomburg@pds.org),* Princeton Day School, Princeton, N.J.

Hear how one school has worked to address sustainability and reconnect students with nature using gardens, beehives, pond studies, and more.

SESSION 9

Integrating Nonfiction Trade Books with Science Standards in Elementary Classrooms (Gen)

(Elementary) *Travelers Science Hall, Science Center*

Carmen M. Andrews *(andrewsc@ces.k12.ct.us),* Six-to-Six Interdistrict Magnet School, Bridgeport, Conn.

Presider: Dionne Couture, Thurgood Marshall Middle School for Social Justice, Bridgeport, Conn.

A how-to session for compacting curriculum! Discover how to seamlessly integrate leveled nonfiction trade books into your elementary science curriculum to build students' vocabulary and background knowledge.

12:30–1:30 PM Workshops

Let's Get Well Grounded! (Earth)

(General) *Ballroom C, Convention Center*

Missy Holzer *(mholzer@monmouth.com),* Chatham High School, Chatham, N.J.

Lisa Alter *(alterl@yahoo.com),* Wilbur Cross High School, New Haven, Conn.

This NESTA workshop presents multiple exemplary activities for the geology classroom that bring fundamental concepts in Earth science to life for your students. Handouts!

ACS Session Four: Catalysis (Chem)

(High School) *Hilton Ballroom East, Hilton*

Jerry A. Bell *(j_bell@acs.org),* American Chemical Society, Washington, D.C.

Your body is loaded with catalysts that speed up the chemical reactions necessary for life without themselves being used up in the reactions. As we explore the nature of catalysis, keep in mind that one goal of chemistry is creating catalysts to increase the efficiency of the processes involved in producing the goods that help make our lives longer and more pleasant. Bring your USB flash drive and take away the presentation and the activities to use in your classes.

Infect Your Biology Classroom with Math! (Bio)

(General) *Hilton Ballroom West, Hilton*

Jeff Lukens, Roosevelt High School, Sioux Falls, S.Dak.

Integrating biology and mathematics shouldn't just be a good idea—it should be the law! Come learn how easy, important, and fun it is to collect and analyze data as a part of good, solid, responsible science education.

Developing Skepticism as an Essential Strategy for Science (Gen)

(Middle Level–High School) *Mark Twain, Hilton*

Julia T. Gooding *(chemteacher007@aim.com),* Hopewell High School, Aliquippa, Pa.

William C. Metz *(wmetzgolf@aol.com),* Retired Educator, Fort Washington, Pa.

The clever manipulation of data is often used to sell common products. Attend this workshop and see how this applies to your science classroom.

Global Sustainability Science Connections: Engaging Lessons for the Primary Grades (Gen)
(General) *Discovery Center Lab 3, Science Center*
Dave Wilton *(dave@facingthefuture.org),* Facing the Future, Seattle, Wash.
Global sustainability is an engaging context for elementary science content and literacy skills. Experience hands-on lessons about food and environment, systems, and biodiversity. Free curriculum guide!

Spark Middle School Students' Interest in Science and Engineering with Free Resources from WGBH (Gen)
(Middle Level) *Discovery Center Lab 4, Science Center*
Susan Buckey *(susan_buckey@wgbh.org),* WGBH Educational Foundation, Boston, Mass.
Amy Couch *(coucha@stafford.k12.ct.us),* Stafford Middle School, Stafford Springs, Conn.
Learn how to use the free STEM resources from Teachers' Domain, *Design Squad Nation*, and *NOVA* to engage middle school students in hands-on learning.

Simple Machines as Basic STEM Systems (Phys)
(General) *Marriott Ballroom D, Marriott*
Robert O. Jesberg *(r.jesbergjr@comcast.net),* Education Consultant, Chalfont, Pa.
Let's explore real and model simple machines, discover how each makes work easier, and investigate the science, technology, engineering, and math concepts that describe their usefulness.

12:30–1:30 PM Exhibitor Workshop

Active Chemistry/STEM in Your School (Chem)
(Grades 9–12) *27, Convention Center*
Sponsor: It's About Time
Arthur Eisenkraft, 2000–2001 NSTA President, and University of Massachusetts, Boston
Learn how an inquiry-based science curriculum can use Project Based Learning to integrate STEM. Design challenges make content more relevant, engage students, and develop 21st-century skills. Join us to discover how creating a movie script for special effects can unleash your students' creativity as they learn about properties of matter, solutions, and density. Enhance your teaching with STEM integration.

12:30–2:30 PM NSTA ESP Symposium

NSTA's Exemplary Science Programs (ESP): Meeting the Reform Features Recommended in the National Science Education Standards (Gen)
(General) *Ethan Allen, Hilton*

The ESP series identifies people and places where the reforms recommended have emerged, including 1) Exemplary Science in Grades PreK–4; 2) Exemplary Science in Grades 5–8; 3) Exemplary Science in Grades 9–12; 4) Exemplary Science: Best Practices in Professional Development; 5) Inquiry: The Key to Exemplary Science; 6) Exemplary Science in Informal Education Settings; and 7) Exemplary Science for Resolving Societal Challenges. The exemplars are discussed in ESP symposia at all NSTA conferences.

The series was conceived by Robert E. Yager (1982–1983 NSTA President), who continues ESP searches and ways of recognizing classroom successes while also encouraging more to try!

Coordinators: Patricia Simmons (patricia_simmons@ncsu.edu), *NSTA President, and North Carolina State University, Raleigh; and LaMoine L. Motz* (llmotz@comcast.net), *1988–1989 NSTA President, and National School Science Curriculum and Facilities Planning Consultant, White Lake, Mich.*

Inquiry: Changing the Teaching of Science (from ESP #5)

Holly Harrick *(hharrick@ctsciencecenter.org),* Connecticut Science Center, Hartford

Project-Based After-School Science (from ESP #7)

Kabba E. Colley *(kcolley@pace.edu),* Pace University, New York, N.Y.

Inquiry with Preservice Elementary Teachers (from ESP #5)

Thomas R. Lord *(trlord@iup.edu),* NSTA Director, College Science Teaching, and Indiana University of Pennsylvania, Indiana

A "HOLA" Approach to Learning Science (from ESP #7)

Theodora Pinou *(pinout@wcsu.edu),* Western Connecticut State University, Danbury

1:00–2:00 PM Exhibitor Workshop

Chemistry—Atmospheric Pressure (Chem)
(Grades 9–12) *15, Convention Center*
Sponsor: PASCO Scientific
Fran Zakutansky, Retired Educator, Montvale, N.J.
This workshop applies PASCO's state-of-the-art science teaching solutions to a topic covered in all levels of chemistry classes—gases in the atmosphere. Use this standards-based, guided inquiry activity as a platform to teach your students about pressure, gases, stoichiometry, and so much more. Experience how SPARKscience can change your teaching practice and improve student understanding of core chemistry topics.

1:00–2:15 PM Exhibitor Workshop

Are You a Problem (Solving) Teacher? Want to Become One? (Gen)
(Grades K–8) *22, Convention Center*
Sponsor: Delta Education/School Specialty Science
Tom Graika, Consultant, Lemont, Ill.
Johanna Strange, Consultant, Richmond, Ky.
Come learn how a problem-based approach to science lessons can provide an opportunity for students to be engaged in activities that incorporate Science, Technology, Engineering, and Math (STEM). Problem activities from Delta Science Modules will be emphasized.

1:00–2:30 PM Exhibitor Workshop

Bio-Rad—Enzymes and Biofuels: Go from Grass to Gas! (AP Biology Lab 2) (Bio)
(Grades 9–College) *14, Convention Center*
Sponsor: Bio-Rad Laboratories
Sherri Andrews *(biotechnology_explorer@bio-rad.com),* Bio-Rad Laboratories, Hercules, Calif.
Reveal the power of enzyme kinetics by illustrating the theory through a real-world application of biofuels. In this workshop, you will determine the rate of reaction for the cellobiase enzyme, a key enzyme in the production of cellulosic. Can biofuels solve global warming? Let your students decide if this is possible!

1:00–4:00 PM Short Course

Adventures Beyond the Classroom: Exploring Local Biodiversity (SC-5)
(Elementary–Middle Level) *Community Room, Science Center*
Tickets Required: $18
Joanna P. Snyder *(joanna_snyder@berkeley.edu)* and **Erica Beck Spencer** *(ebspencer@berkeley.edu),* Lawrence Hall of Science, University of California, Berkeley
For description, see page 36.

2:00–3:00 PM Presentations

SESSION 1
Exploring the Science Framework (Gen)
(General) *Ballroom A, Convention Center*
Francis Q. Eberle *(feberle@nsta.org),* NSTA Executive Director, Arlington, Va.
Harold Pratt *(hspratt@comcast.com),* NSTA Parliamentarian, 2001–2002 NSTA President, and and Educational Consultants, Inc., Littleton, Colo.
Presider: Patricia Simmons, NSTA President, and North Carolina State University, Raleigh
In July, the National Research Council released *A Framework for K–12 Science Education* that identifies the key scientific ideas and practices all students should learn by the end of high school. The framework now serves as the foundation for new K–12 science education standards, but also stands alone as a useful tool for many in the science education community. Join us as we explore different instructional implications of the framework for science teaching, such as science and engineering practices, cross-cutting concepts, the inclusion of engineering, and more.

SESSION 2
Kinesthetic Biology: Don't Just Teach the Cell…BE the Cell! (Bio)
(Middle Level–High School) *Connecticut Salon A, Hilton*
Michael J.V. Lazaroff *(mjvlazaroff@gmail.com),* Staples High School, Westport, Conn.
Cells and biochemistry bogging your kids down? Get students out of their seats with several dramatizations that you can easily take back to your classroom!

SESSION 3
Become an Einstein Fellow! (Gen)
(General) *Connecticut Salon B, Hilton*
Kathryn Culbertson, Triangle Coalition for Science and Technology Education, Arlington, Va.
Get the details about an 11-month paid fellowship program open to K–12 classroom teachers in a STEM field who have been teaching for at least five years. You could become an Einstein Fellow!

SESSION 4

AAPT Session: Photography and Physics: A Way to Enhance Student Engagement (Phys)

(Middle Level–High School) *Hilton Ballroom Center, Hilton*

Fred Myers *(myersf@glastonburyus.org),* Glastonbury (Conn.) Public Schools

Presider: Gary Garber *(ggarber@bu.edu),* Boston University Academy, Boston, Mass.

Hear about a variety of strategies for using photos of ordinary objects/scenes to engage students in their learning of physical science and physics.

SESSION 5

Get the FACTs! (Gen)

(General) *Hilton Ballroom West, Hilton*

Page Keeley *(pagekeeley@gmail.com),* 2008–2009 NSTA President, and Maine Mathematics and Science Alliance, Augusta

Joyce B. Tugel *(jtugel@mmsa.org),* Maine Mathematics and Science Alliance, Augusta

Experience formative assessment classroom techniques you can use right away (FACTs) from the best-seller *Science Formative Assessment: 75 Practical Strategies for Linking Assessment, Instruction, and Learning*.

SESSION 6

Science 2.0: Integrating Technology in the Science Classroom (Gen)

(Elementary–High School) *Nathan Hale, Hilton*

D.J. West *(djwest78@gmail.com),* Schoolcraft College, Livonia, Mich.

Discover a variety of strategies to engage middle level and high school students through practical uses of technology.

SESSION 7

NARST Session: Looking at Learning to Teach Science: Support for Student Teachers in Diverse High School Science Classrooms (Gen)

(High School–College/Supervision) *Saratoga B, Hilton*

Douglas B. Larkin *(larkind@mail.montclair.edu),* Montclair State University, Montclair, N.J.

Let's discuss the results of a recent yearlong study of 15 student teachers in four different teacher education programs. This study offers some surprising insights in terms of the needs of student teachers, and how cooperating teachers might support them better.

SESSION 8

Social Media and the Science Teacher (Gen)

(General) *Capital 1, Marriott*

James J. Forde *(fordemm@aol.com),* Scofield Magnet Middle School, Stamford, Conn.

How does the world of social media help us professionally and enhance our science classes? Come explore this topic and share ideas!

SESSION 9

NSTA Avenue Session: The NSTA Learning Center: Free Classroom Resources and Opportunities for Educators (Gen)

(General) *Capital 3, Marriott*

Flavio Mendez, Senior Director, NSTA Learning Center, NSTA, Arlington, Va.

Lost when it comes to finding online professional development resources? With more than 6,000 resources (25% of which are always free) and quality professional development opportunities, the NSTA Learning Center has the answers! Attend and receive free access to some of the fee-based resources. (Ice cream provided.)

SESSION 10

Science Inquiry and Literacy in Elementary Grades (Gen)

(Preschool–Elementary) *Discovery Center Lab 1, Science Center*

John C. Bennett *(jcbjr@engr.uconn.edu),* University of Connecticut, Storrs

Science in elementary grades is often a concern of teachers. The main issue seems to be lack of confidence in facilitating such instruction. Find out ways to gain confidence with teaching the material. Presenter (and attendee) examples will be discussed.

SESSION 11

Creating a Scientist's Notebook (Gen)

(Elementary–High School) *Travelers Science Hall, Science Center*

Christopher Stone *(cstone@wallingford.k12.ct.us),* **Deborah A. Fernandes,** and **Kathy Hanisko,** Pond Hill Elementary School, Wallingford, Conn.

Experience the integration of the writing process with science content and process skills. Participants will learn a variety of strategies to have students use nonnarrative writing as a way to deepen student understanding. The presenters will share student work to show how writing is integrated throughout the inquiry process.

2:00–3:00 PM Workshops

National Earth Science Teachers Association Earth Science Share-a-Thon (Earth)
(Elementary–High School) *Ballroom C, Convention Center*
Roberta Johnson *(rmjohnsn@nestanet.org),* National Earth Science Teachers Association, Boulder, Colo.
Gary Bent *(gbent@eosmith.org),* E.O. Smith High School, Storrs, Conn.
Alan Gould *(agould@berkeley.edu),* Lawrence Hall of Science, University of California, Berkeley
Missy Holzer *(mholzer@monmouth.com),* Chatham High School, Chatham, N.J.
Laurel Kohl *(kohll@easternct.edu),* Eastern Connecticut State University, Willimantic
Richard S. Varner *(richard.s.varner@nasa.gov),* NASA Goddard Space Flight Center, Greenbelt, Md.
Pamela Whiffen *(pwpwr@aol.com),* NASA Educator Ambassador, Phoenix, Ariz.
Join NESTA members and other education specialists as they share their favorite classroom activities. Lots of free handouts!

The Time for Inquiry Is Now! (Gen)
(Middle Level–High School) *Hartford Commons, Hilton*
Gregory B. Dodd *(gbdodd@gmail.com),* Kanawha County Schools, Charleston, W.Va.
Join me for a hands-on inquiry activity using probes to discover the properties of ingredients in some common beverages.

ACS Session Five: Light as a Reactant and/or Product (Chem)
(High School) *Hilton Ballroom East, Hilton*
Jerry A. Bell *(j_bell@acs.org),* American Chemical Society, Washington, D.C.
Some chemical reactions produce energy and others require energy to proceed. Light is a form of energy, so it is natural to wonder whether and under what conditions reactions might produce light or whether light (perhaps from the Sun) can be harnessed to drive reactions that otherwise would not proceed. Bring your USB flash drive and take away the presentation and the activities to use in your classes.

Let's Get Helical: Exploring DNA Structure/Function with Interactive Physical Models (Bio)
(High School–College) *Mark Twain, Hilton*
Tim Herman *(herman@msoe.edu),* Milwaukee School of Engineering, Milwaukee, Wis.
Explore DNA structure and information storage with an interactive, magnetic DNA model and a paper bioinformatics exercise focusing on the beta subunit of hemoglobin.

NSTA Press Session: Bringing Outdoor Science into Your Classroom (Gen)
(Elementary–Middle Level) *Marriott Ballroom A, Marriott*
Steve Rich *(bflywriter@comcast.net),* Georgia Youth Science and Technology Center, Carrollton
Get your hands on materials that can be used in the classroom or school yard. Either way, you'll find a wealth of resources. Free seeds!

JetStream: An Online School for Weather (Earth)
(Informal Education) *Marriott Ballroom B, Marriott*
Dennis R. Cain *(dennis.cain@noaa.gov),* National Weather Service, Fort Worth, Tex.
Receive an overview of a National Weather Service online resource for learning the basic how's and why's of weather. JetStream includes lesson plans and activities for the classroom.

The Real Stars of Hogwarts: Using *Harry Potter* in Astronomy Education (Earth)
(General) *Marriott Ballroom C, Marriott*
Kristine Larsen *(larsen@ccsu.edu),* Central Connecticut State University, New Britain
The universe of Hogwarts contains a plethora of real astronomy. Use your students' interest in the *Harry Potter* novels to reinforce astronomical concepts.

School Energy Survey (Env)
(General) *Marriott Ballroom E, Marriott*
Todd Rogers, National Energy Education Development Project, Manassas, Va.
Use your school building as a living laboratory! Join me for lessons and online resources that allow students to do an audit and calculate energy costs, emissions, and uses.

Earth Shattering! Hands-On Earth Science Activities from the Department of Energy (Earth)
(Elementary–Middle Level) *Discovery Ctr. Lab 2, Science Center*
Sarah R. Young, Rowland Hall Middle School, Salt Lake City, Utah
Alison Mahfouz *(amahfouz@paramus.k12.nj.us),* East Brook Middle School, Paramus, N.J.
From mountains to oceans to space, discover hands-on activities from the Department of Energy that model Earth systems.

2:00–3:00 PM Exhibitor Workshop

***Active Physics* (Third Edition): STEM in Your School (Phys)**

(Grades 9–12) *27, Convention Center*

Sponsor: It's About Time

Arthur Eisenkraft, 2000–2001 NSTA President, and University of Massachusetts, Boston

Learn how an inquiry-based science curriculum can use Project Based Learning to integrate STEM. Design challenges make content more relevant, engage students, and develop 21st-century skills. Join us to discover how creating a voice overdub for sporting events can unleash your students' creativity as they learn about motion, forces, and energy. Enhance your teaching with STEM integration.

2:00–3:15 PM Exhibitor Workshops

Using the OHAUS Harvard Junior as a STEM-focused Skill Platform (Gen)

(Grades 2–6) *11, Convention Center*

Sponsor: Ohaus Corp. and Frey Scientific

Ken Rainis *(doug.boyd@ohaus.com),* Frey Scientific/School Specialty Science, Nashua, N.H.

Here's your opportunity to learn about STEM education and how to integrate the OHAUS Harvard Junior balance in building critical STEM-focused skills like measuring! Learn how to use STEM-based virtual labs and bench activities to enhance student learning. By performing a STEM-focused activity, you will learn how to integrate STEM-focused measuring, balance theory, and data analysis skills into your curriculum. All participants receive a FREE OHAUS Harvard Junior sampler containing STEM activities and one person will receive a FREE OHAUS Harvard Junior balance.

Drive Student Inquiry with Carolina's Advanced Environmental Science Labs (Env)
(Grades 9–12) *12, Convention Center*
Sponsor: Carolina Biological Supply Co.
Carolina Teaching Partner
What do water quality, soil properties, and the Coriolis effect have in common? All three are explored in Carolina's exciting inquiry-based lab series for AP Environmental Science. Get hands-on experience with activities designed to inspire students to learn new concepts and apply them in their local environment. Free materials provided.

Teaching About Batteries (Chem)
(Grades 6–12) *13, Convention Center*
Sponsor: Lab-Aids, Inc.
Mark Koker, Lab-Aids, Inc., Ronkonkoma, N.Y.
Although they live a battery-powered lifestyle, most middle school and high school students have no idea how batteries work. In this hands-on workshop, participants will make a wet cell battery, explore the effect of using different metal electrodes on battery output, and consider ways to reduce the number of discarded batteries in the waste stream. Join us for this workshop featuring strong inquiry and state standard connections as well as free handouts and materials.

Taking a Human Approach to Biology Education (Bio)
(Grades 9–12) *16, Convention Center*
Sponsor: Kendall Hunt Publishing Co.
Shane Alderman, Kendall Hunt Publishing Co., Dubuque, Iowa
Learn about the new *BSCS Biology: A Human Approach*, fourth edition, a fully interactive, activity-driven, digital biology curriculum by a renowned author team. It uses human examples to present fundamental biology concepts and engages students through meaningful investigations that present biology in a way that unifies life and is relevant to students' lives.

Inquiry and Evidence: Keys to Getting Students to Inquire (Gen)
(Grades K–8) *17, Convention Center*
Sponsor: Pearson
Michael Padilla, 2005–2006 NSTA President, and Clemson University, Clemson, S.C.
Inquiry continues to be a major thrust in science education as entities like the Partnership for 21st Century Skills call for improved student thinking across all disciplines. This session will develop an understanding of inquiry and evidence and outline teaching strategies that participants can use to develop these important ideas.

Art *vs.* Science: The Role of Science in Wine Making (Gen)
(Grades 8–12) *25, Convention Center*
Sponsor: Fisher Science Education
Robert Marshall *(marshallr@carnegiesciencecenter.org),* Carnegie Science Center, Pittsburgh, Pa.
From the vineyard to the table, modern winemakers employ a multitude of scientific techniques to help them control every stage of the wine-making process. Learn how contemporary winemakers use scientific equipment and testing to help them face the challenge of producing the highest quality wines, while still maintaining the integrity of their art. Gain hands-on experience with real-world equipment used by enologists and learn about national degree programs in viniculture and enology. Take home activity guides.

Keeping a Balance: Homeostasis and Negative Feedback (Bio)
(Grades 6–College) *26, Convention Center*
Sponsor: Science Take-Out
Susan Holt *(contact@sciencetakeout.com),* Science Take-Out, Pittsford, N.Y.
This hands-on Science Take-Out activity introduces students to concepts involved in homeostasis and negative feedback. Perform a simple hands-on laboratory activity to investigate how "Cupples" (a simulated organism) maintain homeostasis. Use a graphic organizer to illustrate other feedback control mechanisms, including regulation of body temperature and blood glucose metabolism.

What the Hands Do, the Brain Does: Lasting Understanding Using Notebook Foldables® (Gen)
(Grades K–12) *Ballroom B, Convention Center*
Sponsor: Dinah-Might Adventures, LP
Nancy Wisker *(nancy@dinah.com),* Dinah Zike Academy, San Antonio, Tex.
Add dimensionality to student notebooks and transform them into brain-smart tools with Notebook Foldables. Make learning and assessment tools that can revolutionize your classroom. Material packets included.

2:00–3:30 PM Exhibitor Workshops

Exploring Science with Vernier **(Gen)**
(Grades 7–College) *21, Convention Center*
Sponsor: Vernier Software & Technology
Matt Anthes-Washburn *(info@vernier.com),* Vernier Software & Technology, Beaverton, Ore.
Use sensors and software to graph and analyze scientific data with state-of-the-art technology for your science classroom. In this hands-on session you'll learn from master teachers and technology experts about Vernier LabQuest™ handheld and Logger *Pro* software. Explore how probeware can help you teach core topics in physics, chemistry, biology, Earth science, and environmental science.

Sound, Waves, and Music **(Phys)**
(Grades 6–12) *24, Convention Center*
Sponsor: CPO Science/School Specialty Science
Erik Benton, CPO Science/School Specialty Science, Nashua, N.H.
Come create and control beautiful standing wave patterns resonating on a vibrating string with CPO's wave machine. Use a synthesizer to explore the wave properties of sound. Play music on a set of PVC palm pipes and learn how to make sets of your own.

2:00–4:00 PM Exhibitor Workshop

Developing Language Using FOSS **(Gen)**
(Grades K–8) *23, Convention Center*
Sponsor: Delta Education/School Specialty Science–FOSS
Brian Campbell, Diana Velez, and **Joanna Totino,** Lawrence Hall of Science, University of California, Berkeley
Active learning requires active thinking, and thinking involves language. Discover the ways language is used to help students make sense of their active-learning FOSS experiences. We will model a FOSS investigation using listening and speaking, reading and writing, and language-development strategies to further content knowledge, scientific practices, and academic literacy.

2:30–3:00 PM Presentation

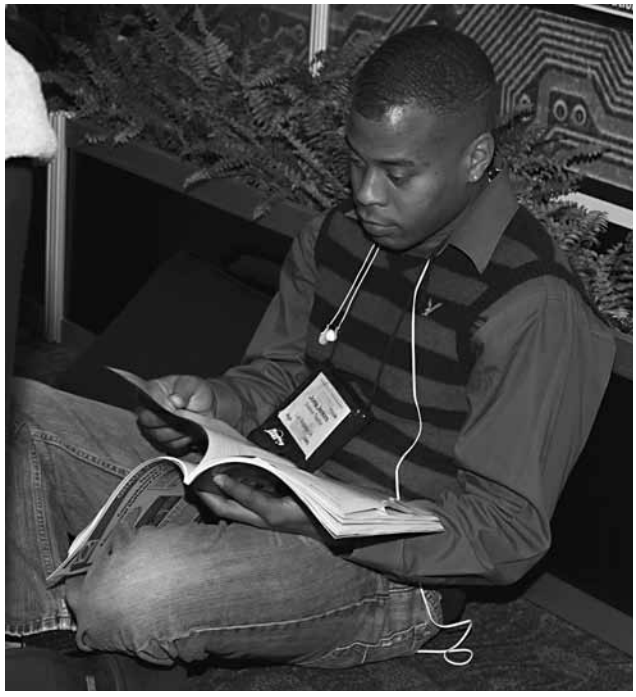
SESSION 1
How to Educate for Sustainability, Not Less Unsustainability **(Gen)**
(General) *Capital 2, Marriott*
Paul A. Morgan *(pmorgan@wcupa.edu),* West Chester University of Pennsylvania, West Chester
Learn about a transformative approach to sustainability education that engages students and schools in the challenging work of sustainability, not just less unsustainability.

2:30–3:30 PM Exhibitor Workshop

Renewable Energy Exploration—Solar and Wind Power **(Env)**
(Grades 9–12) *15, Convention Center*
Sponsor: PASCO Scientific
Jason Sullivan, PASCO Scientific, Roseville, Calif.
Investigate energy output from a solar cell and wind turbine under varying environmental conditions in this hands-on workshop featuring Horizon Renewable Energy SPARKlabs. Developed by PASCO and Horizon Fuel Cell Technologies, these 10 guided inquiry labs provide a standards-based, state-of-the-art science teaching solution to support your high school Earth or environmental science program. Additional labs will be demonstrated.

3:00–5:30 PM Exhibitor Workshop

Bio-Rad—GMO Investigator Kit **(Bio)**
(Grades 10–College) *14, Convention Center*
Sponsor: Bio-Rad Laboratories
Sherri Andrews *(biotechnology_explorer@bio-rad.com),* Bio-Rad Laboratories, Hercules, Calif.
Have your favorite foods been genetically modified (GM)? This hands-on workshop teaches the basics of DNA extraction, PCR, and gel electrophoresis and how these techniques are used to test common grocery store food products for the presence of GM foods. Are GM crops a good thing? You decide!



3:30–4:30 PM Presentations

SESSION 1

Hollywood BAD Science (Gen)

(General) *Ballroom A, Convention Center*

Daryl Taylor *(booboo@darylscience.com),* Greenwich High School, Greenwich, Conn.

The use of popular video clips from movies, TV, and other mass media sources can be invaluable tools in your classroom. Freebies for all!

SESSION 2 (two presentations)

(Elementary–High School/Informal) *Connecticut Salon A, Hilton*

Teaching About Corals: Using NOAA Resources (Bio)

Lindsay Knippenberg *(lindsay.knippenberg@noaa.gov),* Einstein Fellow, NOAA, Washington, D.C.

Grab your students' attention by incorporating coral reefs into your existing curriculum. Several NOAA resources will be highlighted, including demos, labs, activities, and multimedia.

A Coral Reef in Your Classroom: A Unique Opportunity for Student Research (Bio)

Jon L. Swanson *(jswanson@eosmith.org),* Edwin O. Smith High School, Storrs, Conn.

Delve into the benefits of having marine aquaria in your classroom, including the potential for involving students in real science research projects.

SESSION 3

Making the Most of NSDL's Science Literacy Maps (Gen)

(Elementary–High School) *Connecticut Salon B, Hilton*

Ted Willard *(twillard@aaas.org),* AAAS Project 2061, Washington, D.C.

Learn how to interpret the Science Literacy Maps from the National Science Digital Library (NSDL) and how to get the most for you and your students by using them.

SESSION 4

AAPT Session: Physics Demo Show (Phys)

(Informal Education) *Hilton Ballroom Center, Hilton*

David Sturm *(sturmde@maine.edu),* University of Maine, Orono

David Maiullo *(maiullo@physics.rutgers.edu),* Rutgers University, Piscataway, N.J.

Sam Sampere *(sampere@physics.syr.edu),* Syracuse University, Syracuse, N.Y.

Presider: Gary Garber *(ggarber@bu.edu),* Boston University Academy, Boston, Mass.

Experience classic demos from UMaine's Mainely Physics and Syracuse's Orange Physics with audience interaction for all age groups, K–to–gray.

SESSION 5

The Use of Construct Maps to Characterize Students' Learning of Chemical Reactions and Implications for Teaching (Chem)

(General) *Hilton Ballroom West, Hilton*

Nirit Glazer *(nirit.glazer@gmail.com),* University of Michigan, Ann Arbor

This study uses construct maps to characterize grade 7 students' learning of a core idea in scientific literacy (chemical reactions) as they participate in a coherent curriculum. Explore the development of middle school students' understanding of chemical reactions, which is one of the central concepts in chemistry and fundamental for learning other related chemical and scientific concepts.

SESSION 6

Sequencing the Mitochondrial ATP6 Synthase Gene: Comparing Variations in *Limulus* and *Argopecten* to Human SNPs (Bio)

(High School–College) *Mark Twain, Hilton*

Rachael Cisto, Sarah Rose Fusco, and **Sr. Mary Jane Paolella** *(smj@sacredhearthamden.org),* Sacred Heart Academy, Hamden, Conn.

This is a poster session presented by high school students who extracted DNA from Atlantic Horseshoe Crabs (*Limulus polyphemus*) and the Atlantic Bay Scallop (*Argopecten irradians*) and designed two sets of overlapping primers to amplify the gene and sequence the gene using the school's ABI PRISM® 310 Genetic Analyzer. Their results will bring the school's total to 15 sequences in GenBank®.

SESSION 7

Presidential Awards for Excellence in Mathematics and Science Teaching (Gen)

(General) *Nathan Hale, Hilton*

Nafeesa Owens *(nowens@nsf.gov),* National Science Foundation, Arlington, Va.

Come see how you can win a paid trip to Washington, D.C., a citation signed by the President of the United States, and $10,000!

SESSION 8

NARST Session: Digital Resources in the Elementary Science Classroom: TPACK in Action (Gen)

(Elementary) *Saratoga B, Hilton*

Scott M. Graves *(gravess1@southernct.edu),* Southern Connecticut State University, New Haven

T-what? Come learn about Technological Pedagogical Content Knowledge, or TPACK, and how it is exemplified in the use of digital resources in elementary science instruction.

SESSION 9 (two presentations)

(General) *Capital 1, Marriott*

The Tide Is High—Using Online Data to Learn About Local Tidal Cycles (Earth)

Jeff D. Thomas *(thomasjed@ccsu.edu),* Central Connecticut State University, New Britain

Use NOAA's Tides and Current website to collect authentic, real-time data in order to teach students about local tides.

Albedo Measurements for Engaging Students in Climate Change Studies (Gen)

Kathleen M. Gorski *(kmgorski@concentric.net),* Wilbraham & Monson Academy, Wilbraham, Mass.

Authentic measurements enable students to examine Earth's albedo, locally and globally, and become real participants in climate change research.

SESSION 10

NSTA Avenue Session: America's Home Energy Education Challenge (Env)

(Elementary–Middle Level) *Capital 2, Marriott*

Ray Ann Havasy *(homeenergychallenge@nsta.org),* Center for Science Teaching and Learning, Rockville Centre, N.Y.

Sponsored by the U.S. Department of Energy and administered by NSTA, America's Home Energy Education Challenge is designed to educate grades 3–8 students about energy usage and energy efficiency and engage students and their families in a save energy, save money campaign. Learn about energy-efficiency resources available to schools, teachers, students, and families. Find out how your students can earn an Energy Fitness Award from the U.S. Secretary of Energy.

SESSION 11

NSTA Avenue Session: Explore Mars: Using Mars Exploration to Inspire Students (Earth)

(General) *Capital 3, Marriott*

Chris Carberry *(carberry@exploremars.org),* Explore Mars, Inc., Beverly, Mass.

Explore Mars will describe their education programs and brainstorm with participants on the best ways to use Mars exploration to excite and inspire students.

SESSION 12

STEM Education: Planning for a STEM Program (Gen)

(General) *Marriott Ballroom D, Marriott*

Bonnie Maur *(bmaur@monroeps.org),* Monroe (Conn.) Public Schools

Leigh Ances, STEM Academy, Monroe, Conn.

Peter Schmitt *(pschmitt@monroeps.org),* Masuk High School, Monroe, Conn.

Planning for an inquiry-based, integrated STEM school program can seem daunting. Let us show you a model for designing a program that meets all STEM initiatives and allows for greater achievement for your students. Integrate your engineering and unified arts classes using inquiry as a hands-on core model.

SESSION 13

A Rhyming Road to Science (Gen)

(Elementary–High School) *Discovery Ctr. Lab 2, Science Center*

Ralph J. Yulo, Jr. *(oluy@aol.com),* Professor Emeritus, Eastern Connecticut State University, Willimantic

Join me for this minds-on/hearts-on session illustrating how poetry can help science teaching and learning to be more enjoyable and memorable.

3:30–4:30 PM Workshops

National Earth Science Teachers Association (NESTA) Rock and Mineral Raffle (Earth)
(General) *Ballroom C, Convention Center*
Roberta Johnson *(rmjohnsn@nestanet.org),* National Earth Science Teachers Association, Boulder, Colo.
NESTA offers more than 50 specimens to choose from for a chance to win display-quality specimens of rocks, minerals, fossils, and other Earth science–related materials.

Teaching Game Design as 21st Century and STEM Skill Building (Gen)
(Informal Education) *Ethan Allen, Hilton*
Scott Price *(sprice@elinemedia.com),* E-Line Media, New York, N.Y.
This workshop provides an overview of the game-based learning sector as well as hands-on activities that include actually designing games.

Chefs Don't Use Cookbooks; Why Should Students? (Gen)
(General) *Hartford Commons, Hilton*
Julia T. Gooding *(chemteacher007@aim.com),* Hopewell High School, Aliquippa, Pa.
William C. Metz *(wmetzgolf@aol.com),* Retired Educator, Fort Washington, Pa.
This interactive workshop will present a number of uncomplicated teacher strategies designed to subtly shift the focus of perfunctory cookbook labs toward student-centered inquiry.

ACS Session Six: Half-Life (Chem)
(High School) *Hilton Ballroom East, Hilton*
Jerry A. Bell *(j_bell@acs.org),* American Chemical Society, Washington, D.C.
Half-life is familiar as a way of characterizing the decay of radioactive nuclei and using radioactive isotopes as "clocks" to date past events. The concept of half-life is broader than this and applicable to many changes that are easy to explore safely in the classroom. Bring your USB flash drive and take away the presentation and the activities to use in your classes.

How Do We Know? Using the Electromagnetic Spectrum to Explore the Universe (Earth)
(Elementary–High School) *Marriott Ballroom B, Marriott*
Linda L. Smith *(lsmith@paulsboro.k12.nj.us),* Loudenslager Elementary School, Paulsboro, N.J.
Use hands-on activities to teach students about light at different wavelengths. Entice students with NASA science. Take home inquiry-based lessons and NASA posters.

An Urban Geocache: Science and Social Studies Meet GPS (Gen)
(General) *Marriott Ballroom C, Marriott*
Diana Soehl *(dsoehl2@yahoo.com),* Elwood-John H. Glenn High School, Elwood, N.Y.
Eileen Poling *(eileenon@hotmail.com),* Tucker County Schools, Hambleton, W.Va.
Using locations around the conference center, participants will take part in a small "urban geocache" using historical and poetic clues to locate statues, sites, etc. with GPS. Door prize for the winner!

Forests, Carbon, and Climate Change (Env)
(Informal Education) *Marriott Ballroom E, Marriott*
Maria Ghiso *(mghiso@ra.org),* Rainforest Alliance, New York, N.Y.
Al Stenstrup *(astenstrup@forestfoundation.org),* Project Learning Tree, Washington, D.C.
Rainforest Alliance and Project Learning Tree have created hands-on lessons to help students understand the carbon cycle and the role forests play in climate change.

Elastic Power: Wind Up Your Engines (Phys)
(Elementary–Middle Level) *Discovery Ctr. Lab 3, Science Center*
Norm Barstow *(barstow@hartford.edu),* Hartford, Conn.
Use an elastic-powered wooden car to explore the concepts of energy transfer, force, and motion. Continued exploration focuses on mass, friction, and inertia.

Engaging Students with Math and Science Through Global Issues (Env)
(Middle Level) *Discovery Center Lab 4, Science Center*
Pamela Whiffen *(pwpwr@aol.com),* NASA Educator Ambassador, Phoenix, Ariz.
Bring contemporary issues like climate change, sustainable design, and population growth alive in your class. Experience hands-on, inquiry-based activities using real-world data. Free curriculum!

Integrating Literacy: Do It! Talk It! Read It! Write It! (Gen)
(Supervision/Administration) *Travelers Science Hall, Science Center*
Karen Ostlund *(klostlund@mail.utexas.edu),* NSTA President-Elect, and Retired Professor, The University of Texas at Austin
Experience the synergy of integrating literacy as we do it, talk it, read it, and write it.

3:30–4:30 PM Exhibitor Workshop

***Investigating Astronomy*: A New Astronomy Textbook Written for High School Students (Gen)**

(Grades 9–12) *27, Convention Center*

Sponsor: It's About Time

Jeff Lockwood, TERC, Cambridge, Mass.

Developed by the education experts at TERC, *Investigating Astronomy* is the first comprehensive, yearlong astronomy curriculum designed specifically for high school students. Unlike other high school astronomy books that are text heavy and originally developed for college, *Investigating Astronomy* has a dynamic, active learning approach that allows students to explore astronomy topics while conducting hands-on/minds-on investigations.

4:00–5:15 PM Exhibitor Workshops

Introduction to Wisconsin Fast Plants® (Bio)

(Grades K–12) *12, Convention Center*

Sponsor: Carolina Biological Supply Co.

Carolina Teaching Partner

Small, fast-growing Wisconsin Fast Plants (35- to 40-day generation cycle) are ideal classroom tools for exploring variation and life cycle. Learn how to plant and germinate seeds, and about plant growth/development, flower dissection, and hand pollination. These interdisciplinary science materials offer opportunities for student inquiry and learning. Samples included.

Teaching About Gas Exchange (Bio)
(Grades 6–12) *13, Convention Center*
Sponsor: Lab-Aids, Inc.
Mark Koker, Lab-Aids, Inc., Ronkonkoma, N.Y.
Don't hold your breath, but many students have misconceptions about respiration, a key life process and important science concept. In this hands-on workshop, participants learn about gas exchange in the lungs and determine how much CO_2 is in their exhaled breath. Suitable for middle school and high school levels with free handouts and materials.

***Living By Chemistry:* What Shape Is That Smell? (Chem)**
(Grades 9–12) *16, Convention Center*
Sponsor: Key Curriculum Press
Jeffrey Dowling *(jdowling@keypress.com),* Key Curriculum Press, Emeryville, Calif.
Teach rigorous chemistry with guided inquiry! Let's explore activities that help students understand molecular structure and other core chemistry concepts using the context of smell. Take home free sample lessons and materials from the *Living By Chemistry* curriculum.

Preparing Your Students to Become Tomorrow's Innovators with STEM Education (Gen)
(Grades K–12) *17, Convention Center*
Sponsor: Pearson
Anne Rice, Pearson, Boston, Mass.
STEM education strives to encourage and interest students in STEM fields as well as develop a competitive workforce and increase science literacy. Learn how to integrate the four areas of STEM around a central question in your science classroom using project-based activities and help prepare your students for 21st-century careers.

Enzymes and Lactose Intolerance (Bio)
(Grades 6–College) *26, Convention Center*
Sponsor: Science Take-Out
Susan Holt *(contact@sciencetakeout.com),* Science Take-Out, Pittsford, N.Y.
This hands-on Science Take-Out kit investigates how enzymes help people with lactose intolerance. Model the action of the enzyme lactase and conduct tests to determine whether the enzyme supplement Lactaid digests lactose. Finally, we'll design and conduct an experiment to determine if acid interferes with the enzyme in LACTAID®.

4:00–5:30 PM Exhibitor Workshop

Chemistry and the Atom: Fun with Atom-building Games! (Phys)
(Grades 6–12) *24, Convention Center*
Sponsor: CPO Science/School Specialty Science
Patsy Eldridge, CPO Science/School Specialty Science, Nashua, N.H.
Our understanding of matter is so abstract that students have a hard time making sense of these fascinating concepts. In this workshop you will experience innovative games and activities that give students with different learning styles opportunities to explore and grasp atomic structure and the periodic table.

5:00–5:30 PM Presentation

SESSION 1
Science Teachers' Health and Safety Workshop (Env)
(Middle Level–High School/Supervision) *Saratoga B, Hilton*
Mary L. Loesing *(mloesing@ccsdli.org),* Connetquot Central School District, Bohemia, N.Y.
Theresa A. Curry *(theresa_curry@manhasset.k12.ny.us),* Manhasset High School, Manhasset, N.Y.
Equip yourself with the requirements of a chemical hygiene plan, which includes the need for evaluation, training, storage, and disposal of chemicals. Take home a sample of a chemical hygiene plan that can be adapted to your school district.

5:00–6:00 PM Presentations

SESSION 1

Five-Minute Demonstrations (Chem)

(Middle Level–High School) Hilton Ballroom East, Hilton

Betty Catelli *(bcatelli@sbcglobal.net),* Berlin, Conn.

Learn several chemistry demonstrations that are easy to set up and clean and that show important chemical principles. Many use only household chemicals.

SESSION 2

Thinking Outside the Box: Effective Questioning Techniques in Inquiry (Gen)

(Middle Level–College) Nathan Hale, Hilton

Leslie A. Birdon, Glen Oaks Middle School, Baton Rouge, La.

Learning models such as Taba Application of Generalizations can be used to promote active thinking in scientific inquiry. We'll discuss where scaffolding with questions and graphic organizers can foster active student discussion about environmental issues at all levels. Using these models, teachers choose at which points to allow students to reflect and process needed information to increase retention and create viable solutions to today's issues.

SESSION 3

Leading the Salmon Home: A Healthy Dose of Indigenous Realism (Earth)

(Elementary–High School) Capital 1, Marriott

Carolyn Jacobs *(carolyn_jacobs@wgbh.org),* WGBH, Boston, Mass.

Hear how American Indian traditions of storytelling have inspired a NASA project documenting tribal perspectives on climate change.

5:00–6:00 PM Workshops

Girls Just Want to Have Fun! (Gen)
(General) *Ethan Allen, Hilton*
Maryann Stimmer *(mstimmer@aol.com),* Educational Equity Center at FHI 360, New York, N.Y.
Make science activities irresistible! Experience fun girl-tested science activities with gender-equitable strategies embedded to level the playing field in science class.

Bringing Your Class Alive: Active Learning Strategies for the Science Classroom (Gen)
(Middle Level–High School) *Hartford Commons, Hilton*
D.J. West *(djwest78@gmail.com),* Schoolcraft College, Livonia, Mich.
Presider: Comfort Ateh *(cateh@providence.edu),* Providence College, Providence, R.I.
Engage science students as active partners in the learning process through intentional planning using a variety of strategies.

Evolution and Medicine: A New Approach to a Central Topic in High School Biology (Bio)
(High School) *Mark Twain, Hilton*
Dave Vannier *(vannierd@od.nih.gov),* National Institutes of Health, Rockville, Md.
Experience inquiry-based activities that use modern medical examples to engage students in the study of evolution and its relevance in their lives.

NSTA Press Session: Uncovering Student Ideas with *Everyday Science Mysteries* (Gen)
(Elementary–Middle Level) *Marriott Ballroom A, Marriott*
Richard Konicek *(konmor@comcast.net),* Retired Educator, Amherst, Mass.
Joyce B. Tugel *(jtugel@mmsa.org),* Maine Mathematics and Science Alliance, Augusta
Learn how science stories can engage all students, elicit ideas encountered in the K–8 curriculum, and provide an entry into inquiry.

Real-World Math: Engaging Students with Math and Science Through Global Issues (Gen)
(General) *Marriott Ballroom B, Marriott*
Dave Wilton *(dave@facingthefuture.org),* Facing the Future, Seattle, Wash.
Bring contemporary global issues like climate change, sustainable design, and population growth alive in your class. Participate in hands-on lessons that use real-world data to integrate math and science. Free teacher's guide!

Building New England Connections: A Model for Regional Environmental Education Focusing on Watersheds (Env)
(Informal Education) *Marriott Ballroom C, Marriott*
Lauren Rader *(lrader@oceanlogy.org),* Project Oceanology, Groton, Conn.
Diana Payne *(diana.payne@uconn.edu),* Connecticut Sea Grant, Groton
Building New England Connections (BNEC) bridges the gap between the teaching of science and the process of science. BNEC combines professional development with outdoor student watershed experiences. Join us and find out about PD opportunities and great activities that you can do with your students.

Taking the Eco-Initiative: Using an Ecosystems Approach to Understand and Reduce the Ecological Footprint of Schools (Env)

(General) *Marriott Ballroom E, Marriott*

Cornelia Harris *(harrisc@caryinstitute.org),* Cary Institute of Ecosystem Studies, Millbrook, N.Y.

Learn how to use an ecosystems approach to understand and reduce the ecological footprint of schools. Gain the knowledge to implement an interdisciplinary sustainability program throughout the K–12 spectrum and take home lesson plans with hands-on activities.

Return to the *Titanic* (Gen)

(Elementary) *Discovery Center Lab 2, Science Center*

Robin Vernuccio *(robinv@heschel.org),* The Abraham Joshua Heschel School, New York, N.Y.

Discover exciting ways in which you can explore the centennial of the sinking of the *Titanic* in your classroom using hands-on science. Great activities and resources!

Our Solar System Through the Eyes of Scientists (Earth)

(Elementary) *Discovery Center Lab 3, Science Center*

Rachel Zimmerman-Brachman *(rachel.zimmerman-brachman@jpl.nasa.gov)* and **Arthur Hammon,** NASA/Jet Propulsion Laboratory, Pasadena, Calif.

Explore NASA's new science and language arts curriculum that uses biographies, science notebooks, hands-on activities, and demonstrations. Learn about ice, volcanoes, moons, and more.


Marine Sediments
Hydrothermal Vents
Cold Deep Ocean Water
Hydrothermal Vents
Cold Deep Water
Marine Sediments
Underwater Volcanoes
Cold Ocean Water
International Polar Ye
NSTA

8:00–9:00 AM Presentations

SESSION 1

Interdependence of Earth and Man—Developing Understanding Through Scientific Inquiry (Bio)

(General) *13, Convention Center*

Donna Abbruzzese *(elearningtrainer@msn.com),* Farnsworth Middle School, Guilderland, N.Y.

Focusing on interdependence, participants will gain an understanding of the value of computer-aided instruction and leave with a repertoire of web-based, classroom-tested activities.

SESSION 2 (two presentations)

(Middle Level–High School) *23, Convention Center*

Admit and Exit Slips: Simple, Ongoing, Formative Assessment for Effective Science Lessons (Gen)

Malcolm S. Cheney *(cheneymac@comcast.net),* Retired Educator, Windsor, Conn.

Explore practical examples of admit slips and exit slips, the rationale for their use, and variations on the process.

Sticky Notes and Student Identification of Variables (Gen)

Malcolm S. Cheney *(cheneymac@comcast.net),* Retired Educator, Windsor, Conn.

Using colored sticky notes to distinguish between independent and dependent variables, grades 5–12 students of all reading levels learn to structure a controlled scientific investigation, create a graph, and write a complete report.

SESSION 3

Student Analysis of NASA Images and Data with Free/Open-Source Resources (Earth)

(High School) *Capital 1, Marriott*

Susan Kelly, NASA Eyes in the Sky II, Bridgewater, Conn.

Eric A. Walters *(ewalters@marymountnyc.org),* Marymount School, New York, N.Y.

Vin Urbanowski *(mr.urbanowski@gmail.com),* Academy of Information Technology and Engineering, Stamford, Conn.

See application of free and open-source software for engaging and effective student analysis of NASA Earth and space images and data. Tutorials and sample student work will be provided.

SESSION 4

The Elephant in the Middle of the Room: Identifying and Changing Misconceptions (Gen)

(Elementary–Middle Level/Supervision) *Capital 3, Marriott*

Robert C. Barkman *(rbarkman@spfldcol.edu)* and **Julie Smist** *(jsmist@spfldcol.edu),* Springfield College, Springfield, Mass.

Ron St. Amand *(stamandr@sps.springfield.ma.us),* Springfield (Mass.) Public Schools

Learn teaching strategies that expose student misconceptions about science and provide ways to counteract and change these misconceptions.

SESSION 5

STOP for Science! A Schoolwide Science Enrichment Program (Phys)

(Elementary–Middle/Informal) *Community Room, Science Center*

Patrick Slane *(slane@cfa.harvard.edu),* Harvard-Smithsonian Center for Astrophysics, Cambridge, Mass.

Robert Slane *(slanero@mukwonago.k12.wi.us),* Section Elementary School, Mukwonago, Wis.

Hear about how innovative materials and demonstrations on topics ranging from swinging a baseball bat to exploding stars will make your students STOP for Science!

SESSION 6

Earth Day Every Day! (Env)

(Elementary–Middle Level) *Discovery Ctr. Lab 1, Science Center*

Elaine Kotler *(miss.kotler@yahoo.com),* Saint Paul School, Kensington, Conn.

Learn to celebrate Earth Day every day. Ideas include improving the three Rs in school, community involvement and awareness, green fund-raising, and Earth Day lesson plans.

8:00–9:00 AM Workshops

Technology Makes STEM Instruction Easy (Chem)
(Middle Level–High School) *25, Convention Center*
Gregory B. Dodd *(gbdodd@gmail.com),* Kanawha County Schools, Charleston, W.Va.
Learn how the use of appropriate technology in the classroom can integrate science, math, and engineering concepts… making STEM instruction a snap.

Nuclear Technology (Phys)
(Middle Level–High School) *26, Convention Center*
Todd Rogers, National Energy Education Development Project, Manassas, Va.
Participate in hands-on activities focused on nuclear energy and technology in the nuclear industry. Lessons include understanding atomic weight and chain reactions.

My Kids Don't Know the Vocabulary: Can Robert Marzano's Research-based Six-Step Strategy Do the Trick? (Gen)
(General) *27, Convention Center*
Robert O. Jesberg *(r.jesbergjr@comcast.net),* Education Consultant, Chalfont, Pa.
Let's complete activities that can help our students internalize the vocabulary. Apply Robert Marzano's research-based strategies to the toughest vocabulary and watch your students excel.

Modeling Populations (Env)
(Middle Level–High School) *Marriott Ballroom A, Marriott*
Jacklyn Bonneau *(bonneau@wpi.edu),* Massachusetts Academy of Math & Science, Worcester
Population growth is an environmental concern that students can easily explore and model. Let's explore graphical representations and models as well as additional factors to add.

Learn About Oceans and Atmosphere the DataStreme Way! (Earth)
(Middle Level–College) *Marriott Ballroom B, Marriott*
James A. Backus, Danbury (Conn.) Public Schools
Learn a module from each of the DataStreme groups. From Oceans, engage in a hands-on activity on coastal upwelling/El Niño. From DataStreme Atmosphere, learn how to make a cloud in a bottle as well as how to use a "WeatherCycler."

Invent, Baby, Invent! Meeting STEM Standards in a Fun and Natural Way, K–8 (Gen)
(Elementary–Middle Level) *Marriott Ballroom D, Marriott*
Honora R. Kenney *(president@ctinventionconvention.org)* and others, Connecticut Invention Convention, Hartford
For 28 years, K–8 students in Connecticut have been solving problems with their own award-winning inventions. Learn how to get a similar program started for your students, with a clear road map to success.

How Sustainable Are You? Measuring Your Ecological Footprint (Gen)
(Middle Level–College) *Marriott Ballroom E, Marriott*
Laura S. Worthington *(worthingtonl@easternct.edu)* and **Laurel Kohl** *(kohll@easternct.edu),* Eastern Connecticut State University, Willimantic
The world's resources aren't finite, so what alternatives are there? This lesson from *www.ctenergyeducation.com* helps students in grades 4–12 understand their impact on the world.

Inquiry Science for Every Elementary School Classroom (Gen)
(Preschool–Elementary/Supv.) *Discovery Ctr. Lab 2, Science Center*
Heidi Gold-Dworkin *(drheidi@little-scientists.com),* Little Scientists, Milford, Conn.
In this workshop, participants will be engaged in hands-on/minds-on, inquiry-based science experiments. See the simplicity with which you can engage students in active inquiry investigations and scientific experimentation. I'll share assessment data on the success of this engaging science program developed for the elementary student.

Math Infusion into Science Project (Gen)
(Middle Level) *Discovery Center Lab 4, Science Center*
Scott McMullen *(jsmcmull@gmail.com)* and **Beverly Clendening** *(beverly.clendening@hofstra.edu),* Hofstra University, Hempstead, N.Y.
Join us for hands-on activities from Math Infusion into Science Project (MiSP), a NSF-supported endeavor that integrates grade 8 math concepts into challenging science units.

Use Technology to Integrate Science and Math! (Gen)
(General) *Travelers Science Hall, Science Center*
Jeff Lukens, Roosevelt High School, Sioux Falls, S.Dak.
Science and math should be natural curriculum partners. Technology can help bridge the gap between these two areas and bring relevance to each classroom.

8:00–9:15 AM Exhibitor Workshops

Teaching About Hydrogen Fuel Cells (Env)
(Grades 7–12) *11, Convention Center*
Sponsor: Lab-Aids, Inc.
John Howarth, Lawrence Hall of Science, University of California, Berkeley
Explore SEPUP's new module, *Introduction to Alternative Energy: Hydrogen Fuel Cells*, which teaches chemistry standards such as conservation of energy, stoichiometry, and redox reactions around the issue of using hydrogen fuel cells for transportation. Take home a SEUP activity on fuel cells appropriate for high school chemistry or environmental science.

Developing STEM Process Skills with the Discovery Education Science Techbook (Gen)
(Grades K–12) *15, Convention Center*
Sponsor: Discovery Education
Patti Duncan *(patti_duncan@discovery.com),* Discovery Education, Silver Spring, Md.
One of the most important aspects of a quality STEM curriculum is the opportunity for students to develop crucial process skills. Skills such as these are not taught directly but must be developed by experience. Learn how the Discovery Education Science Techbook brings these experiences to the forefront.

FDA Food Science Workshop (Bio)
(Grades 6–12) *16, Convention Center*
Sponsor: FDA
Mimi Cooper *(mimicooper@verizon.net),* FDA Consultant, Green Cove Springs, Fla.
Come learn about FDA's free food safety curriculum, lesson plans, and materials you can use in your classroom. Participate in hands-on activities to take back to your students. Learn from an experienced teacher who has worked extensively with FDA's Center for Food Safety and Applied Nutrition.

New Tools, New Insights, and New Ways of Understanding Science with Miller and Levine (Bio)
(Grades 9–12) *17, Convention Center*
Sponsor: Pearson
Kenneth R. Miller, Brown University, Providence, R.I.
Joseph Levine, Author, Concord, Mass.
Students are changing—their abilities and interests are more diverse, their learning styles are more varied, and they are growing up wired into the internet and other new media. Join co-authors Ken Miller and Joe Levine as they provide teaching strategies on how to use *Biology* to put the power of new science and technology directly into the hands of you and your students.

8:00–9:30 AM Exhibitor Workshop

Bio-Rad—Light Up Your Classroom with Prize-winning GFP! (AP Biology Lab 6) (Bio)
(Grades 9–College) *14, Convention Center*
Sponsor: Bio-Rad Laboratories
Sherri Andrews *(biotechnology_explorer@bio-rad.com),* Bio-Rad Laboratories, Hercules, Calif.
What happens when you cross a jellyfish with *E. coli?* You create your own pGLO green glowing bacteria! By the end of this workshop, you'll become a genetic engineer—modifying genes and transforming bacteria with the Green Fluorescent Protein (GFP). See purified GFP from transformed bacteria via a biomanufacturing process—chromatography. Take home a free lab-prep DVD!

8:30–9:00 AM Presentation

SESSION 1
Student-generated Stop-Action Movies as Science Education (Gen)
(Elementary–High School) *Capital 2, Marriott*
Gary Garber *(ggarber@bu.edu),* Boston University Academy, Boston, Mass.
Ethan Danahy *(ethan.danahy@tufts.edu),* Tufts University, Medford, Mass.
Find out how to use a webcam to "snap" images to build up frame-by-frame animations that empower students and teachers to express their ideas.

8:30–11:00 AM Science Matters Community Event

Exhibit Hall, Convention Center

Bring science to life for your students and children with the folks that do it best! NSTA is hosting a FREE community event to electrify parents, teachers, and students about the exciting world of science.

Science Matters is NSTA's newest initiative designed to rekindle a national sense of urgency and action among schools and families about the importance of science education. During this FREE community event for elementary teachers, parents, school officials, and students, we'll engage in exciting hands-on activities and discover new ways to bring science to life for students and children.

Presenters include many Connecticut-based science organizations, including the Connecticut Science Center, Connecticut's Audubon Society, the Connecticut Center for Advanced Technology, Connecticut Trash Museum, the Mystic Aquarium, Little Scientists Learning Center, and many more. Also featured are many nationally recognized presenters and organizations, including Jason Lindsey, an award-winning science educator; Sharon Bowers of the National Institute of Aerospace; Daisy Century of Historical Interpretations; representatives from LEGO Education, Education Innovations, and NOAA; as well as many others.

Visit *www.nsta.org/sciencematters* for more information.

8:30 AM–12:30 PM Short Course

Integrating Science, Literacy, and Technology to Create Dynamic Science (SC-6)

(Elementary) *Marriott Ballroom C, Marriott*

Tickets Required: $70

Jeanelle Day *(dayj@easternct.edu)* and **Susannah Richards,** Eastern Connecticut State University, Willimantic

For description, see page 36.

9:00 AM–12 Noon Exhibits

Hall A/B, Convention Center

Come see the most up-to-date science textbooks, software, equipment, and other teaching materials. Some exhibitors will offer materials for sale.

9:30–10:30 AM Presentations

SESSION 1

Teaching an Integrated Unit on the Cell (Bio)

(Elementary–High School) *13, Convention Center*

David Purvis *(david.purvis@marist.edu),* Marist College, Poughkeepsie, N.Y.

Learn how to design interesting classes for a unit on cells, and how to create a meaningful learning environment where students complete integrated activities.

SESSION 2

Teaching Out of the Box (Gen)

(Middle Level–High School) *23, Convention Center*

Avi Ornstein *(aviornstein@gmail.com),* Classical Magnet School, Hartford, Conn.

Innovative teaching ideas, handouts, and demos drawn from three dozen years of experience in chemistry, biology, and physics.

SESSION 3

Medical Application–based Anatomy and Physiology Lab Activities (Bio)

(College) *24, Convention Center*

Alison Jassen *(ajassen@nwcc.commnet.edu),* Northwestern Connecticut Community College, Winsted

Two anatomy and physiology laboratory activities will be presented to demonstrate medical applications of traditional anatomy and physiology content.

SESSION 4

AP Chemistry Exam: A View from My Classroom (Chem)

(High School) *25, Convention Center*

Harvey Gendreau *(hgendreau@rcn.com),* Laboratory Safety Institute, Natick, Mass.

Join us for a reflection on how to prepare our students to take the present exam and what to expect in the future. This is not a College Board presentation.

SESSION 5

Be Careful What You Fish For: Environmental Health for Humans (Env)

(General) *Capital 1, Marriott*

Carolyn Jacobs *(carolyn_jacobs@wgbh.org),* WGBH, Boston, Mass.

Caroline Goode *(good783@comcast.net),* Framingham State College, Framingham, Mass.

From mercury to malaria, examine the environment's impact on human health with open educational resources, including short clips from public television science programs.

SESSION 6

Raising Test Scores and Raising Eyebrows—Immediate, Positive Classroom Changes (Gen)

(General) *Capital 2, Marriott*

Jeremy Teitelbaum *(jeremyteitelbaum@yahoo.com),* California Polytechnic State University, San Luis Obispo

Learn effective classroom management strategies to end student-teacher power struggles and dramatically improve your school's academic performance.

SESSION 7

Got Curriculum? How Practicing "Understanding By Design" Reinvented an Urban School System's Approach to Science (Gen)

(General) *Capital 3, Marriott*

Keith Sevigny *(keith7e@prodigy.net),* Annie Fisher STEM Magnet School, Hartford, Conn.

Ellen Kliman *(klime001@hartfordschools.org),* Bulkeley High School, Hartford, Conn.

Sandra Inga *(ingas001@hartfordschools.org),* Hartford (Conn.) Public School System

Presider: Sandra Inga

Take part in curriculum development activities that mimic the trailblazing process by which the Hartford Public Schools' science department was reinvented. Sample unit provided.

SESSION 8

Sci-Fi 101: Create a Species (Earth)

(Middle Level–High School) *Marriott Ballroom A, Marriott*

Susan Boucher *(sboucher@enfieldschools.org)* and **Michelle Nassau,** Enfield High School, Enfield, Conn.

Students will take on expert roles to create an indigenous species of a moon or planet in the solar system for a science fiction movie. This will be represented by a scale model of the creature or through a computer animation.

SESSION 9

Building a Green Team: Empowering Kids to Be Environmental Leaders in Your Community (Gen)

(General) *Marriott Ballroom E, Marriott*

Laurel Kohl *(kohll@easternct.edu)* and **Laura S. Worthington** *(worthingtonl@easternct.edu),* Eastern Connecticut State University, Willimantic

Rouwenna Lamm *(rouwenna.lamm@climateeducation.org),* Alliance for Climate Education, Somerville, Mass.

A greener school is just 12 steps away. Learn how to galvanize your community and mentor your green team to foster future leaders. Free resources from *www.keepconnecticutcool.org* and *www.acespace.org.*

SESSION 10

Discourse: Getting Your Students to Talk About Science (Gen)

(General) *Community Room, Science Center*

Adrienne B. Somera *(asomera@nwesd.org),* Northwest Regional Education Service District, Anacortes, Wash.

Discourse is critical for student learning in science. This session will provide practical strategies to encourage scientifically productive student talk in your science classroom.

SESSION 11 (two presentations)

(Elementary–Middle Level) *Discovery Ctr. Lab 1, Science Center*

Integrating Literacy Strategies into the Science Classroom (Gen)

Shallon F. Cimelus *(scimelus@gmail.com),* Rochambeau Middle School, Southbury, Conn.

Joan Fingon-Trivich, California State University, Los Angeles

Learn about activities and strategies related to "scientific literacy" and other ways to support science and literacy learning in grades 5–8 classrooms.

Progressive Education and Interdisciplinary Curriculums Go Hand in Hand (Gen)

Joan A. Gillman *(joan.gillman@calhoun.org),* The Calhoun School, New York, N.Y.

Explore how the progressive education philosophy lends itself to developing science curricula that are both innovative and interdisciplinary. Examine how to develop a curriculum around a specific theme.

SESSION 12

Simple STEM Activities with Probeware (Gen)

(Elementary–Middle Level) *Discovery Ctr. Lab 2, Science Center*

Dan Vincent *(dvincent@uco.edu),* University of Central Oklahoma, Edmond

Explore six science activities that use computerized probes. Lessons will be described and examples of student work will be shown; this session is applicable for novice and experienced teachers alike.

SESSION 13

Rock Picks, Calipers, and Spring Scales (Gen)

(Middle Level/Supervision) Discovery Ctr. Lab 4, Science Center

Marsha Bednarski *(bednarskim@ccsu.edu)* and **Jeff D. Thomas** *(thomasjed@ccsu.edu),* Central Connecticut State University, New Britain

Inquiry-based field trips are a great way to engage teachers and students in authentic learning situations. Join us for a journey with middle school science teachers as we explore the Connecticut river valley and investigate Earth systems and history from a geologist's perspective.

SESSION 14

Promoting Scientific Discourse (Gen)

(Elementary–High School) Travelers Science Hall, Science Center

Wendy Ward Hoffer *(wwhoffer@pebc.org),* Public Education & Business Coalition, Denver, Colo.

Join me for a discussion on how we can get students to read, write, talk, and think like scientists? This will be the focus of this session.

9:30–10:30 AM Workshops

Scientist Biographies Show Assets of STEM (Phys)

(Elementary–High School) 26, Convention Center

CANCELED

Abha Singh, Western Illinois University, Macomb

Invigorate your lessons with scientist biographies to help students understand inquiry and get them to think about the assets of STEM. Walk away with examples of how scientists encountered new challenges, and how they addressed them by producing new advancements in science.

Moving from Misconceptions to Conceptual Change (Gen)

(General) 27, Convention Center

Julia T. Gooding *(chemteacher007@aim.com),* Hopewell High School, Aliquippa, Pa.

William C. Metz *(wmetzgolf@aol.com),* Retired Educator, Fort Washington, Pa.

This workshop investigates how student misconceptions might occur and what strategies teachers can employ to help students move toward conceptual change.

Stellar Evolution—From Formation to Destruction (Earth)

(General) Marriott Ballroom B, Marriott

Donna L. Young *(donna@aavso.org),* Chandra E/PO Office, Cambridge, Mass.

Pamela B. Perry *(pperry@lewistonpublicschools.org),* Lewiston High School, Lewiston, Maine

Use beautiful multiwavelength images of stellar nurseries, proto-stars, supernova remnants, planetary nebulae, neutron stars, pulsars, and black holes to investigate the processes of stellar evolution.

Diving In with Nautilus Live: A Real-Time Web Tool That Brings Ocean Exploration and Discovery into the Classroom! (Gen)

(Middle Level–High School/Informal) Marriott Blrm. D, Marriott

Amy E. O'Neal *(aeoneal@yahoo.com),* The Ocean Exploration Trust, Old Lyme, Conn.

Edward C. Argenta *(edandpat74@comcast.net),* Rockville High School, Vernon, Conn.

Bring exploration and discovery into the classroom through *www.nautiluslive.org.* Follow Dr. Robert Ballard's ship, the *E/V Nautilus,* and scientists to the Black and Mediterranean seas.

Forces and Motion: Rocketry for the Elementary Grades (Gen)

(Elementary–Middle Level) Discovery Ctr. Lab 3, Science Center

Richard S. Varner *(richard.s.varner@nasa.gov),* NASA Goddard Space Flight Center, Greenbelt, Md.

Rachael Manzer *(manzr001@hartfordschools.org),* Program Coordinator, NSTA Hartford Area Conference, and Annie Fisher STEM Magnet School, Hartford, Conn.

Donna I. Rand *(drand@crec.org),* East Hartford-Glastonbury Magnet School, East Hartford, Conn.

Force and motion activities from the NASA *Rockets Educators Guide* are presented by area teachers and a NASA specialist, with adaptations for the elementary grades.

10:00–11:00 AM Exhibitor Workshop

Creating a Biotechnology Skills Course with Bio-Rad (Bio)

(Grades 9–College) *14, Convention Center*

Sponsor: Bio-Rad Laboratories

Sherri Andrews *(biotechnology_explorer@bio-rad.com),* Bio-Rad Laboratories, Hercules, Calif.

Empower your students to become tomorrow's leaders by giving them the skills they need to become independent thinkers. Learn how to set the foundation of your program with equipment, supplies, and Bio-Rad's new lab textbook, *Biotechnology: A Laboratory Skills Course* by J. Kirk Brown. Hear words of wisdom from model biotech programs and learn how to prepare students with career and college-ready skills.

11:00 AM–12 Noon Presentations

SESSION 1

Using Rubrics to Facilitate Student Self-Assessment (Bio)

(High School–College) *13, Convention Center*

Rich A. Grumbine *(rgrumbine@landmark.edu),* Landmark College, Putney, Vt.

This session will offer guidelines for designing rubrics that are effective and suggest ways in which instructors can help students develop stronger self-assessment skills.

SESSION 2

The Role of Argumentation in Inquiry: Doing What Real Scientists Really Do (Gen)

(Middle Level–High School) *23, Convention Center*

Douglas J. Llewellyn *(dllewell@rochester.rr.com),* St. John Fisher College, Rochester, N.Y.

The session will highlight how teachers can encourage students to make claims and offer supportive evidence to their claims, enabling students to understand the nature of scientific investigations, develop science reasoning skills, and better appreciate the real work of scientists.

SESSION 3

Stoichiometry: A Multitiered Approach (Chem)

(High School) *25, Convention Center*

Harvey Gendreau *(hgendreau@rcn.com)* and **Bette A. Bridges** *(babridges@comcast.net),* Laboratory Safety Institute, Natick, Mass.

Stoichiometry can be a stumbling block to learning chemistry. Students vary in their abilities to conceptualize this basic construct. Here are some of ideas on teaching stoichiometry to various types of learners.

SESSION 4

From Galileo to Moon Dust: The Consilience of Science and Religion (Gen)

(General) *Capital 2, Marriott*

Clyde A. Selner *(caselner@aol.com),* South Windsor High School, South Windsor, Conn.

A presentation of a hypothesis that reconciles scientific and religious thought and may bring greater understanding and meaning to each. Lively discussion can be expected.

SESSION 5

Summer of Science: DOE-ACTS Program (Gen)

(General) *Capital 3, Marriott*

Diana Soehl *(dsoehl2@yahoo.com),* Elwood-John H. Glenn High School, Elwood, N.Y.

The DOE-ACTS (Department of Energy–Academies Creating Teacher Scientists) program pairs teachers with scientists at national laboratories around the country. Come learn about this wonderful opportunity to perform authentic research that can be brought back into the classroom to excite and engage students! Have a super summer of science!

SESSION 6

Common Ground and Sustainability: Planning for the Whole Community (Env)

(General) *Marriott Ballroom E, Marriott*

Rachel D. Gilroy *(rgilroy@nhep.com)* and **Tricia Johnson,** Common Ground High School, New Haven, Conn.

Learn how Common Ground, an urban charter high school and environmental learning center, is preparing students for success in both college and cultivating habits of healthy living and sustainable practices.

SESSION 7

Science Notebooks and the Language Arts Common Core Standards (Gen)

(General) Community Room, Science Center

Adrienne B. Somera *(asomera@nwesd.org),* Northwest Regional Education Service District, Anacortes, Wash.

Learn notebook strategies that can improve student understanding of science concepts and also support mastery of the common core standards for English language arts.

SESSION 8

From the Bayous of Louisiana to the Gulf of Alaska: Bringing Real-World Science into the Classroom (Gen)

(Elementary–Middle Level) Discovery Ctr. Lab 1, Science Center

Laura S. Rodriguez *(lrodriguez@willingtonct.org),* Hall Memorial School, Willington, Conn.

This session will present inquiry-based activities—both classroom and in the field—that stem from research experiences with Earthwatch and the NOAA Teacher at Sea program.

SESSION 9

Reading the World (Gen)

(Elementary–Middle Level) Travelers Science Hall, Science Center

Wendy Ward Hoffer *(wwhoffer@pebc.org),* Public Education & Business Coalition, Denver, Colo.

Let's discuss how students' innate curiosity and critical-thinking skills can be applied to their reading of science content—from texts to tables to imagery to data sets.

11:00 AM–12 Noon Workshops

Through the Eyes of Animals: Measuring Animal Vision (Bio)

(Middle Level–High School/Informal) 24, Convention Center

Ishara A. Mills-Henry *(imills@mit.edu),* Massachusetts Institute of Technology, Cambridge

Presider: Jonathan King, Massachusetts Institute of Technology, Cambridge

"What do animals see?" is a common question asked by students. Participants will perform a lab on testing animal vision with easy-to-obtain invertebrate organisms.

Exploring Energy Sources in a Leveled Curriculum Unit (Gen)

(Middle Level–High School) Marriott Ballroom B, Marriott

Laura S. Worthington *(worthingtonl@easternct.edu)* and **Laurel Kohl** *(kohll@easternct.edu),* Eastern Connecticut State University, Willimantic

Teaching about energy sources? Explore a leveled curriculum unit that offers PowerPoints, assignments, video links, and more at no cost from *www.ctenergyeducation.com.* Adaptable for your classroom!

Wind Power (Phys)

(General) Marriott Ballroom D, Marriott

Jacklyn Bonneau *(bonneau@wpi.edu),* Massachusetts Academy of Math & Science, Worcester

Charge up your lessons on energy and power with a STEM-focused, creative, authentic activity using wind power.

Inquiry in Action (Chem)

(Elementary) Discovery Center Lab 2, Science Center

Adam M. Boyd *(a_boyd@acs.org),* American Chemical Society, Washington, D.C.

Explore characteristic physical properties of four similar-looking household liquids. Then as a final challenge, identify four unknowns. Explanations of observations and a handout of all activities will be provided.

The Temperature's Rising in Early Childhood Classrooms (Earth)

(Preschool–Elementary) Discovery Center Lab 3, Science Center

Isabelle M. DeBarros *(isabellemdebarros@gmail.com),* Taunton (Mass.) Public Schools

Explore the concept of temperature in early childhood classrooms. Discover how students measure temperature in a variety of settings, while developing literacy skills.

The Study of Rare Diseases: A New Approach to Teaching Scientific Inquiry in Middle School **(Bio)**

(Middle Level) *Discovery Center Lab 4, Science Center*

Dave Vannier *(vannierd@od.nih.gov),* National Institutes of Health, Rockville, Md.

Experience inquiry-based activities that use the study of rare diseases to engage middle school students in heredity and scientific inquiry.

11:00 AM–12 Noon Exhibitor Workshop

Bio-Rad—Protein Expression and Purification Series **(Bio)**

(Grades 11–College) *14, Convention Center*

Sponsor: Bio-Rad Laboratories

Sherri Andrews *(biotechnology_explorer@bio-rad.com),* Bio-Rad Laboratories, Hercules, Calif.

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Exhibitors

Some exhibitors have classified their products by grade level and subject area. Subject areas are abbreviated here as follows:

Biology/Life Science	B
Chemistry/Physical Science	C
Earth/Space Science	EA
Environmental Science	EN
Integrated/General Science	G
Physics/Physical Science	PH
Professional Development	PD
Technology Education	T

A foldout floor plan of the Exhibit Hall is available at Program Pickup.

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The American Chemical Society (ACS) is the world's largest scientific society. ACS will exhibit textbooks, reference materials, videos, and other materials to supplement the K–12 and college curricula. ACS will also provide information on programs for students and teachers.

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The American Nuclear Society (ANS) exhibit offers teachers free, classroom-ready resources for teaching about nuclear science and technology. Educators may preview teacher handbooks offered through ANS teacher workshops and receive sample copies of the ANS teacher newsletter "ReActions."

American Society for Engineering Education–eGFI (Engineering, Go For It!) **#206**
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Exhibitors

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American Nuclear Society (Booth No. 808)

Friday, October 28	8:00–9:15 AM	11, Conv. Center	Detecting Radiation in Our Radioactive World (p. 80)

Anatomy in Clay® Learning System (Booth No. 213)

Friday, October 28	12 Noon–1:15 PM	11, Conv. Center	Engage Students with the Hands-On Anatomy in Clay Learning System (p. 93)

Bio-Rad Laboratories (Booth No. 704)

Friday, October 28	8:00–9:00 AM	14, Conv. Center	Bio-Rad—Genes in a Bottle™ Kit (p. 80)
Friday, October 28	9:30–11:30 AM	14, Conv. Center	Bio-Rad—Forensic DNA Fingerprinting Kit (AP Biology Lab 6) (p. 87)
Friday, October 28	1:00–2:30 PM	14, Conv. Center	Bio-Rad—Enzymes and Biofuels: Go from Grass to Gas! AP Biology Lab 2) (p. 98)
Friday, October 28	3:00–5:30 PM	14, Conv. Center	Bio-Rad—GMO Investigator Kit (p. 103)
Saturday, October 29	8:00–9:30 AM	14, Conv. Center	Bio-Rad—Light Up Your Classroom with Prize-winning GFP! (AP Biology Lab 6) (p. 115)
Saturday, October 29	10:00–11:00 AM	14, Conv. Center	Creating a Biotechnology Skills Course with Bio-Rad (p. 119)
Saturday, October 29	11:00 AM–12 Noon	14, Conv. Center	Bio-Rad—Protein Expression and Purification Series (p. 121)

Carolina Biological Supply Co. (Booth Nos. 401 and 501)

Thursday, October 27	8:00–9:15 AM	13, Conv. Center	Dive into STEM with GEMS® Ocean Sciences Sequence (p. 48)
Thursday, October 27	10:00–11:15 AM	13, Conv. Center	New Tools for STEM Education from Carolina™ Curriculum (p. 52)
Thursday, October 27	10:00–11:15 AM	12, Conv. Center	Autopsy: Forensic Dissection Featuring Carolina's Perfect Solution® Pigs (p. 52)
Thursday, October 27	12:30–1:45 PM	12, Conv. Center	Amplify Your Genetics Teaching Skills with Carolina's Inquiries in Science® Biology Kits (p. 61)
Thursday, October 27	12:30–1:45 PM	13, Conv. Center	Learning to Read, Reading to Learn: Increasing Test Scores Through Literacy (p. 61)
Thursday, October 27	2:15–3:30 PM	13, Conv. Center	Notebooking: Preparing Students for the 21st Century (p. 66)
Thursday, October 27	2:15–3:30 PM	12, Conv. Center	Hands-On Science with Classroom Critters (p. 66)
Thursday, October 27	4:00–5:15 PM	12, Conv. Center	Introduction to Electrophoresis (p. 71)
Friday, October 28	8:00–9:15 AM	12, Conv. Center	Introducing Inquiry into the Chemistry Lab (p. 80)
Friday, October 28	10:00–11:15 AM	12, Conv. Center	Comparative Vertebrate Anatomy with Carolina's Perfect Solution® Specimens (p. 88)
Friday, October 28	12 Noon–1:15 PM	12, Conv. Center	Strawberry DNA and Molecular Models (p. 93)
Friday, October 28	2:00–3:15 PM	12, Conv. Center	Drive Student Inquiry with Carolina's Advanced Environmental Science Labs (p. 102)
Friday, October 28	4:00–5:15 PM	12, Conv. Center	Introduction to Wisconsin Fast Plants® (p. 107)

CPO Science/School Specialty Science (Booth No. 305)

Thursday, October 27	8:00–9:30 AM	24, Conv. Center	Chemistry and the Atom: Fun with Atom-building Games! (p. 50)
Thursday, October 27	10:00–11:30 AM	24, Conv. Center	Genetics: Crazy Traits and Adaptation Survivor (p. 53)
Thursday, October 27	12 Noon– 1:30PM	24, Conv. Center	Sound, Waves, and Music (p. 55)
Thursday, October 27	2:00–3:30 PM	24, Conv. Center	Light and Optics: A Series of EnLIGHTening Experiments! (p. 65)
Thursday, October 27	4:00–5:30 PM	24, Conv. Center	Genetics: Crazy Traits and Adaptation Survivor (p. 72)
Friday, October 28	8:00–9:30 AM	24, Conv. Center	Genetics: Crazy Traits and Adaptation Survivor (p. 82)
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Friday, October 28	12 Noon– 1:30PM	24, Conv. Center	Light and Optics: A Series of EnLIGHTening Experiments! (p. 94)
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Friday, October 28	4:00–5:30 PM	24, Conv. Center	Chemistry and the Atom: Fun with Atom-building Games! (p. 108)

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Delta Education/School Specialty Science (Booth No. 300)

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Thursday, October 27	10:00–11:15 AM	22, Conv. Center	Delta Science Modules (DSM)…Never Heard of It? Want to Know More? (p. 52)
Thursday, October 27	1:00–2:30 PM	22, Conv. Center	What's Going On in There? Inquiry Science for Supervisors, Trainers, and Teachers (p. 62)
Thursday, October 27	3:00–4:30 PM	22, Conv. Center	Science Gnus: Scientists Famous and Forgotten…and Their Process Skills (p. 68)
Friday, October 28	8:00–9:15 AM	22, Conv. Center	Inquiring Minds Provide Spark for Science Lessons (p. 81)
Friday, October 28	10:00–11:15 AM	22, Conv. Center	Integrating Science and Literacy: Grades 1–6 (p. 88)
Friday, October 28	1:00–2:15 PM	22, Conv. Center	Are You a Problem (Solving) Teacher? Want to Become One? (p. 98)

Delta Education/School Specialty Science–FOSS (Booth No. 300)

Thursday, October 27	8:00–10:30 AM	23, Conv. Center	Using Science Notebooks with FOSS (p. 50)
Thursday, October 27	11:30 AM–1:00 PM	23, Conv. Center	FOSS Program Evolution and the Next Generation Science Standards (p. 55)
Thursday, October 27	2:00–4:00 PM	23, Conv. Center	Taking Science Outdoors with FOSS K–8 (p. 66)
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Delta Education/School Specialty Science–Seeds (Booth No. 300)

Thursday, October 27	2:00–3:00 PM	21, Conv. Center	33 Ways to Integrate Science (p. 65)
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Dinah-Might Adventures, LP (Booth No. 610)

Friday, October 28	12 Noon–1:15 PM	Ballroom B, Conv. Ctr.	Natural Differentiation Using Foldables® (p. 93)
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Discovery Education (Booth No. 729)

Friday, October 28	12 Noon–1:15 PM	26, Conv. Center	Think Outside the Book with Discovery Education's Science Techbook (p. 93)
Saturday, October 29	8:00–9:15 AM	15, Conv. Center	Developing STEM Process Skills with the Discovery Education Science Techbook (p. 115)

eCYBERMISSION (Booth No. 419)

Friday, October 28	12 Noon–1:15 PM	16, Conv. Center	eCYBERMISSION: Free STEM Competition for Middle School Students Offers Exciting Rewards (p. 93)

Educational Innovations, Inc. (Booth No. 418)

Friday, October 28	8:00–9:15 AM	Ballroom B, Conv. Ctr.	3-2-1 Blast Off! (p. 82)

Edvotek (Booth No. 614)

Thursday, October 27	8:00–9:15 AM	11, Conv. Center	New Approaches to Basic Electrophoresis (p. 48)
Thursday, October 27	10:00–11:15 AM	11, Conv. Center	Whose DNA Was Left Behind? Are You Ready to Teach 30-Minute Forensics Experiments? (p. 51)
Friday, October 28	10:00–11:15 AM	11, Conv. Center	Rapid Single Antibody–based ELISA (p. 88)

FDA (Booth No. 315)

Saturday, October 29	8:00–9:15 AM	16, Conv. Center	FDA Food Science Workshop (p. 115)

Fisher Science Education (Booth No. 200)

Friday, October 28	2:00–3:15 PM	25, Conv. Center	Art *vs.* Science: The Role of Science in Wine Making (p. 102)

Flinn Scientific, Inc. (Booth No. 601)

Thursday, October 27	1:00–2:15 PM	Ballroom B, Conv. Ctr.	Flinn Scientific Presents Best Practices for Teaching Chemistry™: Experiments and Demos (p. 62)
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Frey Scientific/School Specialty Science (Booth No. 301)

Thursday, October 27	8:00–9:15 AM	21, Conv. Center	STEM-focused Technology Activities Using Inquiry Investigations™ (p. 49)
Thursday, October 27	10:00–11:15 AM	21, Conv. Center	STEM-focused Forensics Activities Using Inquiry Investigations™ (p. 52)
Thursday, October 27	12 Noon–1:15 PM	21, Conv. Center	Incorporating Online Virtual Lab Solutions with Hands-On Science into Your Classroom (p. 55)

Houghton Mifflin Harcourt (Booth No. 311)

Thursday, October 27	8:00–9:15 AM	25, Conv. Center	Ecology Adventures: Motivating Students Through Project Based Learning (p. 49)
Thursday, October 27	10:00–11:15 AM	25, Conv. Center	Connecting to Chemistry: Igniting Student Motivation with STEM Examples and Ideas (p. 53)
Thursday, October 27	12:30–1:45 PM	25, Conv. Center	Sparking Interest and Learning with Chemistry: A Part 1 Experience (p. 61)
Thursday, October 27	2:15–3:30 PM	25, Conv. Center	Engaging Students and Enhancing Learning Outcomes with Project-based Videos (p. 67)
Thursday, October 27	4:00–5:15 PM	25, Conv. Center	Sparking More Interest with Chemistry: A Part 2 Experience (p. 72)
Friday, October 28	8:00–9:15 AM	25, Conv. Center	Misconception Mania: Exciting and Engaging Ways to Address Common Misunderstandings in K–8 Science (p. 81)
Friday, October 28	10:00–11:15 AM	25, Conv. Center	Effective STEM Challenges for the Classroom (p. 88)
Friday, October 28	12 Noon–1:15 PM	25, Conv. Center	Extra, Extra! Read All About It! Taking Biology from the News to the Classroom (p. 93)

It's About Time (Booth No. 508)

Friday, October 28	8:00–9:00 AM	27, Conv. Center	Project-Based Inquiry Science/STEM Solution: Earth, Life, and Physical Science in Middle School (p. 80)
Friday, October 28	9:30–10:30 AM	27, Conv. Center	EarthComm: A New Edition! (p. 86)
Friday, October 28	11:00 AM–12 Noon	27, Conv. Center	STEM Solutions for Middle School and High School Classrooms (p. 92)
Friday, October 28	12:30–1:30 PM	27, Conv. Center	Active Chemistry/STEM in Your School (p. 97)
Friday, October 28	2:00–3:00 PM	27, Conv. Center	Active Physics (Third Edition): STEM in Your School (p. 101)
Friday, October 28	3:30–4:30 PM	27, Conv. Center	*Investigating Astronomy*: A New Astronomy Textbook Written for High School Students (p. 107)

Kendall Hunt Publishing Co. (Booth No. 201)

Friday, October 28	2:00–3:15 PM	16, Conv. Center	Taking a Human Approach to Biology Education (p. 102)

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Key Curriculum Press (Booth No. 208)

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Lab-Aids, Inc. (Booth No. 310)

Friday, October 28	8:00–9:15 AM	13, Conv. Center	Teaching About the Rock Cycle and Earth Time (p. 80)
Friday, October 28	10:00–11:15 AM	13, Conv. Center	Teaching About Gene Expression (p. 88)
Friday, October 28	12 Noon–1:15 PM	13, Conv. Center	What Is the Difference Between Heat and Temperature? (p. 93)
Friday, October 28	2:00–3:15 PM	13, Conv. Center	Teaching About Batteries (p. 102)
Friday, October 28	4:00–5:15 PM	13, Conv. Center	Teaching About Gas Exchange (p. 108)
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LaMotte Co. (Booth No. 515)

Thursday, October 27	12:30–1:45 PM	16, Conv. Center	Stream Ecology: Slimy Leaves for Clean Streams (p. 61)
Thursday, October 27	2:15–3:30 PM	16, Conv. Center	Stream Ecology: Slimy Leaves for Clean Streams (p. 67)

Mississippi State University (Booth No. 314)

Thursday, October 27	2:15–3:30 PM	11, Conv. Center	Master of Science Degree in Geosciences Available Online Through the Teachers in Geosciences Program (p. 66)

Ohaus Corp. and Frey Scientific (Booth Nos. 301 and 408)

Thursday, October 27	12:30–1:45 PM	11, Conv. Center	Using the OHAUS Triple Beam Balance™ as a STEM-focused Skill Platform (p. 60)
Friday, October 28	2:00–3:15 PM	11, Conv. Center	Using the OHAUS Harvard Junior as a STEM-focused Skill Platform (p. 101)

PASCO Scientific (Booth No. 409)

Friday, October 28	8:00–9:00 AM	15, Conv. Center	Biology: Cell Respiration in Germinating Peas (p. 80)
Friday, October 28	9:30–10:30 AM	15, Conv. Center	Physics and Physical Science: Investigating Motion (p. 86)
Friday, October 28	11:00 AM–12 Noon	15, Conv. Center	Investigating Earthquakes in Middle School: Bringing Science and Technology Together (p. 92)
Friday, October 28	1:00–2:00 PM	15, Conv. Center	Chemistry—Atmospheric Pressure (p. 98)
Friday, October 28	2:30–3:30 PM	15, Conv. Center	Renewable Energy Exploration—Solar and Wind Power (p. 103)

Pearson (Booth No. 400)

Thursday, October 27	8:00–9:15 AM	17, Conv. Center	Stop Teaching and Start Coaching AP Chemistry (p. 49)
Thursday, October 27	10:00–11:15 AM	17, Conv. Center	The Next Generation of Science Virtual Labs for the Entire Science Curriculum! No Cleanup (p. 52)
Thursday, October 27	12:30–1:45 PM	17, Conv. Center	Online Learning Exchange, Powered by Pearson: Our Content, Your Content, All in One Place (p. 61)
Thursday, October 27	2:15–3:30 PM	17, Conv. Center	Going Green: Economical and Environmentally Friendly Inquiry in Chemistry (p. 67)
Thursday, October 27	4:00–5:15 PM	17, Conv. Center	Web 2.0 and Science (p. 71)
Friday, October 28	8:00–9:15 AM	17, Conv. Center	From Science to Engineering (p. 81)
Friday, October 28	10:00–11:15 AM	17, Conv. Center	Destructive Forces of Nature: Earthquakes (p. 88)
Friday, October 28	12 Noon–1:15 PM	17, Conv. Center	*Marine Science: The Dynamic Ocean:* A New High School STEM Offering (p. 93)
Friday, October 28	2:00–3:15 PM	17, Conv. Center	Inquiry and Evidence: Keys to Getting Students to Inquire (p. 102)
Friday, October 28	4:00–5:15 PM	17, Conv. Center	Preparing Your Students to Become Tomorrow's Innovators with STEM Education (p. 108)

Pearson, cont.

Saturday, October 29	8:00–9:15 AM	17, Conv. Center	New Tools, New Insights, and New Ways of Understanding Science with Miller and Levine (p. 115)

Science Kit & Boreal Laboratories (Booth No. 803)

Thursday, October 27	8:00–9:15 AM	26, Conv. Center	Cool Tech Tools for Life Science: Really Easy Data Collectors (p. 49)
Thursday, October 27	10:00–11:15 AM	26, Conv. Center	Chemistry In-the-Bag Inquiry Workshop (p. 53)
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Thursday, October 27	4:00–5:15 PM	26, Conv. Center	Cool Tech Tools for Physical Science: Really Easy Data Collectors (p. 72)
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Science Take-Out (Booth No. 620)

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Friday, October 28	2:00–3:15 PM	26, Conv. Center	Keeping a Balance: Homeostasis and Negative Feedback (p. 102)
Friday, October 28	4:00–5:15 PM	26, Conv. Center	Enzymes and Lactose Intolerance (p. 108)

Simulation Curriculum Corp. (Booth No. 325)

Thursday, October 27	8:00–9:15 AM	14, Conv. Center	The Layered Earth! (p. 49)
Thursday, October 27	10:00–11:15 AM	14, Conv. Center	Starry Night Education! (p. 52)
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Swift Optical Instruments, Inc. (Booth No. 309)

Thursday, October 27	2:15–3:30 PM	14, Conv. Center	New Ways to Prepare Your Students Using 21st-Century STEM Initiatives—GO DIGITAL! (p. 66)

Vernier Software & Technology (Booth No. 701)

Friday, October 28	8:00–9:30 AM	21, Conv. Center	K–8 Science with Vernier (p. 82)
Friday, October 28	10:00–11:30 AM	21, Conv. Center	Exploring Science with Vernier (p. 89)
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Wavefunction, Inc. (Booth No. 140)

Thursday, October 27	10:00–11:15 AM	15, Conv. Center	Teaching Chemistry with Molecular-Level Visualization and Simulation Tools (p. 52)
Friday, October 28	10:00–11:15 AM	16, Conv. Center	Molecular Modeling in Middle School and High School Science Classrooms: Engage Your Students! (p. 88)

Schedule at a Glance

G = General
P = Preschool
C = College
M = Middle School
H = High School
R = Research
S = Supervision/Administration
I = Informal Education
T = Teacher Preparation
E = Elementary

Biology/Life Science

Thursday

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8:00–9:15 AM	7–11	26, Conv. Center	Cool Tech Tools for Life Science: Really Easy Data Collectors (p. 49)
10:00–11:15 AM	7–C	11, Conv. Center	Whose DNA Was Left Behind? Are You Ready to Teach 30-Minute Forensics Experiments? (p. 51)
10:00–11:15 AM	8–12	12, Conv. Center	Autopsy: Forensic Dissection Featuring Carolina's Perfect Solution® Pigs (p. 52)
11:00 AM–12 Noon	G	Hilton Ballroom West, Hilton	CSI Web Adventures (p. 54)
12:30–1:30 PM	G	Community Room, CSC	Using Music to Teach Science (p. 59)
12:30–1:30 PM	H	Connecticut Salon A, Hilton	Integrating Bioethical Case Studies into the Science Curriculum (p. 57)
12:30–1:30 PM	H	Hilton Ballroom West, Hilton	Helping High School Students Write Their Own Scientific Experiments (p. 59)
12:30–1:45 PM	9–12	12, Conv. Center	Amplify Your Genetics Teaching Skills with Carolina's Inquiries in Science® Biology Kits (p. 61)
12:30–1:45 PM	6–C	15, Conv. Center	Diagnosing Diabetes (p. 61)
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2:00–3:00 PM	E–M	Discovery Lab 2, CSC	Life on Earth...and Beyond? (p. 65)
2:00–3:00 PM	P	Discovery Lab 3, CSC	Preschoolers Investigate Bones: Science Inquiry in Early Childhood Education (p. 64)
2:00–3:00 PM	M–H	Connecticut Salon A, Hilton	Dissection as a Culminating Activity (p. 63)
2:00–3:00 PM	H–C	Hilton Ballroom West, Hilton	Lost in Translation: Exploring Protein Synthesis with Interactive Physical Models (p. 65)
2:15–3:30 PM	K–12	12, Conv. Center	Hands-On Science with Classroom Critters (p. 66)
2:15–3:30 PM	9–C	14, Conv. Center	New Ways to Prepare Your Students Using 21st-Century STEM Initiatives—GO DIGITAL! (p. 66)
2:15–3:30 PM	6–C	15, Conv. Center	Genetic Testing for Huntington's Disease (p. 67)
2:15–3:30 PM	9–12	25, Conv. Center	Engaging Students and Enhancing Learning Outcomes with Project-based Videos (p. 67)
3:00–4:15 PM	7–12	Ballroom B, Conv. Center	Flinn Favorite Biology Lab Activities and Games (p. 67)
3:30–4:30 PM	M	Community Room, CSC	CSSS Session: Interactive Inquiry: Effective, Fun, and Relevant (p. 70)
3:30–4:30 PM	E–H	Connecticut Salon A, Hilton	Bridging the Gap Between Teacher and Scientist (p. 69)
3:30–4:30 PM	H–C	Hilton Ballroom West, Hilton	We're Not Just Cloning Around: Professional Development for the Biotech Teacher (p. 69)
4:00–5:15 PM	9–12	12, Conv. Center	Introduction to Electrophoresis (p. 71)
5:00–6:00 PM	M–H	Travelers Science Hall, CSC	Dual Task: Learning Language and Science (p. 74)
5:00–6:00 PM	H	Hilton Ballroom West, Hilton	Ocean Science in the High School Biology Classroom (p. 75)

Friday

8:00–9:00 AM	6–C	14, Conv. Center	Bio-Rad—Genes in a Bottle™ Kit (p. 80)
8:00–9:00 AM	9–12	15, Conv. Center	Biology: Cell Respiration in Germinating Peas (p. 80)
8:00–9:00 AM	G	Connecticut Salon A, Hilton	A Case Study of the Design and Implementation of PRS Problems in a Large Lecture Biology Course (p. 77)
8:00–9:00 AM	H	Hilton Ballroom West, Hilton	NABT Session: FREE Resources and Interactive Models for Teaching Immunology and HIV/AIDS (p. 77)
9:30–10:00 AM	I	Connecticut Salon A, Hilton	Field Notes and the Classroom (p. 83)

9:30–10:00 AM	G	Hilton Ballroom West, Hilton	NABT Session: FREE Teaching Resources on Viral Outbreaks and the Science of Emerging Diseases (p. 83)
9:30–11:30 AM	9–C	14, Conv. Center	Bio-Rad—Forensic DNA Fingerprinting Kit (AP Biology Lab 6) (p.87)
10:00–11:15 AM	8–C	11, Conv. Center	Rapid Single Antibody–based ELISA (p. 88)
10:00–11:15 AM	6–12	12, Conv. Center	Comparative Vertebrate Anatomy with Carolina's Perfect Solution® Specimens (p.88)
10:00–11:15 AM	6–12	13, Conv. Center	Teaching About Gene Expression (p.88)
11:00 AM–12 Noon	E–H	Connecticut Salon A, Hilton	Impact of High-Stakes Testing on Inquiry-based Science Instruction (p. 90)
11:00 AM–12 Noon	M–C	Hilton Ballroom West, Hilton	NABT Session: Engaging Students in Learning Biology with Activities That Interest Students (p. 91)
12 Noon–1:15 PM	7–C	11, Conv. Center	Engage Students with the Hands-On Anatomy in Clay® Learning System (p. 93)
12 Noon–1:15 PM	6–12	12, Conv. Center	Strawberry DNA and Molecular Models (p. 93)
12 Noon–1:15 PM	9–12	25, Conv. Center	Extra, Extra! Read All About It! Taking Biology from the News to the Classroom (p. 93)
12:30–1:30 PM	G	Connecticut Salon A, Hilton	Medical Mysteries Web Adventures (p.94)
12:30–1:30 PM	G	Hilton Ballroom West, Hilton	Infect Your Biology Classroom with Math! (p. 96)
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2:00–3:15 PM	9–12	16, Conv. Center	Taking a Human Approach to Biology Education (p. 102)
2:00–3:15 PM	6–C	26, Conv. Center	Keeping a Balance: Homeostasis and Negative Feedback (p. 102)
3:00–5:30 PM	10–C	14, Conv. Center	Bio-Rad—GMO Investigator Kit (p. 103)
3:30–4:00 PM	E–H	Connecticut Salon A, Hilton	Teaching About Corals: Using NOAA Resources (p. 104)
3:30–4:30 PM	H–C	Mark Twain, Hilton	Sequencing the Mitochondrial ATP6 Synthase Gene: Comparing Variations in *Limulus* and *Argopecten* to Human SNPs (p. 104)
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4:00–5:15 PM	K–12	12, Conv. Center	Introduction to Wisconsin Fast Plants® (p. 107)
4:00–5:15 PM	6–12	13, Conv. Center	Teaching About Gas Exchange (p. 108)
4:00–5:15 PM	6–C	26, Conv. Center	Enzymes and Lactose Intolerance (p. 108)
5:00–6:00 PM	H	Mark Twain, Hilton	Evolution and Medicine: A New Approach to a Central Topic in High School Biology (p. 110)

Saturday

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8:00–9:15 AM	6–12	16, Conv. Center	FDA Food Science Workshop (p. 115)
8:00–9:15 AM	9–12	17, Conv. Center	New Tools, New Insights, and New Ways of Understanding Science with Miller and Levine (p. 115)
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9:30–10:30 AM	E–H	13, Conv. Center	Teaching an Integrated Unit on the Cell (p. 116)
9:30–10:30 AM	C	24, Conv. Center	Medical Application–based Anatomy and Physiology Lab Activities (p. 116)
10:00–11:00 AM	9–C	14, Conv. Center	Creating a Biotechnology Skills Course with Bio-Rad (p. 119)
11:00 AM–12 Noon	H–C	13, Conv. Center	Using Rubrics to Facilitate Student Self-Assessment (p. 119)
11:00 AM–12 Noon	11–C	14, Conv. Center	Bio-Rad—Protein Expression and Purification Series (p. 121)
11:00 AM–12 Noon	M–H/I	24, Conv. Center	Through the Eyes of Animals: Measuring Animal Vision (p. 120)
11:00 AM–12 Noon	M	Discovery Lab 4, CSC	The Study of Rare Diseases: A New Approach to Teaching Scientific Inquiry in Middle School (p. 121)

Chemistry/Physical Science

Thursday

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8:00–9:00 AM	H	Hartford Commons, Hilton	What Is Your Cosmic Connection to the Elements? (p. 48)
8:00–9:00 AM	M	Hilton Ballroom East, Hilton	ACS Middle Level Session: Solids, Liquids, and Gases: The Kinetic-Molecular Theory of Matter (p. 48)
8:00–9:15 AM	9–12	17, Conv. Center	Stop Teaching and Start Coaching AP Chemistry (p. 49)
10:00–11:15 AM	8–C	15, Conv. Center	Teaching Chemistry with Molecular-Level Visualization and Simulation Tools (p. 52)
10:00–11:15 AM	9–12	16, Conv. Center	*Living By Chemistry:* Create a Table (p. 52)
10:00–11:15 AM	9–12	25, Conv. Center	Connecting to Chemistry: Igniting Student Motivation with STEM Examples and Ideas (p. 53)
10:00–11:15 AM	8–12	26, Conv. Center	Chemistry In-the-Bag Inquiry Workshop (p. 53)
11:00 AM–12 Noon	M	Hilton Ballroom East, Hilton	ACS Middle Level Session: Changes of State: Evaporation and Condensation (p. 54)
12:30–1:30 PM	H	Connecticut Salon B, Hilton	Write Your Way to Success: Grant-writing Strategies for You and Your Chemistry Students (p. 57)
12:30–1:30 PM	M	Hilton Ballroom East, Hilton	ACS Middle Level Session: Density: A Molecular View (p. 59)
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1:00–2:15 PM	7–12	Ballroom B, Conv. Center	Flinn Scientific Presents Best Practices for Teaching Chemistry™: Experiments and Demos (p. 62)
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2:00–3:00 PM	M	Hilton Ballroom East, Hilton	ACS Middle Level Session: The Periodic Table, Energy Levels, and Bonding (p. 65)
2:15–3:30 PM	9–12	17, Conv. Center	Going Green: Economical and Environmentally Friendly Inquiry in Chemistry (p. 67)
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3:30–4:30 PM	M	Hilton Ballroom East, Hilton	ACS Middle Level Session: Polarity of the Water Molecule and Its Consequences (p. 70)
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5:00–6:00 PM	G	Hartford Commons, Hilton	Teaching Chemistry with Moodle: Create Your Own Course and Resources (p. 73)
5:00–6:00 PM	M	Hilton Ballroom East, Hilton	ACS Middle Level Session: Chemical Change: Breaking and Making Bonds (p. 75)
5:30–6:00 PM	H–C	Connecticut Salon A, Hilton	Lessons from AP Chemistry Exams (p. 73)

Friday

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8:00–9:15 AM	8–12	26, Conv. Center	Chemistry In-the-Bag Inquiry Workshop (p. 82)
9:30–10:30 AM	C/S	Connecticut Salon B, Hilton	Engaging Students in Chemistry Outside the Classroom: A Look at Chem Club (p. 84)
9:30–10:30 AM	H	Hilton Ballroom East, Hilton	ACS Session Two: Equilibrium and Energy (p. 85)
10:00–11:15 AM	8–C	16, Conv. Center	Molecular Modeling in Middle and High School Science Classrooms: Engage Your Students! (p. 88)
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12:30–1:30 PM	G	Connecticut Salon B, Hilton	Teaching and Learning in the Digital Age: Chemistry Resources Teachers and Students Can Rely On (p. 94)
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2:00–3:15 PM	6–12	13, Conv. Center	Teaching About Batteries (p. 102)
3:30–4:30 PM	H	Hilton Ballroom East, Hilton	ACS Session Six: Half-Life (p. 106)
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4:00–5:15 PM	9–12	16, Conv. Center	*Living By Chemistry:* What Shape Is That Smell? (p. 108)
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Saturday

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11:00 AM–12 Noon	H	25, Conv. Center	Stoichiometry: A Multitiered Approach (p. 119)
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Earth/Space Science

Thursday

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10:00–11:15 AM	5–12	14, Conv. Center	Starry Night Education! (p. 52)
11:00 AM–12 Noon	G	Marriott Blrm. A, Marriott	ASEE Session: NASA's BEST Students (Beginning Engineering, Science, and Technology) (p. 54)
12:30–1:30 PM	G	Marriott Blrm. A, Marriott	ASEE Session: UTeach*Engineering:* NASA Design Challenges (p. 58)
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2:00–3:00 PM	E–H	Capital 2, Marriott	Extraordinary Objects: Integrating Museum Visits into Your Classroom Curriculum (p. 63)
2:15–3:30 PM	K–12	11, Conv. Center	Master of Science Degree in Geosciences Available Online Through the Teachers in Geosciences Program (p. 66)
3:30–4:30 PM	E–H	Capital 1, Marriott	MY NASA DATA: Using Earth Systems Data Visualization in the Classroom (p. 69)
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Friday

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8:00–9:15 AM	5–12	16, Conv. Center	The Layered Earth! (p. 80)
9:30–10:30 AM	8–12	27, Conv. Center	EarthComm: A New Edition! (p. 86)
9:30–10:30 AM	G	Ballroom C, Conv. Center	Activities from Across the Earth System (p. 85)
9:30–10:30 AM	G	Marriott Blrm. D, Marriott	Decoding Starlight—From Pixels to Images (p. 86)
10:00–11:15 AM	K–8	17, Conv. Center	Destructive Forces of Nature: Earthquakes (p. 88)
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11:00 AM–12 Noon	M–H	Marriott Blrm. E, Marriott	Opening Doors to CAREERS in Meteorology: Taking Summer Weather Camp Experiences Back to the Classroom (p. 92)
12 Noon–1:15 PM	9–12	17, Conv. Center	*Marine Science: The Dynamic Ocean:* A New High School STEM Offering (p. 93)
12:30–1:30 PM	G	Ballroom C, Conv. Center	Let's Get Well Grounded! (p. 96)
12:30–1:30 PM	G	Capital 1, Marriott	NASA's High-Energy Vision—Chandra and the X-ray Universe (p. 95)

2:00–3:00 PM	E–H	Ballroom C, Conv. Center	National Earth Science Teachers Association Earth Science Share-a-Thon (p. 100)
2:00–3:00 PM	E–M	Discovery Lab 2, CSC	Earth Shattering! Hands-On Earth Science Activities from the Department of Energy (p. 100)
2:00–3:00 PM	I	Marriott Blrm. B, Marriott	JetStream: An Online School for Weather (p. 100)
2:00–3:00 PM	G	Marriott Blrm. C, Marriott	The Real Stars of Hogwarts: Using *Harry Potter* in Astronomy Education (p. 100)
3:30–4:00 PM	G	Capital 1, Marriott	The Tide Is High—Using Online Data to Learn About Local Tidal Cycles (p. 105)
3:30–4:30 PM	G	Ballroom C, Conv. Center	National Earth Science Teachers Association (NESTA) Rock and Mineral Raffle (p. 106)
3:30–4:30 PM	G	Capital 3, Marriott	NSTA Avenue Session: Explore Mars: Using Mars Exploration to Inspire Students (p. 105)
3:30–4:30 PM	E–H	Marriott Blrm. B, Marriott	How Do We Know? Using the Electromagnetic Spectrum to Explore the Universe (p. 106)
5:00–6:00 PM	E	Discovery Lab 3, CSC	Our Solar System Through the Eyes of Scientists (p. (p. 111)
5:00–6:00 PM	E–H	Capital 1, Marriott	Leading the Salmon Home: A Healthy Dose of Indigenous Realism (p. 109)

Saturday

8:00–9:00 AM	H	Capital 1, Marriott	Student Analysis of NASA Images and Data with Free/Open-Source Resources (p. 113)
8:00–9:00 AM	M–C	Marriott Blrm. B, Marriott	Learn About Oceans and Atmosphere the DataStreme Way! (p. 114)
9:30–10:30 AM	M–H	Marriott Blrm. A, Marriott	Sci-Fi 101: Create a Species (p. 117)
9:30–10:30 AM	G	Marriott Blrm. B, Marriott	Stellar Evolution—From Formation to Destruction (p. 118)
11:00 AM–12 Noon	P–E	Discovery Lab 3, CSC	The Temperature's Rising in Early Childhood Classrooms (p. 120)

Environmental Science

Thursday

8:00–8:30 AM	M–H	Capital 1, Marriott	Bolstering Students' Understanding of Biodiversity (p. 46)
8:00–9:00 AM	M–H	Ethan Allen, Hilton	NSTA Press Session: Using Data to Solve "Earth Science Puzzles" (p. 48)
8:30–9:00 AM	E–H	Capital 1, Marriott	Twin State Mercury Project: Authentic Research in the Science Classroom (p. 46)
12:30–1:30 PM	E–M	Marriott Blrm. E, Marriott	Environmental Literacy Plans: Why, Where, and How (p. 59)
12:30–1:45 PM	4–C	16, Conv. Center	Stream Ecology: Slimy Leaves for Clean Streams (p. 61)
2:00–3:00 PM	I	Marriott Blrm. B, Marriott	Focus on Forests: Project Learning Tree's New Secondary Curriculum (p. 65)
2:00–3:00 PM	G	Marriott Blrm. E, Marriott	The Role of Education in a Sustainability Paradigm Shift (p. 64)
2:15–3:30 PM	4–C	16, Conv. Center	Stream Ecology: Slimy Leaves for Clean Streams (p. 67)
3:30–4:30 PM	G	Ballroom C, Conv. Center	A Whale of a Tale Share-a-Thon (p. 70)
3:30–4:30 PM	P–M	Discovery Lab 2, CSC	Promoting Good Global Citizenship for Sustainability (p. 70)
3:30–4:30 PM	I	Marriott Blrm. B, Marriott	GreenSchools! (p. 70)
3:30–4:30 PM	E–M	Marriott Blrm. E, Marriott	NSTA Avenue Session: America's Home Energy Education Challenge (p. 70)
5:00–5:30 PM	M–C	Marriott Blrm. E, Marriott	Climate Literacy and Energy Awareness Network (p. 72)
5:00–6:00 PM	M–H	Capital 1, Marriott	Using Learning Progressions to Assess Students' Progress in Environmental Science (p. 74)
5:00–6:00 PM	G	Capital 2, Marriott	Big World, Small Planet: Climate Science Literacy with Digital Media (p. 74)
5:00–6:00 PM	H	Marriott Blrm. B, Marriott	Drop the Lecture and Let the Students Pick Up the Learning in Environmental Science (p. 75)

Friday

8:00–9:00 AM	P–M/I	Discovery Lab 2, CSC	Facilitating Early Childhood Education with Project Learning Tree (p. 79)
8:00–9:00 AM	M–H	Marriott Blrm. E, Marriott	Climate Change, Global Connections, and Sustainable Solutions (p. 79)
9:30–10:30 AM	H	Marriott Blrm. B, Marriott	Mapping Nest Success in Migratory Birds (p. 85)
9:30–10:30 AM	M–H	Marriott Blrm. C, Marriott	7 Billion and Counting: Lessons for Our Planet's Future (p. 85)
11:00 AM–12 Noon	E–M/S	Capital 3, Marriott	NSTA Avenue Session: Disney's Planet Challenge: Project Based Learning and Service Learning–based Lesson Development and Funding (p. 90)
12:30–1:30 PM	G	Capital 3, Marriott	NSTA Avenue Session: Communicate, Collaborate, and Create: Changing Your Classroom and the World (p. 96)
2:00–3:00 PM	G	Marriott Blrm. E, Marriott	School Energy Survey (p. 100)
2:00–3:15 PM	9–12	12, Conv. Center	Drive Student Inquiry with Carolina's Advanced Environmental Science Labs (p. 102)
2:30–3:30 PM	9–12	15, Conv. Center	Renewable Energy Exploration—Solar and Wind Power (p. 103)
3:30–4:30 PM	M	Discovery Lab 4, CSC	Engaging Students with Math and Science Through Global Issues (p. 106)
3:30–4:30 PM	E–M	Capital 2, Marriott	NSTA Avenue Session: America's Home Energy Education Challenge (p. 105)
3:30–4:30 PM	I	Marriott Blrm. E, Marriott	Forests, Carbon, and Climate Change (p. 106)
5:00–5:30 PM	M–H/S	Saratoga B, Hilton	Science Teachers' Health and Safety Workshop (p. 108)
5:00–6:00 PM	I	Marriott Blrm. C, Marriott	Building New England Connections: A Model for Regional Environmental Education Focusing on Watersheds (p. 110)
5:00–6:00 PM	G	Marriott Blrm. E, Marriott	Taking the Eco-Initiative: Using an Ecosystems Approach to Understand and Reduce the Ecological Footprint of Schools (p. 111)

Saturday

8:00–9:00 AM	E–M	Discovery Lab 1, CSC	Earth Day Every Day! (p. 113)
8:00–9:00 AM	M–H	Marriott Blrm. A, Marriott	Modeling Populations (p. 114)
8:00–9:15 AM	7–12	11, Conv. Center	Teaching About Hydrogen Fuel Cells (p. 115)
9:30–10:30 AM	G	Capital 1, Marriott	Be Careful What You Fish For: Environmental Health for Humans (p. 116)
11:00 AM–12 Noon	G	Marriott Blrm. E, Marriott	Common Ground and Sustainability: Planning for the Whole Community (p. 119)

Integrated/General

Thursday

8:00–8:30 AM	M–H	Marriott Blrm. D, Marriott	Teach Science Content and Inspire STEM Careers with FREE Online Web Adventures (p. 47)
8:00–9:00 AM	G	Ballroom C, Conv. Center	Is This Your First NSTA Conference? (p. 48)
8:00–9:00 AM	E	Discovery Lab 1, CSC	The Magic Web: Outstanding Trade Books (p. 47)
8:00–9:00 AM	E–M	Discovery Lab 3, CSC	The Reflective Assessment Technique: 15 Minutes to Improved Instruction (p. 47)
8:00–9:00 AM	M–H	Nathan Hale, Hilton	The Language of Science Through Collaboration and Coaching (p. 45)
8:00–9:00 AM	E–H	Capital 2, Marriott	NOAA in Your Backyard (p. 46)
8:00–9:00 AM	G	Capital 3, Marriott	Teach STEM? NASA Explorer Schools Can Help! (p. 47)
8:00–9:00 AM	G	Marriott Blrm. A, Marriott	ASEE Session: eGFI: Engineering, Go For It!—Dream Up the Future (p. 47)
8:00–9:00 AM	G	Marriott Blrm. B, Marriott	Make-It and Take-It: The Unseen World of Macro (p. 48)
8:00–9:00 AM	G	Marriott Blrm. C, Marriott	Outstanding Print Resources, Science Literacy Skills, and Hands-On Investigations: Don't Settle for One Without the Others! (p. 47)
8:00–9:00 AM	E–H	Marriott Blrm. E, Marriott	Green Your School! Integrating Science with Service Learning (p. 48)
8:00–9:15 AM	3–5	13, Conv. Center	Dive into STEM with GEMS® Ocean Sciences Sequence (p. 48)
8:00–9:15 AM	7–12	21, Conv. Center	STEM-focused Technology Activities Using Inquiry Investigations™ (p. 49)
8:00–9:15 AM	K–6	22, Conv. Center	Learning the Design Process—Experiment or Product? (p.49)

8:00–9:15 AM	3–8	25, Conv. Center	Ecology Adventures: Motivating Students Through Project Based Learning (p. 49)
8:00–10:30 AM	K–8	23, Conv. Center	Using Science Notebooks with FOSS (p. 50)
8:30–9:00 AM	E–H	Connecticut Salon B, Hilton	Using the Classroom Walk-Through to Improve Instructional Strategies (p. 45)
8:30–9:00 AM	G	Marriott Blrm. D, Marriott	A STEM Community? (p. 47)
9:15–10:30 AM	G	Ballroom B, Conv. Center	General Session: Science at the Frontier of Space: Where We Are Going… (Speaker: James B. Garvin) (p. 50)
9:30–11:30 AM	G	Travelers Science Hall, CSC	ASTC Session: Immersive Professional Development Using the Work of Scientists (p. 51)
10:00–11:15 AM	K–8	13, Conv. Center	New Tools for STEM Education from Carolina™ Curriculum (p. 52)
10:00–11:15 AM	9–12	17, Conv. Center	The Next Generation of Science Virtual Labs for the Entire Science Curriculum! No Cleanup (p. 52)
10:00–11:15 AM	7–12	21, Conv. Center	STEM-focused Forensics Activities Using Inquiry Investigations™ (p. 52)
10:00–11:15 AM	K–7	22, Conv. Center	Delta Science Modules (DSM)…Never Heard of It? Want to Know More? (p. 52)
11:00 AM–12 Noon	E–H	Ballroom C, Conv. Center	Association of Presidential Awardees in Science Teaching Share-a-Thon (p. 54)
11:00 AM–12 Noon	M–H	Hartford Commons, Hilton	Square Pegs: Science for Those Other Kids (p. 54)
11:00 AM–12 Noon	G	Marriott Blrm. B, Marriott	Make It, Use It, and Take It Back to Your Classroom (p. 55)
11:00 AM–12 Noon	G	Marriott Blrm. C, Marriott	Nonfiction Science Books Add Value to Your Classroom (p. 54)
11:30 AM–1:00 PM	K–6	23, Conv. Center	FOSS Program Evolution and the Next Generation Science Standards (p. 55)
12 Noon–1:15 PM	6–12	21, Conv. Center	Incorporating Online Virtual Lab Solutions with Hands-On Science into Your Classroom (p. 55)
12:30–1:30 PM	G	Ballroom A, Conv. Center	Featured Panel: Next Generation Science Standards (Speakers: Stephen L. Pruitt and Francis Q. Eberle) (p. 56)
12:30–1:30 PM	P–M	Ballroom C, Conv. Center	CESI Session: Council for Elementary Science International Share-a-Thon (p. 59)
12:30–1:30 PM	E–M/I	Discovery Lab 2, CSC	Leveling the Playing Field in STEM (p. 60)
12:30–1:30 PM	E	Discovery Lab 3, CSC	Create a Science Lab for Young Children—An Elementary STEM Program Model You Can Replicate (p. 59)
12:30–1:30 PM	G	Ethan Allen, Hilton	NSTA Press Session: Uncovering Students Ideas in Science: Formative Assessment for Teaching and Professional Development! (p. 57)
12:30–1:30 PM	M–H	Nathan Hale, Hilton	Shall the Geeks Inherit Earth? Real-World STEM Career Pathways (p. 58)
12:30–1:30 PM	S	Silas Deane, Hilton	NSELA Session: Tools for Science Leaders (p. 58)
12:30–1:30 PM	G	Capital 3, Marriott	Starting an NSTA Student Chapter: Faculty and Student Perspectives (p. 58)
12:30–1:30 PM	M–H	Marriott Blrm. B, Marriott	Your Source of Energy: Exploring the Fuels That Power Your State (p. 59)
12:30–1:30 PM	G	Marriott Blrm. C, Marriott	Visual Tools for Accelerated and Inclusive Learning (p. 58)
12:30–1:30 PM	G	Marriott Blrm. D, Marriott	Suited for Spacewalking (p. 58)
12:30–1:45 PM	5–10	11, Conv. Center	Using the OHAUS Triple Beam Balance™ as a STEM-focused Skill Platform (p. 60)
12:30–1:45 PM	K–8	13, Conv. Center	Learning to Read, Reading to Learn: Increasing Test Scores Through Literacy (p. 61)
12:30–1:45 PM	G	17, Conv. Center	Online Learning Exchange, Powered by Pearson: Our Content, Your Content, All in One Place (p. 61)
1:00–2:30 PM	K–8	22, Conv. Center	What's Going On in There? Inquiry Science for Supervisors, Trainers, and Teachers (p. 62)
2:00–3:00 PM	2–4	21, Conv. Center	33 Ways to Integrate Science (p. 65)
2:00–3:00 PM	G	Ballroom A, Conv. Center	Featured Presentation: Brain-STEM: Blending Brain Research and STEM Education (Speaker: Kenneth Wesson) (p. 62)
2:00–3:00 PM	P–M	Ballroom C, Conv. Center	CESI Session: Council for Elementary Science International Presents Opportunities Galore (p. 64)
2:00–3:00 PM	E	Discovery Lab 1, CSC	SUCCESS Through Literacy: Students Understanding Climate Change and Earth System Science Through Literacy (p. 64)
2:00–3:00 PM	E	Travelers Science Hall, CSC	Integrating Science into Elementary Language Arts Instruction (p. 64)

2:00–3:00 PM	E–M/C	Ethan Allen, Hilton	NSTA Press Session: Teaching for Conceptual Change (p. 64)
2:00–3:00 PM	H/I	Nathan Hale, Hilton	From Classroom Inspiration to Career Aspiration—Turning Students On to STEM Careers (p. 63)
2:00–3:00 PM	S	Silas Deane, Hilton	NSELA Session: Preservice Teachers and Science Leadership: Collaborating in Support of New Teachers to Impact Student Learning (p. 63)
2:00–3:00 PM	G	Capital 3, Marriott	Before and After Retirement: Practicalities and Possibilities (p. 63)
2:00–3:00 PM	G	Marriott Blrm. A, Marriott	ASEE Session: eGFI: Engineering, Go For It!—Dream Up the Future (p. 63)
2:00–3:00 PM	G	Marriott Blrm. C, Marriott	LAB SAFETY: Are You COURTING Liability? (p. 64)
2:00–4:00 PM	K–8	23, Conv. Center	Taking Science Outdoors with FOSS K–8 (p. 66)
2:15–3:30 PM	6–8	13, Conv. Center	Notebooking: Preparing Students for the 21st Century (p. 66)
3:00–4:30 PM	K–8	22, Conv. Center	Science Gnus: Scientists Famous and Forgotten…and Their Process Skills (p. 68)
3:30–4:30 PM	2–4	21, Conv. Center	The 4 "It's" of Science (p. 71)
3:30–4:30 PM	G	Ballroom A, Conv. Center	Featured Presentation: Teaching and Learning Our Way Toward a Sustainable Future (Speaker: Jennifer Cirillo) (p. 68)
3:30–4:30 PM	E–M	Travelers Science Hall, CSC	I See What You Mean! Developing Visual Literacy (p. 70)
3:30–4:30 PM	M–H	Nathan Hale, Hilton	Get That Textbook Out of My Classroom! (p. 69)
3:30–4:30 PM	H/S	Capital 2, Marriott	Marine Science Immersion (p. 69)
3:30–4:30 PM	G	Capital 3, Marriott	Write for NSTA's Journals (p. 69)
3:30–4:30 PM	G	Marriott Blrm. A, Marriott	ASEE Session: Inexpensive Robotics to Encourage Student Creativity and Help Produce the Next Generation of Engineers (p. 70)
4:00–5:15 PM	K–8	17, Conv. Center	Web 2.0 and Science (p. 71)
5:00–6:00 PM	E	Ballroom C, Conv. Center	Invitations to Inquiry: Award-winning Science Trade Book Authors (p. 73)
5:00–6:00 PM	M	Discovery Lab 1, CSC	Designing Experiments: It Can Be Done (p. 74)
5:00–6:00 PM	E–M	Discovery Lab 2, CSC	Teaching Energy Conservation with an Emphasis on Biofuels (p. 75)
5:00–6:00 PM	E/C	Discovery Lab 3, CSC	Using an Organic Farm Collaboration to Enhance MST Preservice Teacher Education (p. 74)
5:00–6:00 PM	M	Discovery Lab 4, CSC	Cross-Pollination: Using Science to Develop Similar Skills in Reading and Mathematics (p. 75)
5:00–6:00 PM	G	Ethan Allen, Hilton	NSTA Press Session: Team Teaching Science: You Can Do It! (p. 73)
5:00–6:00 PM	M–H	Nathan Hale, Hilton	Let Your Forensics Students Have Their Day in Court! (p. 74)
5:00–6:00 PM	G	Marriott Blrm. A, Marriott	ASEE Session: Inspire and Engage to Learn: Autodesk's Project-based Curriculum for Secondary Schools (p. 74)
5:00–6:00 PM	G	Marriott Blrm. D, Marriott	The Marshmallow Challenge: Using an Engineering Design Exercise to Get Kids Thinking Critically (p. 75)

Friday

8:00–8:30 AM	E–M	Marriott Blrm. D, Marriott	Promoting Community-based Environmental Sustainability Efforts via Student-led STEM Designs (p. 78)
8:00–9:00 AM	6–8	27, Conv. Center	Project-Based Inquiry Science/STEM Solution: Earth, Life, and Physical Science in Middle School (p. 80)
8:00–9:00 AM	P–E	Discovery Lab 3, CSC	Addressing Concerns About Elementary Science Inquiry (p. 78)
8:00–9:00 AM	M	Discovery Lab 4, CSC	Teaching Science in the Context of Substance Abuse with FREE Online Web Adventures (p. 78)
8:00–9:00 AM	G	Travelers Science Hall, CSC	Under the Lens: Discover Literacy and Science (p. 79)
8:00–9:00 AM	H–C	Hartford Commons, Hilton	CSI on a Shoestring: An Introduction to Forensic Science (p. 79)
8:00–9:00 AM	M–C	Ethan Allen, Hilton	The Physics and Chemistry of Meteorology (p. 79)
8:00–9:00 AM	G	Mark Twain, Hilton	Resources and Research for Professional Development Providers (p. 77)
8:00–9:00 AM	E–H	Nathan Hale, Hilton	Virtual Worlds: Exploring the Natural World Through "The Cloud" (p. 77)
8:00–9:00 AM	E–H	Capital 2, Marriott	Differentiated Science Inquiry (p. 77)
8:00–9:00 AM	G	Capital 3, Marriott	NSTA Avenue Session: Toshiba/NSTA ExploraVision (p. 78)
8:00–9:00 AM	E	Marriott Blrm. A, Marriott	NSTA Press Session: *More Picture-Perfect Science Lessons, Grades K–4* (p. 79)
8:00–9:15 AM	5–12	11, Conv. Center	Detecting Radiation in Our Radioactive World (p. 80)
8:00–9:15 AM	K–8	17, Conv. Center	From Science to Engineering (p. 81)

8:00–9:15 AM	2–8	22, Conv. Center	Inquiring Minds Provide Spark for Science Lessons (p. 81)
8:00–9:15 AM	K–8	25, Conv. Center	Misconception Mania: Exciting and Engaging Ways to Address Common Misunderstandings in K–8 Science (p. 81)
8:00–9:15 AM	K–8	Ballroom B, Conv. Center	3-2-1 Blast Off! (p. 82)
8:00–9:30 AM	K–8	21, Conv. Center	K–8 Science with Vernier (p. 82)
8:00–10:30 AM	2–8	23, Conv. Center	Assess Learning with Student Science Notebooks (Experienced Users) (p. 82)
8:30–9:00 AM	G	Marriott Blrm. D, Marriott	Not a Fair…A Science and Engineering Festival (p. 78)
9:30–10:30 AM	G	Ballroom A, Conv. Center	Dazzling Deceptions: Discrepant Events That Dazzle and Mystify! (p. 84)
9:30–10:30 AM	P–E	Discovery Lab 2, CSC	Weaving Literacy and Song into the Science of Fabric (p. 86)
9:30–10:30 AM	M	Discovery Lab 4, CSC	NMLSTA Session: Classroom Demonstrations on a Budget (p. 84)
9:30–10:30 AM	E	Travelers Science Hall, CSC	Tapping In to Student Knowledge (p. 86)
9:30–10:30 AM	G	Ethan Allen, Hilton	Science Facilities 101: Safe and Sustainable Facilities (p. 85)
9:30–10:30 AM	G	Hartford Commons, Hilton	Turn Kids (PK–6) "ON" to STEM with Turn-key Resources from WGBH (p. 85)
9:30–10:30 AM	G	Nathan Hale, Hilton	VREP—Learning and Leading in 3-D (p. 84)
9:30–10:30 AM	E–H	Capital 1, Marriott	Oceans of Professional Development Opportunities Through NOAA (p. 84)
9:30–10:30 AM	S	Capital 3, Marriott	NSTA Avenue Session: NSTA Teacher and Principal Awards and Recognitions: Learn How to Win a Free Trip to the National Conference (p. 84)
9:30–10:30 AM	E	Marriott Blrm. A, Marriott	NSTA Press Session: *Picture-Perfect Science Lessons, Grades 3–6* (p. 85)
9:30–10:30 AM	G	Marriott Blrm. E, Marriott	Fueling the Future: Energy Interconnections and Sustainable Choices (p. 86)
9:30–11:30 AM	H–C/S	Mark Twain, Hilton	SCST Session: Lecture-Free Teaching: A Learning Partnership Between Science Educators and Their Students (p. 87)
10:00–11:15 AM	1–6	22, Conv. Center	Integrating Science and Literacy: Grades 1–6 (p. 88)
10:00–11:15 AM	3–8	25, Conv. Center	Effective STEM Challenges for the Classroom (p. 88)
10:00–11:30 AM	7–C	21, Conv. Center	Exploring Science with Vernier (p. 89)
11:00–11:30 AM	G	Capital 2, Marriott	Science-focused Science Fairs: Lessons from New Haven (p. 90)
11:00 AM–12 Noon	6–12	27, Conv. Center	STEM Solutions for Middle School and High School Classrooms (p. 92)
11:00 AM–12 Noon	G	Ballroom A, Conv. Center	Featured Presentation: Science as a Context for Literacy (Speaker: Lori Fulton) (p. 89)
11:00 AM–12 Noon	E	Discovery Lab 1, CSC	Making Science Understandable for ELLs in the Elementary Grades (p. 90)
11:00 AM–12 Noon	P–E	Discovery Lab 2, CSC	STEM Problem-Solving Activities for PreK and Kindergarten Classrooms (p. 92)
11:00 AM–12 Noon	G	Discovery Lab 3, CSC	Increasing Instructional Time for Science Through Integration of Literacy and Science: A Framework for Planning (p. 92)
11:00 AM–12 Noon	M–H	Discovery Lab 4, CSC	NMLSTA Session: Science and Special Education: Instructional Strategies That Work (p. 90)
11:00 AM–12 Noon	G	Travelers Science Hall, CSC	K–6 Science Instruction for All Students to Achieve Success (p. 90)
11:00 AM–12 Noon	G	Ethan Allen, Hilton	Science Facilities 102: The Architects Have Started Without Me: What Do I Do Now? (p. 91)
11:00 AM–12 Noon	G	Hartford Commons, Hilton	C S I—Creative Science Investigations (p. 91)
11:00 AM–12 Noon	E–H	Saratoga B, Hilton	Get SIMulated! (p. 90)
11:00 AM–12 Noon	G	Capital 1, Marriott	The Sky Is NOT Falling! Debunking the 2012 Apocalypse Myth (p. 90)
11:30 AM–12 Noon	G	Capital 2, Marriott	Field Trips: How to Maximize Learning (p. 90)
11:30 AM–1:30 PM	5–8	23, Conv. Center	FOSS Planetary Science for Middle School (p. 92)
12 Noon–1:15 PM	6–9	16, Conv. Center	eCYBERMISSION: Free STEM Competition for Middle School Students Offers Exciting Rewards (p. 93)
12 Noon–1:15 PM	K–8	26, Conv. Center	Think Outside the Book with Discovery Education's Science Techbook (p. 93)
12 Noon–1:15 PM	K–12	Ballroom B, Conv. Center	Natural Differentiation Using Foldables® (p. 93)
12 Noon–1:30 PM	7–C	21, Conv. Center	Exploring Science with Vernier (p. 94)
12:30–1:30 PM	G	Ballroom A, Conv. Center	*A Framework for K–12 Science Education* (p. 94)
12:30–1:30 PM	G	Discovery Lab 3, CSC	Global Sustainability Science Connections: Engaging Lessons for the Primary Grades (p. 97)

12:30–1:30 PM	M	Discovery Lab 4, CSC	Spark Middle School Students' Interest in Science and Engineering with Free Resources from WGBH (p. 97)
12:30–1:30 PM	E	Travelers Science Hall, CSC	Integrating Nonfiction Trade Books with Science Standards in Elementary Classrooms (p. 96)
12:30–1:30 PM	G	Capital 2, Marriott	Be a NOAA Teacher at Sea! (p. 95)
12:30–2:30 PM	G	Ethan Allen, Hilton	NSTA's Exemplary Science Program (ESP): Meeting the Reform Features Recommended in the National Science Education Standards (p. 97)
12:30–1:30 PM	M–H	Mark Twain, Hilton	Developing Skepticism as an Essential Strategy for Science (p. 96)
1:00–2:15 PM	K–8	22, Conv. Center	Are You a Problem (Solving) Teacher? Want to Become One? (p. 98)
2:00–3:00 PM	G	Ballroom A, Conv. Center	Exploring the Science Framework (p. 98)
2:00–3:00 PM	P–E	Discovery Lab 1, CSC	Science Inquiry and Literacy in Elementary Grades (p. 99)
2:00–3:00 PM	E–H	Travelers Science Hall, CSC	Creating a Scientist's Notebook (p. 99)
2:00–3:00 PM	G	Connecticut Salon B, Hilton	Become an Einstein Fellow! (p. 98)
2:00–3:00 PM	M–H	Hartford Commons, Hilton	The Time for Inquiry Is Now! (p. 100)
2:00–3:00 PM	G	Hilton Ballroom West, Hilton	Get the FACTs! (p. 99)
2:00–3:00 PM	E–H	Nathan Hale, Hilton	Science 2.0: Integrating Technology in the Science Classroom (p. 99)
2:00–3:00 PM	H–C/S	Saratoga B, Hilton	NARST Session: Looking at Learning to Teach Science: Support for Student Teachers in Diverse High School Science Classrooms (p. 99)
2:00–3:00 PM	G	Capital 1, Marriott	Social Media and the Science Teacher (p. 99)
2:00–3:00 PM	G	Capital 3, Marriott	NSTA Avenue Session: The NSTA Learning Center: Free Classroom Resources and Opportunities for Educators (p. 99)
2:00–3:00 PM	E–M	Marriott Blrm. A, Marriott	NSTA Press Session: Bringing Outdoor Science into Your Classroom (p. 100)
2:00–3:15 PM	2–6	11, Conv. Center	Using the OHAUS Harvard Junior as a STEM-focused Skill Platform (p. 107)
2:00–3:15 PM	K–8	17, Conv. Center	Inquiry and Evidence: Keys to Getting Students to Inquire (p. 102)
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Saturday

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Physics/Physical Science

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9:30–10:30 AM	6–12	15, Conv. Center	Physics and Physical Science: Investigating Motion (p. 86)
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Saturday

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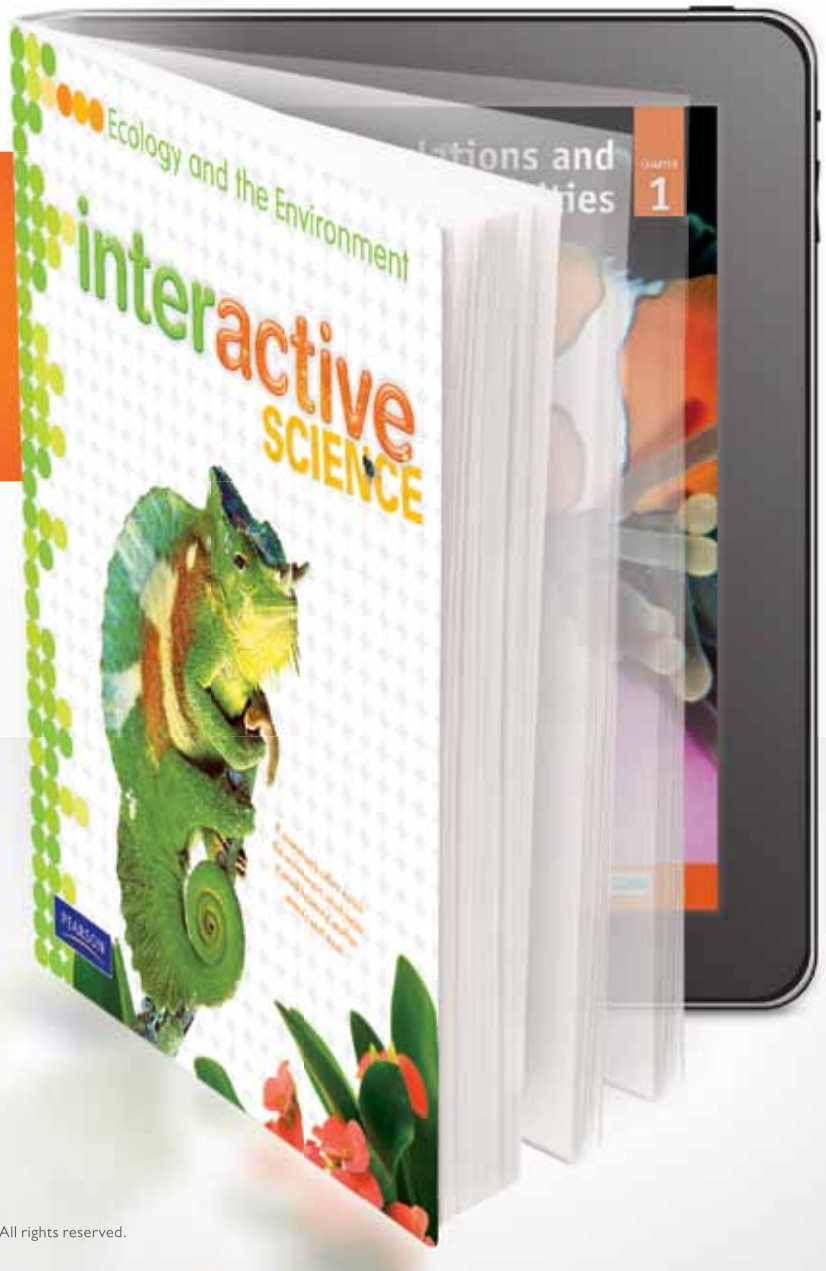

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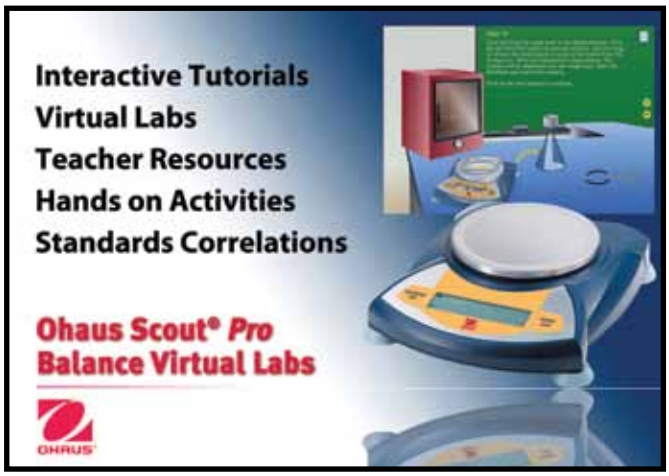

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