

NSTA 2012 National Conference on Science Education

INDIANAPOLIS



Neil Armstrong
BS Aeronautical Engineering 1955
Honorary Doctorate 1970

1

General Information
Wed., March 28
Thurs., March 29

AT THE CROSSROADS
FOR SCIENCE EDUCATION

NSTA
National Science Teachers Association

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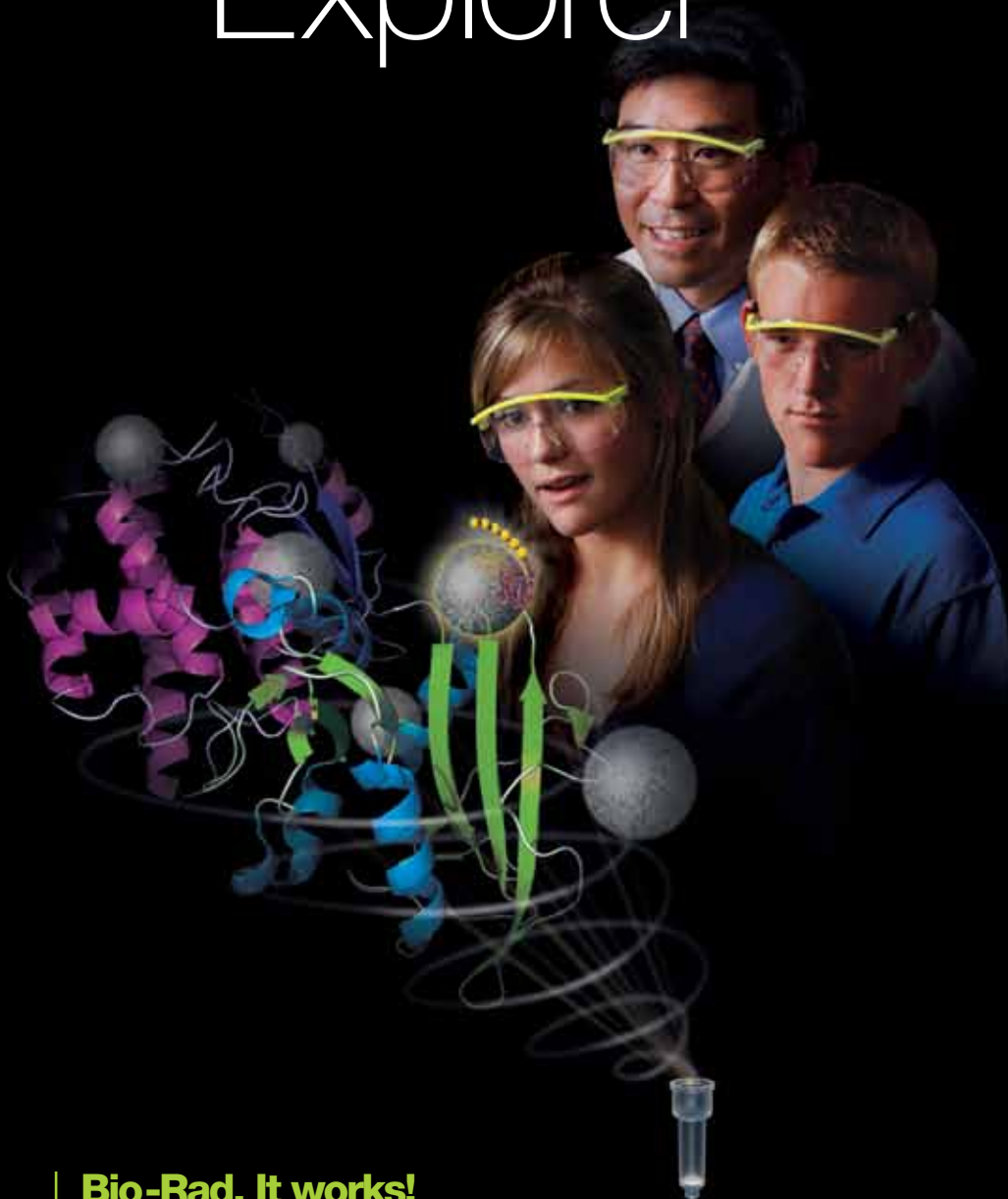


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NSTA 60th National Conference on Science Education

Indianapolis, Indiana • March 29–April 1, 2012

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Cover Photo: Bronze sculpture of astronaut Neil Armstrong in front of the Neil Armstrong Hall of Engineering on Purdue's West Lafayette campus. Photo courtesy of Purdue University.

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Mission Statement

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

The ideas and opinions expressed in the conference sessions, and in any handout materials provided, are those of the presenter. They are not those of the National Science Teachers Association nor can any endorsement by NSTA be claimed.



—Indianapolis Convention & Visitors Association: visitindy.com

National Science Teachers Association

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Arlington, VA 22201-3000
703-243-7100
E-mail: conferences@nsta.org
www.nsta.org

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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Science: Bring biology to life with digital microscopes.

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President's Welcome



Welcome to the 2012 NSTA conference in Indianapolis! This year, it has never been more critical to engage you in the dynamic professional conversation about outstanding science teaching. Through our conferences, all teachers of science can share their insights and practices about the best science teaching.

The conference team has built an outstanding program around the theme of *At the Crossroads for Science Education*, with the strands of “Mapping Our Way to Success Through the New Core Standards,” “Pathways to a Sustainable Planet,” “Merging Inquiry, Creativity, and Innovation Through STEM,” and “Traveling New Instructional Roads Through Technology.” They allow us to address questions such as:

- What does it mean to model the best science teaching practices and STEM education practices?
- What role will the Next Generation Science Standards play?

- How can we reach ALL of our students with the spirit and passion for learning science and STEM areas?
- How do we engage all science education stakeholders to make outstanding science teaching happen...that is, science education for a smarter planet?

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 2012 Indianapolis 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 Indianapolis Conference

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

American Geophysical Union
Association for Science Education
Carolina Biological Supply Co.
The Children's Museum of Indianapolis
Delta Education~CPO Science~Frey Scientific
Discover Magazine
Discovery Dome
DuPont
Educational Innovations
Eiteljorg Museum of American Indians and Western Art
Entergy Nuclear
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Hoosier Association of Science Teachers, Inc. (HASTI)
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Pearson
The Planetary Society
Science Cheerleader
Science Kit
SciStarter
Shell Oil Co.
Southwest Airlines
Texas Instruments



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We at NSTA wish to express our heartfelt thanks to the members of the Hoosier Association of Science Teachers, Inc. (HASTI) for the many hours of time they volunteered in planning this conference.

SAT Subject Tests™ = Opportunity

SAT Subject Tests™ are just around the corner!

The SAT Subject Tests™ in Biology, Chemistry and Physics can help your students stand out on their college applications.

Come to booth #2450 to find out what's on the tests and how colleges use them. Plus, you can sign up to get your FREE copy of the *Teachers Guide to the SAT Subject Tests in Science*.

www.SATSubjectTests.org/teachers

Visit Booth #2450!

MATH

HISTORY

SCIENCE

LITERATURE

LANGUAGES

Welcome to Indianapolis



Carolyn A. Hayes



Gerald H. Krockover



Monica A. Ellis

Welcome to Indianapolis, home of the 2012 NSTA National Conference on Science Education. The Indianapolis Planning Committee is excited that you, whether a first-timer or veteran attendee, have come to the Crossroads of America to experience the professional development mapped out to meet your needs for science education.

NSTA President Patricia Simmons' theme "*Spirit, Opportunity, and Innovation: Science Education for a Smarter Planet*" is found within the strands and the selected sessions for this conference:

- 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

With more than 1,600 sessions, including field trips, short courses, workshops, professional development institutes, and symposia, you will be able to select your path from broad perspectives on standards to specific strategies for the classroom. We hope that this conference will be your road map to building new friendships as well as continuing professional dialogues from past conferences.

The 2012 conference is set in a venue where you walk to sessions held in the conference hotels and the Convention Center in an enclosed environment with no weather problems, no coats, and **no busing**. This convenience will allow you to participate in more sessions, to visit the Exhibit Hall more frequently, and to attend more share-a-thons and networking events.

While in Indianapolis, we encourage you to discover the many museums, sporting events, outstanding restaurants, and shopping—all within walking distance. We are glad that you have chosen to come and enjoy our Hoosier Hospitality while traveling through "The Crossroads for Science Education."

2012 Indianapolis Conference Committee Leaders
Carolyn A. Hayes, Gerald H. Krockover, and Monica A. Ellis

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**Strand Leader: Mapping
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**Strand Leader: Pathways to
a Sustainable Planet**

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**Strand Leader: Merging
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Coordinator
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**Strand Leader: Traveling
New Instructional Roads
Through Technology**

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SOLUTION



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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 Indiana Convention Center

The Indiana Convention Center is committed to reducing the environmental impact of operations and services by providing the following:

- **Food Rescue.** Second Helpings, a food rescue program, reclaims food after a food function and takes it to kitchens at their facility. Local residents are given the chance to participate in a job-training program. Under the supervision of trained chefs, these local residents learn to prepare food, which is given to homeless shelters and missions in Indianapolis. For meeting planners having receptions off-site, Second Helping drivers will pick up the food in refrigerated trucks.
- **Energy Efficiency.** High-efficiency exterior Visionwall® curtainwall glass throughout the Convention Center helps keep energy use low. Meeting rooms and lobby areas utilize compact fluorescent lamps and exhibit halls provide more efficient lower wattage lamps with the same light output. Also, public area toilets have low-flow valves with automatic flush.
- **Recycling.** The Indiana Convention Center and Lucas Oil Stadium recycle more than 14 tons of aluminum cans, plastic bottles, and glass on an annual basis. Paper, cardboard, and cooking oil are also recycled.
- **Biodegradable.** Biodegradable disposable serveware products are available. The Convention Center also uses Green Seal—certified cleaning products throughout the facility. Paper towel and tissue products are made from 100% recycled material.

"Go Green" at the Indianapolis Conference!

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



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What Works Workshops for 21st-Century Classrooms

Indiana Convention Center • Room 104

WORKSHOPS

Thursday, March 29

- 7:30AM–9:00AM** **Effective **STEM** Challenges for the Classroom**
Author Presenter: Michael DiSpezio
- 9:30AM–11:00AM** **That's Amazing! Explore the Bizarre, Cool, and Exciting World of Project-Based Biology**
Author Presenter: Michael Heithaus
- 11:30AM–1:00PM** **Misconception Mania: Exciting and Engaging Ways to Address Common Misunderstandings in K–8**
Author Presenter: Michael DiSpezio
- 1:30PM–3:00PM** **New Physics for New Students: Guiding Them as They See It for the First Time**
Consultant Presenter: Beth Swayze

Friday, March 30

- 10:00AM–11:30AM** **Connecting to Chemistry: Igniting Student Motivation with **STEM** Examples and Ideas**
Author Presenter: Michael DiSpezio
- 12:00PM–1:30PM** **Sparking Interest and Learning with Chemistry: A Part 1 Experience**
Author Presenters: Mickey and Jerry Sarquis
- 2:00PM–3:30PM** **Ecology Adventures: Motivating Students through Project-Based Learning**
Author Presenter: Michael Heithaus
- 4:00PM–5:30PM** **Sparking More Interest with Chemistry: A Part 2 Experience**
Author Presenters: Mickey and Jerry Sarquis

Saturday, March 31

- 8:00AM–9:30AM** **Sparking Interest and Learning with Chemistry: A Part 1 Experience**
Author Presenters: Mickey and Jerry Sarquis
- 10:00AM–11:30AM** **Extra, Read All About It! Taking Biology from the News to the Classroom**
Author Presenter: Stephen Nowicki
- 12:00PM–1:30PM** **Sparking More Interest with Chemistry: A Part 2 Experience**
Author Presenters: Mickey and Jerry Sarquis



**Stephen
Nowicki**

Author of **Holt McDougal Biology** will be signing copies of the Teacher's Edition immediately after his workshop on **Saturday, March 31**, in **Booth #1467**

Visit us at Booth #1467.



Meeting Location and Times

The conference headquarters hotels are the Indianapolis Marriott Downtown, JW Marriott Indianapolis, and The Westin Indianapolis. Conference registration, the exhibits, and the NSTA Science Bookstore will be located at the Indiana Convention Center. Most sessions will be held at the Convention Center, the Marriott Downtown, JW Marriott, and Westin. Most short courses will be at the Omni Severin.

The conference will begin on Thursday, March 29, at 7:30 AM and end on Sunday, April 1, 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 ticketed events for which a separate fee is stated.

The NSTA Registration Area, located in Exhibit Hall F of the Convention Center, will be open during the following hours:

Wed., March 28	5:00–8:00 PM
Thu., March 29	7:00 AM–6:00 PM
Fri., March 30	7:00 AM–5:00 PM
Sat., March 31	7:00 AM–5:00 PM
Sun., April 1	7:30 AM–12 Noon

If you misplace your badge or tickets, pres-

ent 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 Indianapolis Conference Committee has scheduled a variety of ticketed events (e.g., professional development institutes, symposia, short courses, field trips, and meal functions). Each of these events requires a separate fee and ticket. You may purchase tickets, space permitting, in the NSTA Registration Area. See the Conference Program section (starting on page 52) for details.

Airlines/Amtrak

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

AirTran	800-247-8726	NSTA12*
American	800-433-1790	4532DD
Continental and United	800-468-7022	ZM4V808214 (\$25 fee per ticket for phone reservations)
Delta	800-328-1111	NM87Y (\$25 fee per ticket for reservations)
Amtrak	800-872-7245	X821-940 (Offer not valid on Auto Train and Acela service)

*For phone reservations only

Ground Transportation to/from Airport

The ground transportation system at the airport consists of taxi, shuttle bus, limousine, and van operations. An average taxi

fare from the airport to downtown is about \$35–\$40. At \$7 per person, IndyGo’s Route 8 shuttle provides nonstop service from the Indianapolis International Airport to Downtown Indianapolis. The Green Line Shuttle runs every 20 minutes daily 5:00 AM–9:00 PM. Passengers may pay with credit card (Visa or Mastercard) on the bus or purchase fare passes in advance by calling IndyGo at 317-635-3344 or visiting them online at www.indygo.net or in person at the kiosk in Ground Transportation at the airport.

Getting Around Town

All teacher sessions and exhibitor workshops are within easy walking distance! Our co-headquarters hotels are directly connected to the Convention Center via climate-controlled sky bridges. Indianapolis provides plenty of opportunities for visitors to stroll and take in the sights. For details, visit the Indianapolis Convention & Visitors Association at www.visitindy.com.

Parking

Parking is available at Lucas Oil Stadium on a first-come, first-served basis at the CIB Lot 3 or the Lucas Oil Stadium South Lot. The fee for regular vehicles is \$5 per vehicle. Oversized vehicles will be on a first-come, first-served basis in the Lucas Oil South Lot only for \$20 per vehicle. No in and out privileges.

Discounted Rental Cars

The toll-free number to contact our NSTA-designated car rental company is as follows:

Enterprise	800-593-0505	16AH230
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Conference Hotels

See pages 14–15 for a list of hotels and a map of the downtown area. A Housing Bureau representative will be available at the NSTA Program Pickup Kiosk during registration hours to assist with housing questions. You can also reach a Housing Bureau representative by phone at 877-352-6710 or by e-mail at thc@housingregistration.com.

Registration, Travel, and Hotels

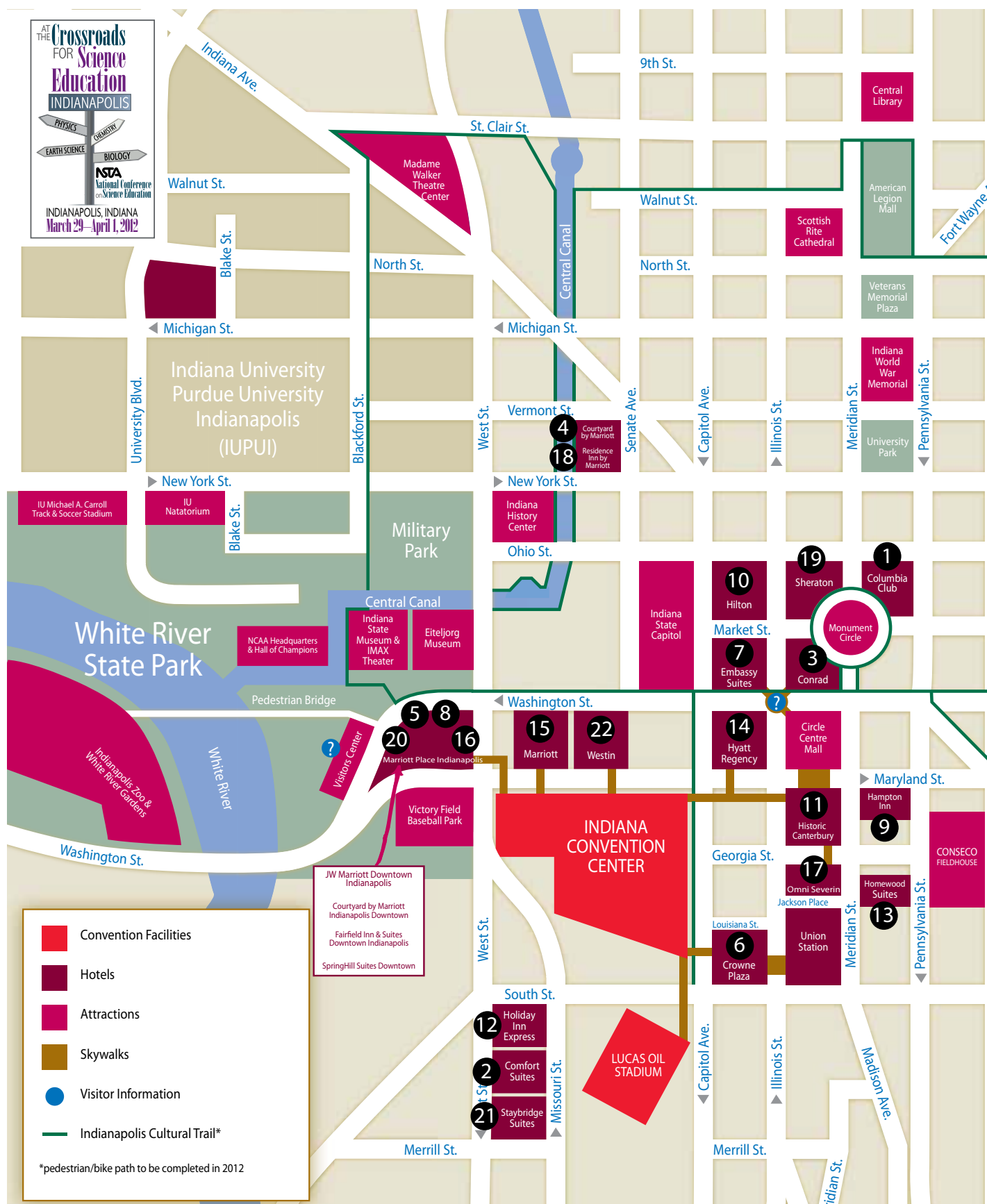
Courtesy of Indianapolis Convention & Visitors Association; visitindy.com.



NSTA Conference Hotels

Numbers correspond to map on facing page.

1. The Columbia Club
121 Monument Circle
317-767-1361
2. Comfort Suites Indianapolis
City Centre
515 S. West St.
317-631-9000
3. Conrad Indianapolis Luxury Hotel
50 W. Washington St.
317-713-5000
4. Courtyard by Marriott
Indianapolis at the Capitol
320 N. Senate Ave.
317-684-7733
5. Courtyard Marriott Indianapolis
Downtown
601 W. Washington St.
317-822-9029
6. Crowne Plaza Indianapolis
Downtown at Historic Union Station
123 W. Louisiana St.
317-631-2221
7. Embassy Suites
Indianapolis—Downtown
110 W. Washington St.
317-236-1800
8. Fairfield Inn & Suites
Indianapolis Downtown
501 W. Washington St.
317-636-7678
9. Hampton Inn Downtown
Indianapolis—Circle Centre
105 S. Meridian St.
317-261-1200
10. Hilton Indianapolis Hotel & Suites
120 W. Market St.
317-972-0600
11. The Historic Canterbury Hotel
123 S. Illinois St.
317-634-3000
12. Holiday Inn Express Indianapolis
Downtown—Convention Center
410 S. Missouri St.
317-822-6400
13. Homewood Suites by Hilton
Indianapolis—Downtown
211 S. Meridian St.
317-636-7992
14. Hyatt Regency Indianapolis
One S. Capitol Ave.
317-632-1234
15. Indianapolis Marriott Downtown
Headquarters Hotel
350 W. Maryland St.
317-822-3500
16. JW Marriott Indianapolis
Headquarters Hotel
10 S. West St.
317-860-5800
17. Omni Severin Hotel
40 W. Jackson Place
317-634-6664
18. Residence Inn Indianapolis
Downtown on the Canal
350 W. New York St.
317-822-0840
19. Sheraton Indianapolis
City Centre Hotel
31 W. Ohio St.
317-635-2000
20. SpringHill Suites Indianapolis
Downtown
601 W. Washington St.
317-972-7293
21. Staybridge Suites Indianapolis
Downtown—Convention Center
535 S. West St.
317-536-7500
22. The Westin Indianapolis
Headquarters Hotel
50 S. Capitol Ave.
317-262-8100



Don't forget to visit the NSTA Science Bookstore. We offer a wide range of books as well as "I Love Science" T-shirts, mugs, and gifts galore.



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 is available in Volume 4 of the program. A foldout map of the Exhibit Hall floor plan is available at Program Pickup.

Exhibit Hall Hours. Located in Exhibit Hall F of the Convention Center, exhibits

will be open for viewing during the following hours:

Thu., March 29	10:00 AM–6:00 PM
Fri., March 30	9:00 AM–5:00 PM
Sat., March 31	9:00 AM–5:00 PM

Ribbon Cutting. An opening ceremony is scheduled on Thursday at 10:00 AM at the entrance to Exhibit Hall F.

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 booth. With the 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 Volume 4 for a complete list of exhibitor workshops. An index of exhibitor workshops scheduled on Thursday begins on page 204.

NSTA Avenue

Stop by the NSTA Avenue and learn about NSTA's benefits, services, programs, and partners...all created for you! Share with others, expand your knowledge, and earn rewards for you and your students. See page 151 for a complete list of NSTA services and programs.

NSTA Science Bookstore

You are invited to browse the redesigned NSTA Science Bookstore, where you're sure to find hundreds of teaching resources for science educators of all grade bands and disciplines. Not only do we offer a wide range of books to sharpen your content knowledge and expand your teaching strategies, we also offer dozens of wonderful "Science Matters" and "I Love Science" NSTA Gear product lines.

Examine our new spring titles: *Uncovering Student Ideas in Astronomy, Vol. 1: 45 New Formative Assessment Probes*, by Page Keeley and Cary Snider; *You Want Me to Teach What? Sure-Fire Methods for Teaching Physical Science and Math*, by Norman J. LaFave; *Bringing Outdoor Science In: Thrifty Classroom Lessons*, by Steve Rich; *Teaching Science Through Trade Books*, edited by Christine Anne Royce, Karen Ansberry, and Emily Morgan; and many more. Meet NSTA Press® authors and have your books signed.

The Science Bookstore is located in Exhibit Hall F of the Convention Center. All attendees receive discounts of 20% on NSTA Press items and 10% on books from other publishers. Enjoy our free shipping option when you place your order online for both books and gear during the conference.



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HASTI Booth

The Hoosier Association of Science Teachers, Inc. (HASTI) booth is located in the NSTA Registration Area. Stop by for information about Indiana and the benefits of becoming a HASTI member. Membership forms and information on association activities will be available as well as registration forms for graduate credit. Limited edition, commemorative tree ornaments will be on sale—one featuring the NSTA Indianapolis conference logo and the other the HASTI logo.

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.

Thursday “Meet and Greet”

Be sure to stop by Thursday from 10:05 AM to 10:30 AM at the entrance to the Exhibit Hall for a special session. Come “meet and greet” with your elected NSTA officers.

Conference Evaluation

All conference attendees are invited to complete a conference evaluation form online at http://ecommerce.nsta.org/2012ind/conference_evaluation.asp.

First Aid Services/Security

The First Aid Room is located near the Security Office, outside of Exhibit Hall E in the Crossroads corridor of the Convention Center. Look for the red cross. In case of emergency, call X3350 on any red house phone to connect to the Dispatch/Security Office.

Lost and Found

All lost-and-found items at the Convention Center will be turned in at the Exhibitor Registration counter. Lost-and-found items at other facilities will be turned in at the facilities' security offices.

International Lounge

Room 107 at the JW Marriott has been reserved as an international lounge. All international guests are welcome to use this lounge as a place to meet or just simply relax while here at the NSTA conference. The lounge will be open Thursday, Friday, and Saturday, 9:00 AM–5:00 PM.

Advice for First-Time Conference Attendees

- *Wear comfortable shoes. You'll be doing a lot of walking!*
- *If you like to collect posters, bring a cardboard tube.*
- *Leave plenty of empty space in your suitcase...in fact, bring an extra large one. You will collect pounds and pounds of literature and stuff.*
- *If you read through the schedule for the day, plan on one or two backups. Sometimes a presenter does not show (for me, it averaged one per conference...not bad) or a room is full or the topic was not really what I needed. Having another one to go to allows you to walk out of a session with a sense of purpose. And when you read the schedule, look around. Ask the people next to you, “Who's a great presenter?”*
- *Give yourself plenty of time to visit the exhibits, but unless you want to stand in a crowd, don't go just as it opens. There will be plenty of handouts to go around. You won't miss anything by going a bit later.*
- *If you like to network, bring business cards and collect those of presenters and sales reps you want to stay in contact with.*
- *Bring cash or credit cards. You'll end up buying things from some of the vendors.*
- *Avoid large lines. Eat lunch at an “odd” hour.*
- *Spoil yourself. Plan at least one great dinner. If you have an extra day before or after, tour the city. But don't take conference time to do that.*
- *Keep all receipts. Remember: this is tax deductible.*
- *Keep the pages from the daily schedules for those workshops you attended. If you have to give a report when you get back to school, you will have all the information. But you might find you have a question, and the presenters' e-mail addresses are listed.*
- *Before you leave, go online to find your state science teachers association, and then contact them to see if they plan to host a hospitality party. It is a nice way to end the day, meet people in your state, get a free munchie or two, and to network.*

(Submitted by William Peltz)

Graduate Credit Opportunity

Indianapolis conference attendees can earn one or two graduate-level credits in professional development through Indiana University–Purdue University Columbus. Learn more about the assignment requirements and pick up a registration form at the Hoosier Association of Science Teachers, Inc. (HASTI) booth, located in the NSTA Registration Area, or at www.iupuc.edu/nsta. Registration will be available on Wednesday, March 28, from 5:00 PM to 7:00 PM, and Thursday, March 29, from 7:00 AM to 4:00 PM.

Business Services

The IKON Business Center at the Convention Center is located on the first floor, directly across from Room 116. The hours during the conference are Wednesday, 9:00 AM–5:00 PM; Thursday–Saturday, 8:00 AM–6:00 PM; and Sunday, 8:00 AM–12 Noon. Services include printing, faxing, scanning, photocopying, binding, and shipping (UPS only). For more information, contact the IKON Business Center at 317-262-4496 or e-mail: ikonbusinesscenter@icclos.com.

Audiovisual Needs

NSTA will provide an LCD projector if it was requested on the original proposal form. Microphones are also provided in large rooms. For any other AV needs,

presenters must arrange and pay for their own equipment. Technology Express, the designated AV company on-site, will be located in the following rooms:

Convention Center	CS02/CS03 (Hall D) (Second Floor Show Offices)
Indianapolis Marriott Downtown	Registration 1
JW Marriott	Room 109
Omni Severin	Indiana
Westin	Registration 2

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 confer-

ence from your phone. The mobile website 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 Indianapolis with bookmarks for the conference hotels and Convention Center, a link to the #nsta Twitter feed, NSTA news, and other important information. Please note that the site has been optimized for use with iPhone and Android devices.

If you have a barcode reader installed, 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.)

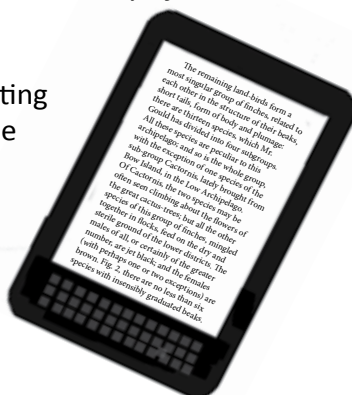
Help us with your feedback...and get a chance for a free Kindle Fire

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



NSTA Coordinating Center for People with Disabilities

NSTA makes an effort to provide convenience and accessibility for all persons attending conferences. A Center for Services for Disabled Persons, staffed by local committee volunteers, is located in the NSTA Registration Area. If you need assistance, visit this table during registration hours. NSTA cannot guarantee services for requests not made in advance of the conference.

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.

ExploraVision Giveaways

How's this for 20/20 vision? To celebrate its 20th anniversary, the Toshiba/NSTA ExploraVision program will give away 20 brand-new Toshiba Tablet PCs at its Booth #1666—and you could win one! A new Toshiba Tablet will be given out **every hour** during exhibit hours from Thursday through Saturday—plus one bonus giveaway at a randomly selected hour! All you have to do to enter is visit the ExploraVision Booth for a quick introduction to ExploraVision. Then you'll be asked to answer a pop quiz question about the program to win! (For instance: "Question: What is the world's largest K–12 student science competition? Answer: ExploraVision!") You can join the fun and enter once an hour, but only one Tablet will be awarded per person. Winners will be announced at the 45-minute mark of every hour.

NEW! Online Session Evaluations and Tracking Professional Development

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

Help NSTA's **GREEN** efforts by completing session evaluations online March 29–April 12, 2012, 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 two attendees who complete 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 April 18, 2012, 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.



The following venues have extended special offers for Indianapolis conference attendees. During the days of the conference, attendees need only show their badge to gain free entrance to The Children's Museum of Indianapolis, the Indiana State Museum, and the Eiteljorg Museum of American Indians and Western Art.

The Children's Museum of Indianapolis www.childrensmuseum.org

The Children's Museum of Indianapolis invites conference attendees to visit at no charge during the conference by showing their conference badge at the museum box office, Thursday, March 29, through Sunday, April 1, 10:00 AM–5:00 PM. The museum is located at 3000 N. Meridian Street, which is about four miles from the Convention Center. Free parking is available in the parking garage on Illinois Street or you can take Bus 39 from the Maryland and Pennsylvania bus stop. The Children's Museum of Indianapolis is committed to creating extraordinary family learning experiences that have the power to transform the lives of children and families. The 472,900-square-foot facility houses 11 major galleries. Visitors can explore the physical and natural sciences, history, world cultures, and the arts.

Indiana State Museum www.indianamuseum.org

The Indiana State Museum invites conference attendees to visit at no charge during the conference by showing their conference badge Thursday, March 29, through Sunday, April 1. Regular hours are 9:00 AM–5:00 PM Monday through Saturday and 11:00 AM–5:00 PM Sunday. The museum is located at 650 W. Washington Street, just a few blocks and a short walk from the Convention Center. To get there, head north to Washington Street and then head west. The Indiana State Museum explores Indiana's past, present, and future through artistic, cultural, and scientific exhibits. Race a Pinewood Derby car on our two-story 120-foot-long track! Check out our exhibitions Science on the Edge; Amazing Maize: The Science, History, and Culture of Corn; and Chaos Is a Friend of Mine: Cultural Icons from the Jim Irsay Collection.

Eiteljorg Museum of American Indians and Western Art www.eiteljorg.org

The Eiteljorg Museum invites conference attendees to visit at no charge during the conference by showing their conference badge Thursday, March 29, through Sunday, April 1. Regular hours are 10:00 AM–5:00 PM Monday through Saturday and 12 Noon–5:00 PM Sunday. The museum is located at 500 W. Washington Street, just a few blocks and a short walk from the Convention Center. To get there, head north to Washington Street and then head west. The Eiteljorg Museum is the only museum of its kind in the Midwest and one of only two museums east of the Mississippi that showcase both Native American and Western art, culture, and history. The permanent gallery and traveling exhibitions use audiovisual technology, interactive displays, historical photos, Native American art, and artifacts to explore the West and North America's indigenous peoples.

Equip Your iPad® for Science

Bring the full-featured version of SPARKvue® to your iPad with SPARKvue HD

Booth #736



21st Century, *Inquiry-Based* Science Learning Environment



FREE Hands-On Workshops

Join **PASCO** for one of our **FREE hands-on workshops** and see how **SPARKscience™** can help you create a 21st century, **inquiry-based science learning environment** for your school or classroom. PASCO offers workshops for everyone including **elementary, middle school** (featuring **Sally Ride Science™**) and **high school** science, including **AP®**.

Thursday, March 29 - Room 140

- 8:00-9:30 - SPARKvue® – A 21st Century Inquiry-Based Science Learning Environment
- 10:00-11:30 - AP® Biology – Cell Respiration in Germinating Peas
- 12:00-1:30 - Middle School Life Science: Learning Biodiversity Through Hands-on, Probeware-Based Activities
- 2:00-3:30 - Equip Your iPad® for Science
- 4:00-5:30 - Investigating Mitochondrial Genetics

Thursday, March 29 - Room 141

- 8:00-9:30 - New for Elementary School Science: Learning Key Concepts Through Hands-on, Probeware-Based Activities
- 10:00-11:30 - Physics & Physical Science: Investigating Motion
- 12:00-1:30 - Chemistry – Atmospheric Pressure
- 2:00-3:30 - Renewable Energy Exploration – Solar and Wind Power
- 4:00-5:30 - Exploring Interference & Diffraction of Light

Friday, March 30 - Room 140

- 8:00-9:30 - Equip Your iPad® for Science
- 10:00-11:30 - Investigating Mitochondrial Genetics
- 12:00-1:30 - Middle School Physical Science: Learning Newton's Laws of Motion Through Hands-on, Probeware-based Activities
- 2:00-3:30 - Enhancing Microscope Labs with Image Analysis & Data Collection
- 4:00-5:30 - Middle School Earth Science: Investigating Alternative Energy Sources Through Hands-on, Probeware-Based Activities

Friday, March 30 - Room 141

- 8:00-9:30 - Chemistry: Solution Concentration and Kinetics with a Colorimeter
- 10:00-11:30 - AP® Environmental Science: Modeling an Ecosystem
- 12:00-1:30 - Physics & Physical Science: Investigating Motion
- 2:00-3:30 - AP® Chemistry: Turn Past AP Test Questions into Guided-Inquiry Labs
- 4:00-5:30 - Earth Science Investigation: Modeling Ocean Circulation

Friday, March 30 - Room Sagamore 6

- 5:00-6:30 PM Just Physics Evening Event

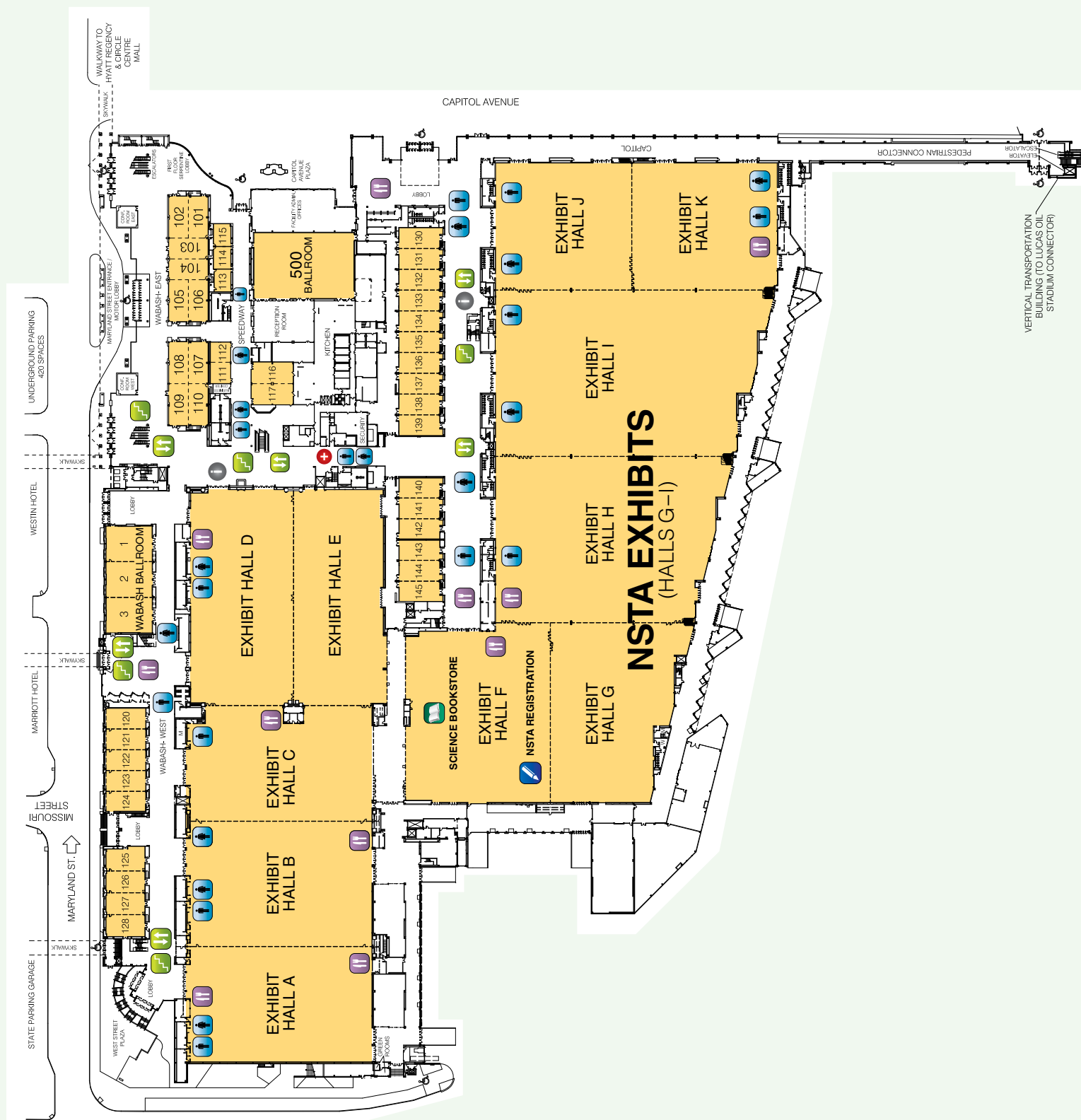
Saturday, March 31 - Room 140

- 8:00-9:30 - AP® Physics: Momentum & Impulse
- 10:00-11:30 - SPARKvue® – A 21st Century Inquiry-Based Science Learning Environment



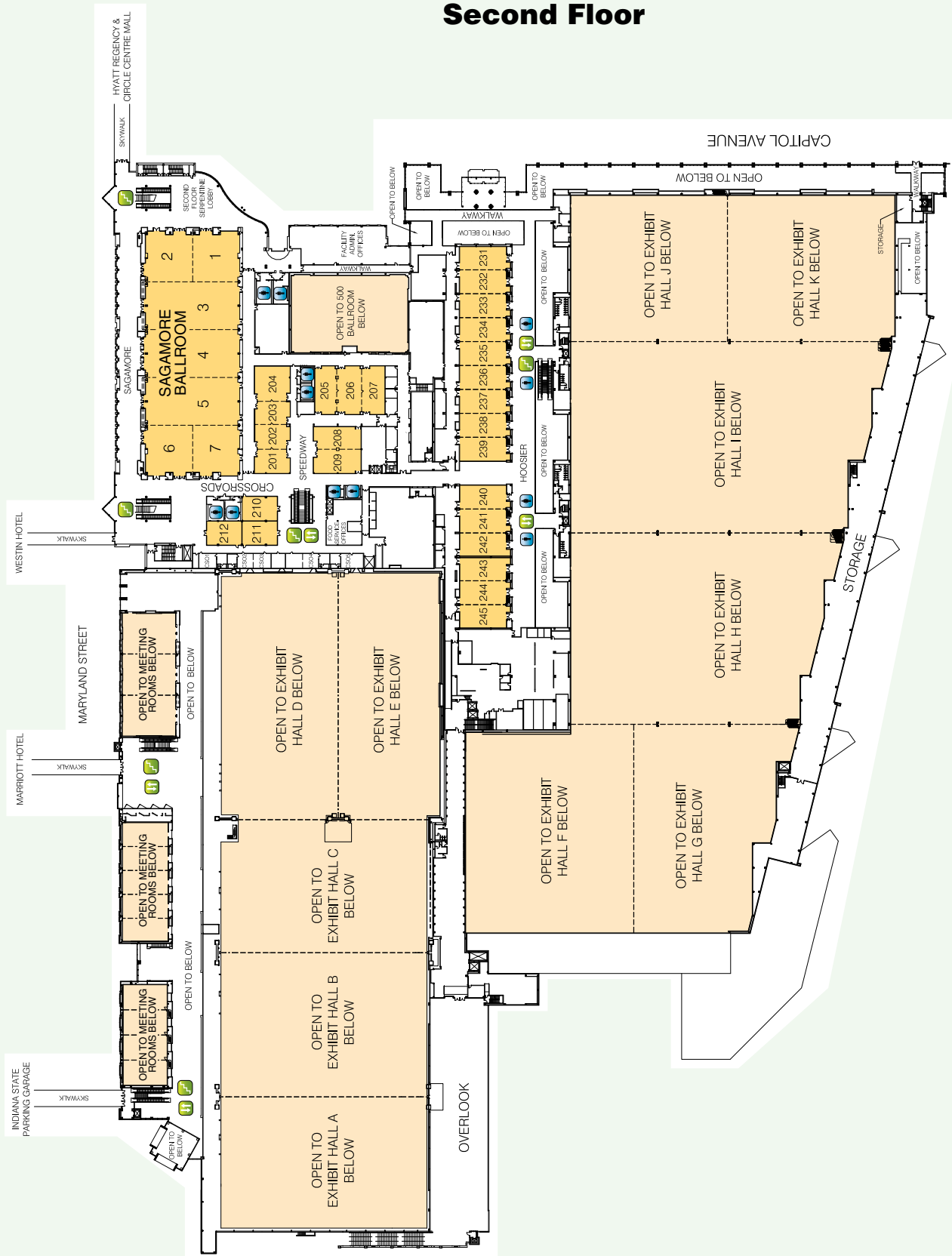
Indiana Convention Center

First Floor



Indiana Convention Center

Second Floor



Indianapolis Marriott Downtown

Lobby Level

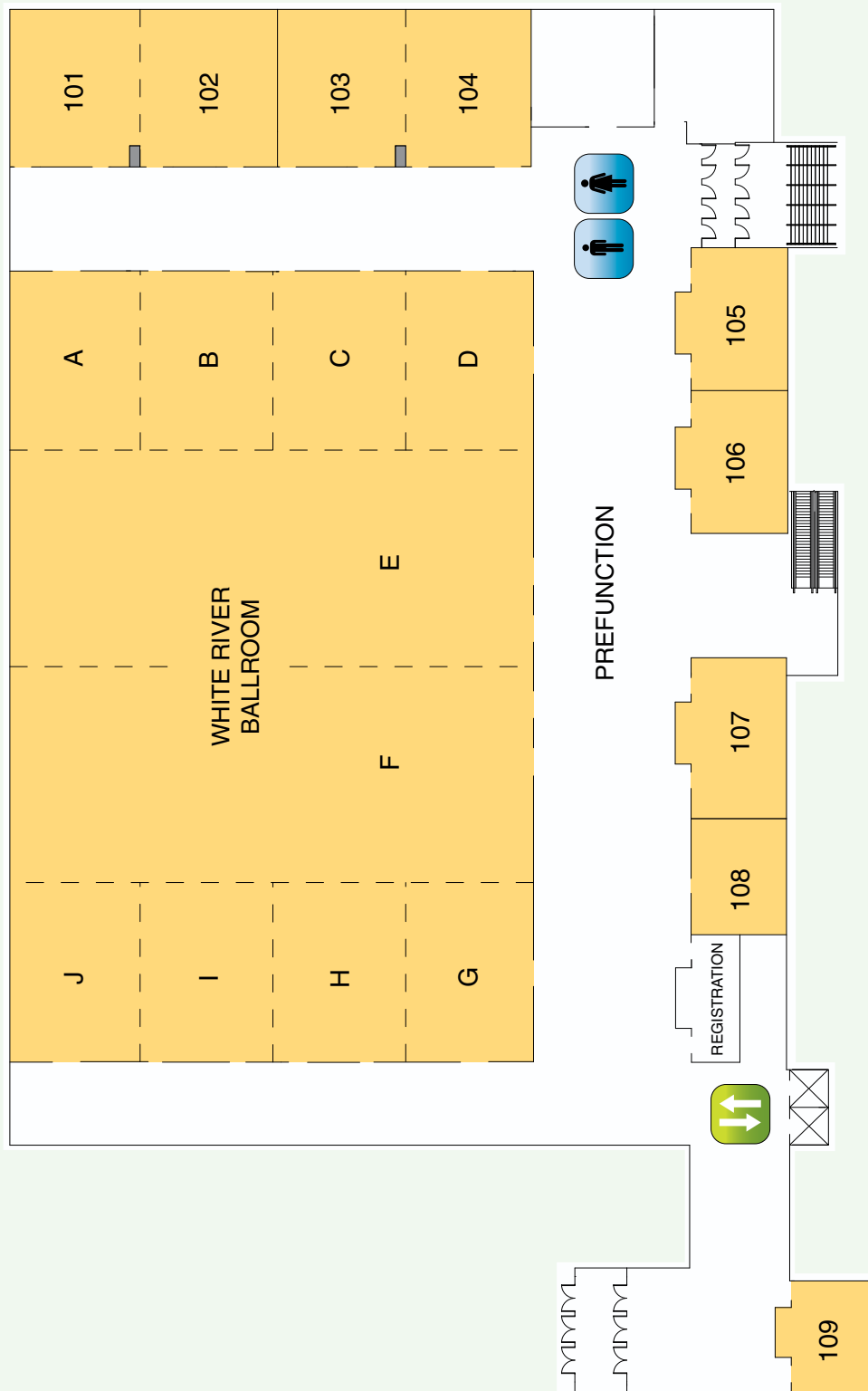


Indianapolis Marriott Downtown

Second Level

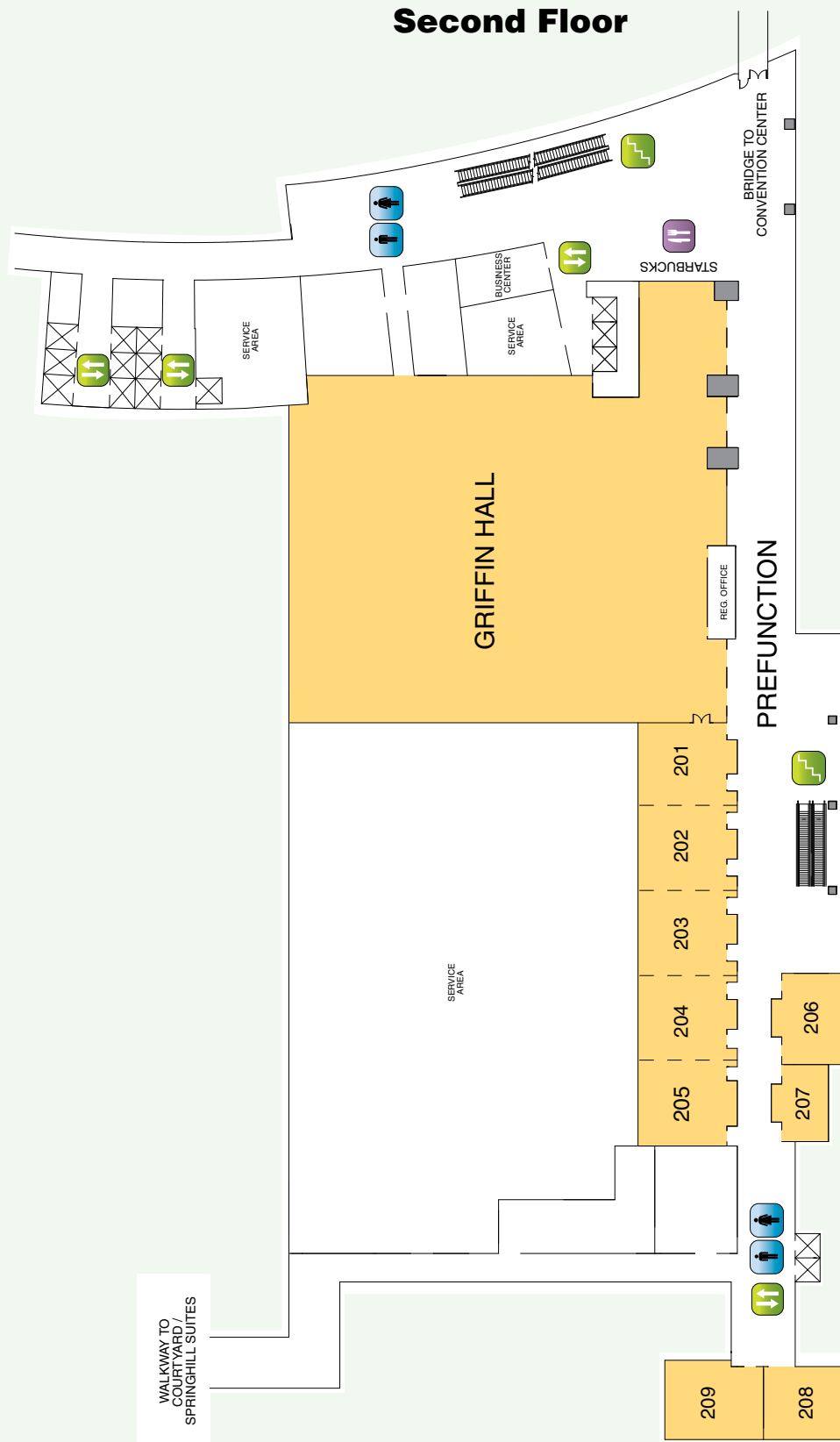


First Floor



JW Marriott Indianapolis

Second Floor



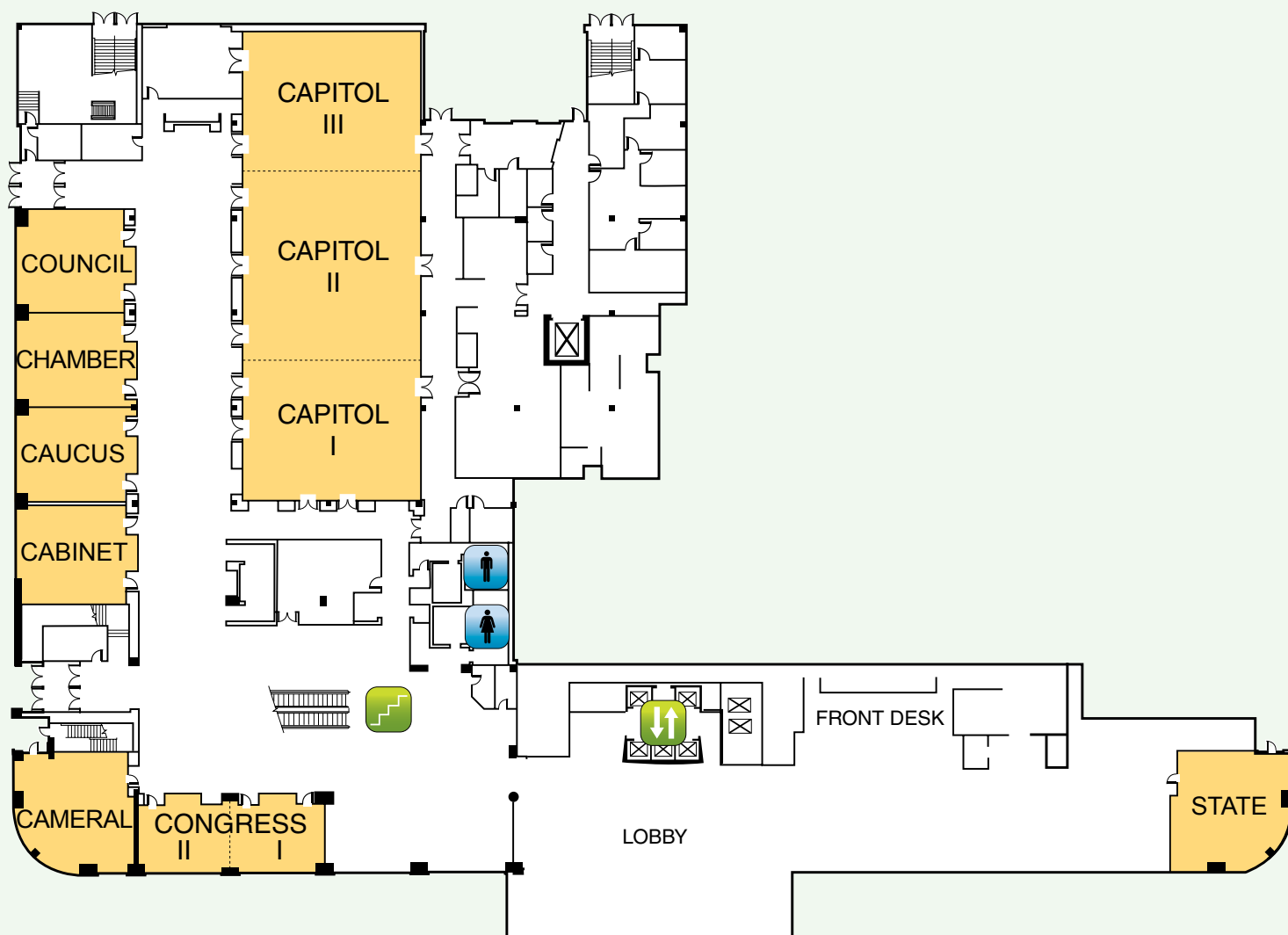
JW Marriott Indianapolis

Third Floor



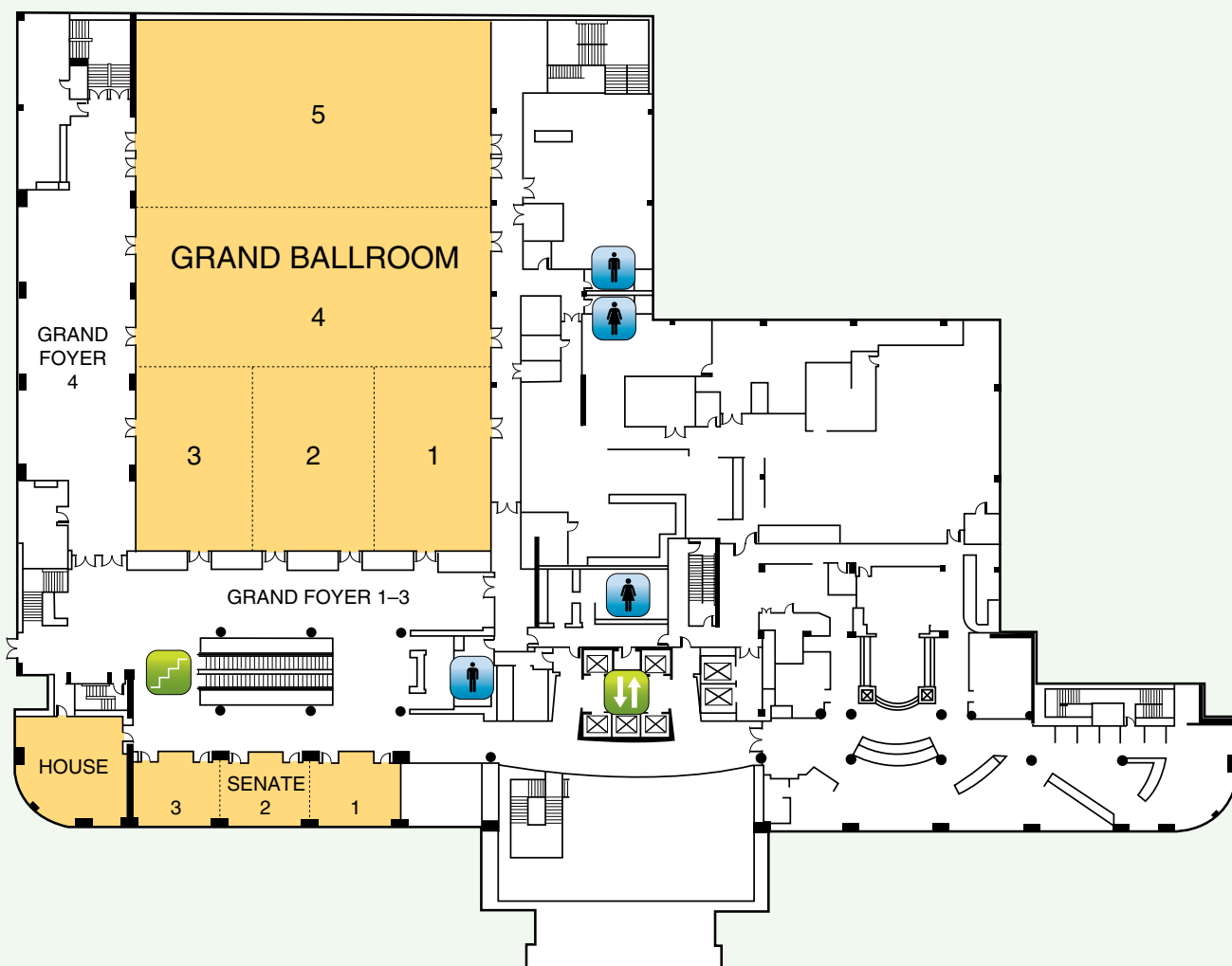
The Westin Indianapolis

First Floor

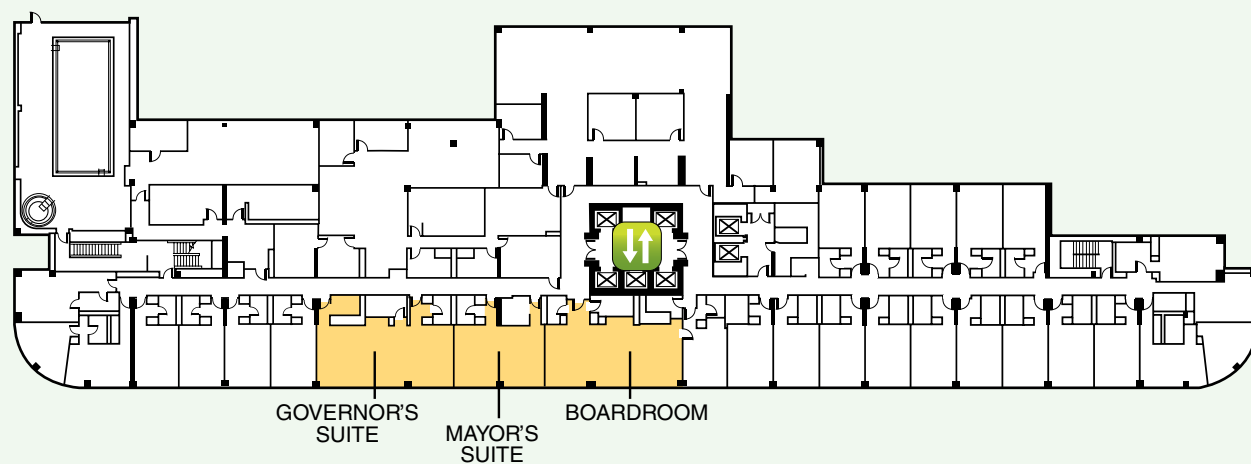


The Westin Indianapolis

Second Floor



Third Floor



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

NSTA 2012 Indianapolis National 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) between March 29 and April 12, 2012. Use this form to keep track of all sessions/events attended during the Indianapolis 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 April 18, 2012, Indianapolis transcripts can be accessed at the **NSTA Learning Center** (learningcenter.nsta.org) by logging on with your Indianapolis Badge ID# and then clicking on "My PD Record and Certificates." Keep this form and use it to add the following activities to your Indianapolis 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 20 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, March 28 6:00 AM–8:30 PM

Start Time	End Time	Activity/Event Title
_____	_____	_____
_____	_____	_____

Thursday, March 29 6:30 AM–12 Midnight

Start Time	End Time	Activity/Event Title
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

***We're giving a Kindle Fire to two lucky attendees
who evaluate sessions that they attend.
The more sessions you attend and evaluate, the
more chances you have to win!***

Friday, March 30 7:00 AM–12 Midnight

Start Time	End Time	Activity/Event Title

Saturday, March 31 8:00 AM–12 Midnight

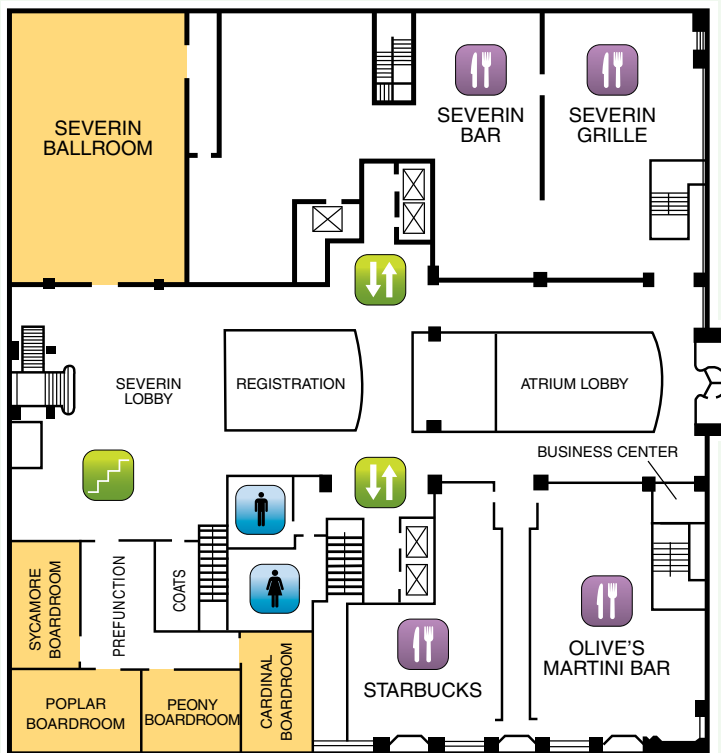
Start Time	End Time	Activity/Event Title

Sunday, April 1 7:00 AM–12 Noon

Start Time	End Time	Activity/Event Title

Omni Severin Hotel

Mezzanine Level



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CORPORATE RECOGNITION PROGRAMS

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Education Competitions

Brian Short, Assistant Director, Science

Education Competitions

Vacant, Program Coordinator,

Science Education Competitions

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Brynn Slate, e-Learning Production Web

Seminars & Symposia Project Coordinator

SciGuides

Jeff Layman, Web/Technical Coordinator

Symposia and Web Seminars

Jeff Layman, Web/Technical Coordinator

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Science Scope

Inez Fugate Liftig, Field Editor
Ken Roberts, Managing Editor

The Science Teacher

Stephen C. Metz, Field Editor
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NSTA Officers, Board of Directors, Council, and Alliance of Affiliates

NSTA Mission Statement

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

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Kay Atchison Warfield, CESI
Peter McLaren, CSSS
Troy Sadler, NARST
Rajeev Swami, NMLSTA
Brenda Wojnowski, NSELA
Brian Shmaefsky, SCST

All cities are subject to change pending final negotiation.

National Conferences on Science Education

San Antonio, Texas
April 11–14, 2013

Boston, Massachusetts
April 3–6, 2014

2012 STEM Forum & Expo

Atlantic City, New Jersey
May 17–19

Area Conferences on Science Education

2012 Area Conferences

Louisville, Kentucky
October 18–20

Atlanta, Georgia
November 1–3

Phoenix, Arizona
December 6–8

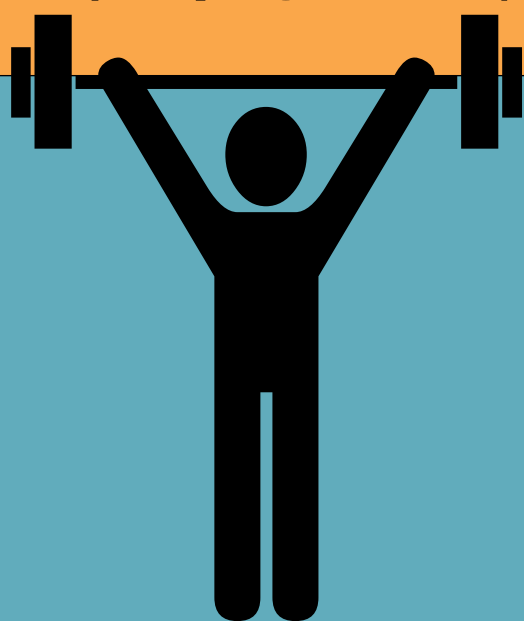
2013 Area Conferences

Portland, Oregon
October 24–26

Charlotte, North Carolina
November 7–9

Denver, Colorado
December 12–14

EMPOWER OTHERS



**Submit a session
proposal for an
NSTA conference**

2013 National Conference on Science Education

Proposal Deadline: April 15, 2012

- San Antonio, Texas: April 11–14, 2013

www.nsta.org/conferences

NSTA National
Science
Teachers
Association

Looking *for* a One-Stop-Shop *for* Professional Development?

Attend a Conference on Science Education

ATLANTIC CITY

May 17–19, 2012

STEM Forum and Expo

Tools for STEM Education...
Preparations and Applications
for Elementary and Middle
School Educators

Hundreds of STEM-related tools
and resources will be shared by
exhibiting companies and more
than 200 presentations will fall into
the following strands:

- PreK–2 (Early Childhood)
- Grades 3–5
- Grades 6–9
- Community/After-School/
Outreach Programs
- Administrators

LOUISVILLE

October 18–20, 2012

Strands:

- Everyday Connections: Science Across the Curriculum
- Everyday Applications: Putting STEM to Work
- Everyday Innovations: Creativity and Problem Solving
with Science

ATLANTA

November 1–3, 2012

Strands:

- Providing Access for All Students to the Science in STEM
- Effective and Engaging K–8 Science
- No Student or Teacher Left Inside

PHOENIX

December 6–8, 2012

Strands:

- The STEM Puzzle—Putting It Together
- Sustainability: Growing, Nurturing, and Ensuring Our Future
- Literacy: Communicating and Understanding Science

For more information or to register,
visit www.nsta.org/conferences or call 1-800-722-6782

NSTA National
Science
Teachers
Association

National Science Teachers Association

Robert H. Carleton Award

for National Leadership in the Field of Science Education

Sponsored by Dow Chemical Co.



Michael Padilla
Professor
Clemson University
Clemson, S.C.

Distinguished Service to Science Education Award



John E. Penick
Professor and Head Emeritus
North Carolina State
University
Raleigh, N.C.

Distinguished Teaching Award



Robert Adkins
Science Teacher
Save High School
Anchorage, Alaska

Presidential Citation



Eric Jolly
President
Science Museum of
Minnesota
St. Paul, Minn.

Shell Science Teaching Award

Sponsored by Shell Oil Co.

Awardee



Joseph Ruhl
Science Teacher
Jefferson High School
Lafayette, Ind.

Finalist



Glenn Wagner
Science Teacher
Centre Wellington
District High School
Fergus, Ont.
Canada

Finalist



Gregory Benedis-Grab
Elementary Science
Teacher
The School at Columbia
University
New York, N.Y.

2012 Shell Science Lab Challenge

Grand-Prize Winner



Kristy Martens
Science Teacher
Westmount Charter
School
Calgary, Alta.
Canada

National Finalist



Jennifer Bargardi
Science Teacher
Jalen Rose Leadership
Academy
Detroit, Mich.

National Finalist



Lance Doss
Science Teacher
Wagoner High School
Wagoner, Okla.

National Finalist



Manuel Paul Peña
Science Teacher
Longfellow High
School for Pregnant &
Parenting Mothers
Minneapolis, Minn.

National Finalist



Denise Ponte
Science Teacher
Roy W. Brown
Middle School
Bergenfield, N.J.

2011 Shell Science Lab Challenge

Grand-Prize Winner



Andrew Goodin
Science Teacher
Soldan International Studies
High School
St. Louis, Mo.

National Finalist



Michael Barker
Science Teacher
Newport High
School
Newport, Ky.

National Finalist



Jason Crean
Science Teacher
Lyons Township
High School
Western Springs, Ill.

National Finalist



Corey Dornack
Science Teacher
Lincoln K-8 Choice
School
Rochester, Minn.

National Finalist



John Munro
Science Teacher
Highroad Academy
Chilliwack, B.C.
Canada

Wendell G. Mohling Outstanding Aerospace Educator Award



Stephanie Wright
Director
Aerospace Education Foundation
Smyrna, Del.

Sylvia Shugrue Award



Sergio de Alba
Teacher
R.M. Miano Elementary
School
Los Banos, Calif.

Ron Mardigian Memorial Biotechnology Explorer Award

Sponsored by Bio-Rad Laboratories



Andrew Lettes
Science Teacher
Pueblo Magnet High School
Tuscon, Ariz.

"Angela" Award



Carolyn Jess
Grady Rasco Middle School
Lake Jackson, Tex.

DCAT "Making a Difference" Awards

Sponsored by the Drug, Chemical, and Associated Technologies Assn.



Middle Level

Rebekah Hammack
Science Teacher
Stillwater Middle School
Stillwater, Okla.



High School

Mike Scully
Science Teacher
John Jay Science and
Engineering Academy
San Antonio, Tex.

DuPont Challenge Science Essay Teacher Awardees

Junior Division



Raymond Piccininni
Teacher for Project
Arrow Gifted and
Talented Program
Scullen Middle School
Naperville, Ill.

Senior Division



Stephanie M. Kawamura
Science Teacher/Chair
InTech Collegiate High
School
North Logan, Utah

PASCO STEM Educator Awards

Sponsored by PASCO scientific



Elementary Level

Lesa Roe
Science Teacher
Leesburg Elementary
School
Leesburg, Fla.



Middle Level

Donna Markey
Science Teacher
Vista Magnet Middle
School
Vista, Calif.



Heather Stewart
Science Teacher
Paxton School
Paxton, Fla.



High School

Ophelia Barizo
Science Teacher
Highland View Academy
Hagerstown, Md.



Sherrie Chovanec
Science Teacher
Hiram High School
Hiram, Ga.



Peter Fischer
Science Teacher
Hiram High School
Hiram, Ga.

SeaWorld/Busch Gardens Outstanding Environmental Educator of the Year



Pierre Beauchamp
Aquaponics System Project
Leader
Del Oro High School
Loomis, Calif.

Vernier Technology Awards

Sponsored by Vernier Software & Technology

Elementary Level



Zoe Jorgensen
Teacher
A.H. Bush Math and
Science School
Idaho Falls, Idaho

Middle Level



Shannon Hudson
Science Teacher
Tuttle Middle School
Crawfordsville, Ind.



Christopher Widmaier
Science Teacher
World of Inquiry School
No. 58
Rochester, N.Y.

High School Level



Jacqueline Bondell
Science Teacher
North Carolina School of
Science and Mathematics
Durham, N.C.



Ershela Sims
Science Teacher
North Carolina School of
Science and Mathematics
Durham, N.C.



Sharla Dowding
Science Teacher
Newcastle High School
Newcastle, Wyo.

High School Level



John Gensic
Science Teacher
New Prairie High School
New Carlisle, Ind.

College Level



Venkatesh Gopal
Professor
Elmhurst College
Elmhurst, Ill.

Delta Education/Frey-Neo/CPO Science Awards for Excellence in Inquiry-based Science Teaching

Sponsored by Delta Education, Frey-Neo, CPO Science (divisions of School Specialty Science), LLC

Elementary Level



Laura Finney
Science Teacher
Chamberlin Hill
Intermediate School
Findley, Ohio

Middle Level



Nicole Ackerson
Science Teacher
Berkeley Preparatory School
Tampa, Fla.

High School Level



Lisa Backus
Science Teacher
Deerfield High School
Deerfield, Ill.

Disney Planet Challenge Grand-Prize Winners



**Elementary
(Grades 3–5)**
Kristy Gilpin
Zachary Elementary
School
Zachary, La.



**Elementary
(Grades 3–5)**
Breigh Rhodes
Zachary Elementary
School
Zachary, La.



**Middle School
(Grades 6–8)**
Fran Wachter
Creal Springs School
Creal Springs, Ill.

The Maitland P. Simmons Memorial Award for New Teachers



Denise Andrade
H.A. Hyde Elementary
School
Watsonville, Calif.



Amanda Browder
Smithfield Middle School
Smithfield, Va.



John Clark
Deltona High School
Deltona, Fla.



Julie Coder
Bellfonte Area High
School
Bellfonte, Pa.



Dean Cress
Signal Mountain
Middle/High School
Signal Mountain, Tenn.



Pamela Evans
Jefferson Elementary
School
Charleston, Ill.



Marci Farmer
Sanborn Central School
Forestburg, S.Dak.



Candice Guy
Saint Brigid School
San Francisco, Calif.



Amy Hruska
Roland Park Country
School
Baltimore, Md.



Sarah Jordan
South Central Middle
School
Emerson, Ga.



Stephanie Kennelly
Garlough Environmental
Magnet School
West St. Paul, Minn.



Malina Maldonado
Victory Creek Middle
School
Cumming, Ga.



Caroline Moon
Wren Middle School
Piedmont, S.C.

NSTA *New Science* **TEACHER Academy**

Comprehensive Professional Development Scholarships for New Teachers **2012–2013**

NSTA offers second- and third-year middle and high school science teachers the opportunity to participate in the New Science Teacher Academy, a one-year professional development and mentoring program. Emphasizing quality science teaching, enhanced teacher confidence, classroom excellence, and solid content knowledge, participants (Academy Fellows) enjoy top-notch face-to-face and online support and access to comprehensive education resources.

Academy Fellow Benefits:

- Full membership in the National Science Teachers Association
- Facilitated online curriculum focusing on science content and applicable classroom pedagogy
- Unlimited use of resources, including vetted web links for lesson plans, links to state and national standards, professional organizations, safety tips, and more
- E-mentoring from experts in the Fellow's science discipline and grade level
- All-expenses-paid (accommodations, airfare, meals, and registration fees) attendance to the NSTA National Conference on Science Education
- Attendance at a Professional Development Institute or a Research Dissemination Conference

Eligibility:

- Applicants must reside in the U.S.
- Applicants must be entering their second or third year of teaching
- Applicants must be working a schedule with 51% of their classes in middle or high school science



**Visit www.nsta.org/academy
to learn more or to apply
by July 1, 2012.**

"This was a great program that provided excellent resources and inspiration."

"The New Science Teacher Academy has made a huge impact on my teaching and my ability to cope with the stresses of teaching. I believe my third year is going much smoother and easier because of my participation in the academy. I hope that this program may be expanded and maintained for many years to come."



Concerned about **STEM, Next Generation, Engineering, and Common Core?**

Please join a team of noted educators who've successfully implemented STEM-oriented curricula in their school districts.

Carolina Curriculum Leadership Series

NSTA National Conference

Room 143, Indiana Convention Center

March 29–30, 2012

These sessions are filled with relevant information:

- Proven tips and techniques for implementing STEM and Next Generation programs that integrate engineering practices
- Strategies for integrating literacy and notebooking into science and math instruction
- Insights into managing change at the district level for increasing student performance and achievement

Thursday, March 29, 2012

An Invitation: Getting Started with the Next Generation Science Framework

9:30 AM–11:00 AM

Dr. Anne Grall Reichel

(Grades E, M)

From cross-cutting concepts to scientific and engineering practices, explore strategies and approaches that will bring the Next Generation Science Framework to life in your classroom.

Anne Grall Reichel, a faculty member of Lake Forest College, wrote *Expect More: Children Can Do Remarkable Things*.

Engineering in the Elementary and Middle School Classroom:

11:30 AM–1:00 PM

Opportunities for Integrating Across Your Curriculum

(Grades E, M)

Dr. Ann P. McMahon

Learn to integrate engineering design across your curriculum, develop collaboration skills in your students, and translate engineering processes into classroom best practices.

Ann P. McMahon was co-principal investigator of a Local Systemic Change Initiative in the Midwest.

Integrating Literacy Strategies into Science Instruction

1:30 PM–3:00 PM

Terri Sessoms

(Grades E, M)

Explore ways to provide students with opportunities to use language while solving meaningful problems. These skills lead to better understanding in writing, speaking, and reading science.

Terri Sessoms won Johnston County's (NC) Teacher of the Year award and the James B. Hunt Outstanding Teacher Award.

Friday, March 30, 2012

The Science and Writing Connection:

Increasing Achievement of Diverse Learners in Both Domains

Betsy Rupp Fulwiler with Kirsten Nesholm and Ana Crossman

Through hands-on investigation, video, and discussion, learn a research-based approach that integrates inquiry-centered science with graphic organizers, word banks, and writing frames.

Betsy Rupp Fulwiler developed the Expository Writing and Science Notebooks Program for the Seattle Public Schools.

8:00 AM–9:30 AM
(Grades E, M)

**A Natural Fit: Scientific Inquiry and the Integration of Reading and Writing
to Address Common Core Standards**

Dr. Anne Grall Reichel

Explore the possibilities for the integration of inquiry-based science with reading and writing, and leave with classroom strategies to meet the demands of Common Core Standards.

Anne Grall Reichel, a faculty member of Lake Forest College, wrote *Expect More: Children Can Do Remarkable Things*.

10:00 AM–11:30 AM
(Grades E, M)

Mathematics + Literacy + the Common Core

Dr. Jennifer L. Altieri

Learn to foster elementary students' literacy growth and strengthen their mathematical knowledge. This session will focus on mathematics standards and ELA Common Core State Standards.

Jennifer L. Altieri is the Division of Literacy Education coordinator in The Citadel's School of Education.

12:00 PM–1:30 PM
(Grades E, M)

Moving Towards Inquiry: Managing Change in Your District

Mark Cheney with Amber Farthing

Using change research can be important to a district's plan. Discover how two regions in Washington State established and have sustained inquiry-based science programs since 1999.

Mark Cheney, co-director of the Heritage 105 Project, developed the South Central Washington LASER Alliance.

2:00 PM–3:30 PM
(Grades E, M, H)

Save Time.

Sidestep Problems.

You'll get the benefit of personal experience as to what works—and
what to avoid as you move forward.

Learn more now, and mark your calendar for all the workshops
you want to attend at:

www.CarolinaCurriculum.com/Leadership





Is This Your First NSTA Conference?

Yes, you say? Then you are invited to attend either one of two Thursday sessions that are specifically intended for first-time conference attendees. These sessions will help you make the most of your first-time conference experience!

The morning session is generously sponsored by Carolina Biological Supply Company. See pages 112 and 193 for details.

Ribbon-Cutting Ceremony

An opening ceremony is scheduled on Thursday at 10:00 AM in the lobby of Exhibit Hall F.

Wednesday, March 28 (Volume 1)

8:00 AM–4:00 PM	NSTA Professional Development Institutes and Work Sessions	96, 98
6:00–8:30 PM	Science Rocks!	99

Thursday, March 29 (Volume 1)

8:00–9:00 AM	First-Timers' Meeting (Is This Your First NSTA Conference?) . .	112
8:00 AM–2:00 PM	Global Conversations in Science Education Conference (M-1) . .	118
9:00–10:00 AM	Featured Presentation: Leland Melvin	120
9:00–10:30 AM	Preservice and New Teachers Breakfast (M-2)	121
9:30–10:30 AM	Mary C. McCurdy Lecture: Brian "Fox" Ellis	123
10:00–10:10 AM	Ribbon-Cutting Ceremony/Exhibits Opening	136
10:05–10:30 AM	Meet the Presidents and Board Council	140
10:10 AM–6:00 PM	Exhibits	140
11:00 AM–12:30 PM	General Session: Tim Samaras	143
12:30–1:30 PM	Featured Presentation: Jeff Goldstein	152
1:00–4:45 PM	Science Leadership Summit	54
2:00–4:00 PM	The Planetary Society Lecture: Bill Nye	183
3:30–4:30 PM	Featured Presentation: Jay Siegel	186
3:30–4:30 PM	Scientist Talk: Catherine T. Hunt	186
3:30–4:30 PM	First-Timers' Meeting (Conference Tips for First-Timers)	193
6:00 PM–12 Mid	Special Evening Session: A Video Showcase of Legendary Icons, Inspiring Teachers, Memorable Performances, and Stimulating, Engaging Courses, Part 1	203

Friday, March 30 (Volume 2)

See Conference Highlights, Volume 2, for page numbers.

7:00–8:00 AM	Science in the Community Breakfast (Informal Science Day) (M-3): Paula Gangopadhyay
7:00–8:30 AM	High School Breakfast (M-4): Helen Quinn
7:00 AM–5:00 PM	Informal Science Day
8:00–9:30 AM	Elementary Extravaganza
9:00 AM–12 Noon	Global Conversations in Science Education Conference (M-1)
9:00 AM–5:00 PM	Exhibits
9:30–10:30 AM	Featured Presentation: Sonia Lasher-Trapp
9:30–10:30 AM	Featured Panel: Next Generation Science Standards: Stephen L. Pruitt and Francis Q. Eberle
10:30 AM–12 Noon	Shell Science Seminar: Lisa Pratt
10:30 AM–12 Noon	Shell Science Seminar: Lydia Villa-Komaroff
12 Noon–2:00 PM	ASTE/NSELA Luncheon (M-5): Jeffrey Weld
12 Noon–2:00 PM	CESI/NSTA Elementary Science Luncheon (M-6): Michael A . . DiSpezio
12 Noon–2:00 PM	NSTA/NMLSTA Middle Level Luncheon (M-7): Rick Crosslin
12:30–1:30 PM	Informal Science Day Brown Bag Lunch: Dennis Schatz (moderator), David Hanych, and Monya Ruffin
1:30–3:00 PM	Shell Science Seminar: Dale Brown Emeagwali
1:30–3:00 PM	Shell Science Seminar: Marilyn N. Raphael
2:00–3:00 PM	AGU Lecture: Gabriel Filippelli
3:30–4:30 PM	Robert H. Carleton Lecture: Emma Walton
6:15–8:45 PM	NSTA Teacher Awards Gala (M-8)

General Session

Thursday, March 29, 11:00 AM–12:30 PM



Tim Samaras
Severe-Storms
Researcher and
National Geographic
Emerging Explorer,
Lakewood, Colo.

The Science Behind Chasing Tornadoes

Tim Samaras will speak about his 20-year career as a storm chaser.
(See page 143 for details.)



—Courtesy of Indianapolis Convention & Visitors Association; visitindy.com

The following venues have extended special offers for Indianapolis conference attendees. See page 21 for details.

- The Children's Museum of Indianapolis
- Indiana State Museum
- Eiteljorg Museum of American Indians and Western Art

Friday, March 30, continued

6:00 PM–12 Mid Special Evening Session: A Video Showcase of Legendary Icons, Inspiring Teachers, Memorable Performances, Stimulating, Engaging Courses, Part 2

Saturday, March 31 (Volume 3)

See Conference Highlights, Volume 3, for page numbers.

7:45 AM–3:00 PM Looking Toward the New Framework for the Next Generation Science Standards: New Research on Promising Practices in . . . Professional Development with a Focus on Curriculum Integration (Research Dissemination Conference) (C-1)

8:00 AM–6:00 PM The Centers for Ocean Sciences Education Excellence (COSEE) Program

8:30 AM–5:00 PM Teacher Researcher Day

9:00 AM–12 Noon NSTA Exemplary Science Programs (ESP)

9:00 AM–5:00 PM Exhibits

9:30 AM–12 Noon NSTA/SCST Symposium on Forensic Science

10:30 AM–12 Noon Shell Science Seminar: Chen-Yu Liu

10:30 AM–12 Noon Shell Science Seminar: Joseph M. DeSimone

11:00 AM–12 Noon Paul F-Brandwein Lecture: David Macaulay

12 Noon–1:30 PM NSTA/SCST College Luncheon (M-9): Kimberly D. Tanner

12 Noon–2:00 PM Aerospace Educators Luncheon:(M-10): Mary Ellen Weber

1:30–3:00 PM Shell Science Seminar: Dev Niyogi

1:30–3:00 PM Shell Science Seminar: Jay A. Levy

2:00–3:00 PM NSTA/ASE Honors Exchange Lecture: Steve Marshall

3:30–4:30 PM Robert H. Karplus Lecture: Bill G. Aldridge

3:30–4:30 PM Featured Presentation: Jason Snell

7:00–8:15 PM President's Reception (M-11)

8:30–9:30 PM Evening Featured Presentation: Eric Jolly

6:00 PM–12 Mid Special Evening Session: A Video Showcase of Legendary Icons, Inspiring Teachers, Memorable Performances, and Stimulating, Engaging Courses, Part 3

9:45 PM–12 Mid President's Mixer with DJ and cash bar

Sunday, April 1 (Volume 3)

See Conference Highlights, Volume 3, for page numbers.

7:00–9:00 AM NSTA Life Members' Buffet Breakfast: Celebrate Your Lifetime Dedication (M-12)

The Indianapolis Planning 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.

See the following pages for a list of sessions and events for each strand.



Mapping Our Way to Success Through the New Core Standards

Science education standards ensure that all students have access and opportunity to experience success in science. Education is a partnership that requires support and dialogue among administrators, teachers, students, and the community. To achieve student success, science teachers must be knowledgeable about the strategies, tools, resources, and assessments available to them.



Pathways to a Sustainable Planet

The global community relies on science to understand the world around them. With the current issues in science (e.g., global disasters and shrinking resources) affecting us locally, nationally, and internationally, science teachers must know how to build partnerships and implement research-based practices in science education. It is imperative that we educate our students to be knowledgeable and active citizens for a sustainable planet.



Merging Inquiry, Creativity, and Innovation Through STEM

Inquiry provides the platform for educators and learners to explore STEM content. The resulting innovations lead to understanding and learning. The blending of creativity, innovation, and inquiry fosters the growth of human understanding. This provides educators with the foundation, tools, and resources to facilitate community conversations, promote STEM education, and generate effective assessments.



Traveling New Instructional Roads Through Technology

The global learning community grows daily through the use of technology. As educators we must prepare all learners for a future we can only imagine. It is imperative that students and educators be fluent in how the nature of science is supported through the use of strategies and technological tools. Facilitating alternative community partnerships will lead to innovations in science teaching. Engaging learners in creative partnerships will foster innovation in science teaching and learning.

Mapping Our Way to Success Through the New Core Standards

Thursday, March 29

8:00–9:00 AM

I Am a Scientist!

9:30–10:30 AM

Curious Scientific Investigators: Flight Adventures

12:30–1:30 PM

Featured Presentation: The Art of Science and the Framework for Science Education (Speaker: Jeff Goldstein)

How Do You Know What They Know? Assessing Understanding

1:00–5:00 PM

Short Course: Using Learning Progressions to Improve Science Teaching and Learning (By Ticket: SC-3)

3:30–4:30 PM

Differentiation Strategies for Meeting the Common Core State Standards

5:00–6:00 PM

Supporting Claim, Evidence, and Reasoning (CER) Across Grades and Curricula

Friday, March 30

8:00–9:00 AM

Students' Science Notebooks: Implementing Writing Standards with Hands-On Science

8:30–11:30 AM

Short Course: Common Core Science Literacy Standards: Keeping Inquiry in the Science Classroom (By Ticket: SC-8)

9:30–10:00 AM

Formative Queries for the Biology Classroom

11:00 AM–12 Noon

The Great Diseases: A Collaborative Approach to Real-World Science in the Classroom

12:30–1:30 PM

Have Your Students Looking Forward to Opening Their Textbooks

1:30–5:30 PM

Short Course: Aligning Science Assessment Items to Content Standards (By Ticket: SC-11)

2:00–3:00 PM

Low-Tech but High-Effect Inquiry-based Science Lab Activities

3:30–4:30 PM

The SAT Subject Test in Biology: Not Just for College Admissions

5:00–6:00 PM

Engaging Science Instruction for Special Needs Students

Saturday, March 31

8:00–9:00 AM

Drilling Through the Core: School Leadership in Transitioning to Common Core Standards

9:30–10:30 AM

Differentiating Content, Process, and Product via Strategies to Promote Understanding of Science Among Students with Special Needs

11:00 AM–12 Noon

Making Terrific Science Games

12:30–1:30 PM

Notebooking for Meaning

2:00–5:00 PM

Short Course: Science for ELL: Sheltered Content Instruction for Inquiry Science (SCI²S) (By Ticket: SC-19)

3:30–4:30 PM

Changing Cookbook Labs into Inquiry Labs in Six Easy Steps

5:00–5:30 PM

Understanding Deep Time: “Wait, You Mean Dinosaurs Lived Before the Ice Age?”

Sunday, April 1

8:00–9:30 AM

The Future of Bioethics

9:30–10:00 AM

Addressing Core Standards Through Project-based Instruction: Keys to Success

11:00 AM–12 Noon

The Role of Argumentation in Inquiry: Doing What Real Scientists Really Do

Pathways to a Sustainable Planet

Thursday, March 29

8:00–9:00 AM

Tracking Water from Space: Classroom Resources Using Global Visualization and NASA Data Sets

9:30–10:30 AM

Building a Sustainable Planet...One Biodegradable Utensil at a Time

12:30–1:30 PM

NASA's Ready-to-Go Solar Science and Solar Energy Activities for the K–5 Classroom

1:00–5:00 PM

Short Course: Saving Energy, Saving Our Night Sky (By Ticket: SC-4)

2:00–3:00 PM

Bioplastics—Going from Synthetic to Natural Polymers

3:30–4:30 PM

Develop Literacy, Math, Science, and Social Studies School-readiness Skills in Early Childhood Education via Local Wildlife and Farm Animals

Friday, March 30

8:00–9:00 AM

Climate Models: Everything You Ever Wanted to Know, Ask, and Teach

9:30–10:30 AM

Featured Presentation: Cloud and Precipitation in a Future Climate: Why Isn't There an App for This Yet? (Speaker: Sonia Lasher-Trapp)

Lake St. Clair: Use or Abuse?

11:00 AM–12 Noon

Connecting Students to the Above- and Below-Ground Connection

12:30–1:30 PM

Water in the Valley: Watershed Monitoring for Children

The ULTIMATE Project Based Learning (PBL): Changing the World!

1:00–5:00 PM

Short Course: Using *WALL-E*, an Animated Film, as an Effective Classroom Educational Resource (By Ticket: SC-10)

Pathways to a Sustainable Planet, cont.

2:00–3:00 PM

Can Venice Be Saved?

5:00–5:30 PM

Exploring the Boundaries of Earth Systems Education

Saturday, March 31

8:00–11:30 AM

Short Course: Thinking Green with Dr. Seuss
(By Ticket: SC-15)

11:00 AM–12 Noon

Marine Plastic Pollution: Examining Issues and Solutions in a Middle School Classroom

12:30–1:30 PM

Galápagos NEST

1:00–4:30 PM

Short Course: To Be or Not to Be? Solar-powered Cars, Is That Our Future?
(By Ticket: SC-17)

2:00–3:00 PM

Designing the City

3:30–4:30 PM

Math, Science, Literacy, and Technology: Teaching Sustainability Across the Curriculum

5:00–6:00 PM

Bringing the Tropical Rain Forest to the Urban Classroom

Sunday, April 1

8:00–9:00 AM

Developing Skills to Unveil “Nature’s Operating Instructions” for 21st-Century Environmental Problem Solving

Merging Inquiry, Creativity, and Innovation Through STEM

Thursday, March 29

8:00–9:00 AM

A Full Year of STEM Class...and the Kids Loved It!

8:00–11:00 AM

Short Course: Energize Your Classroom
(By Ticket: SC-1)

9:30–10:30 AM

A Hands-On Approach to Exploring Life Cycles

12:30–1:30 PM

Assessing Inquiry with Science Notebooks

2:00–3:00 PM

Authentic STEM for the Youngest Scientists

3:30–4:30 PM

Featured Presentation: Forensic Science Education: Multidisciplinary Science—Bringing Critical Thinking, Interactive Learning, and Creativity to the Classroom (Speaker: Jay Siegel)

Close Enough: A Journey into Solar System Modeling for Hands-On Thinking

5:00–6:00 PM

Draw Your Way to Better Teaching and Learning in Science

Friday, March 30

8:00–9:00 AM

Science on the Cheap: Teaching Science Activities Without Spending a Ton of Money

9:30–10:30 AM

Are You Remotely Interested?

12:30–1:30 PM

Cell Phones Uncovered

1:00–4:30 PM

Short Course: Building Physical Science Demonstration Models (By Ticket: SC-9)

2:00–3:00 PM

Fun with Flight

3:30–4:30 PM

How Pure Science Becomes Applied Science: Using STS to Understand the STEM Initiative

5:00–6:00 PM

Whodunit? (Forensic Science for Middle School Students)

Saturday, March 31

8:00–9:00 AM

“Ms. Larson, We Have to Think So Much in This Class!”

8:00–11:00 AM

Short Course: Young Investigators in Environmental Health Science: Challenging and Exciting Young Minds with Novel, Inquiry-based Environmental Activities (By Ticket: SC-13)

9:30–10:30 AM

The Little Things That Run the World: Soil Ecology in the Classroom

11:00 AM–12 Noon

Activities That Integrate Concepts in Chemistry and Physics and Engage Students

12:30–1:30 PM

Celebrating African-American Scientists and Inventors Through Hands-On Science

1:00–5:00 PM

Short Course: Developing Learner-centered STEM Experiences in the Life Sciences
(By Ticket: SC-18)

3:30–4:30 PM

Exploring Seafloor Spreading with Data from the Integrated Ocean Drilling Program (IODP)

Sunday, April 1

8:00–9:00 AM

Local Connections in Environmental Studies: The Science of Research in the Outdoor Classroom

9:30–10:30 AM

Forensic Toxicology: An Interdisciplinary Approach to Enhance Understandings in Biology and Chemistry

Traveling New Instructional Roads Through Technology

Thursday, March 29

8:00–9:30 AM

Technology + Science = Making IT Work

10:00–11:00 AM

An Overview of NSDL's Science Literacy Maps

12:30–1:30 PM

Digitizing the Learning Experience and Taking IT Mobile

2:00–3:30 PM

More Than Just Probes

5:00–6:00 PM

Podcasting and Blogging for Students and Teachers in Science

Friday, March 30

8:00–9:30 AM

iPads and Mobile Apps in Science

8:00 AM–12 Noon

Short Course: Bringing Nanotechnology to the Classroom
(By Ticket: SC-6)

11:00 AM–12 Noon

The World of Google in Science

12:30–2:00 PM

Google Me This: How to Make Collaboration Work in a Wiki World

2:00–5:00 PM

Short Course: Using Technology to Develop a “Naturalistic” Approach in the Teaching of Science Concepts and Inquiry
(By Ticket: SC-12)

3:30–4:30 PM

Science 2.0: Putting Web 2.0 into the Science Classroom

5:00–6:00 PM

Online Just-in-Time Professional Development

Saturday, March 31

8:00–9:00 AM

Teaching Science for Understanding in a Digital World

8:00 AM–12 Noon

Short Course: Explore Plate Tectonics and Earthquakes Through Web Tools and Apps
(By Ticket: SC-16)

9:30–10:30 AM

Get Technology Down to a Science

11:00 AM–12 Noon

Integrating the NSTA Learning Center into Preservice Education

3:30–4:30 PM

Featured Presentation: Technology and Humanity (Speaker: Jason Snell)

5:00–6:00 PM

Customizing Science Instruction with Educational Digital Libraries

Sunday, April 1

8:00–9:00 AM

Promoting Scientific Discourse with Digital Tools

9:30–10:30 AM

Challenge: Create and Present an Interactive Science Course Online



Global Conversations in Science Education Conference

STEMing Across Borders: An International Perspective on Science, Technology, Engineering, and Math

Thursday, March 29, 8:00 AM–2:00 PM

White River Ballroom E/F, JW Marriott

Tickets (M-1) are required.

Beginning on Thursday, March 29, NSTA will host two days dedicated to science education from an international perspective. During this event, there will be numerous opportunities for international visitors to network with science educators from various cultures. An agenda follows. *Global Conversations Conference events are described in the Thursday and Friday daily programs. See page 118 (Vol. 1) and Vol. 2.*

Wednesday, March 28

6:00–7:00 PM NSTA President's International Reception
(White River Ballroom F) Open to international visitors and invited guests.

Thursday, March 29

8:00–8:30 AM Welcome and Introductions
(White River Ballroom E/F)

8:30–9:00 AM Plenary Session (White River Ballroom E/F)
*Today's Students and Tomorrow's Science:
Global Opportunities in a Changing World*
Speaker: Joan Ferrini-Mundy

9:00–9:15 AM Break

9:15–10:15 AM Concurrent Sessions: Session 1, (Room 103);
Session 2, (Room 104); Session 3, (Room 105);
Session 4, (Room 106)

10:15–11:00 AM Poster Session (White River Ballroom E/F)

11:15 AM–12:15 PM Concurrent Sessions: Session 1, (Room 103);
Session 2, (Room 104); Session 3, (Room 105)
Session 4, (Room 106)

12:15–1:15 PM Luncheon Plenary Session (White River Ballroom E/F)
*Toward STEM Improvement in South Africa:
Breaking the Vicious Cycle*
Speaker: Marissa Rollnick

1:15–1:35 PM Panel Discussion (White River Ballroom E/F)

1:35–1:55 PM Updates from Around the World (White
River Ballroom E/F)

1:55–2:00 PM Closing Remarks

Friday, March 30

9:00–10:00 AM "Welcome To My Classroom" Showcase
(Room 104)

10:15–11:15 AM Sessions: Session 1, (Room 103); Session 2,
(Room 104)

NSTA Exemplary Science Program (ESP)

Meeting the Reform Features Recommended in the National Science Education Standards

Saturday, March 31, 9:00 AM–12 Noon

JW Grand Ballroom 4, JW Marriott

ESP symposia were organized by Robert E. Yager, 1982–1983 NSTA President and editor of the NSTA ESP Program. These sessions will include brief descriptions of programs that exemplify how the four NSES goals have been met. The discussants will be drawn from authors of chapters from several monographs in the series. Discussion will center on how NSES "More Emphasis" suggestions have guided instruction.

ESP symposia are described in the daily program (Volume 3).

Symposium I (Volume 3)

Coordinators: Robert E. Yager, University of Iowa, Iowa City; and Bonnie Brunkhorst, California State University, San Bernardino

Student Inquiry and Research (from ESP #5)

Judith A. Scheppler, Illinois Mathematics and Science Academy, Aurora

Thinking Outside the Box (from ESP #1)

Kim C. Sadler, Middle Tennessee State University, Murfreesboro

Inquiry Is Elementary (from ESP #5)

Patricia C. Paulson, Bethel University, Arden Hills, Minn.

Linking Science, Technology, and Society (from ESP #7)

Barbara Hug, University of Illinois at Urban–Champaign, Champaign

Informal Science Day

Friday, March 30, 7:00 AM–5:00 PM

JW Grand Ballroom 5, JW Marriott

Packed with exciting informal science presentations and activities, Informal Science Day is intended to build awareness of the abundance of existing high-quality informal science education methods, resources, and opportunities available to enhance science teaching and learning. It is designed to offer a “town square” at which both informal and formal science educators can meet and interact to share best practices in informal science, learn about exciting collaborations happening among informal and formal science organizations, network with colleagues, and dialogue around ideas and innovations. Informal organizations represented include zoos, museums, media, after-school programs, university outreach, and others that provide and/or support out-of-school science education.

An agenda follows. *Informal Science Day events are described throughout the Friday daily program (Vol. 2).*

Friday, March 30

7:00–8:00 AM	Science in the Community Breakfast (Tickets Required: M-3) <i>Teaching Science Principles with “Artifactual” Stories and Engagement! A Unique Informal Science Educational Approach</i> Paula Gangopadhyay, The Henry Ford, Dearborn, Mich.
9:30–10:30 AM	Breakout Sessions
11:00 AM–12 Noon	Breakout Sessions
12:30–1:30 PM	Informal Science Day Brown Bag Lunch <i>Building Bridges Between In-School and Out-of-School STEM Learning</i> Dennis Schatz (moderator), Pacific Science Center, and National Science Foundation, Arlington, Va. David Hanych and Monya Ruffin, National Science Foundation, Arlington, Va.
2:00–5:00 PM	Informal Science Education Share-a-Thon

Teacher Researcher Day

Saturday, March 31, 8:30 AM–5:00 PM

JW Grand Ballroom 5, JW Marriott

Teacher researchers are curious about their students’ learning and ask questions to try to better understand what is happening in their classrooms. They collect data such as videotapes of instruction, copies of student work, and their own written reflections. Then they try to make sense out of what they see in the data and use this knowledge to improve their teaching. Teacher Researcher Day is for both new and experienced teacher researchers. The full day of activities includes a poster session and presentations on topical issues. These sessions provide opportunities to meet teacher researchers and learn about their studies in a wide variety of contexts.

An agenda follows. *Teacher Researcher Day events are described throughout the Saturday daily program (Vol. 3).*

Saturday, March 31

8:30–9:30 AM	Poster Session
9:30–11:00 AM	Presentation: <i>Exploring Teacher Inquiry from the Dual Perspectives of New Teacher Researchers and Professional Development Leaders</i>
11:00 AM–12 Noon	Concurrent Sessions
12 Noon–12:30 PM	Science Inquiry Group Network
12:30–1:30 PM	Concurrent Sessions
2:00–3:00 PM	Concurrent Sessions
3:30–4:30 PM	Concurrent Sessions
4:30–5:00 PM	Presentation: <i>Fostering Teacher Researcher Collaborations</i>

Science Leadership Summit

Thursday, March 29, 1:00–4:45 PM
JW Grand Ballroom 8, JW Marriott

Attend the Science Leadership Summit to learn about a statewide science initiative that has brought about change in how science is being taught across grades K–8; hear from the school leaders, teachers, and trainers who have been involved in the process; discuss what makes a good science teacher and how teachers can be active participants in their own professional development and evaluation; investigate components of rubrics that can be used to evaluate science teaching; and view results from the establishment of professional learning communities.

1:00–2:15 PM
2:30–3:30 PM
3:45–4:45 PM

Thursday, March 29
Science Leadership Summit Session:
Indiana Science Initiative
Science Leadership Summit Session:
The Science Teacher Rubric
Science Leadership Summit Session:
Increasing Student Engagement and
Achievement Through Teacher-led
Professional Learning Communities

NESTA Earth and Space Science Resource Day

Saturday, March 31, 8:00 AM–7:00 PM
Grand Ballroom 5, Westin

This jam-packed day of professional development includes a ticketed luncheon and speaker and finishes with the NESTA Annual Membership meeting. We look forward to seeing you on Saturday, as well as at other scheduled NESTA events on Friday, including our three share-a-thons and Friends of Earth and Space Science Reception. *See the Saturday daily program (Vol. 3) for details on NESTA Earth and Space Science Resource Day events.*

2:00–3:00 PM
2:00–3:00 PM
3:30–5:00 PM
5:30–7:00 PM

National Earth Science Teachers
Association Astronomy, Space, and
Planetary Science Share-a-Thon
Our Changing Planet
National Earth Science Teachers
Association Rock and Mineral Raffle
NESTA Annual Membership Meeting

Saturday, March 31

8:00–9:00 AM Activities from Across the Earth System
9:30–10:30 AM Strategies for Teaching About Charged
Topics in the Earth Science Classroom
11:30 AM–1:00 PM NESTA Earth and Space Science
Educator Luncheon, *State, Westin*
Dust in the Wind: The Geological Record
of Ancient Atmospheric Circulation
Featured Speaker:
Steven A. Hovan, Professor and Chairperson,
Department of Geoscience,
Indiana University of Pennsylvania, Indiana
(This event was available from NESTA by
preregistration only. By ticket through NESTA)

The Centers for Ocean Sciences Education Excellence (COSEE) Program

Saturday, March 31, 8:00 AM–6:00 PM

312, JW Marriott

Since 2002, the Centers for Ocean Sciences Education Excellence (COSEE) have worked to increase understanding of the ocean and its relevance to society. Primarily funded through the National Science Foundation, the COSEE network promotes partnerships between research scientists and educators, disseminates high-quality ocean sciences education resources, and promotes ocean science as a charismatic vehicle for learning at any age.

COSEE sessions will highlight activities and products designed for classroom science teachers. Walk away with links to real-time data, relevant scientific resources, lesson plans, information on regional programs, and connections to a nationwide network of scientists and educators who are dedicated to improving ocean literacy.

A list of COSEE events follows. *See the Saturday daily program (Vol. 3) for details.*

Saturday, March 31

8:00–9:00 AM The Carbon Cycle

9:00–10:00 AM Tiny but Toxic! Teaching About Harmful Algal Blooms

10:00–11:00 AM

Sea Level Trends

11:00–11:30 AM

Linking Our Ocean and Climate Through Innovative Learning Connections

12:15–1:15 PM

COSEE Luncheon (By Invitation Only)
Featured Speaker: Sonya Dyhrman, Woods Hole Oceanographic Institution

1:30–2:00 PM

Combining Inquiry and Community Through Scientist/Educator Partnerships

2:30–3:30 PM

Spice Up Your Curriculum with a Little “Fresh and Salt”

3:30–4:30 PM

Teaching Physical Science via Underwater Sound

4:30–5:30 PM

Teaching the Facts About Hurricanes and Climate Change

5:30–6:00 PM

Bringing Ocean Scientists and Their Data into Your Classroom

NSTA/SCST Symposium

Nature Under Investigation—Forensic Science in the Classroom
Symposium Jointly Sponsored by NSTA and SCST

Saturday, March 31, 7:30 AM–12 Noon

204/205, JW Marriott

This year’s symposium focuses on the integration of forensic sciences into the middle school and high school as well as undergraduate college-level classroom. The symposium starts with presentations by two renowned educators in the field of forensic sciences followed by a breakout session that provides attendees with hands-on experiences that can directly be translated into the classroom. This symposium is sponsored by the University of Florida, Distance Education program in Forensic Sciences. *See the Saturday daily program (Vol. 3) for details.*

Following the symposium, don’t miss the NSTA/SCST College Luncheon (Ticket M-9) from 12 Noon to 1:30 PM (see Vol. 3).

Saturday, March 31

8:00–9:00 AM The Case for Forensic Science in the Classroom

Featured Speaker: Jay Siegel

9:15–10:15 AM

Implementation of Forensic Science in the Classroom

Featured Speaker: Kathy Mirakovits

10:30 AM–12 Noon

The Mystery of Lyle and Louise: A Forensic Science Curriculum with Hands-On Exercise

12 Noon–1:30 PM

NSTA/SCST College Luncheon
(Tickets Required: M-9)

Measuring Biological Expertise and Cultivating Expertise in Biology Teaching: Card Sorting, Superheroes, and Science Faculty with an Education Specialty
Kimberly D. Tanner, SEPAL: The Science Education Partnership and Assessment Laboratory, San Francisco State University, San Francisco, Calif.

NSTA Press Sessions

NSTA Press® books offer new classroom ideas and standards-based strategies. Join NSTA Press authors for these sessions linked to the topics of their books.

Thursday, March 29

8:00–9:00 AM

Front-Page Science: Engaging Teens in Science Literacy

Outdoor Science

9:30–10:30 AM

Bringing Outdoor Science into Your Classroom

11:00 AM–12 Noon

Solving “Earth Science Puzzles” with Data

12:30–1:30 PM

Misconceptions Matter—Where Do They Come From? Where Do They Go?

2:00–3:00 PM

Safety and Liability—Is the Jury Out on Your Class?

5:00–6:00 PM

Model-based Science Teaching

Science as a Mystery

Friday, March 30 (Volume 2)

8:00–9:00 AM

Daltonian Atoms in Five Discrepantly E(z) Steps: The (w)Hole Truth?

9:30–10:30 AM

SAFER Science: Laboratory Hazards You Must Deal With!

11:00 AM–12 Noon

Providing Feedback to Scaffold Student-directed Collaborations in Whole-Class Inquiry

Explain Your Thinking

12:30–1:30 PM

The Gourmet Lab

Picture-Perfect Science Lessons: Using Children’s Books to Guide Inquiry, K–4

2:00–3:00 PM

Picture-Perfect Science Lessons, Using Children’s Books to Guide Inquiry, Grades 3–6

Rise and Shine: A Practical Guide for the Beginning Science Teacher

3:30–5:00 PM

Linking NSTA Press Books—Connecting Content, Inquiry, Picture Books, and Formative Assessment

Saturday, March 31 (Volume 3)

8:00–9:00 AM

Classroom Activities for Force and Motion: Stop Faking It!

Teaching Evolution with Video and Activities

9:30–10:30 AM

Stop Faking It! Finally Understand Chemistry Basics So You Can Teach It

11:00 AM–12 Noon

Team-Teaching Science—You Can Do It!

12:30–1:30 PM

Promoting Learning Through Formative Assessment

2:00–3:00 PM

Developing Formative Assessment Probes

Read All About It! Teaching Through Trade Books—Authors Share Their New Book

3:30–4:30 PM

Top Ten Challenges of Learning Science

5:00–6:00 PM

Using Predict, Observe, and Explain Activities in Your Classroom

Sunday, April 1 (Volume 3)

8:00–9:00 AM

Watershed Investigations: 12 Labs for High School Science

9:30–10:30 AM

Forensics in Chemistry: The Murder of Kirsten K.

11:00 AM–12 Noon

Implementing Research Projects as Part of the STEM Curriculum



FREE WORKSHOPS

VERNIER DATA-COLLECTION TECHNOLOGY



THURSDAY | March 29th | Workshop Room 116

8:00 - 9:30 a.m.	Chemistry with Vernier	
10:00 - 11:30 a.m.	Physics with Vernier	
12:00 - 1:30 p.m.	K-8 Science with Vernier	
2:00 - 3:30 p.m.	Biology with Vernier	

THURSDAY | March 29th | Workshop Room 117

8:00 - 9:30 a.m.	Engineering with Vernier	
10:00 - 11:30 a.m.	Water Quality with Vernier	
12:00 - 1:30 p.m.	Inquiry-Based Biology with Vernier	
2:00 - 3:30 p.m.	Bridging STEM and Vernier Technology	

FRIDAY | March 30th | Workshop Room 116

8:00 - 9:30 a.m.	Advanced Physics with Vernier	
10:00 - 11:30 a.m.	Biology with Vernier	
12:00 - 1:30 p.m.	Chemistry with Vernier	
2:00 - 3:30 p.m.	Physics with Vernier	

FRIDAY | March 30th | Workshop Room 117

8:00 - 9:30 a.m.	Human Physiology with Vernier	
10:00 - 11:30 a.m.	Advanced Chemistry with Vernier	
12:00 - 1:30 p.m.	Advanced Biology and Biotechnology with Vernier	
2:00 - 3:30 p.m.	Environmental Science with Vernier	

SATURDAY | March 31st | Workshop Room 116

8:00 - 9:30 a.m.	Physics with Vernier	
10:00 - 11:30 a.m.	Chemistry with Vernier	
12:00 - 1:30 p.m.	Biology with Vernier	
2:00 - 3:30 p.m.	Video Analysis with Vernier	

SATURDAY | March 31st | Workshop Room 117

8:00 - 9:30 a.m.	Introducing Vernier DataQuest Data Collection for TI-Nspire™ Technology	
10:00 - 11:30 a.m.	Earth Science with Vernier	
12:00 - 1:30 p.m.	What's New for the Vernier LabQuest?	
2:00 - 3:30 p.m.	Inquiry-Based Chemistry with Vernier	

NO PRE-REGISTRATION! NO FEE!

Hands-On Workshop Demonstration Workshop

NSTA Avenue Sessions

Visit the NSTA Avenue, our marketplace in the Exhibit Hall at Convention Center, 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, March 29

2:00–3:00 PM

Research Insights into Online Communities of Practice and Teacher Learning Online: The NSTA Learning Center

3:30–4:30 PM

The NSTA Learning Center: A Tool to Develop Preservice Teachers

Friday, March 30 (Volume 2)

8:00–9:00 AM

Models in the Classroom: Making Meaning Come Alive for Students Through the Use of Models

9:30–10:30 AM

Siemens We Can Change the World Challenge: Using Project Based Learning (PBL) to Boost Achievement...and Help Change the World

11:00 AM–12 Noon

The NSTA Learning Center: Free Professional Development Resources and Opportunities for Educators

12:30–1:30 PM

Disney's Planet Challenge: Project Based Learning and Service Learning-based Lesson Development and Funding

2:00–3:00 PM

NSTA Teacher and Principal Awards and Recognitions

Saturday, March 31 (Volume 3)

11:00 AM–12 Noon

The Shell Science Teaching Award—Learn More, Be Successful! Win \$10,000!

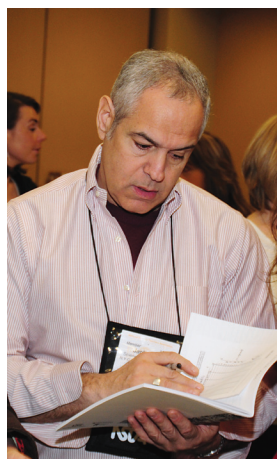
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Ticket C-1 •
\$95, plus conference
registration

***Preregistration only**

*Tickets, if still available, can
 be purchased at the
 Ticket Sales Counter in the
 NSTA Registration Area.*

*Tickets must be purchased by
 5:00 PM on Friday, March 30.*

*Upon purchase of a ticket,
 participants may select three
 breakout sessions that best
 match their needs and interests.*

Looking Toward the New Framework for the Next Generation Science Standards: New Research on Promising Practices in Professional Development with a Focus on Curriculum Integration

A Research Dissemination Conference for K–12 Teachers, Administrators, Professional Development Providers, University Faculty, and Curriculum Specialists (Ticket C-1)

Saturday, March 31, 7:45 AM–3:00 PM (Breakfast begins at 7:00 AM)

White River Ballroom E, JW Marriott Indianapolis

Research on science teaching and learning plays an important role in improving science literacy, a goal called for in the National Science Education Standards (NRC 1996) and supported by the National Science Teachers Association (NSTA 2003). NSTA promotes a research agenda that is focused on the goal of enhancing student learning through effective teaching practices that connect research and practice. NSTA encourages ALL participants in science education, including K–16 teachers of science and administrators, to recognize the importance of research and assume active roles in research practices.

NSTA Position Statement: The Role of Research on Science Teaching and Learning

The synergistic relationship between research and practice includes teachers and researchers communicating goals, activities, and findings with the greater science education community in ways that make research accessible, understandable, meaningful, and relevant to teachers, administrators, and policy makers. Through the bridging of research and practice NSTA can promote science literacy for students in the 21st century as envisioned by *A Framework for K–12 Science Education: Practices, Crosscutting Concepts, and Core Ideas* (NAS, 2011).

In response to the need for knowledge of effective science education strategies, the National Science Teachers Association developed Research Dissemination Conferences (RDC) to highlight research topics and NSTA's expanding commitment to bring specific, meaningful, and practical professional development to science educators. By disseminating best practice and current research, RDCs have provided and supported high-quality professional development opportunities for educators since 2005. The goals of RDCs are to share tools and resources that support high-quality and effective science teaching; implement strategies to connect science educators with the broader science community; as well as promote the use of education research to inform policy and practice.

The overall objective of this daylong event is to:

- Disseminate current research on K–12 science education to practitioners and policy makers in order to promote its wide application to improve science teaching and student learning;
- Emphasize results that address key issues and concerns such as student achievement, STEM integration, teacher content knowledge, scalability, and sustainability;
- Provide a forum for discussing issues and fostering ongoing collaboration in support of improving science teaching for learning;
- Allow teachers and administrators at school and district levels, as well as professional development providers, to learn about the implications of researchers' work for classroom practice and professional development.

Focused professional development bridging research to instructional practice

The conference format includes plenary sessions that address issues of general interest and multiple concurrent small group sessions that focus on best practice and current research for a practitioner audience. Breakout session topics will include but are not limited to:

- Online and school-based professional development
- STEM Integration
- Questions, claims, and evidence as part of science assessment
- Formal and informal science education integration
- Science learning through simulations and games
- Science and literacy integration
- Teaching science in a social context

When registering for the conference, participants select breakout sessions that best match their needs and interests. Each breakout session targets the interests of specific groups, such as elementary teachers, secondary teachers, principals, curriculum coordinators, and professional development providers.

The RDC is designed to encourage greater dialogue among researchers, practitioners, and policy makers to bring about a better understanding of science education strategies.

Agenda

7:00–7:45 AM	Continental Breakfast
7:45–8:00 AM	Welcome and Introductions Zipporah Miller, <i>NSTA Associate Executive Director for Professional Programs and Conferences</i> Francis Q. Eberle, <i>NSTA Executive Director</i>
8:00–8:45 AM	Plenary Session I: <i>What You Should Know About the Framework for the Next Generation Science Standards</i>
8:50–10:20 AM	Breakout Block A
10:30 AM–12 Noon	Breakout Block B
12 Noon–12:45 PM	Lunch
12:50–2:20 PM	Breakout Block C
2:25–3:00 PM	Plenary Session II: <i>Reflection and Discussion</i>

Research Dissemination Conference Breakout Sessions

Breakout Block A (8:50–10:20 AM)
Breakout Block B (10:30 AM–12 Noon)
Breakout Block C (12:50–2:20 PM)

(White River Ballroom I, JW Marriott Indianapolis)

Breakout Session 2

How Online Science Professional Development Can Improve Teacher Knowledge, Practice, and Student Learning
Lauren B. Goldenberg, Marian Pasquale, Alice Anderson, and Camille Ferguson, Educational Development Center, Newton, Mass.

Larry Gristanti, Aurora Public Schools, Aurora, N.Y.

Breakout Session 3

Mathematics Infusion into Science: Making Connections Across the STEM Curriculum During Middle School

James Lauckhardt, Center for Advanced Study in Education, CUNY Graduate Center, New York, N.Y.

Scott J. McMullen, Retired District Coordinator for Science and Technology, K–12, New York, N.Y.

Breakout Session 4

Increasing the Effectiveness of School-based Professional Development: A Model for Science Teacher Professional Growth: Observing for Evidence of Learning (OEL)
Caroline Kiehle, Center for Inquiry Science at the Institute for Systems Biology, Seattle, Wash.

Kathryn Kelsey, Seattle Public Schools, Seattle, Wash.

Breakout Session 5

Integrating Engineering Design Across the Curriculum and into Student Collaboration Skills: A Pedagogical Model for Classroom Practice

Ann P. McMahon, Engineer Educator and K–12 PD Provider, St. Louis, Mo.

Virginia Horowitz, Saul Mirowitz Day School—Reform Jewish Academy, St. Louis, Mo.

Breakout Session 6

Research-based Science Instruction for Climate Change: A Place-based Culturally Responsive Approach

Anne L. Kern and **Bree J. Reynolds**, University of Idaho, Coeur d'Alene

R. Justin Hougham, NASA–Intermountain Climate Education Network (ICE–Net), University of Idaho, Moscow

Gillian H. Rochrig and **Devarati Bhattacharya**, University of Minnesota, Minneapolis

Breakout Session 7

Situating Secondary Science in a Social Context

Lisa A. Borgerding (Donnelly), **Alicia R. Crowe**, **Andrew Hostetler**, **Rajlakshmi Ghosh**, **Diane Smith**, and **Elizabeth Fein**, Kent State University, Kent, Ohio

Breakout Session 8

SciGames: Integrating Formal and Informal Science Learning Environments to Improve All Students' Motivation and Science Content Knowledge

David Kanter, New York Hall of Science, Queens, N.Y.

Thomas McManus, P.S./M.S. 029 Melrose School, Bronx, N.Y.

Breakout Session 9

Understanding the Role of Questions, Claims, and Evidence in Assessment

Brian Hand, University of Iowa, Iowa City
Lori Norton-Meier, University of Louisville, Louisville, Ky.

Lynn Hockenberry, Literacy Consultant and Consultant for Continuous Improvement at Green Hills Area Education Agency, Council Bluffs, Iowa
Josh Steenhoek, Pella Intermediate School, Pella, Iowa

Breakout Session 10

Beyond the “Gee Whiz” Factor: Evaluating and Integrating Simulations and Games for the Science (Chemistry) Classroom

Catherine Milne and **Ruth N. Schwartz**, New York University, New York

Susan Price, Manhattan Comprehensive Day and Night High School, New York, N.Y.

Breakout Session 11

Weaving a Web of Reading and Writing in Science: Strategies for Science Literacy That Stick

Jennifer Hope, **Angela Kohnen**, and **Cathy Farrar**, University of Missouri–St. Louis

Rose Davidson, St. Joseph's Academy, St. Louis, Mo.

Tonya Barnes, Hazelwood East High School, St. Louis, Mo.

Breakout Session 12

Problems Worth Solving: Implementing CLA-style Performance Tasks in the K–12 Science Classroom

Marc Chun, Council for Aid to Education, New York, N.Y.

Elizabeth McEneaney, University of Massachusetts–Amherst

Alana MacDonald, ABC Unified School District, Cerritos, Calif.



NSTA Professional Development Institutes

Wednesday, March 28

8:00 AM–4:00 PM

PDIs and work sessions were available by preregistration only.

Key topics in science teaching for learning are explored. NSTA professional development institutes (PDIs) are focused, content-based programs conducted by well-known professional development providers and NSTA partners. Each PDI begins with a full-day preconference session on Wednesday, March 28, followed by two days of pathway sessions during the conference that offer further exploration of the topics covered. The three work sessions are one-day sessions at a reduced fee because they do not include pathway sessions. Check-in opens at 8:00 AM.

Engineering byDesign™ (Ebd): An Integrative STEM Solution for K–12 (PDI-1)

Offered by International Technology and Engineering Education Association (ITEEA)

Joey H. Rider-Bertrand, Lower Merion School District, Ardmore, Pa.

Level: Grades K–12

Location: White River Ballroom A, JW Marriott

The ITEEA STEM Center for Teaching and Learning™ (STEM±CTL) has developed a standards-based national model for grades K–12, Engineering byDesign, that delivers technological literacy through STEM-based instruction. Examine a model that works to foster development of a global perspective for personal and social responsibility and encourages individuals to collaborate and take action to address problems.

ITEEA Pathway Sessions

All sessions are located in White River Ballroom A. See daily program for details.

Thursday, March 29

8:00–10:00 AM

STEM Resources for Grades K–2

12:30–2:30 PM

STEM Resources for Grade 3

Friday, March 30

8:00–10:00 AM

STEM Resources for Grade 4

12:30–2:30 PM

STEM Resources for Grade 5

Energy: What's the Big Idea? Energy! (PDI-2)

Offered by the Center of Science and Math in Context (COSMIC), University of Massachusetts Boston

Arthur Eisenkraft, 2000–2001 NSTA President, and University of Massachusetts, Boston

Level: Grades K–12

Location: White River Ballroom B, JW Marriott

Boston Energy in Science Teaching (BEST) presents a comprehensive way to connect the sciences through the big idea of energy. Explore where energy is within each K–12 science discipline through a vertical teaming model, learn how to articulate the K–12 energy curriculum and how to connect energy across science content areas, and discover the benefits associated with using this conceptual model.

BEST Pathway Sessions

All sessions are located in White River Ballroom B. See daily program for details.

Thursday, March 29

8:00–9:00 AM

Connecting Energy Concepts Through Professional Development

11:00 AM–12 Noon

How Can Students in Grades 3–5 Understand Energy?

12:30–1:30 PM

Stop Faking It—Energy

2:00–3:00 PM

Uncovering Students' (and Teachers') Ideas About Energy

3:30–4:30 PM

Energy Literacy: Essential Principles and Fundamental Concepts for Energy Education

5:00–6:00 PM

Energy in the AP Biology Redesign

Friday, March 30

8:00–9:00 AM

The Science of Energy

9:30–10:30 AM

Energy in K–12 Biology

11:00 AM–12 Noon

Energy in K–12 Physics

12:30–1:30 PM

Energy in K–12 Chemistry

2:00–3:00 PM

Energy in K–12 Earth Science

3:30–4:30 PM

Engaging Students Through Green Energy

5:00–6:00 PM

Supporting Students Learning Energy Throughout the Middle School Curriculum

Using Cognitive Science to Improve Science Learning (PDI-3)

Offered by 21st Century Center for Research and Development in Cognition and Science Instruction, a partnership between the University of Pittsburgh, Temple University, the University of Pennsylvania, Research for Better Schools, and the 21st Century Partnership in STEM Education (PSTEM)

Donna Cleland, The 21st Century Partnership for STEM Education, Conshohocken, Pa.

Level: Grades 6–12

Location: White River Ballroom C, JW Marriott

Engage in four research-based cognitive science learning principles and embed them into existing science curricula. After experiencing learning science through activities using these principles, engage in developing similar modifications for your

own science materials. The Center's mission is to apply what cognitive science has learned about learning in the past 20 years to what is being done in science education in our schools.

PSTEM Pathway Sessions

All sessions are located in White River Ballroom C, JW Marriott. See daily program for details.

Thursday, March 29

8:00–9:30 AM

More Best Practices in Teaching: A Look at the Research

10:00 AM–12 Noon

Cognitive Science Learning Principles in Action: Contrasting Cases

12:30–1:30 PM

Cognitive Science Learning Principles in Action: Visualizations

2:00–5:00 PM

Cognitive Science Learning Principles in Action: Misconceptions and Their Use in Spaced Assessment

Friday, March 30

8:00–9:00 AM

Cognitive Science Learning Principles in Action: Earth Science Content as the Context for the Enhancements

9:30–10:30 AM

Cognitive Science Learning Principles in Action: Life Science Content as the Context for the Enhancements

11:00 AM–12:30 PM

Critical Issues in Science Success for Urban Children

The Literacy and Inquiry Connection: Instruction That Scaffolds and Enhances Scientific Thinking and Understanding (PDI-4)

Offered by Seattle Public Schools

Betsy Rupp Fulwiler, Seattle (Wash.) Public Schools

Level: Grades K–8

Location: White River Ballroom D, JW Marriott

Students of all ability levels can deepen their thinking and content understanding while learning to write specific forms of expository text (e.g., scientific observations, comparisons, cause and effect, data analysis, conclusions). Learn how to use language structures and other strategies to scaffold students' learning of science content and scientific thinking and enhance their ability to write scientifically, all in the context of firsthand inquiry.

SPS Pathway Sessions

Most sessions are located in White River Ballroom D, JW Marriott. See daily program for details.

Thursday, March 29

8:00–10:00 AM

They're Not Too Young: Emergent Writers Thinking and Writing Like Scientists

12:30–3:30 PM

Scientific Inquiry Blended with the Writing in Science Approach

5:00–6:00 PM

Science-related Research in the Middle School

Friday, March 30

8:00–11:00 AM

Integrating Science and Literacy: A Journey, Not a Destination

12:30–2:30 PM

Taking Little Ones from Questions to Claims: K–3 Inquiry Using the SWH

3:30–4:30 PM

Reading and Writing the News

Coaching: Knowledge That Works in Science Education Leadership (PDI-5)

Offered by S²TEM Center, South Carolina

Tom Peters, South Carolina's Coalition for Mathematics & Science, Clemson

Level: Grades K–12

Location: 101, JW Marriott

Explore an effective, efficient, and economical leadership paradigm to address the loss of science coaching positions. Actively engage in thinking about changes in the leadership paradigm by examining and developing a deeper understanding of the factors of professional community, the importance of instructional leadership in science education, and coaching's influence on developing, maintaining, and supporting learning communities through the use of video clips, reflective writing, real-time coaching, small group discussion, and a variety of protocols.

Conceptual Flow: Bridging the Gap Between Standards, Instructional Materials, and Student Learning (PDI-6)

Offered by WestEd

Kathy DiRanna, WestEd, Santa Ana, Calif.

Level: Grades K–12

Location: 102, JW Marriott

How instructional materials are designed and knowing how to enhance or adjust to maximize student learning have a tremendous impact on how teachers teach. Explore how instructional materials can be analyzed for their instructional design (or lack thereof), coherence of activities to build student understanding, and usefulness of assessments to measure student understanding.

WestEd Pathway Sessions

Most sessions are located in 102. See daily program for details.

Thursday, March 29

8:00–11:00 AM

The TLC Is a PLC!

1:00–4:00 PM

Understanding the Conceptual Flow

Friday, March 30

8:00–10:00 AM

Assessment-centered Teaching: A Reflective Practice

11:00 AM–12 Noon

Target Interventions Matter: Improving Student Graphing

12:30–3:30 PM

Designing Rubrics and Feedback

Inquiring into Inquiry: Creating an Inquiry-based Classroom (PDI-7)

Offered by BSCS

Paul Numedahl, BSCS, Colorado Springs, Colo.

Level: Grades K–12

Location: 309/310, JW Marriott

Are you interested in developing an inquiry-based science classroom to advance student learning? Immerse yourself in a day of scientific inquiry! This PDI will model and provide an understanding of what inquiry means for teaching and learning. Engage in activities that explore inquiry as a learner, elaborate ways in which inquiry can be used as a tool for teaching, and allow for discussion of how to set up and maintain an inquiry-based classroom.

BSCS Pathway Sessions

Thursday sessions are located in 309/310.

Friday sessions are located in 305/306.

See daily program for details.

Thursday, March 29

8:00–9:30 AM

Understanding the Practices of Science for Classroom Implementation

10:00–11:30 AM

Videocase Lesson Analysis for Increased Teacher Content Understanding

12:30–2:00 PM

Pedagogical Content Knowledge—Jargon or a Path to Improved Student Understanding?

3:00–4:30 PM

Getting Ready for the Changes in AP Biology

Friday, March 30

8:00–9:00 AM

The Science of Climate Change and Your Biology Class

9:30–10:30 AM

Virtual Lab Gaming for Student Understanding of Genetics

11:00 AM–12 Noon

Understanding the Science of Type 2 Diabetes

12:30–2:00 PM

Teaching Life Science so Students Learn

3:00–4:30 PM

Videocase Lesson Analysis for Improved Teacher Practice

What Works in Science Classrooms: Developing Student Understanding Through Classroom Inquiry, Discourse, and Sense-Making (PDI-8)

Offered by McREL

Anne Tweed, 2004–2005 NSTA President, and McREL, Denver, Colo
Level: Grades K–12
Location: White River Ballroom G, JW Marriott

What Works in Science Instruction is a professional development program based on the *Designing Effective Science Instruction* book. It is designed to improve teachers' ability to plan and deliver effective lessons to diverse student populations. Engage in activities to help your understanding of how inquiry, discourse, and sense-making activities in science classrooms translate to student understanding.

McREL Pathway Sessions

All sessions are located in White River Ballroom G. See daily program for details.

Thursday, March 29

8:00–10:00 AM

What Works in Science Classrooms—Developing Student Understanding: Identifying Learning Goals and the Criteria for Success from the Common Core Science Standards

10:30 AM–12 Noon

What Works in Science Classrooms—Developing Student Understanding Using a Conceptual Change Model to Teach Nanoscience and Technology Concepts

12:30–2:30 PM

What Works in Science Classrooms—Using a Formative Assessment Process to Determine Evidence of Student Understanding

3:30–5:00 PM

What Works in Science Classrooms—Instructional Technology and Virtual Manipulatives That Support Student Understanding

Friday, March 30

8:00–9:30 AM

What Works in Science Classrooms: Constructing Understanding via Visual Tools

10:00–11:30 AM

What Works in Science Classrooms: Addressing Student Misconceptions (Preconceptions)

12:30–1:30 PM

What Works in Science Classrooms: Student-designed Experiments

2:00–3:30 PM

What Works in Science Classrooms: Scientific Discourse in the Classroom

4:00–5:30 PM

What Works in Science Classrooms: Helping Students Think Scientifically

One-Day Work Session on Lecture-free Teaching: A Learning Partnership Between Science Educators and Their Students (PDI-9)

Bonnie Wood, University of Maine at Presque Isle
Level: Middle Level–College
Location: White River Ballroom J, JW Marriott

Assuming the role of students, participants will experience how the interplay of student preparation before class, cooperative learning, and formative assessment techniques allow an educator to achieve course content identical to that of a lecture-based course. Exploring Wood's 13 steps to lecture-free teaching will guide you in planning revisions of your own previously taught course or to design a course you have never taught before.

One-Day Work Session on Using Children's Books to Guide Inquiry: Picture-Perfect Science (PDI-10)

Offered by Picture-Perfect Science

Karen Ansberry, Mason (Ohio) City Schools
Emily R. Morgan, Picture-Perfect Science, West Chester, Ohio
Level: Grades K–6
Location: White River Ballroom I, JW Marriott

Using high-quality, science-related picture books and the 5E Instructional Model, Picture-Perfect Science integrates science and reading in a meaningful way. The facilitators will utilize a hands-on approach to share classroom-ready model lessons that integrate science inquiry and reading comprehension strategies. Picture-Perfect Science lessons are a great supplement to any textbook or kit-based program.

One-Day Work Session on Using Science Notebooks to Develop Conceptual Understanding in Grades K–8 (PDI-11)

Connie Hvidsten, BSCS, Colorado Springs, Colo.

Level: Grades K–8

Location: White River Ballroom H, JW Marriott

Learn how science notebooks can be used as an effective sense-making and formative assessment tool in the science classroom. Using authentic examples of notebook assessment rubrics, participate in a discussion about issues concerning student use and accountability, how students use notebooks for organization, and how the assessment rubrics are utilized.





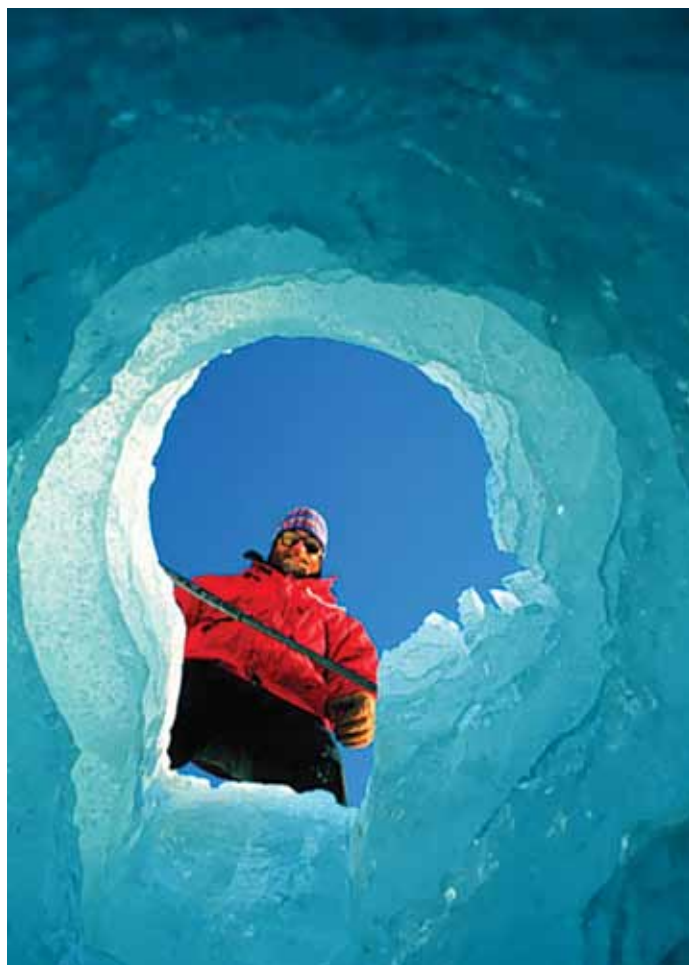
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Clues to the Cryosphere: Lessons from the Ice (SYM-3)

NSTA symposia are high-quality professional development opportunities that include a face-to-face learning symposium at the conference followed by two NSTA web seminars and a discussion forum within NSTA Communities that allow for extended interaction between participants and presenters. Designed to enhance teachers' knowledge of both science content and best teaching practices, symposia are standards based and presented by scientists, engineers, and educational specialists from NSTA partners such as FDA, NOAA, NIEHS, NSF, and the U.S. Forest Service. Admission to NSTA symposia is by ticket only and requires conference registration.

Tickets, if still available, can be purchased at the Ticket Sales Counter in the NSTA Registration Area.

Interagency Symposium: Teaching About Climate Change—Here and Now (SYM-1)

Edward Maibach, George Mason University, Fairfax, Va.

Bono Sen (senb@niehs.nih.gov), National Institute of Environmental Health Sciences, Durham, N.C.

Peg Steffen (peg.steffen@noaa.gov), **LuAnn Dahlman** (luann.dahlman@noaa.gov), and **Bruce Moravchik** (bruce.moravchik@noaa.gov), NOAA National Ocean Service, Silver Spring, Md.

Vicki Arthur, U.S. Forest Service, Washington, D.C.

Level: Grades 5–12

Date/Time: Thursday, March 29, 8:00 AM–12:30 PM

Location: JW Grand Ballroom 2, JW Marriott

Registration Fee: \$54

During this half-day symposium, scientists and education specialists from NIEHS, NOAA, and the U.S. Forest Service will present information about climate science and impacts of climate change on the ocean, forests, and human health. Participants will be provided with resources and activities about the processes of science, the use of data in the classroom, and how to address climate misconceptions and controversial issues.

The NIEHS, NOAA, and the U.S. Forest Service are pleased to provide a stipend of \$60 to all symposium participants upon completion.

Related sessions open to all conference attendees. See the daily program for details.

Thu., March 29 2:00–3:00 PM

Climate Toolbox: Tools for Educators

Thu., March 29 3:30–4:30 PM

Explore Impacts of Different Carbon Emissions Scenarios on Eastern U.S. Birds and Trees

Thu., March 29 5:00–6:00 PM

Teaching About Climate Change and Public Health: Challenges and Strategies for Effective Communication

Fri., March 30 8:00–9:00 AM

Using Real Data to Teach Ocean Acidification and Coral Bleaching

Fri., March 30 9:30–10:30 AM

Bring Climate Issues Closer to Home: U.S. Forest Service Climate Change Education Resources

Fri., March 30 11:00 AM–12 Noon

Climate Change: A Human Health Perspective

FDA Symposium: Teaching Nutrition Science and the Food Label (SYM-2)

Level: Grades 5–12

Date/Time: Friday, March 30 8:00 AM–12:30 PM

Location: JW Grand Ballroom 3, JW Marriott

Registration Fee: \$54

Explore ways of making science relevant for students by applying it to something that is a big part of their everyday lives—food! Learn the basics of nutrition science, nutrition-related health trends in the U.S., the scientific basis for the percent daily values (% DVs) on the Nutrition Facts Label, what teaching resources FDA has developed, and much more. FDA scientists and master teachers will lead participants in hands-on, inquiry-oriented activities that enable students to experience several National Science Education Standards, including those for Science in Personal Health and Social Perspectives.

Clues to the Cryosphere: Lessons from the Ice (SYM-3)

Christine Foreman (cforeman@montana.edu) and **Susan B. Kelly** (susan.kelly@montana.edu), Montana State University, Bozeman

Michael Gooseff (mgooseff@engr.psu.edu), Penn State, University Park, Pa.

Louise Huffman (lhuffman@andriil.org), University of Nebraska—Lincoln

Walt Meier (walt@nsidc.org), National Snow and Ice Data Center (NSIDC), University of Colorado—Boulder

Linda M. Morris (linda.m.morris@dartmouth.edu), Dartmouth College, Hanover, N.H.

Jill Mikucki (jmikucki@utk.edu), University of Tennessee, Knoxville

Ross D. Powell (rpowell@niu.edu), Northern Illinois University, DeKalb

Level: Grades 7–12

Date/Time: Friday, March 30, 1:30–6:00 PM

Location: JW Grand Ballroom 2, JW Marriott

Registration Fee: \$54

Rapid change coupled with new discoveries make the polar regions an exciting area to study and explore. Sponsored by the National Science Foundation's Polar Program Office, this interactive half-day symposium features scientists working in the

Arctic and Antarctic. Join us to learn more about the latest in polar science research and participate in hands-on activities for your classroom.

In its second year, Clues to the Cryosphere will focus on the importance of ice in the polar ecosystem and how it affects all of Earth's systems and the enormous changes occurring around the world today. Topics include an overview of the Polar Regions and how they impact global systems and Arctic sea ice loss, and how that loss is affecting the climate system worldwide. This symposium will also include a discussion that focuses on microbial life in ice and how that information informs climate science. A one-hour panel discussion with six polar scientists will conclude the symposium and provide time for one-on-one interaction. All participants will receive educational materials and resources from a variety of NSF-funded polar projects and learn about on-going education and outreach opportunities for educators.

Related NSF sessions open to all conference attendees. See the daily program for details.

Sat., March 31, 8:00–9:00 AM

The McMurdo Dry Valleys of Antarctica: Harshes Place on Earth or a Polar Oasis?

Sat., March 31, 9:30–10:30 AM

Science Is Cool! Using Polar Science Data in the Classroom

Sat., March 31, 11:00 AM–12 Noon

How Are Arctic Landscapes Responding to Permafrost Degradation Under a Warming Climate?

Sat., March 31, 12:30–1:30 PM

Icy Life on Earth and Beyond?

Sat., March 31, 2:00–3:00 PM

The Arctic: Global Climate's Canary in a Coal Mine

Sat., March 31, 3:30–4:30 PM

Thriving in the Polar Seas

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my students to
love science?

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

Energize Your Classroom (SC-1)

Tracie Cain (tcain02@charter.net), Academy of the Sacred Heart, St. Charles, Mo.

Kim Petzing (kim.petzing@mobot.org), EarthWays Center, Missouri Botanical Garden, St. Louis

Level: Elementary–Middle Level

Date/Time: Thursday, March 29, 8:00–11:00 AM

Location: Fisher Ballroom A, Omni

Registration Fee: \$39

Engage in inquiry-based activities designed to teach students about energy resources with an emphasis on coal and wind. With a focus on energy topics typically covered in elementary and middle school, participants will first engage in activities dealing with six forms of energy (nuclear, radiant, thermal, mechanical, chemical, and electrical) and how they transform during the process of source formation, from mining to generating electricity. Each participant will also work with a team to design blades for a model wind turbine. Take home directions for building your own model turbines. Door prizes!

Climate Change Essential Knowledge and Beyond: Using the Past to Predict the Future (SC-2)

Louise Huffman (lhuffman@andril.org) and **Frank R. Rack**, ANDRILL Science Management Office, University of Nebraska–Lincoln

Susan Kelly and **Christine Foreman** (cforeman@montana.edu), Montana State University, Bozeman

Don Duggan-Haas (dugganhaas@gmail.com), Museum of the Earth, Paleontological Research Institution, Ithaca, N.Y.

Susan M. Buhr (susan.buhr@colorado.edu) and **Anne U. Gold** (anne.u.gold@colorado.edu), Cooperative Institute for Research in Environmental Sciences, University of Colorado at Boulder

Michael Jabot (jabot@fredonia.edu), Institute for Research in Science Teaching, State University of New York at Fredonia

Candace Lutzow-Felling (lutzow-felling@virginia.edu), Arboretum of Virginia and Blandy Experimental Farm, University of Virginia, Boyce



Young Investigators in Environmental Health Science: Challenging and Exciting Young Minds with Novel, Inquiry-based Environmental Activities (SC-13)

Linda M. Morris (linda.m.morris@dartmouth.edu), Dartmouth College, Hanover, N.H.

Gary Clow, U.S. Geological Survey, Lakewood, Colo.

Jay Johnson, Space Science and Engineering Center, Madison, Wis.

Ross Powell, Northern Illinois University, DeKalb

Level: Grades 5–12

Date/Time: Thursday, March 29, 8:00 AM–3:00 PM

Location: McClellan, Omni

Registration Fee: \$21

This short course will address the issues facing grades 5–12 educators who want to include climate change in their curriculum but need to know where it fits into their required standards. Educators will interact with climate change research scientists, building essential knowledge of climate change and Earth systems. Scientists will share field experiences and cutting-edge research that is informing and changing current climate models. Educators will be introduced to the CLEAN (Climate Literacy and Energy Awareness Network) Pathways collection of climate change mate-

—Courtesy of Sara Swearingen Peterson.



Courtesy of UNAVCO

Explore Plate Tectonics and Earthquakes Through Web Tools and Apps (SC-16).

rials, ANDRILL (ANtartic geological DRILLing) science research, the Young Voices on Climate Change videos, and other online resources. Participants will experience hands-on activities and receive curriculum materials as well as take home cross-curricular resources for immediate classroom use. Lunch on own.

A+ Using Learning Progressions to Improve Science Teaching and Learning (SC-3)

Hannah Sevia (hannah.sevia@umb.edu), University of Massachusetts Boston

Charles (Andy) W. Anderson (andya@msu.edu), Michigan State University, East Lansing

James E. Hamos (jhamos@nsf.gov), National Science Foundation, Arlington, Va

Level: Elementary–High School

Date/Time: Thursday, March 29, 1:00–5:00 PM

Location: Fisher Ballroom A, Omni Severin

Registration Fee: \$77

Both the new *A Framework for K–12 Science Education* and the soon expected Next Generation Science Standards emphasize learning progressions (LPs) as an important strategy for evidence-based instructional decisions, assessment design and interpretation, and school and district science program planning. This short course provides an opportunity to learn

more about what LPs are (and are not) and how they are useful. Gain an introduction to LP research and practice interpreting student data from assessments designed to measure progress along LPs on core science topics. Walk away with resources for planning professional development aimed at supporting teachers in using new standards with an LP perspective. *Note:* Please bring a copy of your state's science standards.



Saving Energy, Saving Our Night Sky (SC-4)

Constance E. Walker (cwalker@noao.edu), **Robert T. Sparks** (rsparks@noao.edu), and **Stephen M. Pompea** (spompea@noao.edu), National Optical Astronomy Observatory, Tucson, Ariz.

Chuck Bueter, Nightwise.org, Granger, Ind.

Level: Middle Level–High School/Informal Education

Date/Time: Thursday, March 29, 1:00–5:00 PM

Location: Fisher Ballroom B, Omni Severin

Registration Fee: \$51

Students discover how to conserve energy while preserving dark skies through standards-based, immersive learning experiences illustrating responsible lighting, effects on wildlife, night-sky brightness measurements, and more. One-third of light from outdoor lighting escapes unused into space, wasting energy and causing light pollution. Wasted

light has negative effects on health and wildlife as well. An interactive light shielding demonstration developed by a team of leading astronomers and science educators along with a spectra of lights activity provide a fun, hands-on way to investigate the efficiency of good and bad lights and lead into a lighting audit of school buildings and homes. Please bring laptop, if possible.



DNA Subway in the Classroom (SC-5)

Uwe Hilgert, University of Arizona, Tucson

Level: High School–College

Date/Time: Thursday, March 29, 2:00–5:00 PM

Location: Gates, Omni Severin

Registration Fee: \$112

Engage your students in discovering the principles of molecular biology while using DNA Subway to sleuth DNA for genes, prospect plant genomes for gene and transposon families, and identify species by analyzing their DNA barcodes. Built by Cold Spring Harbor Laboratory's DNA Learning Center for the iPlant Collaborative, DNA Subway (<http://dnasubway.org>) is a collaborative and intuitive workspace to create and share projects, upload and access DNA sequences, and analyze genomic data in streamlined bioinformatics workflows. Please bring laptop, if possible.



Bringing Nanotechnology to the Classroom (SC-6)

Morton M. Sternheim (mort@umassk12.net), and **Rob Snyder** (snyder@umassk12.net), STEM Education Institute, University of Massachusetts, Amherst

Level: Middle Level–College/Informal Education

Date/Time: Friday, March 30, 8:00 AM–12 Noon

Location: Fisher Ballroom A, Omni Severin

Registration Fee: \$41

Nanotechnology is accessible in the classroom! Make a nanofilm using inexpensive materials and explore the effects of decreasing the size of materials to 1/100,000th of the width of a hair. At this scale, there are completely new physical phenomena in a domain where macroscopic and quantum concepts overlap. Other activities center on what makes nanomaterials special and enable us to make better products that are smaller, cheaper, faster, and more effective. Such products include electronics, catalysts, water purification, solar cells, sunscreens, coatings, medical diagnostics, therapy resources, and more. Additional activities will be described that can be adapted for a range of grade levels and subject areas.

Conducting Authentic Research on Smoking Behavior Using a Scientific Database (SC-7)

Maureen Munn (mmunn@u.washington.edu), University of Washington, Seattle

Level: High School–College

Date/Time: Friday, March 30, 8:15 AM–12:30 PM

Location: Off-site, Computer Lab at the Brebeuf Jesuit School

Registration Fee: \$60

Join us as we explore ways to engage students in conducting original research using the database from an epidemiological study of smoking behavior and an engaging curriculum. This short course will feature the curriculum, Exploring Databases: Conducting Authentic Research Using the Smoking Behavior Database, which guides students in developing and testing hypotheses that address the question, "Why do some people become smokers while others do not?" The Smoking Behavior Database contains data from an epidemiological study that collected genetic and environmental data from 300 adult smokers and nonsmokers. Students use the database to answer their own research questions about factors that affect smoking behavior and learn about epidemiology, genetics, neuroscience, bioethics, the nature of science, and careers in science and technology. *Note:* Participants should plan to meet at the Maryland St. entrance/Motor Lobby of the Indiana Convention Center 15 minutes prior to departure time for this off-site short course.

A+

Common Core Science Literacy Standards: Keeping Inquiry in the Science Classroom (SC-8)

Nancy Jackson, NCS Pearson, Westford, Mass.

Robert Cutting and **Frances-Joan Cutting**, NCS Pearson, Pass Christian, Miss.

Robert Vandel (rvandel.pearson@gmail.com), Woodstock, Ga.

Level: Grades 6–12

Date/Time: Friday, March 30, 8:30–11:30 AM

Location: Illinois, Omni Severin

Registration Fee: \$35

The new Common Core State Standards (CCSS) for literacy in science outlines reading and writing tasks to be completed by science teachers in the classroom. This short course focuses on the College and Career Readiness (CCR) reading and writing standards for grades 6–12. Learn how to incorporate an inquiry-based framework for teaching science as well as how to embed reading and writing activities that are connected to the science literacy standards. Identify connec-

tions to the CCSS science literacy standards by using energy-themed activities to explore a variety of reading and writing strategies. Please bring your science log notebook, if you have one.

Building Physical Science Demonstration Models (SC-9)

Martha M. Day (martha.day@wku.edu), and **David C. Slonim** (dcs1@live.com), SKyTeach, Western Kentucky University, Bowling Green

Matthew Ignash (matthew.ignash@jefferson.kyschools.us) and **Courtney D. Jernigan** (courtney.jernigan@jefferson.kyschools.us), Southern High School/Jefferson County Public Schools, Louisville, Ky.

Level: Middle Level–High School

Date/Time: Friday, March 30, 1:00–4:30 PM

Location: McClellan, Omni Severin

Registration Fee: \$45

Participants will make and take classroom demonstration models for teaching the gas laws, conductivity, Bernoulli's principle, and waves. Each demonstration model is accompanied by a 5E (engage, explore, explain, elaborate, and evaluate) science inquiry lesson appropriate for use in middle or high school physical science or high school chemistry classrooms.

Using WALL-E, an Animated Film, as an Effective Classroom Educational Resource (SC-10)

Sara Swearingen Peterson (sswearingen@smithvilleisd.org), Smithville (Tex.) Independent School District

Jason Peterson (jpeterson@smithvilleisd.org), Smithville Elementary School, Smithville, Tex.

Heather Reddick (hreddick@mdanderson.org), The University of Texas MD Anderson Cancer Center, Smithville, Tex.

Level: Elementary

Date/Time: Friday, March 30, 1:00–5:00 PM

Location: Fisher Ballroom B, Omni Severin

Registration Fee: \$19

Explore ways to innovatively present science, health, and environmental concepts using the animated movie, *WALL-E*. The visual nature of animation helps make science accessible for all students, including special needs students and English language learners. Create spaceships with inner-working components, build electrical circuits, test soil properties, explore properties of light, create ecosystems, and test traditional and alternative forms of energy. The hands-on lessons encourage students to think critically, solve problems, focus on details within larger contexts, and derive valid conclusions from their observations while using scientific terms in context.

Take home classroom-ready activities and lesson plans.

A+ Aligning Science Assessment Items to Content Standards (SC-11)

Ted Willard (twillard@nsta.org), NSTA, Arlington, Va.

Cari Herrmann Abell (cabell@aaas.org), AAAS Project 2061, Washington, D.C.

Level: K–12

Date/Time: Friday, March 30, 1:30–5:30 PM

Location: Illinois, Omni Severin

Registration Fee: \$29

Project 2061 has developed a process for examining the alignment of assessment tasks to the ideas and skills they were written to assess. The process involves examining assessment tasks for their alignment to the exact ideas specified in targeted content standards and for features that might make interpretation of student understanding difficult. The process is useful to national and state assessment developers, and to curriculum developers and classroom teachers who use assessment tasks as a basis for instructional decisions. In this short course, we will demonstrate the alignment procedure and participants will practice using the procedure on test items. We will also show participants how to access a bank of assessment items that are freely available on the web that Project 2061 developed using this process. For more details, visit assessment.aaas.org.



Using Technology to Develop a "Naturalistic" Approach in the Teaching of Science Concepts and Inquiry (SC-12)

Bill Klein (wjmsklein@aol.com), Western Iowa Tech Community College, Sioux City

Level: General

Date/Time: Friday, March 30, 2:00–5:00 PM

Location: Fisher Ballroom A, Omni Severin

Registration Fee: \$75

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/behaviors of living organisms. Participants will be exposed to methods for presenting science concepts as an inquiry process using technological tools such as digital microscopes and cameras. Research has validated these activities as effective and ones 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. A wealth of handouts, teaching strategies, activities, and a CD are provided.

Young Investigators in Environmental Health Science: Challenging and Exciting Young Minds with Novel, Inquiry-based Environmental Activities (SC-13)

Sara Swearingen Peterson (sswearingen@smithvilleisd.org), Smithville (Tex.) Independent School District

Jason Peterson (jpeterson@smithvilleisd.org), Smithville Elementary School, Smithville, Tex.

Heather Reddick (hreddick@mdanderson.org), The University of Texas MD Anderson Cancer Center, Smithville
Level: Elementary

Date/Time: Saturday, March 31, 8:00–11:00 AM

Location: Fisher Ballroom B, Omni Severin

Registration Fee: \$19

Discover new and exciting ways to integrate environmental health inquiry-based “investigations” to build on students’ curiosity to stimulate exploration of critical scientific concepts. This short course will include hands-on activities developed collaboratively by scientists and teachers. These lessons foster Cognitive Academic Language Proficiency. During the course, teachers will set up a mock crime scene to solve an environmental mystery. Participants will also explore an activity with “push-pull” spring scales to demonstrate forces in nature and how these forces affect the environment. Handouts and door prizes!

Be a Winner! Get a Grant and Your Students Win, Too (SC-14)

Kitchka Petrova (kpetrova7@dadeschools.net), Ponce de Leon Middle School, Coral Gables, Fla.

Patty McGinnis, NBCT (pmcginnis@methacton.org), Arcola Intermediate School, Eagleville, Pa.

Level: Elementary–High School

Date/Time: Saturday, March 31, 8:00–11:00 AM

Location: Gates, Omni Severin

Registration Fee: \$36

Are you excited about a project your students will benefit from? Grant money will help you realize your idea. There are many agencies, organizations, and foundations that have money to give away and are looking for high-quality proposals. This short course includes instructions and proposal-writing



—Courtesy of Morton M. Sternheim

Bringing Nanotechnology to the Classroom (SC-6).

activities to show you step by step how to develop a grant proposal. The participants will actively engage in writing a proposal to fulfill the requirements of agencies that are funding innovative STEM education projects. *Note:* Please bring a laptop, USB, and power cord.



Thinking Green with Dr. Seuss (SC-15)

Leslie Sutters (lsutters@tntech.edu), **Melissa Comer** (mcomer@tntech.edu), and **Sarah Keller** (skeller@tntech.edu), Tennessee Tech University, Oak Ridge

Level: Grades 4–12

Date/Time: Saturday, March 31, 8:00–11:30 AM

Location: Fisher Ballroom A, Omni Severin

Registration Fee: \$46

“Unless Someone Like You Cares a Whole Awful Lot, Nothing Is Going to Get Better. It’s Not.” The books of Dr. Seuss are excellent prompts for exploring the interconnection between living organisms and environment and the dichotomy associated with making money in a capitalist society versus environmental impacts. This short course will immerse participants in small group Project Based Learning. Four books are the main inspiration for the activities: *The Lorax*, *The King’s Stilts*, *The Butter Battle Book*, and *Yertle the Turtle*. Participate in small group Project Based Learning experiences, including creating inventions, mapping a country, simulating resource exchange, and a mock trial based on Dr. Seuss books.



Explore Plate Tectonics and Earthquakes Through Web Tools and Apps (SC-16)

Shelley Olds (*olds@unavco.org*), UNAVCO, Boulder, Colo.
John Taber (*taber@iris.edu*) and **Michael Hubenthal** (*hubenth@iris.edu*), IRIS Consortium, Washington, D.C.

Nancy West (*nancywwest@gmail.com*), Quarter Dome Consulting, Fort Collins, Colo.

Level: Middle Level–High School

Date/Time: Saturday, March 31, 8:00 AM–12 Noon

Location: McClellan, Omni Severin

Registration Fee: \$22

Learning about earthquakes and plate tectonics is fun and exciting by exploring real data. In this fun and interactive short course, you will gain hands-on experience with place-based, data-rich activities and science content to teach plate tectonics and earthquakes. You will explore modern technologies used to study the geology and geophysics of the earth beneath your feet in North America. You will learn how scientists use high-precision GPS and seismic data to discover the inner workings of the continent and how these measurements are important to hazard prediction highlighting the scientific process and practice with these data. Take home classroom materials. Please bring a laptop, if possible. For more details, visit www.unavco.org and www.iris.edu.



To Be or Not to Be? Solar-powered Cars, Is That Our Future? (SC-17)

Ted Richardson (*trichardson@tps.org*), Toledo Technology Academy and The University of Toledo, Ohio

Ken Newbury (*kenneth.newbury@utoledo.edu*), The University of Toledo, Ohio

Elizabeth Buckholtz (*elizabethbuckholtz@gmail.com*), Toledo Board of Education, Toledo, Ohio

Presider: **Janet L. Struble** (*janet.struble@utoledo.edu*), The University of Toledo, Ohio

Level: High School

Date/Time: Saturday, March 31, 1:00–4:30 PM

Location: Fisher Ballroom B, Omni Severin

Registration Fee: \$69

Leadership for Educators: Academy for Driving Economic Revitalization in Science (LEADERS) is a mathematics and science partnership that merges K–12 school districts, higher education (The University of Toledo), and renewable energy industry focused on the economic revitalization of the Great Lakes Region. Join us for this Project-Based Science (PBS) unit in which participants will build a model car powered by an electric motor and learn how to measure voltage, current, and resistance using a digital multimeter. Different gear ratios as well as battery-powered series and parallel circuits will be

explored. Solar cell N-P junctions will be explained using crystal models, and participants will investigate how color, angle of incidence, and light intensity affect solar cell output. Participants will create a T-Chart comparing two vehicles. Take home handouts on the research being done in photovoltaics and the business being created as a result of the research.



Developing Learner-centered STEM Experiences in the Life Sciences (SC-18)

Neil Knobloch, **Natalie Carroll** (*ncarroll@purdue.edu*), **Kathryn Orvis** (*orvis@purdue.edu*), **Colleen Brady** (*bradyc@purdue.edu*), and **Levon Esters** (*lesters@purdue.edu*), Purdue University, West Lafayette, Ind.

Level: Middle Level–High School

Date/Time: Saturday, March 31, 1:00–5:00 PM

Location: Gates, Omni Severin

Registration Fee: \$37

An interdisciplinary team of formal and informal education specialists will demonstrate how to create engaging experiences using active, inquiry, and contextualized learning activities involving animal, plant, food, and environmental sciences. Two innovative models for STEM learning and career development will be discussed as a way to create more engaging experiences for middle and high school students to learn life science knowledge and skills for STEM careers. The Indiana Advanced Life Sciences Curriculum and the Learner-Centered Teaching Model will be shared as frameworks for developing STEM engagement and career pathways. Learn about new instructional tools developed by the Purdue University Life Science Education Team. Please bring an internet-enabled laptop. For more details, visit www.ydae.purdue.edu/lct/.



Science for ELL: Sheltered Content Instruction for Inquiry Science (SCI²S) (SC-19)

David T. Crowther (*crowther@unr.edu*) and **Elisa Storke** (*elisa@unr.edu*), University of Nevada, Reno

Level: K–8

Date/Time: Saturday, March 31, 2:00–5:00 PM

Location: Fisher Ballroom A, Omni Severin

Registration Fee: \$43

This short course will discuss the use of science education standards, new core curriculum language arts and math standards, and ELL standards (TESOL) in planning a learning cycle and developing student background knowledge in appropriate ways. Beck's (2002) three tiers of words as well as a blended approach will also be discussed. Participants will engage in several hands-on activities modeling various strategies such as tiered/blended vocabulary, background building, and scaffolding inquiry. Handouts!

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Wednesday	5:00 PM–8:00 PM
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Saturday	7:00 AM–5:00 PM
Sunday	7:30 AM–12 Noon

*“Meet the Authors” and light refreshments:
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Friday (4:00 PM–5:00 PM)

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NSTA National
Science
Teachers
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Tickets for field trips can be purchased (space permitting) at the Ticket Sales Counter in the NSTA Registration Area. Meet your field trip leader at the Maryland St. entrance/Motor Lobby of the Indiana Convention Center at least 15 minutes prior to departure time.



Indianapolis Motor Speedway (F-9)

—Indianapolis Convention & Visitors Association; visitindy.com.

Building America: Dimension Limestone Quarrying in South Central Indiana \$46

T-1 Thursday, March 29 8:00 AM–6:00 PM

Salem Limestone (“Indiana Limestone”) is one of the nation’s premier building stones, gracing numerous buildings across the country. This stone is quarried in a two-county area in south central Indiana that 340 million years ago was covered by a shallow epicontinental sea with carbonate sand shoals similar to the modern Bahamas. This field trip will examine the general geology of the Bloomington quarry and milling of Salem Limestone, and limestone building architecture on the Indiana University (IU) campus. Following a field experience on the Beanblossom Creek section, the group will go to the IU campus and look at a variety of architectural styles and Salem Limestone uses. Lunch will be on your own at the IU Student Union. The afternoon tour includes a visit to a limestone quarry and mill.

Note: Remember to wear sturdy comfortable shoes, dress in layers, and bring rain gear. A moderate amount of walking should be expected. Participants must be at least 18 years of age and complete a hazardous awareness form at the quarry, following MSHA rules upon arrival at the site. Hard hats will be provided. Travel times will be roughly 75 minutes each way.

National Weather Service Forecast Office \$54

T-2 Thursday, March 29 9:15 AM–12:15 PM

Join us for an in-depth look at a forecast office in action. Learn about education requirements for a career in this field and see the equipment used today in observing and forecasting the weather. Lunch not included.

Note: Due to increased security concerns, field trip partici-

pants need to sign in and provide picture ID. No large bags/backpacks allowed. Purses are subject to search if brought into the facility. Cameras are allowed

Simulation: Voyage to Mars \$66

T-3 Thursday, March 29 11:45 AM–4:30 PM

Participate as an astronaut on a future Mars mission! You may be assigned to a group that has been living on Mars for two years, serving as the Mars Control officers. Or your assignment might be as part of the mission group who’s been rocketing toward the red planet on the Mars Transport spacecraft for the last six months. Mars Control officers will research, analyze data, and guide the Mars-bound group to a safe landing during the first half of the mission. Following landing, a reunion occurs in Mars Control, and the two groups exchange places. During the second half, the former Mars Controllers must safely launch from the Martian surface, achieve orbit, and then head home to Earth, while the other group settles in for their two-year stay on Mars! Emergencies are always a possibility, and each astronaut must be at his or her best in order to pull off this important, but risky mission! For more details, visit <http://challenger.brownsburg.k12.in.us>. Lunch not included.

Architectural Tour of Columbus, Indiana \$45

T-4 Thursday, March 29 12:30–5:00 PM

Travel writer Jordan Simon ranked Columbus, Indiana, among his “Top 10 Things to See in the U.S. Before You Die.” Columbus is ranked sixth in the United States for architectural innovation and design by the American Institute of Architects. Visitors will see the work of luminaries such

as Eero Saarinen, Cesar Pelli, Eliel Saarinen, Harry Weese, Kevin Roche, Robert Venturi, and Richard Meier. A guided bus tour enables you to see many of the 70 world-renowned buildings and public art installations. Your guide will take you inside two building interiors on the two-hour tour. You will be traveling through a virtual museum of contemporary architecture with a blend of history. For more details, visit www.columbus.in.us. Lunch not included. Travel time will be roughly 60 minutes each way.

Collecting the Natural Past of Indiana \$21

T-5	Thursday, March 29	12:45–4:30 PM
F-2	Friday, March 30	8:30 AM–12:15 PM

Step back in time and see what the world was like millions of years ago, from an Indiana point of view. Since 1862, the Indiana State Museum has been a leader in collecting, preserving, and researching Indiana’s rich natural heritage. Get a guided tour of the museum’s laboratories and discover how archaeological and paleontological remains begin their journey from dirt-covered objects to priceless exhibit pieces. Get a rare glimpse into the storage areas and see the state’s largest collection of Ice Age animals, fossils, and much more. Top



Indianapolis Zoo (F-7).

off your visit with a look at our exhibits and see how we are engaging people to discover the world as it was, as it is, and as it can be. For more details, visit www.indianamuseum.org. Lunch not included.

Note: There is not a bus for this excursion. Participants will walk as a group to the museum.

Indiana State Police Forensic Lab \$45

T-6	Thursday, March 29	1:00–4:00 PM
F-5	Friday, March 30	9:00 AM–12 Noon

The Indiana State Police Indianapolis Regional Laboratory is a state-of-the-art (opened in 2007), full-service public forensic laboratory (just like *CSI*...but different). The laboratory provides forensic services for criminal justice agencies throughout Indiana, including crime scene processing, evidence security, polygraph testing, forensic analysis of physical evidence, training, and expert witness testimony. Analytical services include forensic biology, drug identification, latent print examination, firearm examination, forensic document examination, and microanalysis (trace evidence). An overview of laboratory organization and services will be discussed in addition to a walk-through tour. The walk-through tour includes informational bulletin boards and large windows to view many analytical lab spaces. Interaction with various analytical staff is likely (and encouraged) during the tour.

Herman B Wells Center for Pediatric Research and Riley Children’s Foundation \$37

T-7	Thursday, March 29	1:15–4:30 PM
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Tour and speak with top researchers at the Herman B Wells Center for Pediatric Research. The Herman B Wells Center for Pediatric Research conducts basic science and translational research within the Department of Pediatrics at the Indiana University School of Medicine. Participants will also visit one of the nation’s premier children’s hospitals, the Riley Hospital for Children, and learn about the many “first and only” pediatric clinical programs and services the hospital offers. A tour stop includes the DNA Tower, a glass sculpture by Dale Chihuly that stands in the atrium of the Van Nuys Medical Sciences Building.

Note: Participants must be able to walk/mobilize through facility; fever free and in good health within two weeks of visit. Photos may be taken of touring group and physical facilities, but not of any patients or patient families.

Kokomo Opalescent Glass Company Tour \$33

F-1 Friday, March 30 8:00 AM–12:15 PM

Located in Kokomo, Indiana, The Kokomo Opalescent Glass Company is the oldest manufacturer of hand-cast, rolled cathedral and opalescent glass in America. The factory has been at this location since 1888 and has documented sales to Louis C. Tiffany. This tour will feature the production of glass for the stained glass industry using time-honored processes. The factory can manufacture more than 22,000 different colors/density/texture combinations. Participants will have time to browse The Op Shop where glass objects may be purchased. Travel time will be roughly 75 minutes each way. Lunch not included.

Note: No high-heeled or open-toed sandal-like shoes are permitted. Wear thick-soled shoes to protect your feet from glass shards and hot glass on the factory floor. People adversely affected by high temperatures or dust should not take tour. Dress in layers. All participants will be required to sign a “Plant Tour Assumption of Risk and Release” form that will be available on the bus before beginning the tour.

Purdue University—Discovery Park and College of Agriculture \$43

F-3 Friday, March 30 8:30 AM–5:30 PM

Discover Purdue! Learn what we are doing to prepare and support educators around the world through a tour and hands-on activities during this day on campus. The day begins at Purdue’s Discovery Park, an innovative, interdisciplinary research complex, followed by visits to the Birck Nanotechnology Center’s Scifres Nanofabrication Laboratory, the Bindley Bioscience Center, and the Hall for Discovery and Learning Research. In the second half of the field trip, explore science within the agriculture discipline at Purdue’s College of Agriculture. Discover “The Nature of Teaching” program developed for educators to incorporate wildlife and the study of ecosystems into their classrooms. Take part in hands-on activities that you can take back to your classrooms. Final stop will be a visit to the Biochemistry Teaching Laboratory where participants will conduct experiments and demonstrations illustrating scientific concepts. Take home lesson plans and resources throughout the day. Lunch on own at Campus Dining Court. For more details, visit www.purdue.edu/discoverypark/.

Note: Wear comfortable shoes for walking and clothing suitable for outdoor conditions. Participants should also have mobility to navigate college campus. Cameras are al-



Architectural Tour of Columbus, Indiana (T-4 and S-1)

lowed in the facilities. Travel time will be roughly 75 minutes each way.

Indiana University School of Medicine Research Tour \$51

F-4 Friday, March 30 9:00–11:55 AM

Participants will have a chance to discuss research with scientists as they conduct investigations and view some of the latest technologies, including advanced imaging systems as well as genetics, genomics, and proteomics tools that build on the secrets unveiled by the sequencing of the human genome. Join us for this special glimpse into one of the premier clinical research laboratories. Bring cameras.

Note: Some walking required.

Agricultural Biotechnology Presented by The Children’s Museum of Indianapolis and Dow Agro-Sciences \$73

F-6 Friday, March 30 9:00 AM–3:45 PM

Connect life science content with real-world applications in a study of agricultural biotechnology. Engage in activities relating to cells, DNA, and applications of biotechnology appropriate for middle school students at the Biotechnology Learning Center at The Children’s Museum of Indianapolis. Take home a curriculum guide and access to online resources developed for SciencePort. For more details about the Children’s Museum, visit www.childrensmuseum.org. After

—Courtesy of Columbus Area Visitors Center

lunch, participants will receive a tour of Dow AgroSciences to view biotechnology research in action. Learn about their research focusing on game-changing technologies to provide better crops, better plant nutrition, and better control of destructive crop and noncrop weed and insect pests. For more details about Dow AgroSciences, visit www.dowagro.com. Lunch on own at museum cafeteria.

Note: Participants must show a government ID for entry into Dow AgroSciences. Participants are required to wear socks and close-toed shoes with pants or skirts with hosiery. Shorts are not permitted on the tour. Photography is not permitted at Dow AgroSciences.

Indianapolis Zoo \$37

F-7 Friday, March 30 12 Noon–4:00 PM

Explore the Indianapolis Zoo and White River Gardens to learn about animals and plants from around the world. Exhibit highlights include the country's largest shark touch pool, close-up views of tigers and cheetahs, daily dolphin shows, animal chats, and more. The zoo programs focus on the animals' habits specific to their environments and how the zoo works to meet the needs of each animal. Admission includes both the zoo and the White River Gardens, a 3.3-acre landmark botanical attraction with a Hilbert Conservatory show. Bring cameras and wear comfortable walking shoes. Lunch on own at Cafe on the Commons. For more details about program and the zoo in general, visit www.indianapoliszoo.com.

Indiana Medical History Museum \$34

F-8 Friday, March 30 12:20–2:20 PM

The Indiana Medical History Museum is housed in the 19th-century pathological department of what used to be Central State Hospital in Indianapolis. When the building closed in the late '60s, it was largely left intact so the tour gives you an interesting glimpse into the state of medical science from the late 19th century to about the 1930s and 1940s. In this building, scientists and physicians from Central State Hospital were applying pathology, a relatively new science at the time, to mental illness. They were looking for physical causes of and treatments for mental illness. The tour begins with an introduction to this building and Central State Hospital in the surgical amphitheater followed by a tour of other rooms and laboratories, which include the autopsy room; lab rooms for clinical chemistry, bacteriology, histology, and photography; records room; medical library; reception room; and chemical storage room. Lunch not included.

Note: The building entrance and first floor are wheelchair



Simulation: Voyage to Mars (T-3)

accessible. However, due to the historic nature of the building, there is no elevator to reach the second floor. A short movie that shows the second floor can be set up upon request.

Indianapolis Motor Speedway \$55

F-9 Friday, March 30 12:45–3:45 PM

The Indianapolis Motor Speedway has been a National Historic Landmark since 1987. The first 500 Mile Race was run here in 1911, and it's home to the Indianapolis 500 Mile Race, the Brickyard 400 Race, and the Red Bull Indianapolis GP Race. There are more than 75 race cars on display in the museum as well as trophies, racing memorabilia, and artwork. A 20-minute video on the history of the Speedway is shown every half hour in the museum theater. Track tours on the 2.5-mile oval racetrack are available except for times when there are racing, testing, special events, construction, or winter weather conditions. In addition, the Trackside Gift Shop features a complete line of Indianapolis 500, Brickyard 400, and MotoGP souvenirs, including apparel, books, videotapes, jewelry, and novelties.

—Courtesy of Brownsburg Challenger Learning Center

Riley Hospital for Children and The Simulation Center at Fairbanks Hall \$33

F-10 Saturday, March 30 1:30–4:15 PM

Broken up into two groups, participants will visit one of the nation's premier children's hospitals, the Riley Hospital for Children, and learn about the many "first and only" pediatric clinical programs and services the hospital offers. After touring this member of the Children's Miracle Network and seeing their dedicated work, participants will leave with ideas for enriching their science curriculum and for promoting lifelong philanthropic service. The other half of the tour includes a visit to The Simulation Center at Fairbanks Hall, a collaborative effort among Indiana University's Schools of Medicine, Nursing, and Health. The simulation center's mission is to provide a replica of the patient care environment where health care providers can learn to apply cognitive, psychomotor, and affective skills in an interdisciplinary approach. Participants will engage in activities involving health-care techniques such as mask ventilation and CPR practice on mannequins. The tour will show clinical settings such as computer-simulated surgery and provide a glimpse of what future hospitals will be like.

Note: Participants must be able to walk/mobilize through facility; fever free and in good health within two weeks of visit. Photos may be taken of touring group and physical facilities, but not of any patients or patient families.

Architectural Tour of Columbus, Indiana, with Lunch at Zaharakos \$48

S-1 Saturday, March 31 8:00 AM–3:30 PM

Travel writer Jordan Simon ranked Columbus, Indiana, among his "Top 10 Things to See in the U.S. Before You Die." Columbus is ranked sixth in the United States for architectural innovation and design by the American Institute of Architects. Visitors will see the work of luminaries such as Eero Saarinen, Cesar Pelli, Eliel Saarinen, Harry Weese, Kevin Roche, Robert Venturi, and Richard Meier. A guided bus tour enables you to see many of the 70 world-renowned buildings and public art installations. Your guide will take you inside two building interiors on the two-hour tour. You will be traveling through a virtual museum of contemporary architecture with a blend of history. For more details, visit www.columbus.in.us. At the end of the city tour, the bus will stop at Zaharakos Ice Cream Parlor for lunch. In business since 1900, this historic landmark features stained glass, carved oak, Tiffany-style lamps, double soda foun-

tains, and the rich sound of the Welte Orchestrator. For more information on menu and ice cream items, go to www.zaharakos.com. Travel time will be roughly 60 minutes each way.

Indiana University In Search of Discovery \$93

S-2 Saturday, March 31 8:30 AM–6:15 PM

Be a college student again—without the late-night cram sessions, final exam, and cold pizza. Experience firsthand the exciting research being conducted in various disciplines from science education to cancer treatment. Conduct experiments in state-of-the-art labs, practice computer-assisted learning methods (CALM), examine Project Based Learning initiatives, and explore recent scientific breakthroughs. Participants will have the opportunity to visit two of the following: the Indiana University (IU) Molecular Structure Center, the Nuclear Magnetic Resonance Facility, or the IU Proteomics Facility. In the afternoon, all participants will tour the Integrated Science and Accelerator Technology Hall, which is comprised of The Center for Exploration of Matter and Energy, the IU Cyclotron Operations, and the IU Health Proton Therapy Center. Our award-winning faculty and talented staff are ready to share their knowledge and quest for discovery. Lunch will be served in the heart of the Bloomington campus at the Indiana Memorial Union, the world's largest student union. The cost for the lunch is included in the ticket price. The day's adventures will conclude with a wine-tasting mixer at Oliver Winery with faculty. Travel time will be roughly 75 minutes each way.

Kelsay Farms Tour \$30

S-3 Saturday, March 31 9:00 AM–12:30 PM

Visit a real working dairy farm! Kelsay Farms is a sixth-generation family farm located in Whiteland, Indiana, milking more than 500 cows three times every day. The 1.5-hour guided tour will be complete with a trip inside a milking parlor, barns, calving area, and a special lesson on dairy foods. Each participant will receive a complimentary dairy snack as well as some "fun" items related to dairy farming. Come dressed to be outdoors on a farm. For more details, visit www.kelsayfarms.com. No lunch included.



Courtesy of Indiana State Museum

Collecting the Natural Past of Indiana (T-5 and F-2)

Conner Prairie Interactive History Park \$37

S-4 Saturday, March 31 9:00 AM–1:15 PM
S-8 Saturday, March 31 1:00–5:15 PM

At Conner Prairie, the Smithsonian Institution's only Indiana affiliate, you'll find that "look, don't touch" becomes "look, touch, smell, taste, and hear." As you explore five themed historic areas on 200 beautiful, wooded acres, you'll discover more exciting, memorable ways to experience the past than you can pack into a day. Visit the Science Lab where changing experiments satisfy all ages...you might build a machine that moves, tame the power of the wind, or spark up some fun with electricity. At Conner Prairie, the Indiana history you read about in textbooks becomes a vibrant learning experience full of activities for students and teachers to see and do. You can talk with the potter, feel the heat from the blacksmith's forge, play games with the local pioneer children, and help with farm chores. For more details, visit www.connerprairie.org. Lunch is available on your own at the Cafe on the Common and handmade items are available at the Conner Prairie store. Bring your cameras!

Note: Bring your walking shoes and coats as your visit will take place on the outdoor historic grounds.

Eiteljorg Museum of American Indians and Western Art \$17

S-5 Saturday, March 31 9:45 AM–12 Noon

The Eiteljorg Museum contains one of the most renowned collections of American Indian and Western art in the world, expansive exhibitions of artifacts, and dynamic programming.

Don't leave before going to the R.B. Annis Western Family Experience where you can try raising a totem pole, weaving on a loom inside a modern-day Navajo hogan, stepping back in time to build a sod home in Nebraska, or traveling inside the Cheyenne to Deadwood stagecoach. There is not a bus for this excursion. Participants will walk as a group to the museum.

Easley Winery Tour and Wine Tasting \$25

S-6 Saturday, March 31 11:45 AM–1:45 PM

Come visit Indiana's oldest family-owned winery located in downtown Indianapolis. You will have a chance to tour our wine-making facility, sample our wines, and enjoy some lovely appetizers. All participants will receive a 25% discount on all wine bottle purchases made the day of the event (excluding Reserve wines.) For more details, visit www.easleywinery.com. Lunch not included.

Monument Circle Walking Tour \$18

S-7 Saturday, March 31 12:45–2:45 PM

Indiana Landmarks' guided tour around the physical and symbolic heart of Indianapolis tells the story of Monument Circle—how it came to be and cool features you might otherwise miss. Guides discuss the Soldiers and Sailors Monument, the symbolism of its sculptures, and why the woman on top faces south. They'll also tell stories of the encircling architecture and offer a look at a landmark interior. For more details, visit www.indianalandmarks.org.

Monday, March 26

Council of State Science Supervisors (CSSS) Annual Meeting
By Invitation Only
JW Grand Ballroom 1, JW Marriott 7:00 AM–5:00 PM

Tuesday, March 27

Council of State Science Supervisors (CSSS) Annual Meeting
By Invitation Only
JW Grand Ballroom 1, JW Marriott 7:00 AM–5:00 PM

Wednesday, March 28

NSELA Professional Development Institute (Registration Office)
108, JW Marriott 6:00 AM–6:00 PM

NSELA Professional Development Institute
By Registration Through NSELA
White River Blrm. F, JW Marriott 6:30 AM–3:00 PM

CSSS Annual Meeting
By Invitation Only
JW Grand Ballroom 1, JW Marriott 7:00 AM–5:00 PM

National Marine Educators Association Board Meeting
By Invitation Only
Grand Ballroom 3, Westin 7:00 AM–5:00 PM

SESD Science-abled Breakfast Meeting
By Registration Through SEDS
Michigan, Marriott Downtown..... 8:00–10:00 AM

Dr. Lowery's Research into Practice Institute
By Invitation Only
Capitol I, Westin 8:00 AM–4:00 PM

CESI: Engineering Is Elementary Day
By Registration Through CESI
Marriott Blrm. 1/2, Marriott Downtown... 8:00 AM–4:00 PM

Supporting English Language Learners in Science: Strategies for Success
By Registration Through U.S. Dept. of Education
JW Grand Blrm. 4, JW Marriott 8:00 AM–4:00 PM

FOSS 2012 Meeting
By Invitation Only
Congress I/II, Westin 8:00 AM–5:00 PM

NOAA Climate Stewards Annual Workshop
By Invitation Only
Grand Ballroom 1, Westin 9:00 AM–4:00 PM

Science Education for Students with Disabilities Preconference Meeting
By Registration Through SEDS
Texas, Marriott Downtown 10:00 AM–5:00 PM

FOSS Luncheon
By Invitation Only
Caucus, Westin 12 Noon–1:00 PM

Hands-On Science for AfterSchool Seminar
Indiana Blrm. G, Marriott Downtown 1:00–5:00 PM

Hands-On Science Partnership Board Meeting
By Invitation Only
Michigan, Marriott Downtown..... 4:30–6:00 PM

New Science Teacher Academy Reception
By Invitation Only
JW Grand Ballroom 8–10, JW Marriott 5:00–8:00 PM

NSTA President's International Reception
Sponsored by Pearson
Open to International Visitors and Invited Guests
White River Ballroom F, JW Marriott 6:00–7:00 PM

Science Rocks!
Sagamore Ballroom 1–5, Conv. Center 6:00–8:30 PM

NSELA/CSSS Reception
For NSELA and CSSS Members and Other Invited Guests
JW Grand Ballroom 3/4, JW Marriott 7:00–9:00 PM

Thursday, March 29

NSELA Membership Meeting
For NSELA Members and Other Invited Guests
JW Grand Ballroom 1, JW Marriott 6:30–9:30 AM

National Earth Science Teachers Association Board of Directors Meeting
Senate 3, Westin..... 8:00 AM–12 Noon

Global Conversations for Science Education Conference (M-1)
(Tickets Required: No Charge)
By Registration Only
White River Blrm. E/F, JW Marriott 8:00 AM–2:00 PM

Conference Program • Meetings and Social Functions

NSTA Student Chapter Showcase and Lounge
CSO5 (Hall E), Convention Center.....8:00 AM–5:00 PM

NSTA Committee on Informal Science Meeting
206, JW Marriott8:30–10:30 AM

NSTA Awards and Recognitions Committee Meeting
207, JW Marriott8:30–10:30 AM

Science Matters Advisory Board Meeting
304, JW Marriott8:30–10:30 AM

NSTA Special Needs Advisory Board Meeting
301, JW Marriott8:30–10:30 AM

The Science Teacher Advisory Board Meeting
313, JW Marriott.....8:30–10:30 AM

Journal of College Science Teaching Advisory Board Meeting
314, JW Marriott.....8:30–10:30 AM

NSTA Reports Advisory Board Meeting
307, JW Marriott8:30–10:30 AM

NSTA Science Safety Advisory Board Meeting
308, JW Marriott8:30–10:30 AM

Science and Children Advisory Board Meeting
311, JW Marriott.....8:30–10:30 AM

Science Scope Advisory Board Meeting
312, JW Marriott.....8:30–10:30 AM

NSTA Urban Science Education Advisory Board Meeting
305, JW Marriott 8:30–11:30 AM

Preservice and New Teachers Breakfast (M-2)
Sponsored by Kendall Hunt Publishing Co.
(Tickets required: \$12)
JW Grand Ballroom 3, JW Marriott 9:00–10:30 AM

NSTA International Lounge
107, JW Marriott9:00 AM–5:00 PM

NSTA Committee on Professional Development in Science Education Meeting
306, JW Marriott 9:30 AM–12 Noon

NSTA Technology Advisory Board Meeting
Utah, Marriott Downtown..... 10:00 AM–12 Noon

SESD Board Meeting
Atlanta, Marriott Downtown 10:30 AM–12:30 PM

AMSE Board Meeting
By Invitation Only
House, Westin10:30 AM–1:00 PM

NSTA Development Advisory Board Meeting
By Invitation Only
301, JW Marriott 12:30–2:00 PM

NSTA Retired Members Advisory Board Meeting
206, JW Marriott 1:30–4:00 PM

NSTA Committee on Coordination and Supervision of Science Teaching Meeting
306, JW Marriott 1:30–4:00 PM

NSTA Committee on Multicultural/Equity in Science Education Meeting
305, JW Marriott 1:30–4:00 PM

NSTA Nominations Committee Meeting
207, JW Marriott 1:30–4:00 PM

NSTA Committee on Middle Level Science Teaching Meeting
312, JW Marriott..... 1:30–4:00 PM

NSTA Committee on High School Teaching Meeting
313, JW Marriott..... 1:30–4:00 PM

NSTA Committee on Preschool–Elementary Science Teaching Meeting
311, JW Marriott..... 1:30–4:00 PM

NSTA Committee on Research in Science Education Meeting
308, JW Marriott 1:30–4:00 PM

NSTA Committee on Preservice Teacher Preparation Meeting
307, JW Marriott 1:30–4:00 PM

NSTA Committee on College Science Teaching Meeting
314, JW Marriott..... 1:30–4:00 PM

Dorothy K. Culbert Chapter and Associated Groups Social
JW Grand Ballroom 1, JW Marriott 2:00–3:00 PM

Indiana Earth Science Teachers Association (IESTA) Meeting
Cameral, Westin 2:00–3:00 PM

Conference Program • Meetings and Social Functions

NSTA Investment Advisory Board Meeting
301, JW Marriott 3:00–4:00 PM

CESI Annual Board Meeting
Atlanta, Marriott Downtown 3:00–6:00 PM

NSTA/CBC Outstanding Science Trade Books Committee Meeting
By Invitation Only
311, JW Marriott 4:30–6:00 PM

APAST Board Meeting
By Invitation Only
Utah, Marriott Downtown 4:30–6:30 PM

Mars Education Challenge Award Reception
Marriott Blrm 3/4, Marriott Downtown 5:00–6:00 PM

Open Meeting: Addressing Key Content in the New Science Framework
Senate 1/2, Westin 5:00–8:00 PM

HASTI Social
Children's Museum of Indianapolis 7:00–9:00 PM

Friday, March 30

Science in the Community Breakfast (M-3)
(Tickets Required: \$15)
JW Grand Ballroom 5, JW Marriott 7:00–8:00 AM

High School Breakfast (M-4)
(Tickets Required: \$40)
Santa Fe, Marriott Downtown 7:00–8:30 AM

AMSE Alice J. Moses Breakfast
By Invitation Only
Grand Ballroom 1, Westin 7:00–9:00 AM

NMLSTA Board Meeting (Part I)
By Invitation Only
Atlanta, Marriott Downtown 7:00–9:00 AM

APAST Breakfast
By Invitation Only
Indiana Blrm. C/D, Marriott Downtown ... 7:00–9:00 AM

ASMC Networking Forum
Indiana Blrm. A/B, Marriott Downtown 7:00–10:00 AM

NSTA Student Chapter Showcase and Lounge
CSO5 (Hall E), Convention Center 8:00 AM–5:00 PM

NSTA Aerospace Programs Advisory Board Meeting
307, JW Marriott 8:30–10:30 AM

The Balanced Equation Meeting
White River Ballroom E, JW Marriott 9:00–10:30 AM

NSTA International Lounge
107, JW Marriott 9:00 AM–5:00 PM

GLBT Group Meeting
Denver, Marriott Downtown 9:30–11:00 AM

AMSE Membership Meeting
By Invitation Only
House, Westin 10:00 AM–12 Noon

Association of Science Materials Centers Board Meeting
By Invitation Only
Utah, Marriott Downtown 10:00 AM–3:00 PM

Lifelines for Climate Change Education Luncheon
By Invitation Only
Florida, Marriott Downtown 11:00 AM–1:00 PM

ASTE/NSELA Luncheon (M-5)
(Tickets Required: \$55)
JW Grand Ballroom 1, JW Marriott 12 Noon–2:00 PM

CESI/NSTA Elementary Science Luncheon (M-6)
(Tickets Required: \$55)
Indiana Blrm. E, Marriott Downtown 12 Noon–2:00 PM

NSTA/NMLSTA Middle Level Luncheon (M-7)
(Tickets Required: \$55)
Indiana Blrm. A/B, Marriott Downtown 12 Noon–2:00 PM

NSTA Chapter and District Meet and Greet in Honor of Wendell Mohling
Exhibit Hall, Convention Center 2:00–3:30 PM

SEPA Board Meeting
By Invitation Only
Denver, Marriott Downtown 2:00–4:00 PM

GEMS Network Reception
Marriott Ballroom 5, Marriott Downtown . 3:00–4:30 PM

Conference Program • Meetings and Social Functions

NSTA International Advisory Board Meeting
307, JW Marriott 3:00–5:00 PM

GEICO/NSTA New Member Orientation
By Invitation Only
JW Grand Ballroom 1, JW Marriott 3:30–4:30 PM

SCST Business Meeting
203, JW Marriott 3:30–5:00 PM

APAST General Meeting and Social
By Invitation Only
Indiana Ballroom G, Marriott Downtown 5:00–7:00 PM

NMLSTA Board Meeting (Part 2)
By Invitation Only
Atlanta, Marriott Downtown 5:30–7:00 PM

NSTA Student Chapter and Student Members Reception
No Ticket Required; Open to All Preservice Teachers and Those
Who Work with Them
JW Grand Ballroom 1, JW Marriott 5:30–7:00 PM

NSTA Teacher Awards Gala (M-8)
(Tickets Required: \$65)
Marriott Ballroom 5, Marriott Downtown .. 6:15–8:45 PM

National Earth Science Teachers Association Friends of Earth
and Space Science Reception
Grand Ballroom 1, Westin 6:30–8:00 PM

SCST Dessert Social and Poster Session
Open to College Faculty and SCST Members
JW Grand Ballroom 7/8, JW Marriott 7:30–9:00 PM

Saturday, March 31

NSTA Past Presidents Breakfast
By Invitation Only
JW Grand Ballroom 1, JW Marriott 7:00–8:15 AM

AMSE/NSTA Minority Caucus George Washington Carver
Breakfast
By Invitation Only
Grand Ballroom 1, Westin 7:30–9:30 AM

NSTA Recommends Reviewer/Publisher Coffee
By Invitation Only
206, JW Marriott 8:00–9:00 AM

NSTA Student Chapter Showcase and Lounge
CSO5 (Hall E), Convention Center..... 8:00 AM–5:00 PM

NSTA Past Presidents Advisory Board Meeting
JW Grand Ballroom 1, JW Marriott 8:15–9:15 AM

Shell Judging Panel Meeting
By Invitation Only
Atlanta, Marriott Downtown 8:30–10:30 AM

NSTA International Lounge
107, JW Marriott 9:00 AM–5:00 PM

National Earth Science Teachers Association Earth and Space
Science Educator Luncheon
By Ticket Through NESTA
State, Westin 11:30 AM–1:00 PM

NSTA/SCST College Luncheon (M-9)
(Tickets Required: \$55)
203, JW Marriott 12 Noon–1:30 PM

Aerospace Educators Luncheon (M-10)
(Tickets Required: \$55)
Grand Ballroom 4, Westin 12 Noon–2:00 PM

Presidents of AMSE Meeting
By Invitation Only
Governor's Suite, Westin 12 Noon–2:00 PM

COSEE Luncheon
By Invitation Only
309/310, JW Marriott 12:15–1:15 PM

National Earth Science Teachers Association Annual Member-
ship Meeting
Grand Ballroom 5, Westin 5:30–7:00 PM

President's Reception (M-11)
(Tickets Required: \$60)
Marriott Ballroom 5, Marriott Downtown.... 7:00–8:15 PM

President's Mixer
Marriott Blrm. 5, Marriott Downtown 9:45–12 Midnight

Sunday, April 1

Life Members' Buffet Breakfast (M-12)
(Tickets Required: \$45)
White River Blrm. C/D, JW Marriott..... 7:00–9:00 AM

Alliance of Affiliates (AoA)

Saturday, March 31

2:00–4:00 PM	Building Scientific Minds with the NSTA Alliance of Affiliates	209, JW Marriott
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Association for Multicultural Science Education (AMSE)

President: Eddie A. Chevis

Thursday, March 29

10:30 AM–1:00 PM	AMSE Board Meeting (By Invitation Only)	House, Westin
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Friday, March 30

7:00–9:00 AM	AMSE Alice J. Moses Breakfast (By Invitation Only)	Grand Ballroom 1, Westin
10:00 AM–12 Noon	AMSE Membership Meeting	House, Westin
12:30–1:30 PM	Don't Ignore the Question: The Power of Inquiry to Promote Awareness	Grand Ballroom 3, Westin
2:00–4:00 PM	Multiculturalism in Secondary Science and Engineering	House, Westin
5:00–6:00 PM	The Station Approach: Scaffolded Inquiry and Brain-based Learning Activities	House, Westin

Saturday, March 31

7:30–9:30 AM	AMSE/NSTA Minority Caucus George Washington Carver Breakfast (By Invitation Only)	Grand Ballroom 1, Westin
11:00 AM–12 Noon	Using STEM for Medical Career Exploration	Council, Westin
	Focus On the Future: Drive Student Learning via Local Area Energy and Environmental Issues	234, Indiana Convention Center
12 Noon–2:00 PM	Presidents of AMSE Meeting (By Invitation Only)	Governor's Suite, Westin
12:30–1:30 PM	"I Want to Differentiate, but I Don't Know How!"	Council, Westin
2:00–3:00 PM	Achieving Academic Excellence, One Case at a Time	Council, Westin

Association for Science Teacher Education (ASTE)

President: Randy Bell

Thursday, March 29

8:00–9:00 AM	Making Science Matter: School/University Partnerships for Successful Teacher Education	204, JW Marriott
9:30–10:30 AM	The Next Generation of Science Education Standards—Are You Prepared to Lead the Way?	204, JW Marriott

Conference Program • Affiliate Sessions

Association for Science Teacher Education (ASTE), cont.

12:30–1:30 PM	What Is ASTE?	204, JW Marriott
3:30–4:30 PM	Inquiring Minds, Inquiring Methods: Preservice Teachers' Inquiry Skills via the Elementary Science Fair	204, JW Marriott

Friday, March 30

8:00–9:00 AM	Five Keys to Facilitating Classroom Discourse That Improve Student Achievement	202, JW Marriott
11:00 AM–12 Noon	The Importance of Teaching and Learning Nature of Science in the Early Childhood Years	202, JW Marriott
12 Noon–2:00 PM	NSELA/ASTE Luncheon (Tickets Required: M-5) Speaker: Jeffrey Weld	JW Grand Ballroom 1, JW Marriott
3:30–4:30 PM	Teaching Science in the Elementary and Middle School Classrooms with Case Studies	202, JW Marriott

Saturday, March 31

11:00 AM–12 Noon	The State of Science Teacher Education: Updates and Opportunities for Political Advocacy with NSTA and ASTE	313, JW Marriott
12:30–2:30 PM	Transitioning to the New NSTA Preservice Standards	201/202, JW Marriott

Association of Science-Technology Centers (ASTC)

President: Margaret Glass

Thursday, March 29

12:30–3:30 PM	The UVA Bay Game: A Participatory Simulation of Environmental and Economic Sustainability in the Chesapeake Bay	JW Grand Ballroom 10, JW Marriott
5:00–6:00 PM	DIY Forensics	JW Grand Ballroom 3, JW Marriott

Saturday, March 31

8:00–9:00 AM	Evaluating Informal Science Education: Tales from the Evaluative Trenches	103, JW Marriott
9:30–10:30 AM	Engineered Teaching and Learning Environments for STEM-related Educational Programs	103, JW Marriott
11:00 AM–12 Noon	STEM Education—Partnerships, Collaboration, and Programming	103, JW Marriott
12:30–1:30 PM	Professional Development at Informal Science Settings: Recommendations for Educators	103, JW Marriott
2:00–3:00 PM	Partnering to Bridge the Gap Between Formal and Informal Learning Institutions	103, JW Marriott
3:30–4:30 PM	2012 Transit of Venus	Chamber, Westin

Council for Elementary Science International (CESI)

President: Kay Atchison Warfield

Wednesday, March 28

8:00 AM–4:00 PM	Engineering Is Elementary Day (By Registration Through CESI)	Marriott Ballroom 1/2, Marriott Downtown
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Thursday, March 29

3:00–6:00 PM	CESI Annual Board Meeting	Atlanta, Indianapolis Marriott Downtown
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Friday, March 30

9:30–10:30 AM	Helping Children Imagine and Invent	211, Indiana Convention Center
	Creating the Dynamic Triangle of Science, Literacy, and Technology in the Elementary Classroom	210, Indiana Convention Center
11:00 AM–12 Noon	Science on Board	211, Indiana Convention Center
	Where to Go and What to Do at the Crossroads Between Trade Books, Emerging Web Technologies, and STEM Learning	210, Indiana Convention Center
12 Noon–2:00 PM	CESI/NSTA Elementary Science Luncheon (Tickets Required: M-6) Speaker: Michael A. DiSpezio	Indiana Ballroom E, Indianapolis Marriott Downtown
2:00–3:00 PM	Inquiry, Creativity, and Learning Variation—That's How to Teach the Lunar Cycle!	210, Indiana Convention Center
	Who Wants to Be an Engineer?	211, Indiana Convention Center
3:30–4:30 PM	Simple Toys Link the Physics of Sound and STEM	211, Indiana Convention Center
	What Could the Matter Be?	210, Indiana Convention Center

Saturday, March 31

9:30–10:30 AM	“Leaf” It to Me: Leaf Adaptations	210, Indiana Convention Center
11:00 AM–12 Noon	Think Like an Engineer, a Chemist, an Astronaut, or a Marine Scientist	210, Indiana Convention Center

Council of State Science Supervisors (CSSS)

President: Peter McLaren

Monday, March 26

7:00 AM–5:00 PM	CSSS Annual Meeting (By Invitation Only)	JW Grand Ballroom 1, JW Marriott
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Tuesday, March 27

7:00 AM–5:00 PM	CSSS Annual Meeting (By Invitation Only)	JW Grand Ballroom 1, JW Marriott
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Conference Program • Affiliate Sessions

Council of State Science Supervisors (CSSS), cont.

Wednesday, March 28

7:00 AM–5:00 PM	CSSS Annual Meeting (By Invitation Only)	JW Grand Ballroom 1, JW Marriott
7:00–9:00 PM	NSELA/CSSS Reception (For NSELA and CSSS Members and Other Invited Guests)	JW Grand Ballroom 3/4, JW Marriott

Thursday, March 29

8:00–9:00 AM	Crosscutting Concepts from the NRC Science Framework	209, JW Marriott
9:30–10:30 AM	The Governor's Academy for Science and Mathematics Leadership	209, JW Marriott
12:30–1:30 PM	Implications of the Framework for Science Education from the National Academy of Sciences	JW Grand Ballroom 3, JW Marriott
2:00–3:00 PM	Scientific Inquiry and Engineering Design in New Standards	209, JW Marriott
3:30–4:30 PM	GeoBays-Bridges: Observing Engineering in the Field	209, JW Marriott

Friday, March 30

8:00–9:00 AM	Keystone Grade Approach: Best Practices from a MSP Project Integrating STEM K–9	209, JW Marriott
9:30–10:30 AM	STEM Initiatives in Race to the Top States	209, JW Marriott
11:00 AM–12 Noon	Scientific Practices	209, JW Marriott
2:00–3:00 PM	The Next Generation of Science Leaders: What Does It Take to Prepare and Support Them?	209, JW Marriott

National Association for Research In Science Teaching (NARST)

President: J. Randy McGinnis

Thursday, March 29

8:00–9:00 AM	Venn Diagrams for Lesson Planning	202, JW Marriott
9:30–10:30 AM	Improving Science Instruction Through a Curriculum Topic Study on Inquiry	202, JW Marriott
2:00–3:00 PM	Using Digital Media in the Science Classroom—When and How?	201, JW Marriott

Friday, March 30

8:00–9:00 AM	An Investigation of Different Models of Integrating Engineering into Science Classrooms	206, JW Marriott
9:30–10:30 AM	Promoting Detailed and Accurate Observations in Elementary Science Classrooms	206, JW Marriott
11:00 AM–12 Noon	Teaching Practices That Support Argumentation	206, JW Marriott
12:30–1:30 PM	Teaching Science to English Language Learners: Teaching Strategies of an Inquiry-based Astronomy Curriculum That Work	206, JW Marriott
2:00–3:00 PM	From Teaching-to-Know to Learning-to-Think via Research-to-Practice	206, JW Marriott

National Association for Research In Science Teaching (NARST), cont.

3:30–4:30 PM	Research into Science Fairs: Understanding and Engaging the Issues	206, JW Marriott
5:00–6:00 PM	Student Learning Through the Science Writing Heuristic: Iowa Tests of Basic Skills, Cornell Critical Thinking Tests, and Classroom Implementation	206, JW Marriott

National Middle Level Science Teachers Association (NMLSTA)

President: Rajeev Swami

Thursday, March 29

8:00–9:00 AM	What Goes Up, Must Come Down—Are All Parachutes Created Equal?	240, Indiana Convention Center
9:30–10:30 AM	Flying WILD	240, Indiana Convention Center
11:00 AM–12 Noon	Win Big! Write a Grant	240, Indiana Convention Center
12:30–1:30 PM	Electric Expressions: Energizing the Integration of Math and Science into Education	240, Indiana Convention Center
2:00–3:00 PM	Becoming a National Board Certified Teacher (NBCT)	240, Indiana Convention Center
3:30–4:30 PM	Inquire and Learn	240, Indiana Convention Center
5:00–6:00 PM	Caving in the Classroom	240, Indiana Convention Center

Friday, March 30

7:00–9:00 AM	NMLSTA Board Meeting (Part 1) (By Invitation Only)	Atlanta, Indianapolis Marriott Downtown
11:00 AM–12 Noon	Explore and Experiment: Puzzling Polymer Properties	240, Indiana Convention Center
12 Noon–2:00 PM	NSTA/NMLSTA Middle Level Luncheon (Tickets Required: M-7) Speaker: Rick Crosslin	Indiana Ballroom A/B, Indianapolis Marriott Downtown
3:30–4:30 PM	Grant Proposal Writing: Basics for Beginners	240, Indiana Convention Center
5:30–7:30 PM	NMLSTA Board Meeting (Part 2) (By Invitation Only)	Atlanta, Indianapolis Marriott Downtown

National Science Education Leadership Association (NSELA)

President: Susan Koba

Wednesday, March 28

6:00 AM–6:00 PM	NSELA Professional Development Institute (Registration Office)	108, JW Marriott
6:30 AM–3:00 PM	NSELA Professional Development Institute (By Registration Through NSELA)	White River Ballroom F, JW Marriott
7:00–9:00 PM	NSELA/CSSS Reception (For NSELA and CSSS Members and Other Invited Guests)	JW Grand Ballroom 3/4, JW Marriott

Conference Program • Affiliate Sessions

National Science Education Leadership Association (NSELA), cont.

Thursday, March 29

6:30–9:30 AM	NSELA Membership Meeting (For NSELA members and Other Invited Guests)	JW Grand Ballroom 1, JW Marriott
12:30–1:30 PM	Publishing in the <i>Science Educator</i> , the Journal of NSELA	201, JW Marriott
2:00–3:00 PM	Promoting Inquiry in Our Classrooms: Hands-On Performance Assessment for K–12 Students	202, JW Marriott
3:30–4:30 PM	Middle School Science Teachers—Providing Support to Successfully Deliver the New Core Standards	201, JW Marriott
5:00–6:00 PM	Action Research for Science Teachers: Useful Tools for Starting a Rewarding Professional Learning Community	201, JW Marriott

Friday, March 30

8:00–9:00 AM	Tools for Science Leaders	201, JW Marriott
9:30–10:30 AM	Preservice Teachers and Science Leadership Collaborating in Support of New Teachers to Impact Student Learning	201, JW Marriott
11:00–11:30 AM	Preservice Elementary Teachers' Performance and Reflection on Formative Assessment Probes	201, JW Marriott
12 Noon–2:00 PM	ASTE/NSELA Luncheon (Tickets Required: M-5) Speaker: Jeffrey Weld	JW Grand Ballroom 1, JW Marriott
2:30–5:30 PM	NSELA/NSTA Standards Forum	JW Grand Ballroom 8, JW Marriott

Saturday, March 31

9:30–10:30 AM	Project-based Instruction: Grappling with Discovery	203, JW Marriott
12:30–2:30 PM	Transitioning to the New NSTA Preservice Standards	201/202, JW Marriott

Society for College Science Teachers (SCST)

President: Brian R. Shmaefsky

Thursday, March 29

9:30–10:30 AM	Relationships and Responsibilities: Introducing Rising College Freshmen to a Science Community of Practice	203, JW Marriott
	Preferences of 21st-Century Students for Social Networking in College Science Classes	
	Optimizing Online Discussion Board Forums' Content and Time Parameters for Increased Student Scientific Literacy	

Society for College Science Teachers (SCST), cont.

12:30–1:30 PM	Is DNA Alive? Confronting Students' Misconceptions About DNA Through Innovative Instruction	203, JW Marriott
	Recruitment and Retention of STEM Majors and the Merit Model: How It Works and How We Know	
	Assessment Challenges for Undergraduate Introductory Biology Courses: A Study of Online and Traditional Approaches	
2:00–3:00 PM	The Role of an Inquiry-based Science Program in Encouraging Undergraduate Research	203, JW Marriott
	Facilitate Group Teamwork in an Inquiry-based Biology Lab via CATME	
	Tangent Worlds: Teaching Academic Science <i>vs.</i> Commercial Science Skills	
3:30–4:30 PM	Combating the “Please Tell Me What I Need to Know to Pass” Syndrome	203, JW Marriott
	A New Model in STEM Preparation for Elementary Education Majors	

Friday, March 30

8:00–9:00 AM	Nanotechnology Workshop: An Interdisciplinary Teaching Tool, Part I, Part II, and Part III	203, JW Marriott
9:30–10:30 AM	Full STEAM Ahead—Adding Art to STEM Education	203, JW Marriott
	Teaching Phylogenetic Thinking via Physical and Digital Museum Specimens	
12:30–1:30 PM	SCST Marjorie Gardner Lecture: Chemistry, Life, the Universe, and Everything. Speaker: Melanie M. Cooper	203, JW Marriott
2:00–3:00 PM	Interactive Video Conference Broadcasts <i>vs.</i> Face-to-face Delivery	203, JW Marriott
	Socioscientific and Bioethical Issues	
3:30–5:00 PM	SCST Business Meeting	203, JW Marriott
7:30–9:00 PM	SCST Dessert Social and Poster Session (Open to College Faculty and SCST Members)	JW Grand Ballroom 7/8, JW Marriott

Saturday, March 31

7:30 AM–12 Noon	NSTA/SCST 2012 Joint Session: Symposium on Forensic Science in the Classroom	204/205, JW Marriott
12 Noon–1:30 PM	NSTA/SCST College Luncheon (Tickets Required: M-9) Speaker: Kimberly D. Tanner	203, JW Marriott
3:30–4:30 PM	Making the Most of Your Joint NSTA/Society for College Science Teachers Membership	108, JW Marriott



6:00 AM–6:00 PM Meeting

NSELA Professional Development Institute (Registration Office)

108, JW Marriott

Please visit www.nsela.org for further information.

6:30 AM–3:00 PM Meeting

NSELA Professional Development Institute

White River Ballroom F, JW Marriott

To attend the NSELA Professional Development Institute, register through NSELA at www.nsela.org.

7:00 AM–5:00 PM Meetings

CSSS Annual Meeting

(By Invitation Only) JW Grand Ballroom 1, JW Marriott

National Marine Educators Association Board Meeting

(By Invitation Only) Grand Ballroom 3, Westin

8:00–10:00 AM Breakfast

SESD Science-abled Breakfast Meeting

(By Registration Through SESD) Michigan, Marriott Downtown

The Science-abled Breakfast Meeting features presentations that highlight the educational experiences of students with disabilities and their contributions to science. For more information and to register, please contact Babette Moeller (bmoeller@edc.org) and visit www.sesd.info.

8:00 AM–4:00 PM Meeting

Dr. Lowery's Research into Practice Institute

(By Invitation Only) Capitol I, Westin

The ideas and opinions expressed in the conference sessions, and in any handout materials provided, are those of the presenter. They are not those of the National Science Teachers Association nor can any endorsement by NSTA be claimed.

Science Area

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(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 Indianapolis 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 48.



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

Other Icons

The following icons will be used throughout this program.



Global Conversations in Science Education Conference



NSTA Avenue Sessions



NSTA Press Sessions



Professional Development Institutes

8:00 AM–4:00 PM Workshops

CESI: Engineering Is Elementary Day

Marriott Ballroom 1/2, Marriott Downtown

Looking for ways to add enthusiasm and motivation to your science classes? This CESI session will give you hands-on experience with two NEW elementary engineering programs: *Engineering is Elementary (EiE)* and *Family Engineering*.

Our goal is to send you home ready to teach an *EiE* lesson and to lead an evening of informal engineering experiences for your students and their families. Take home free instructional materials, including a sample *EiE* literature book and the complete *Family Engineering* activity guide (\$45 value). \$75 registration fee includes lunch.

This workshop is available by registration through CESI. Visit www.cesiscience.org for more information.

Supporting English Learners in Science: Strategies for Success (Gen)

(General)

JW Grand Ballroom 4, JW Marriott

Classroom practitioners will share effective science instructional practices for English Learners (ELs) in this one-day workshop facilitated by the Office of English Language Acquisition, U.S. Department of Education. A major challenge for ELs in mastering science content is acquisition of the academic language reflected in science texts and other science instructional materials. This workshop is geared toward middle school and high school science teachers seeking to learn techniques for teaching inclusive lessons for ELs, as well as administrators wishing to share this information with their teachers.

This workshop is available by registration through the U.S. Department of Education. For information, e-mail crystal.martinez@ed.gov prior to the event or visit <http://bai-register.com/nsta2012>.

8:00 AM–4:00 PM NSTA PDIs

PDI Coaching: Knowledge That Works in Science Education Leadership (PDI-5)

(Grades K–12)

101, JW Marriott

By Preregistration Only

Offered by S²TEM Centers, South Carolina

Tom Peters, South Carolina's Coalition for Mathematics and Science, Clemson

PDI Engineering byDesign™ (EbD): An Integrative STEM Solution for K–12 (PDI-1)

(Grades K–12)

White River Ballroom A, JW Marriott

By Preregistration Only

Offered by International Technology and Engineering Education Association (ITEEA)

Joey H. Rider-Bertrand, Lower Merion School District, Ardmore, Pa.

For description, see page 62.

PDI Conceptual Flow: Bridging the Gap Between Standards, Instructional Materials, and Student Learning (PDI-6)

(Grades K–12)

102, JW Marriott

By Preregistration Only

Offered by WestEd

Kathy DiRanna, WestEd, Santa Ana, Calif.

For description, see page 64.

PDI Energy: What's the Big Idea? Energy! (PDI-2)

(Grades K–12)

White River Ballroom B, JW Marriott

By Preregistration Only

Offered by the Center of Science and Math in Context (COSMIC), University of Massachusetts Boston

Arthur Eisenkraft, 2000–2001 NSTA President, and University of Massachusetts Boston

For description, see page 62.

PDI Inquiring into Inquiry: Creating an Inquiry-based Classroom (PDI-7)

(Grades K–12)

309/310, JW Marriott

By Preregistration Only

Offered by BSCS

Paul Numedahl, BSCS, Colorado Springs, Colo.

For description, see page 64.

Thursday, March 29

	Featured Speakers/Special Events	Featured Speakers/Special Events	Featured Speakers/Special Events	Featured Speakers/Special Events
8:00 AM				
9:00 AM				
10:00 AM	Featured Presentation 9:00–10:00 AM Sagamore Ballroom 7, Conv. Center Speaker: Leland Melvin	Mary C. McCurdy Lecture 9:30–10:30 AM Sagamore Ballroom 6, Conv. Center Speaker: Brian “Fox” Ellis		
11:00 AM				
12 Noon	General Session 11:00 AM–12:30 PM Sagamore Ballroom 1–5, Conv. Center Speaker: Tim Samaras			
1:00 PM		Featured Presentation 12:30–1:30 PM Sagamore Ballroom 6, Conv. Center Speaker: Jeff Goldstein		
2:00 PM	Science Leadership Summit 1:00–4:45 PM JW Grand Ballroom 8, JW Marriott Panel of administrators, K–8 science teachers, and Indiana Science Initiative trainers			
3:00 PM		The Planetary Society Lecture 2:00–4:00 PM Sagamore Ballroom 1–5, Conv. Center Speaker: Bill Nye		
4:00 PM			Featured Presentation 3:30–4:30 PM Sagamore Ballroom 7, Conv. Center Speaker: Jay Siegel	Scientist Talk 3:30–4:30 PM Sagamore Ballroom 6, Conv. Center Speaker: Catherine T. Hunt
5:00 PM				
6:00 PM				
7:00 PM		Special Evening Session 6:00 PM–12 Midnight Indiana Ballroom A/B Indianapolis Marriott Downtown A Video Showcase of Inspiring Award-winning Teachers, Part I		
8:00 PM				

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 Listserv 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

PDI Using Cognitive Science to Improve Science Learning (PDI-3)

(Grades 6–12) *White River Ballroom C, JW Marriott*

By Preregistration Only

Offered by 21st Century Center for Research and Development in Cognition and Science Instruction, a partnership between the University of Pittsburgh, Temple University, the University of Pennsylvania, Research for Better Schools, and the 21st Century Partnership in STEM Education (PSTEM) **Donna P. Cleland**, The 21st Century Partnership for STEM Education, Conshohocken, Pa.

For description, see page 63.

PDI The Literacy and Inquiry Connection: Instruction That Scaffolds and Enhances Scientific Thinking and Understanding (PDI-4)

(Grades K–8) *White River Ballroom D, JW Marriott*

By Preregistration Only

Offered by Seattle Public Schools

Betsy Rupp Fulwiler, Seattle (Wash.) Public Schools

For description, see page 63.

PDI What Works in Science Classrooms: Developing Student Understanding Through Classroom Inquiry, Discourse, and Sense-Making (PDI-8)

(Grades K–12) *White River Ballroom G, JW Marriott*

By Preregistration Only

Offered by McREL

Anne Tweed, 2004–2005 NSTA President, and McREL, Denver, Colo.

For description, see page 65.

PDI One-Day Work Session on Using Science Notebooks to Develop Conceptual Understanding in Grades K–8 (PDI-11)

(Grades K–8) *White River Ballroom H, JW Marriott*

By Preregistration Only

Connie Hvidsten, BSCS, Colorado Springs, Colo.

For description, see page 66.

PDI One-Day Work Session on Using Children's Books to Guide Inquiry: Picture-Perfect Science (PDI-10)

(Grades K–6) *White River Ballroom I, JW Marriott*

By Preregistration Only

Offered by Picture-Perfect Science

Karen Ansberry, Mason (Ohio) City Schools

Emily R. Morgan, Picture-Perfect Science, West Chester, Ohio

For description, see page 65.

PDI One-Day Work Session on Lecture-free Teaching: A Learning Partnership Between Science Educators and Their Students (PDI-9)

(Middle Level–College) *White River Ballroom J, JW Marriott*

By Preregistration Only

Bonnie S. Wood, University of Maine at Presque Isle

For description, see page 65.

8:00 AM–5:00 PM Meeting

FOSS 2012 Meeting

(By Invitation Only)

Congress I/II, Westin

9:00 AM–4:00 PM Meeting

NOAA Climate Stewards Annual Workshop

(By Invitation Only)

Grand Ballroom 1, Westin

Attendees will share their experiences as climate educators, provide program goal and logistics recommendations, give presentations on stewardship project development and implementation, and hear presentations on climate science and educational pedagogy.

10:00 AM–5:00 PM Meeting

Science Education for Students with Disabilities Preconference Meeting

(By Registration Through SEDS)

Texas, Marriott Downtown

Science educators, special education teachers, parents, and/or administrators at all levels—learn and share information and strategies on teaching science to students with disabilities. For more information, contact Patricia Davidson (pdavidson@usi.edu) and visit www.sesd.info.

12 Noon–1:00 PM Luncheon

FOSS Luncheon

(By Invitation Only)

Caucus, Westin

1:00–5:00 PM Workshop

Hands-On Science for AfterSchool Seminar

Indiana Ballroom G, Marriott Downtown

Visit www.lhsgems.org for information.

4:30–6:00 PM Meeting

Hands-On Science Partnership Board Meeting

(By Invitation Only)

Michigan, Marriott Downtown

5:00–8:00 PM Reception

New Science Teacher Academy Reception

(By Invitation Only)

JW Grand Ballroom 8–10, JW Marriott

6:00–7:00 PM Reception

NSTA President's International Reception

White River Ballroom F, JW Marriott

Sponsored by Pearson, this reception is open to international visitors and invited guests.

6:00–8:30 PM Science Rocks!

(Elementary–High School) Sagamore Blrm. 1–5, Conv. Center

Please join us for Science Rocks!, a FREE community event to electrify parents, teachers, and students about the exciting world of science. Our newest program, Science Rocks! is designed to connect children and their families with the nation's accomplished scientists and to demonstrate the importance of science education.

For elementary, middle school, and high school students and their teachers, parents, and school administrators, this event will feature exciting hands-on activities such as organizing a Guinness World Records™ attempt for the LARGE-EST Chemistry Experiment on the Planet! Kids—young and old—will use instant snow in a science experiment that will teach them about endothermic and exothermic reactions.

7:00–9:00 PM Reception

NSELA/CSSS Reception

JW Grand Ballroom 3/4, JW Marriott

For NSELA and CSSS members and other invited guests.

Please visit www.nsela.org for further information.

SCIENCE ROCKS!

Exclusive opportunity to interact with accomplished scientists as they share their journey to success in the STEM fields.

Panelists include:
Astronaut
Biochemist/Gamer

Mathematician
Chemist

IndyCar Racecar Driver

March 28, 2012 • 6:00–8:30 PM

60th NSTA National Conference on Science Education

**Indiana Convention Center,
Sagamore Ballroom 1–5**





The Water Clock at The Children's Museum of Indianapolis is the largest in North America with more than 40 specially blown glass pieces and 70 gallons of a water/methyl alcohol mixture.

6:30–9:30 AM Meeting

NSELA Membership Meeting

JW Grand Ballroom 1, JW Marriott

This meeting is open to NSELA members and other invited guests.

7:30–9:00 AM Exhibitor Workshops

Effective STEM Challenges for the Classroom (Gen)

(Grades 3–8)

104, Convention Center

Sponsor: Houghton Mifflin Harcourt

Michael DiSpezio, Science Writer and Educational Consultant, North Falmouth, Mass.

Join Michael DiSpezio for this high-energy, entertaining, and engaging workshop that explores effective and realistic STEM construction challenges. Experience how a bit of guidance can direct students' experience toward addressing specific content standards in science and mathematics. You'll be challenged to engineer and test models of air bag–cushioned Mars landers. You'll also engineer a catapult and test your design against others. So come join in the engineering fun and leave with new and exciting ideas for the classroom.

Come Get a Charge Out of This! (Chem)

(Grades 9–12)

105, Convention Center

Sponsor: LAB-AIDS, Inc.

John Howarth, Lawrence Hall of Science, University of California, Berkeley

Capacitors are a vital component in consumer electronics, but most students have never heard of them! In this hands-on workshop, investigate how capacitors store electrical energy, examine variables affecting charge, and develop a model for electric current. Experience innovative activities selected from the new *Science & Global Issues Chemistry/Physics* program from SEPUP and LAB-AIDS.

Solving a Calendar Problem (NexGen Frameworks-style) and Discovering Seasonality (Earth)

(Grades 6–9)

106, Convention Center

Sponsor: LAB-AIDS, Inc.

Bill Cline, LAB-AIDS, Inc., Ronkonkoma, N.Y.

SEPUP is the research-based, field-tested, hands-on core program that builds content and engineering practices in the context of an issue. In this activity from the *Issues and Earth Science, Earth in Space* unit from LAB-AIDS, students graph daylight length and sun angle to connect the factors that cause seasonality. Activities exemplify Next Generation Science Frameworks and show how SEPUP embeds the engineering practices and uses real issues to powerfully deliver content learning.

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Global Conversations in Science Education Conference



NSTA Avenue Sessions



NSTA Press Sessions



Professional Development Institutes

It's How They Learn: 21 Ways to Use Discovery Education (Gen)

(Grades K–12) 110, Convention Center

Sponsor: Discovery Education

Brad Fountain, Discovery Education, Silver Spring, Md. Half of U.S. schools incorporate Discovery Education digital resources into instruction. Come see how engaging and interactive resources enhance science instruction.

Forensic Science: Blood Spatter Across the Curriculum (Gen)

(Grades 7–12) 130, Convention Center

Sponsor: WARD'S Natural Science

Kathy Mirakovits, Portage Northern High School, Portage, Mich.

Do the math while you explore the cutting-edge procedures and techniques of forensic scientists by analyzing blood spatter. Investigate the evidence and learn how to incorporate hands-on interdisciplinary learning activities into your existing science program to motivate and meet the needs of all learners.

Investigating Real-World Physical Science (Phys)

(Grades 5–9) 131, Convention Center

Sponsor: Sargent-Welch

Matt Benware, VWR Education, Rochester, N.Y.

Using high-quality yet affordable physical science equipment,

we'll help you bring STEM teaching to life in your classroom. You'll get to try out activities in physical science and engineering concepts to help inspire your students. Get ideas from our staff and other teachers, plus a chance to win prizes.

Stop Teaching and Start Coaching AP Chemistry (Chem)

(Grades 9–12)

133, 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 AP 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.

Using Mastering to Improve Learning Outcomes (Gen)

(Grades 9–12)

134, Convention Center

Sponsor: Pearson

Presenter to be announced

Are you interested in enhancing your students' learning while collecting diagnostic information to support just-in-time teaching? Find out how Mastering—Pearson's powerful online homework and tutorial system—can help you boost student performance in honors and AP courses.

8:00–8:30 AM Presentation

SESSION 1

Science College Readiness for All: A Research-based Working Definition (Gen)

(General) Marriott Ballroom 10, Marriott Downtown

Christopher Lazzaro, The College Board, New York, N.Y.

Learn how the development of a clearly articulated definition of Science College Readiness can be used to enhance the National Science Education Standards.

8:00–8:45 AM Exhibitor Workshop

Making the NASA Connection—Online! NEON/AESP (Gen)

(Grades K–12)

142, Convention Center

Sponsor: NASA

Chris Gamrat, Penn State, University Park, Pa.

Join us for an overview of NEON (NASA's Education Online Network) Making the NASA Connection—Online! We'll describe the exciting new tools you can use to connect to NASA. Education and curriculum specialists will take you on a guided tour of online teaching resources, professional development opportunities, and forums to use to interact with other education professionals.

8:00–9:00 AM Presentations

SESSION 1

Digital Time Machine

(Gen)

(Middle Level–High School)

111/112, Convention Center

Ron Milliner (rmilliner@murraystate.edu), Kentucky Academy of Technology Education, Murray State University, Murray

Give your students the experience of going back in time through digital archives to hear what people were saying at the moment of scientific discoveries.

SESSION 2

Increasing Inquiry and Engagement with Forensics

(Gen)

(High School)

113, Convention Center

Kristen L. Kohli (kkohli@buhd.org), Estrella Foothills High School, Goodyear, Ariz.

Walk away with many inexpensive activities, ideas, and resources from a high school forensics course that includes objectives from biology, chemistry, physics, Earth science, and mathematics as they relate to crime scene investigations.

SESSION 3

A Full Year of STEM Class...and the Kids Loved It!

(Gen)

(Elementary)

122, Convention Center

Christopher A. Triola (ctriolamail@verizon.net), General McLane School District, Edinboro, Pa.

Experience STEM the way our students did this year! Discover some of the simple technology we used to develop microturbines, underwater robots, and more!

SESSION 4

Physics at the Movies

(Phys)

(Middle Level–High School)

125, Convention Center

Thomas E. Lynch, Jr. (physicsatthemovies@yahoo.com), Roslyn Public Schools, Roslyn Heights, N.Y.

Learn how to capture movie clips to incorporate into your physical science lessons. Examples will be shared.

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SESSION 5

Population Ecology: Wolf vs. Moose (Bio)

(Middle Level–High School) 208, Convention Center

Sylvia J. Tufts, Retired Educator, Flossmoor, Ill.

The wolf vs. moose, a predator/prey relationship, provides an excellent opportunity to study population ecology on an island, Isle Royale National Park.

SESSION 6

Everybody Loves I.N.D.Y.C.A.R.S. (Incredible New Discoveries You Can Achieve Really Simply)! (Gen)

(Elementary) 212, Convention Center

Sharon R. Anibal, Missouri Botanical Garden, St. Louis

Are you tired of driving in circles with the same old boring lessons? Zoom ahead of the pack and take the lead with these proven K–5 inquiry-based lessons.

SESSION 7

Teaching Inquiry Through Engineering (Gen)

(Informal Education) 232, Convention Center

Matt VanKouwenberg, Science Leadership Academy, Philadelphia, Pa.

The E in STEM is often forgotten. Learn how you can incorporate engineering into your courses and help foster problem solving, creative thinking, and inquiry.

SESSION 8

CREATE Workshop Engaging Through STEM (Earth)

(Elementary–Middle Level/Informal) 233, Convention Center

Tammy D. Lee (leeta@ecu.edu) and **Sharon Schleigh** (schleighs@ecu.edu), East Carolina University, Greenville, N.C.

Engaging students in authentic science research and other science-related careers is essential for promoting STEM careers. Learn about a new model of professional development to assist teachers in using informal science experiences to excite, innovate, and transform students' ideas about STEM careers.

SESSION 9

Climate Change and Inquiry-based Science (Chem)

(Elementary–High School) 236, Convention Center

Gregory E. Reiva (gereiva@aol.com; gregreiva@u-46.org), Streamwood High School, Streamwood, Ill.

Worm tea, vermicompost, hydroponics, and organic farming are key inquiry-based science projects that lead to critical thinking, creativity, and scientific analysis.

SESSION 10

The Periodic Table of Students (Chem)

(Middle Level–High School) 237, Convention Center

John E. Clark (jeclark@volusia.k12.fl.us), Deltona High School, Deltona, Fla.

With this inquiry-driven activity, get your students excited about the elements, their role in supporting life, and the scientific challenges inherent in creating the periodic table itself.

SESSION 11

The Digital Natives Are Restless—Web 2.0 Tools to the Rescue! (Gen)

(Elementary–Middle Level) 242, Convention Center

Allison K. Bemiss (allison.bemiss@grrec.ky.gov), Green River Regional Education Cooperative, Bowling Green, Ky.

David M. Baxter (david.baxter@warren.kyschools.us) and **Jennifer Smith** (jennifer.smith@warren.kyschools.us), GEMS Academy, Bowling Green, Ky.

Are you looking for ways to incorporate technology without sacrificing rigor? The internet offers free tools to engage science students and make their work come alive.

SESSION 12

Designing Creativity Assessments for the STEM Environment (Gen)

(Middle Level) 243, Convention Center

Lucy Sennett, NBCT (lucy.sennett@waldenu.edu), Walden University, Brandon, Miss.

Walk away with strategies for designing assessments to address creativity in a STEM environment. Let's share strategies in an open discussion.

SESSION 13

Mitosis and Meiosis with the 5Es (Bio)

(Middle Level–High School) 244, Convention Center

Joshua M. Hubbard, Inter-City Baptist High School, Allen Park, Mich.

One challenge teachers face is how to convert units into inquiry units. Come see how to teach cell division in a project-based inquiry environment.



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SESSION 14

Please “Bug” Me About Classification and Diversity (Bio)

(High School) 245, Convention Center

Michelle R. Griffin-Wenzel (mgriffin@germantown.k12.wi.us), Germantown High School, Germantown, Wis.

Experience how inquiry-based activities can promote understanding of classification, diversity, and entomology. The activities are designed to accommodate varied learning styles and multiple intelligences.

SESSION 15



NSTA Press Session: Front-Page Science: Engaging Teens in Science Literacy (Gen)

(General) 203, JW Marriott

Wendy Saul (ewendysaul@gmail.com), **Laura Pearce** (laura_1249@yahoo.com), and **Angela M. Kohnen** (amkohnen@gmail.com), University of Missouri–St. Louis

Rob Lamb (rlamb@psdr3.org), Pattonville High School, Maryland Heights, Mo.

Presider: **Cathy Farrar** (farrarcath@gmail.com), University of Missouri–St. Louis

Join us as we share skills learned from science journalists that demonstrate strategies for teaching the importance of search terms, having multiple credible sources, and understanding context as well as relevance and accuracy.

SESSION 16

ASTE Session: Making Science Matter: School/University Partnerships for Successful Teacher Education (Gen)

(College) 204, JW Marriott

Meredith L. McAllister and **Catherine Pangan** (cpangan@butler.edu), Butler University, Indianapolis, Ind.

Deborah Teuscher, Metropolitan School District of Pike Township, Indianapolis, Ind.

A panel of educators will discuss the development of a professional learning community and the implementation of a professional development program within a school/university partnership.

SESSION 17 (two presentations)

(General) 208, JW Marriott

A Summer Research-based Program’s Impact on Students’ Attitudes Toward Science (Gen)

Natalie A. Tran (natran@fullerton.edu), California State University, Fullerton

Join me as I evaluate the impact of Research Experience Vitalizing Science–University Program (REVS-UP) on

students’ attitudes toward science and interests in pursuing future studies and careers in STEM disciplines.

C-Print Captioning to Support STEM Learning of Diverse Students (Gen)

Michael Stinson (msserd@rit.edu) and **Lisa Elliot** (lbenrd@rit.edu), National Technical Institute for the Deaf, Rochester Institute of Technology, Rochester, N.Y.

Attention will be paid to advances in the C-Print classroom captioning system and findings that demonstrate the benefits and challenges of these advances.

SESSION 18

CSSS Session: Crosscutting Concepts from the NRC Science Framework (Gen)

(General) 209, JW Marriott

Brett D. Moulding (mouldingb@ogdensd.org), Utah Partnership for Effective Science Teaching and Learning, Ogden
Juan-Carlos Aguilar (jaguilar@doe.k12.ga.us), Georgia Dept. of Education, Atlanta

Come explore the role of crosscutting concepts in state science education standards and address ways to assess student understanding of these concepts.

SESSION 19 (two presentations)

(High School–College) 302/303, JW Marriott

Chemistry Misconceptions, Concept Inventories, and Measuring Student Learning (Chem)

Stacey Lowery Bretz (bretzsl@muohio.edu), Miami University, Oxford, Ohio

Learning chemistry requires students to understand information encoded in representations and to connect multiple representations. Failure to do so can result in misconceptions. Learn about research aimed at creating concept inventories to measure student misconceptions about multiple representations in chemistry.

A Closer Focus: Development of an Extended Mechanism Writing Assignment in Organic Chemistry (Chem)

Katherine W. Stickney (kstickney@uindy.edu), University of Indianapolis, Ind.

Join me as I showcase an effective teaching strategy for organic chemistry literacy and mechanisms and describe the ongoing process for reflective revisions of the assessment.

SESSION 20

PDI BEST Pathway Session: Connecting Energy Concepts Through Professional Development (Gen)

(Supv/Admin) *White River Ballroom B, JW Marriott*

Bob Chen (bob.chen@umb.edu) and **Allison Scheff** (allison.scheff@umb.edu), University of Massachusetts Boston

Pam Pelletier, Boston (Mass.) Public Schools

Arthur Eisenkraft (arthur.eisenkraft@umb.edu), 2000–2001 NSTA President, and University of Massachusetts Boston

Join us as we aim to describe two professional development strategies that Boston is currently using to help teachers connect the big ideas of science through energy.

SESSION 21

Difficult Life Science Concepts in Introductory College Courses (Bio)

(College) *White River Ballroom I, JW Marriott*

Neil Knobloch (nknobloc@purdue.edu), **Lisa Keefe**, and Purdue University, West Lafayette, Ind.

Savannah Robin (savannah.robin@uky.edu) and **Bryan Hains** (bryan.hains@uky.edu), University of Kentucky, Lexington

Presider: Neil Knobloch

Learn how an interdisciplinary team of professors are creating online learning enhancement modules to help college students learn difficult science concepts in three introductory courses.

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SESSION 22

Integrating Creativity and Technology to Increase Science Achievement (Gen)

(General) *Indiana Ballroom A/B, Marriott Downtown*

Lisa Dwinal (ldwinal@natureandscience.org), Museum of Nature & Science, Dallas, Tex.

Jason Aleman (ja41@txstate.edu), Texas State University, San Marcos

Join us for an interactive session highlighting promising practices, strategies, and resources from an initiative to enhance science achievement for ELL students through creative engagement with technology.

SESSION 23

Polar Science and Engineering: An Exciting Model for Inquiry (Gen)

(General) *Marriott Ballroom 1, Marriott Downtown*

Linda M. Morris (linda.m.morris@dartmouth.edu), Dartmouth College, Hanover, N.H.

Gary Clow, U.S. Geological Survey, Lakewood, Colo.

Jay Johnson, University of Wisconsin, Madison

Showcasing inquiry in your classroom? Looking for examples of engineering supporting science? An Antarctic chief scientist and lead driller will present innovations in climate research.

SESSION 24

Science, Literacy, and Language Learning for English Language Learners and Students with Interrupted Formal Education (Gen)

(General) *Marriott Ballroom 2, Marriott Downtown*

Fiona Bennie (fbennie@boston.k12.ma.us), Horace Mann School for the Deaf and Hard of Hearing, Boston, Mass.

Develop academic and higher-order thinking skills in your students with limited formal education. Join me for an overview of an intensive language and content-rich program created by an interdisciplinary team of teachers for English language learners (deaf immigrant students in an urban setting).

SESSION 25

Brilliant but Busted: Using Superseded Theories to Engage Students in Science and History (Gen)

(Elementary–High School) *Marriott Blrm. 3, Marriott Downtown*

David L. McGill (dlmcgill@me.com), Capitol Hill Gifted and Talented Magnet School, St. Paul, Minn.

Theories of brilliant scientists sometimes turn out to be wrong. How can we use errant ideas from the history of science to teach basic concepts?

SESSION 26

What's in Your School Yard? Strategies to Teach New Science Core Standards in the Middle Grades! (Gen)

(Middle Level) *Marriott Ballroom 9, Marriott Downtown*

David M. Murduck, Champion Middle School, Warren, Ohio

Students in both urban and rural settings need to have the opportunity to experience science in an outdoor setting where strategies can be used to help comprehension in students with different learning styles and backgrounds.

SESSION 27

Sanity: Integrating Classroom Projects Without Losing Your Mind (Gen)

(General) *Michigan/Texas, Marriott Downtown*

Kimberly A. Swan (kswan@mbayaq.org) and **Mary E. Whaley** (mwhaley@mbayaq.org), Monterey Bay Aquarium, Monterey, Calif.

Come experience tricks and tools for classroom and project management. Join Monterey Bay Aquarium educators in discussing resources available for Project Based Learning.

SESSION 28

Teacher as Researcher (Env)

(Elementary) *Cabinet, Westin*

Doug L. Earick (dlearick@plymouth.edu) and **Mary E. Earick** (mearick@plymouth.edu), Plymouth State University, Plymouth, N.H.

Walk away with professional development focusing on teacher-identified K–5 learning progressions and environmental science. Receive a project overview with summative results from 30 teachers and 350 children.

SESSION 29

Extragalactic Explorations: Citizen Science Inquiry in Your Classroom (Earth)

(General) *Capitol II, Westin*

Pamela Gay (starstryder@gmail.com), Southern Illinois University Edwardsville

See the latest in citizen science that you can use to guide your students in out-of-this-world inquiries with real data from space satellites.

INSPIRED BY A TEACHER

"A career in aquatic animal medicine was introduced to me by my 10th grade science teacher, Mr. Hargis. He inspired my love of the ocean, its inhabitants, and an appreciation of its fragility. Each time I release a manatee or sea turtle back to its natural habitat, he's played a role in that animal's care without even having seen it!"

*Dr. Lara Croft,
Veterinarian
SeaWorld*



We're reminded daily of the importance and influence of teachers. The animals we rescue, the people we educate, and the species we save benefit from their impact. We're dedicated to sharing our passion and helping you educate your students to protect the world we share. Visit our website for resources created just for you.


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SESSION 30

An Arctic Connection: A Teacher Exchange Program Among U.S. and Swedish Educators (Gen)

(General)

Chamber, Westin

Betty Trummel (*boop82@aol.com*), Husmann Elementary School, Crystal Lake, Ill.

A chance meeting at an NSTA conference developed into a successful exchange program between Swedish and U.S. teachers. Our focus is sustainable development and environmental education.

SESSION 31

Bring NASA Science into Your Classroom! (Earth)

(General)

Congress I/II, Westin

John D. Ensworth (*john_ensworth@strategies.org*), The Institute for Global Environmental Strategies, Arlington, Va.

Denise A. Smith and **Brandon Lawton** (*lawton@stsci.edu*), Space Telescope Science Institute, Baltimore, Md.

Learn about NASA's Science Mission Directorate (SMD) and how to navigate the many NASA SMD sessions for Earth/space, physics, chemistry, biology, and general science teachers.

SESSION 32

Let's Make Some Waves

(Earth)

(High School)

Grand Ballroom 1, Westin

Keith T. Adams (*ktadams@purdue.edu*), **Pamela McClure** (*pmclure@purdue.edu*), and **Teresa Morris** (*morrist@purdue.edu*), Network for Earthquake Engineering Simulations, West Lafayette, Ind.

Learn how to construct a mini tsunami tank for your classroom inexpensively with maximum engagement. Capture your students' interest by building structures and then testing them via your classroom's own wave tank.

SESSION 33

Project ASTRO™: Bringing the Universe into the Classroom by Partnering Astronomers with Teachers (Earth)

(Elementary–High School)

Grand Ballroom 3, Westin

Brian Kruse and **Greg Schultz** (*gschultz@astrosociety.org*), Astronomical Society of the Pacific, San Francisco, Calif.

Learn about Project ASTRO, a program focusing on teacher/astronomer partnerships, and inquiry-based hands-on activities sparking student interest and understanding about the universe.

8:00–9:00 AM Workshops

A+

I Am a Scientist!

(Gen)

(Elementary)

121, Convention Center

Kathleen S. Roberts and **Christine Stratman**, Indianapolis (Ind.) Public Schools

Dawn Hammon (*hammond@ips.k12.in.us*), Cold Spring School 315, Indianapolis, Ind.

Join us for this hands-on workshop that focuses on facilitating inquiry while assisting students in refining their processes of investigation and their understanding that they are scientists.



Tracking Water from Space: Classroom Resources Using Global Visualization and NASA Data Sets

(Bio)

(Middle Level–High School/Informal)

123, Convention Center

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

NASA's Gravity Recovery and Climate Experiment (GRACE) mission tracks changes in total water storage. Explore ways to use data visualization and scientific data sets to teach about climate change.

Scientific Inquiry for All: Making Inquiry More Accessible for Students of All Skill Levels (Gen)

(Middle Level–High School)

128, Convention Center

Darin S. Munsell (*munsdar@iit.edu*), Illinois Institute of Technology, Chicago

Brittany P. Kinser, Perspectives/IIT Math & Science Academy, Chicago, Ill.

Experience model open-inquiry labs and learn how to effectively scaffold student experiences with simple organizers and differentiated instruction.

Biotechnology from Bench to Bedside

(Bio)

(High School)

204, Convention Center

Julie Bokor (*julie@cpet.ufl.edu*), University of Florida, Gainesville

Students perform a differential diagnosis and then launch into clinical and research tracks in a quest to treat a young patient with Pompe disease.

Circuit Training with LED Hula-Hoops™ (Phys)
(Middle Level–High School) 205, Convention Center

Ligia M. Ford (ligios@nmsu.edu), New Mexico State University, Las Cruces

Presider: Ashley Keisler, New Mexico State University, Las Cruces

This electrical and math project introduces students to electrical engineering. Use the basics of electronics to create a LED (light-emitting diode) parallel circuit Hula-Hoop.

Easy Hands-On Science for Grade 3 (Phys)
(Elementary) 207, Convention Center

Nathaniel C. Haeck (nch5204@fe.dekalb.k12.ga.us), Fernbank Science Center, Atlanta, Ga.

Hands-on activities will be tied to the new core science standards for grade 3. Handouts!

Oobleck, Slime, and Dancing Spaghetti: Using Children's Literature to Enhance Your Science Curriculum (Gen)
(Preschool–Elementary) 211, Convention Center

Jennifer C. Williams (jwilliams@newmanschool.org), Isidore Newman School, New Orleans, La.

Promote enthusiasm and understanding of scientific con-

cepts by integrating children's literature into inquiry-based hands-on experiments and activities. See a demonstration of a seamless blend of "story time" and science.

Why Do I Have to Know This? Engineering Design Challenges That Drive Inquiry Science (Gen)

(Elementary) 231, Convention Center

Kristin A. Sargianis (ksargianis@mos.org) and **Sharlene Yang** (syang@mos.org), Museum of Science, Boston, Mass.

How can engineering design challenges provide context for science content and inspire inquiry? Through hands-on activities and discussion, we'll explore how engineering can inspire students to ask and answer their own science questions.

Understanding Earth's Magnetism and Space Weather (Gen)

(Middle Level–High School) 234, Convention Center

Tina A. Harris (taharris79@yahoo.com), Indiana University, Bloomington

An upcoming solar maximum means students need a better understanding of the effects of space weather on electronics and Earth's magnetic field. Interdisciplinary lessons and activities provided.



If your answer is "YES," then please join us at our conveniently offered sessions for first-time conference attendees where we'll walk through the program, and you'll learn how to get the most from your conference experience. Door prizes!

CAROLINA
World-Class Support for Science & Math

Refreshments at the morning session courtesy of Carolina Biological Supply Company.

NSTA National Science Teachers Association

Attending for the first time? First-Time Attendee Sessions

• Is This Your First NSTA Conference?

Thursday, March 29, 8:00–9:00 AM

JW Grand Ballroom 5, JW Marriott Indianapolis

• Conference Tips for First-Timers

Thursday, March 29, 3:30–4:30 PM

JW Grand Ballroom 5, JW Marriott Indianapolis

Computer-supported Collaborative Science: Support Inquiry in the Middle School Science Classroom with Google Apps (Gen)

(Middle Level) 239, Convention Center

Kelly Castillo and **Mike G. Rivas** (mike.rivas@csun.edu), California State University, Northridge

Learn how to use Google Applications (including docs, forms, spreadsheets, and sites) to build collaborative, inquiry-driven investigations in your classroom and beyond.

NMLSTA Session: What Goes Up, Must Come Down—Are All Parachutes Created Equal? (Gen)

(Elementary–Middle Level) 240, Convention Center

Mary Lou Lipscomb (lipscomb@imsa.edu) and **Liz Martinez** (emartinez@imsa.edu), Illinois Mathematics and Science Academy, Aurora

Construct and investigate parachutes based on a lesson developed by the Institute for Inquiry at the Exploratorium. The lesson provides middle school students with an opportunity to do an inquiry and become familiar with the skills necessary for successful science learning through inquiry.

wE-STEM, Do You? (Gen)

(Elementary–Middle Level) 241, Convention Center

Sarah E. Vannatta (svannatta@sdale.org) and **Lisa A. Taylor** (ltaylor5@sdale.org), Willis Shaw Elementary School, Springdale, Ark.

Experience an integration of successful E-STEM strategies, tools, and resources for use in the elementary inquiry-based classroom. Walk away with handouts, materials, and resources.

Coaching: Knowledge That Works for Science Education Leadership—Strategies for Authentic Literacy (Gen)

(General) 101, JW Marriott

Tom Peters (tpeters@clemson.edu), South Carolina's Coalition for Mathematics & Science, Clemson

Dorothy Earle (dearle@greenville.k12.sc.us), S²TEM Centers SC, Greenville, S.C.

Betty W. Hadden (haddenb@upstatesc.org), S²TEM Centers SC, Simpsonville, S.C.

Join us for an overview of how purposeful reading, writing, and talking support meaning-making in science and how coaching helps teachers incorporate authentic literacy strategies into their practice.

NARST Session: Venn Diagrams for Lesson Planning (Gen)

(General) 202, JW Marriott

Susan A. Everett (everetts@umd.umich.edu) and **Charlotte A. Otto** (cotto@umd.umich.edu), University of Michigan–Dearborn

Use Venn diagrams as tools for lesson planning and weave together content, teaching, and students' local context to develop pedagogical content knowledge (PCK).

The Science and Ethics of Animal Research (Bio)

(Middle Level–College) JW Grand Ballroom 4, JW Marriott

Jeanne Chowning (jchowning@nwabr.org) and **Joan Griswold** (jgriswold@nwabr.org), Northwest Association for Biomedical Research, Seattle, Wash.

Why do scientists use animals? What are the ethical considerations? Engage in practical lessons that bring this challenging issue into the science classroom. Take home a CD.

Is This Your First NSTA Conference? (Gen)

(General) JW Grand Ballroom 5, JW Marriott

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. Refreshments courtesy of Carolina Biological Supply Company. Door prizes!



NSTA Press Session: Outdoor Science (Gen)

(Elementary–Middle Level) JW Grand Ballroom 7, JW Marriott

Steve A. Rich (bflywriter@comcast.net), West Georgia Youth Science and Technology Center, Carrollton

Presider: **Jessica Jetton** (jjetton@forsyth.k12.ga.us), Forsyth County Schools, Cumming, Ga.

Take science into the school yard with resources from this NSTA Press best seller. Create learning spaces, practice the lessons and activities, and take home free seeds.

Bringing It Together: The Power of STEM Combined (Gen)

(General) White River Ballroom 11, JW Marriott

Sara B. Sweetman, University of Rhode Island, Narragansett

Receive the materials and knowledge to “take home” an engaging lesson or professional development session that demonstrates the power of STEM in developing students' inquiry skills.

iLove Teaching Science with iPads (Gen)
(General) *Indiana Ballroom C/D, Marriott Downtown*
Amy Roediger (roediger@mentorschools.org), Mentor High School, Mentor, Ohio
Come explore ways to teach, differentiate, and simulate labs using touch-screen mobile technology!

It's All in the Family: Hosting a Family Science Event (Gen)
(General) *Indiana Ballroom G, Marriott Downtown*
Mia Jackson (mjackson@davidheil.com) and **David Heil**, Foundation for Family Science & Engineering, Portland, Ore.
Discover the thrill of hands-on science activities designed to engage the whole family and learn how to host a Family Science event in your community. Handouts and prizes!

Rubric Redesign (Gen)
(General) *Marriott Ballroom 7, Marriott Downtown*
Deborah Hanuscin (hanuscind@missouri.edu) and **Tiffany Hill** (trk7v7@mail.mizzou.edu), University of Missouri, Columbia
Come hear common pitfalls to avoid in designing rubrics and learn how you can redesign existing rubrics to improve your classroom assessment!

Climate Change Made Fun and Easy Through Labs (Env)
(Middle Level–High School) *Capitol I, Westin*
Jayne Jones (jjones@usd404.org) and **Cynita R. Jones** (cjones@usd404.org), Riverton High School, Riverton, Kans.
The effects of climate change are made fun and easy with unique, simple, and inexpensive hands-on activities. Make and take...and win a door prize!

Getting Hands On/Minds On with Earthquakes Through iPods, Laptops, and Other Portable Accelerometers (Earth)
(Middle Level–High School) *Capitol III, Westin*
John Taber (taber@iris.edu), IRIS Consortium, Washington, D.C.
Scott Kubik (spktgc@mail.missouri.edu), University of Missouri, Columbia
Leverage the accelerometers in modern “gizmos” as tools to explore earthquake phenomena (e.g. seismic waves, seismograms, magnitude, and intensity) in your Earth science classroom.

Flat Maps to Models: Developing an Understanding of the Shape of Our World (Earth)
(Elementary–High School) *Grand Ballroom 2, Westin*
Orvil L. White (orvil.white@cortland.edu), SUNY Cortland, N.Y.
Help your students develop the ability to understand flat maps by using math and art to build 3-D models.

NMEA Session: A Whale of a Tale Share-a-Thon (Env)
(General) *Grand Ballroom 5, Westin*
Lauren Rader (lrader@oceanlogy.org), Project Oceanology, Groton, Conn.
Johnette Bosarge, National Marine Educators Association, Ocean Springs, Miss.
Judith Coats (jcoats@ucsd.edu), Birch Aquarium at Scripps, La Jolla, Calif.
Becky J. Cox (beckyc@utm.edu), The University of Tennessee at Martin
Susan E. Haynes (susan.haynes@noaa.gov), NOAA Office of Ocean Exploration and Research, Silver Spring, Md.
Lisa A. Lawrence (ayers@vims.edu), Virginia Institute of Marine Science, Gloucester Point
Meghan Marrero (mmarrero3@mercy.edu), Mercy College, Dobbs Ferry, N.Y.
Joanna Philippoff (jphilippoff@gmail.com), University of Hawaii at Manoa, Honolulu
Pam Stryker (pstryker@texas.net), Austin, Tex.
Presider: **Diana Payne** (diana.payne@uconn.edu), Connecticut Sea Grant, Groton
Regional chapters of the National Marine Educators Association provide opportunities for networking, hands-on activities, take-home resources, and information on marine and aquatic programs for teachers and students.



8:00–9:00 AM Exhibitor Workshops

Project-Based Inquiry Science: PBIS™ Takes the Confusion Out of Implementing STEM in Middle School (Gen)

(Grades 6–8)

132, Convention Center

Sponsor: It's About Time

Mary Starr, University of Michigan, Ann Arbor

Are you confused about the “E” in STEM? In this workshop, discover what it really represents—the use of the Engineering Design Cycle (EDC). Learn the benefits of the EDC in PBIS for your middle school students. Learn why a project-driven course makes a difference in performance for all students. Get introduced to the use of data logging technology to enhance your students’ classroom experiences.

33 Ways to Integrate Science (Gen)

(Grades 2–4)

135, Convention Center

Carrie Strohl and **Traci Wierman**, 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!

8:00–9:15 AM Exhibitor Workshops

Incorporating Online Virtual Lab Solutions with STEM-focused Skills (Gen)

(Grades 7–12)

136, Convention Center

Sponsor: Frey Scientific/School Specialty Science

Lou Loftin, Northwest Regional Professional Development Program, Reno, Nev.

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.

Learning the Design Process—Experiment or Product? (Gen)

(Grades K–6)

138, 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. This workshop features Delta products with resources to take home.

8:00–9:30 AM Presentations

SESSION 1



Technology + Science = Making IT Work (Gen)

(General)

120, Convention Center

Ben Smith (ben@edtechinnovators.com) and **Jared Mader** (jared@edtechinnovators.com), Red Lion (Pa.) Area School District

Learn how to tap into your students’ creative side. Including student examples, we will demonstrate how to enhance your classroom using technology.

SESSION 2



PSTEM Pathway Session: More Best Practices in Teaching: A Look at the Research (Gen)

(General)

White River Ballroom C, JW Marriott

Donna P. Cleland, The 21st Century Partnership for STEM Education, Conshohocken, Pa.

The research arm of the U.S. Department of Education, the Institute for Education Sciences conducts and collects objective research into teaching practices. Join me as I share their results.

8:00–9:30 AM Workshop**PDI BSCS Pathway Session: Understanding the Practices of Science for Classroom Implementation (Gen)***(General) 309/310, JW Marriott***Connie Huidsten** (chuidsten@bscs.org), BSCS, Colorado Springs, Colo.

Let's inquire into the practices of science for integration in the classroom and improved student learning.

**8:00–9:30 AM Exhibitor Workshops****Bio-Rad: Implementing a Skills-based Biotech Program with Author Kirk Brown (Bio)***(Grades 6–College) 108, Convention Center*

Sponsor: Bio-Rad

Kirk Brown (biotechnology_explorer@bio-rad.com), Tracy High School, Tracy, 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 biotechnology lab textbook: *Biotechnology: A Laboratory Skills Course*. Hear words of wisdom from Tracy High School's model biotech program and inspire your students with real-world lab experiences. *Note:* The first 25 attendees will receive a free teacher edition!

Chemistry with Vernier (Chem)*(Grades 9–College) 116, Convention Center*

Sponsor: Vernier Software & Technology

Jack Randall (info@vernier.com) and **Mike Collins** (info@vernier.com), Vernier Software & Technology, Beaverton, Ore.

Experiments such as acid-base titration and Boyle's law from our popular *Chemistry with Vernier* and *Advanced Chemistry with Vernier* lab books will be performed in this hands-on workshop. Conduct these experiments using LabQuest and our LabQuest Mini. See our Mini GC Gas Chromatograph and SpectroVis Plus spectrophotometer in action!

Engineering with Vernier (Gen)*(Grades 7–College) 117, Convention Center*

Sponsor: Vernier Software & Technology

David L. Vernier (info@vernier.com), Vernier Software & Technology, Beaverton, Ore.

This is a two-part workshop. The first half hour is oriented toward middle school. We'll demonstrate the use of Vernier

sensors with the LEGO® MINDSTORM® NXT robotics kit. The second half hour will demonstrate projects using LabVIEW™, for use with first-year college or high school students.

Chemistry and the Atom: Fun with Atom Building Games! (Phys)*(Grades 5–12) 139, 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. Join us and experience innovative games and activities that give students with different learning styles opportunities to explore and grasp atomic structure and the periodic table.

SPARKvue®: A 21st-Century Inquiry-based Science Learning Environment (Gen)*(Grades K–12) 140, Convention Center*

Sponsor: PASCO scientific

Presenter to be announced

Explore PASCO's award-winning application, SPARKvue, and discover hands-on learning that integrates interactive visualization, data collection, and analysis in a meaningful and engaging way. SPARKvue is media rich and touch-screen capable...and seamlessly adapts to your classroom technology, whether you use a Mac, PC, tablet, iPad, or interactive whiteboard. With SPARKvue, you can collect real-time sensor data, make predictions right on a graph and see the results, capture a snapshot of the work at any time with the journaling feature, and create and edit student assessment prompts.

New for Elementary School Science: Learning Key Concepts Through Hands-On, Probeware-based Activities (Gen)

(Grades 4–6)

141, Convention Center

Sponsor: PASCO scientific

Presenter to be announced

When you conduct an activity from the Sally Ride Science™ SPARKlab® series, you'll get hands-on experience with a state-of-the-art way to meet elementary science standards. These activities from Sally Ride Science and PASCO cover the content you already teach through integrated, probeware-based guided inquiry lessons. The hands-on activity and teacher resources will cover key concepts in physical science.

Engaging Elementary Learners in STEM with LEGO® Education (Phys)

(Grades 1–5)

202, Convention Center

Sponsor: LEGO Education

Presenter to be announced

Explore key science concepts using LEGO bricks! With LEGO Education, teachers create a stimulating hands-on learning experience, helping students engage their minds so they're ready for tomorrow's challenges...thus increasing students' understanding of key STEM concepts. From simple machines to robotics, with LEGO Education YOU are the facilitator of an active learning environment. In this session you will experience firsthand the different resources available from LEGO Education that cover core subjects and meet key learning standards in science and math.

8:00–10:00 AM Presentation

SESSION 1

PDI ITEEA Pathway Session: STEM Resources for Grades K–2 (Gen)

(Elementary)

White River Ballroom A, JW Marriott

Barry N. Burke (bburke@iteea.org), International Technology and Engineering Educators Association, Gaithersburg, Md.

Joey H. Rider-Bertrand, Lancaster-Lebanon Intermediate Unit 13, Ardmore, Pa.

Explore standards-based, integrated STEM resources appropriate for grades K–2 that transcend all disciplines and use contexts and themes from the Grand Challenges for Engineering.



8:00–10:00 AM Workshops

PDI SPS Pathway Session: They're Not Too Young: Emergent Writers Thinking and Writing Like Scientists (Gen)

(Preschool–Elementary)

White River Ballroom D, JW Marriott

Kirsten Nesholm (kanesholm@seattleschools.org), Seattle (Wash.) Public Schools

Kelly Walter (kmwalter@seattleschools.org), John Jay Elementary School, Seattle, Wash.

Experienced practitioners share research-based strategies for supporting vocabulary acquisition and developing scientific thinking and writing skills that help all students achieve at higher-than-expected levels.

PDI McREL Pathway Session: What Works in Science Classrooms—Developing Student Understanding: Identifying Learning Goals and the Criteria for Success from the Common Core Science Standards (Gen)

(General)

White River Ballroom G, JW Marriott

Anne Tweed (atweed@mcrel.org), 2004–2005 NSTA President, and McREL, Denver, Colo.

Cynthia Long (clong@mcrel.org), McREL, Denver, Colo.

Trying to cover too much science content is the largest barrier to developing student conceptual understanding. Find out how to make decisions about essential learning goals, learning progressions that support those goals, and the criteria for student success. Review sample learning progressions before creating one of your own. A sample rubric will then be generated that matches your learning progression.

8:00–10:00 AM Exhibitor Workshop

The Next Generation of Active Learning with FOSS Third Edition (Gen)

(Grades K–6)

137, Convention Center

Sponsor: Delta Education/School Specialty Science—FOSS
Larry Malone, Linda De Lucchi, and Brian Campbell, Lawrence Hall of Science, University of California, Berkeley
Join FOSS developers to learn about the new FOSS elementary program. Find out how FOSS can help schools address the Next Generation Science Standards. We'll introduce the new instructional design based on learning progressions and illustrate how the system incorporates science-centered language development, outdoor experiences, notebooks, digital resources, and formative assessments into the learning experience.

8:00–11:00 AM Short Course



Energize Your Classroom (SC-1)

(Elementary–Middle Level)

Fisher Ballroom A, Omni

Tickets Required: \$39

Tracie Cain (tcain02@charter.net), Academy of the Sacred Heart, St. Charles, Mo.

Kim Petzing (kim.petzing@mobot.org), EarthWays Center, Missouri Botanical Garden, St. Louis

For description, see page 70.

8:00–11:00 AM Workshop


PDI WestEd Pathway Session: The TLC Is a PLC! (Gen)

(General)

102, JW Marriott

Karen Cerwin (kcerwin@wested.org) and **Kathy DiRanna**, WestEd, Santa Ana, Calif.

Want to conduct a lesson study at your site? Learn how embedded professional development in classrooms links to school culture, teacher development, and student achievement.




**NSTA
STUDENT CHAPTER
AND
STUDENT MEMBERS
RECEPTION**

If your institution has an NSTA Student Chapter, join us to share examples of your chapter's work or community projects to share with other students at colleges or universities that don't have student chapters. Learn best practices in starting and running a successful student chapter at your school!

Refreshments and hors d'oeuvres will be served.

Friday, March 30
5:30–7:00 PM
 JW Marriot Indianapolis
 JW Grand Ballroom 1



NSTA National
Science
Teachers
Association



8:00 AM–12 Noon Meeting

National Earth Science Teachers Association Board of Directors Meeting

Senate 3, Westin

Individuals interested in joining us at the NESTA Board Meeting are welcome during open session. Seating is limited. Visit www.nestanet.org/cms/calendar/2635 for more information.

8:00 AM–12:30 PM NSTA Symposium

Interagency Symposium: Teaching About Climate Change—Here and Now (SYM-1)

(Grades 5–12) JW Grand Ballroom 2, JW Marriott

Tickets Required: \$54

Edward W. Maibach, George Mason University, Fairfax, Va.

Bono Sen (senb@niehs.nih.gov), National Institute of Environmental Health Sciences, Durham, N.C.

Peggy Steffen (peg.steffen@noaa.gov), **LuAnn Dahlman** (luann.dahlman@noaa.gov), and **Bruce Moravchik** (bruce.moravchik@noaa.gov), NOAA National Ocean Service, Silver Spring, Md.

Vicki Arthur, U.S. Forest Service, Washington, D.C.

For description, see page 67.



8:00 AM–2:00 PM Global Conversations in Science Education Conference

STEMing Across Borders: An International Perspective on Science, Technology, Engineering, and Math (M-1)

(General)

White River Ballroom E/F, JW Marriott

By Preregistration Only

NSTA has planned two days dedicated to science education from an international perspective. On Thursday, the day commences with a plenary talk by Joan Ferrini-Mundy, assistant director of Education and Human Resources at the National Science Foundation. This plenary session will be followed by concurrent sessions, a poster session, a luncheon plenary speaker, and a panel discussion. The luncheon plenary speaker is Marissa Rollnick, chair of science education at the Marang Centre for Mathematics and Science Education, Wits University, South Africa. The day will conclude with short presentations from participants on current trends, issues, and best practices from around the world.

On Friday, from 9:00 AM to 12 Noon, there will be a “Welcome to My Classroom” showcase highlighting classroom settings from around the world. See Volume 2 for more information on this showcase.

8:00–8:30 AM	Welcome and Introductions Norman Lederman, Conference Chair Patricia Simmons, NSTA President Judith S. Lederman, Chair, NSTA International Advisory Board
8:30–9:00 AM	Plenary Session (p. 119) <i>Today's Students and Tomorrow's Science: Global Opportunities in a Changing World</i> Joan Ferrini-Mundy, Assistant Director, Education and Human Resources, National Science Foundation, Arlington, Va.
9:00–9:15 AM	Break
9:15–10:15 AM	Concurrent Sessions (p. 122)
10:15–11:00 AM	Poster Session (p. 140)
11:15 AM–12:15 PM	Concurrent Sessions (p. 144)
12:15–1:15 PM	Luncheon Plenary Session (p. 152) <i>Toward STEM Improvement in South Africa: Breaking the Vicious Cycle</i> Marissa Rollnick, Chair of Science Education, Marang Centre for Mathematics and Science Education, Wits University, Johannesburg, South Africa
1:15–1:35 PM	Panel Discussion (p. 167)
1:35–1:55 PM	Updates from Around the World (p. 170)
1:55–2:00 PM	Closing Remarks

8:00 AM–3:00 PM Short Course

Climate Change Essential Knowledge and Beyond: Using the Past to Predict the Future (SC-2)

(Grades 5–12)

McClellan, Omni

Tickets Required: \$21

Louise T. Huffman (lhuffman@andrill.org) and **Frank R. Rack**, ANDRILL Science Management Office, University of Nebraska–Lincoln

Susan B. Kelly and **Christine Foreman** (cforeman@montana.edu), Montana State University, Bozeman

Don Duggan-Haas (dugganhaas@gmail.com), Museum of the Earth, Paleontological Research Institution, Ithaca, N.Y.

Susan M. Buhr (susan.buhr@colorado.edu) and **Anne U. Gold** (anne.u.gold@colorado.edu), Cooperative Institute for Research in Environmental Sciences, University of Colorado at Boulder

Michael Jabot (jabot@fredonia.edu), Institute for Research in Science Teaching, State University of New York at Fredonia

Candace J. Lutzow-Felling (lutzow-felling@virginia.edu), Arboretum of Virginia and Blandy Experimental Farm, University of Virginia, Boyce

Linda M. Morris (linda.m.morris@dartmouth.edu), Dartmouth College, Hanover, N.H.

Gary Clow, U.S. Geological Survey, Lakewood, Colo.

Jay Johnson, Space Science and Engineering Center, Madison, Wis.

Ross Powell, Northern Illinois University, DeKalb
For description, see page 70.

8:00 AM–5:00 PM Meeting

NSTA Student Chapter Showcase and Lounge

CS05 (Hall E), Convention Center

This three-day showcase features interactive sessions presented by NSTA Student Chapter faculty advisors, student leaders, and members highlighting campus and community activities, hands-on demonstrations, discussion groups, and more. In between sessions, the room will serve as a lounge for preservice teachers, new teachers, and faculty advisors to meet, network, and share ideas.



8:30–9:00 AM Global Conversations in Science Education Conference Plenary Session

Today's Students and Tomorrow's Science: Global Opportunities in a Changing World (Gen)

(General)

White River Ballroom E/F, JW Marriott

By Preregistration Only



Joan Ferrini-Mundy (jferrini@nsf.gov), Assistant Director, Education and Human Resources, National Science Foundation, Arlington, Va.

Our efforts across the globe to prepare a next generation science workforce and science support professionals, as well as a scientifically engaged public, are unified by the exciting possibilities of frontier and emerging science. From the perspective of the National Science Foundation, I will explore how key trends in science—including interdisciplinary, computational, and data-enabled science; sustainability science; and innovation—might be compelling resources for energizing today's students to be tomorrow's science leaders, users, and advocates.

Dr. Joan Ferrini-Mundy is assistant director of Education and Human Resources for the National Science Foundation, a position she has held since February 2011. A member of the NSF senior management team, she is involved in strategic planning and leadership for the scientific and education mission of NSF. In connection with her agency-wide responsibilities, Dr. Ferrini-Mundy serves as NSF's science, technology, engineering, and mathematics (STEM) workforce development goal leader for the Office of Management and Budget's Priority Goal Initiative.

She holds an appointment at Michigan State University as a University Distinguished Professor of Mathematics Education in the Departments of Mathematics and Teacher Education. Dr. Ferrini-Mundy holds a PhD in mathematics education from the University of New Hampshire.

8:30–10:30 AM Meetings

NSTA Committee on Informal Science Meeting

206, JW Marriott

NSTA Awards and Recognitions Committee Meeting

207, JW Marriott

NSTA Special Needs Advisory Board Meeting

301, JW Marriott

Science Matters Advisory Board Meeting

304, JW Marriott

NSTA Reports Advisory Board Meeting

307, JW Marriott

NSTA Science Safety Advisory Board Meeting

308, JW Marriott

Science and Children Advisory Board Meeting

311, JW Marriott

Science Scope Advisory Board Meeting

312, JW Marriott

The Science Teacher Advisory Board Meeting

313, JW Marriott

Journal of College Science Teaching Advisory Board Meeting

314, JW Marriott

8:30–11:30 AM Meeting

NSTA Urban Science Education Advisory Board Meeting

305, JW Marriott

9:00–10:00 AM Featured Presentation

Inspiring the Next Generation of STEM Leaders

(Earth)

(General)

Sagamore Ballroom 7, Convention Center



Leland Melvin, Associate Administrator for Education, NASA Headquarters, Washington, D.C.

President: Pablo A. Llerandi-Román, Grand Valley State University, Allendale, Mich.

Join Leland Melvin as he provides an overview of the NASA Office

of Education's programs and innovative strategies designed to encourage students of all ages to pursue and succeed in STEM careers. With a mission to support STEM advocates nationwide, the agency has made a significant investment in educator professional development. Learn how NASA is using its unique capabilities to reach educators, learners, and institutions.

As NASA's Associate Administrator for Education, Leland Melvin brings a passion for excellence to his STEM education endeavors. He is responsible for the development and implementation of the agency's education programs that strengthen student involvement and public awareness about its scientific goals and missions. He began his NASA career in 1989 as an aerospace research engineer at the agency's Langley Research Center. He entered NASA's astronaut corps in 1998 and served as a mission specialist operating the robotic arm on two space shuttle missions to the International Space Station. His service extends to membership on the White House National Science and Technology Council's Committee on Science, Technology, Engineering, and Mathematics Education (CoSTEM) and as the U.S. representative on the International Space Education Board. Prior to his career with NASA, he was a wide receiver with the Detroit Lions, Dallas Cowboys, and Toronto Argonauts. He holds an MS degree in materials science engineering from the University of Virginia and honorary doctorates from Centre College, St. Paul's College, and Campbellsville University.

This speaker is sponsored by Northrop Grumman Foundation.

9:00–10:30 AM Breakfast

Preservice and New Teachers Breakfast (M-2)

(Tickets Required: \$12) JW Grand Ballroom 3, JW Marriott

Sponsored by Kendall Hunt Publishing Co.

New to the profession? Join us for this lively and interactive function where you'll learn about all the resources at your fingertips from NSTA for your science classroom, your career, and your own content knowledge. Enjoy a complete breakfast (generously sponsored by Kendall Hunt Publishing Company) while networking with other teachers new to the profession.

Tickets, if still available, must be purchased at the Ticket Sales Counter in the NSTA Registration Area before 8:00 PM on Wednesday.

Note: Tickets will be provided only to preservice teachers or teachers with up to five years of teaching experience.

9:00–11:30 AM Exhibitor Workshop

Bio-Rad Crime Scene Investigator PCR Basics Kit (Bio)

(Grades 7–College)

107, Convention Center

Sponsor: Bio-Rad

Leigh Brown (biotechnology_explorer@bio-rad.com), Bio-Rad, Hercules, Calif.

Which human DNA sequences are used in crime scene investigations, and why? In this hands-on workshop, you will learn to use the polymerase chain reaction (PCR) and gel electrophoresis to identify which suspects can be exonerated—based on DNA evidence. Learn how the statistics of chance are integral to modern DNA fingerprinting.

9:00 AM–5:00 PM Meeting

NSTA International Lounge

107, JW Marriott

Please stop by the NSTA International Lounge to relax or meet colleagues while you're at the conference. The lounge is open Thursday through Saturday, 9:00 AM–5:00 PM.

PRESERVICE & NEW TEACHERS BREAKFAST

Are you new to the profession? Join us as we share ideas and techniques for the classroom, how to get the most out of your conference experience, and NSTA resources as well.



THURSDAY, MARCH 29
9:00–10:30 AM
JW MARRIOTT INDIANAPOLIS
JW GRAND BALLROOM 3

Tickets Required (M-2: \$12 on-site) and, if still available, must be purchased at the NSTA Registration Area by 8:00 PM on **Wednesday, March 28.**

This event is generously sponsored by Kendall Hunt Publishing Company.

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NSTA National
Science
Teachers
Association



9:15–10:15 AM Global Conversations in Science Education Conference Concurrent Sessions

By Preregistration Only

These sessions feature papers from national and international science educators on issues relating to Science, Technology, Engineering, and Mathematics education in K–16.

Concurrent Session #1 *103, JW Marriott*
Presider: Selina L. Bartels, Illinois Institute of Technology, Chicago

Improving Conceptual Understanding in the Physical Science Classroom in South Africa

Elizabeth M. Mavhunga, University of the Witwatersrand, Johannesburg, South Africa

Preparing to Teach with Science-related News: Responding to the Challenge of a Cross-curricular Curriculum Initiative in Northern Ireland

Billy McClune and **Ruth Jarman**, Queen's University, Belfast, U.K.



Concurrent Session #2 *104, JW Marriott*

Presider: Megan E. Faurot, Illinois Institute of Technology, Chicago

Moving the Teaching of Science and Engineering Education Forward in Scotland

Stuart Farmer, Robert Gordon's College, Aberdeen, Scotland

New Trends of Science Education in Mainland of China Under Globalization

Tiequan Cai, Zhejiang Normal University, Jinhua, Zhejiang Province, China

Yaozhen Pan, Illinois Institute of Technology, Chicago

Concurrent Session #3 *105, JW Marriott*

Presider: Stephen A. Bartos, Illinois Institute of Technology, Chicago

Creating a Learning Community into a School Based on Inquiry Methodology

Juan P. Jimenez, Illinois Institute of Technology, Chicago

Science on Stage Europe: The European Science Teacher Network

Friedlinde Krotscheck, Buffalo, N.Y.

Concurrent Session #4 *106, JW Marriott*

Presider: Dionysius T. Gnanakkan, Illinois Institute of Technology, Chicago

Three “Nontraditional” Components in China’s New National Science Curriculum Standards

Miancheng Guo, Illinois Institute of Technology, Chicago

Challenges and Opportunities in Science Education in Africa

Peter A. Okebukola, Lagos State University, Lagos, Nigeria

9:30–10:30 AM Mary C. McCurdy Lecture**Teaching Science Inquiry Through Storytelling (Gen)**

(General)

Sagamore Ballroom 6, Convention Center



Brian “Fox” Ellis (foxtales@foxtalesint.com), Author and Storyteller, Fox Tales International, Peoria, Ill.

Presider: James Calaway, Lawton (Okla.) Public Schools

Stories invite listeners to be engaged in true inquiry as they predict outcomes and peer over the shoulder of

historical scientists to witness the scientific process. Creative writing challenges students to ask difficult questions and look for answers. Nonfiction storytelling brings the wild world to life and allows students to be immersed in the procedures of formulating a hypothesis, designing an investigation, collecting and analyzing data, and drawing conclusions. In this dynamic and participatory address, you will hear some great stories, tell a few of your own, and learn to use this universal tool to engage your students in original inquiry.

Storyteller, author, and educator, Brian “Fox” Ellis tours the world collecting and telling stories. His interactive monologues portray historical scientists such as Charles Darwin, John James Audubon, and Gregor Mendel. He invites the audience to travel back in time and peer over the shoulder of these amazing characters as they make their great discoveries, embodying the scientific process. At present, he is the artistic director for Prairie Folklore Theatre, a theatre company that celebrates ecology and history through original musical theatre. Author of several books, including Content Area Reading, Writing, and Storytelling and The Web at Dragonfly Pond, Brian strives to awaken the storyteller within each of us—teacher, student, parent, and naturalist alike. Visit www.foxtalesint.com for more information about his stories, songs, and lesson plans.

9:30–10:30 AM Presentations**SESSION 1****STEM Learning in a Cultural Context: The Crow Education Partnership (Bio)**

(Elementary–Middle Level)

111/112, Convention Center

Susan B. Kelly (susan.kelly@montana.edu), Montana State University, Bozeman

Devon Flamm (devon.flamm@hardin.k12.mt.us), Hardin Intermediate School, Hardin, Mont.

Join us to learn about a science education partnership that is developing on the Crow Indian Reservation in south-central Montana. We are implementing culturally relevant STEM enrichment activities for the upper elementary grades in the Hardin School District.

SESSION 2**A PBL Model Integrating Technology and Monitoring Daily Student Learning (Gen)**

(Middle Level–High School)

113, Convention Center

Susan Becker (beckers@ips.k12.in.us) and **Christine Strattman**, Indianapolis (Ind.) Public Schools

Join us as we share examples of effective Problem-Based Learning (PBL) units focusing on science content and addressing authentic problems and issues. For 10 years, students in Indianapolis Public Schools have engaged in PBL with technology integration as well as content rubric and daily accountability monitors. Interact with a PBL classroom in a live broadcast.

SESSION 3**A Hands-On Approach to Exploring Life Cycles (Bio)**

(Preschool–Elementary)

122, Convention Center

Sandi Castro, Sping Hill Elementary School, Pflugerville, Tex.

Sonya Johnson, Child, Inc., Kyle, Tex.

Join us as we share strategies to make exploring life cycles fun, hands on, and relevant for any grade level.

SESSION 4

ROKET and AILDI: Science from an American Indian Perspective (Phys)

(High School) 125, Convention Center

Gregory F. Luttrell (gluttrell@iobusd40.org), Baboquivari High School, Sells, Ariz.

Angel Lee, Cheyenne-Eagle Butte High School, Eagle Butte, S.Dak.

Toni Smith, Indian Oasis Elementary School, Sells, Ariz.

Meredith Kupinski (meredith@optics.arizona.edu), University of Arizona, Tucson

ROKET stands for Research in Optics for K–12 Educators and Teachers. In partnership with the University of Arizona and the American Indian Language Development Institute, ROKET students enroll in one AILDI course. ROKET participants representing the Tohono O’odham and Lakota nations will share how they have incorporated inquiry-based science lessons that are sensitive to traditional culture and knowledge.

SESSION 5

Addressing Misconceptions During the First Two Weeks of Chemistry (Chem)

(High School) 127, Convention Center

Nicole L. Shea (shea.nl@easthartford.org) and **Matthew L. Brodeur** (brodeur.ml@easthartford.org), East Hartford High School, East Hartford, Conn.

Learn how to confront common misconceptions early in the course and increase your students’ curiosity and interest while previewing core chemistry content.

SESSION 6

We Stand on the Shoulders of Giants: Inspire Student Innovation with an Invention Convention (Phys)

(Elementary–Middle Level) 206, Convention Center

June Teisan (june.teisan@hwoods.k12.mi.us), Harper Woods (Mich.) Schools

Students delve into the lives of inventors, explore the mysteries of tech gadgets, and use today’s digital tools to collaborate and create along the way!

SESSION 7

Newton on the Cheap (Phys)

(Elementary–High School) 207, Convention Center

Gene L. Easter (gleaster@sbcglobal.net), Brushfire Science Consultant, Tallmadge, Ohio

Lisa Borgerding Donnelly (ldonnell@kent.edu), Kent State University, Kent, Ohio

Rev up your physics lessons with a learning progression guide to teaching Newton’s three laws of motion using the cheap

and the familiar—with flair. Learn to “teach the laws for less” and leave with effective and captivating activities, interactive demos, labs, and assessment activities. All activities are drawn from Kent State University’s Operation Physics.

SESSION 8

Designing for Inquiry in the Middle School Classroom—It Can Happen (Bio)

(Middle Level) 208, Convention Center

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

Discover how a free online web adventure about science careers can be combined with graphical organizer materials to model a scientific method experimental design technique for use in your classroom. Handouts!

SESSION 9

Quality Elementary Science Teaching (QUEST) (Gen)

(Elementary) 212, Convention Center

Deborah Hanuscin (hanuscind@missouri.edu), **Tracy Hager**, **Eun Ju Lee** (el2c9@mail.mizzou.edu), and **Tiffany Hill** (trk7v7@mail.mizzou.edu), University of Missouri, Columbia

Come learn how elementary teachers have used the Learning Cycle and Universal Design for Learning to support the success of all learners in science!

SESSION 10

Developing Early Childhood Learners’ Inquiry Skills Through Play-based Nature Study Activities (Env)

(Preschool) 235, Convention Center

J. William Hug (hug@calu.edu), **Deborah A. Farrer** (farrer@calu.edu), **Charlotte Orient** (orientc@calu.edu), **Jane Bonari** (bonari@calu.edu), **Clover Simms Wright** (wright_c@calu.edu), and **Soni Cairns**, California University of Pennsylvania, California

Experience hands-on explorations using children’s naturalistic play, literature, and nature journaling activities to help early childhood learners develop proficiency in science process skills and content.

SESSION 11

Lessons Learned from Past AP Chemistry Exams (Chem)

(Elementary–High School) 236, Convention Center
Fred Vital (fvital@fairfieldschools.org), Fairfield Ludlowe High School, Fairfield, Conn.

Join me for a look at improving student performance on bonding and intermolecular forces starting with a K–12 vertical approach to tackling the concept.

SESSION 12

STEM Camp Model: Successes and Challenges (Gen)

(Elementary–Middle Level) 239, Convention Center
Issam H. Abi-El-Mona (abi-el-mona@rowan.edu) and **Nancy DeJarnette** (dejarnette@rowan.edu), Rowan University, Glassboro, N.J.

Presider: Issam H. Abi-El-Mona

Join us as we share a first-year STEM-based initiative targeting elementary urban science learners in New Jersey.

SESSION 13


NMLSTA Session: *Flying WILD* (Env)

(Elementary–Middle Level/Informal) 240, Convention Center
Mike H. Mansour (mmansour001@comcast.net), Hawk Woods Nature Center, Auburn Hills, Mich.

Celebrate birds with a selection of activities from *Flying WILD: An Educator's Guide to Celebrating Birds*. You will simulate the migration of birds as we play the Great Migration Challenge and review *Flying WILD*.


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SESSION 14

Little Understanding: Preparing Students for Nanotechnology (Gen)

(Elementary–Middle Level) 242, Convention Center

Rebecca Zakowski (rzakowski@memorialsb.org), Memorial Health System, South Bend, Ind.

Dana Knapp (dknapp@elkhart.k12.in.us), Elkhart Community Schools/ETHOS, Inc., Elkhart, Ind.

Memorial's BrainWorks and ETHOS have created kits to provide students with a framework for understanding nanotechnology. Engage in kit activities and experience big learning about a little concept.

SESSION 15

Snakes in the Classroom (Not on a Plane) (Bio)

(General) 243, Convention Center

Kevin Jackson (kjack@loucol.com), Louisville Collegiate School, Louisville, Ky.

Presider: Peter Behr, Louisville Collegiate School, Louisville, Ky.

Snakes are ideal animals to stimulate science interest in students of all levels. Learn about the advantages and practical considerations of snake keeping.

SESSION 16

Earth First! Join the Green Life Science Revolution! (Bio)

(Middle Level–High School) 244, Convention Center

Mark C. Krotec (mckrotec@yahoo.com), Pittsburgh Central Catholic High School, Pittsburgh, Pa.

Launch your life science or environmental science course with activities designed to enhance critical thinking, experimental investigation, and personal stewardship.

SESSION 17

Taking Science to Go (Gen)

(Elementary–Middle Level/Supervision) 201, JW Marriott

Dave Emery (demery@elkhart.k12.in.us), Elkhart (Ind.) Community Schools

Presider: Patsy Boehler (patsy@ethosinc.org), ETHOS, Inc., Elkhart, Ind.

Discover how an old bus was turned into a traveling science training center designed to meet the training needs of science students and teachers.

SESSION 18 (three presentations)

(High School–College) 203, JW Marriott

SCST Session: Relationships and Responsibilities: Introducing Rising College Freshmen to a Science Community of Practice (Bio)

Grant E. Gardner (gardnerg@ecu.edu), East Carolina University, Greenville, N.C.

Jennifer H. Forrester (jforres5@uwyo.edu), University of Wyoming, Casper

Penny Shumaker Jeffrey, North Carolina State University, Raleigh

Review findings from a study examining the process and degree to which an undergraduate science research program for rising college freshmen achieved its stated objectives to integrate participants into a community of practice and to develop students' research identities.

SCST Session: Preferences of 21st-Century Students for Social Networking in College Science Classes (Gen)

Donald French (dfrench@okstate.edu), Oklahoma State University, Stillwater

Join us as we present the results of surveys on undergraduate uses of and preferences for social networking or similar interactions in science classes.

SCST Session: Optimizing Online Discussion Board Forums' Content and Time Parameters for Increased Student Scientific Literacy (Gen)

Renee M. Clary (rclary@geosci.msstate.edu), Mississippi State University, Mississippi State, Miss.

James Wandersee, Louisiana State University, Baton Rouge

Join us for an analysis of student scientific literacy for our three-week online courses in geologic time, biodiversity/extinction, climate change, and the Gulf oil spill. Findings show students appreciated topic diversity. However, performance measures indicate for optimal student scientific literacy, online units should be extended beyond three weeks.

SESSION 19

ASTE Session: The Next Generation of Science Education Standards—Are You Prepared to Lead the Way? (Gen)

(General) 204, JW Marriott

Deborah L. Tucker (deborahlt@aol.com), Science Education Consultant, Napa, Calif.

Gary Nakagiri (gnakagiri@gmail.com), Science Consultant, El Cerrito, Calif.

Learn about some essential leadership tools and key resources

for implementing and achieving the new vision of, and standards for, science education.

SESSION 20 (two presentations)

(High School–College/Informal Education) 205, JW Marriott

Aquaponics: Teaching Sustainability Through Integrated Applied Inquiry (Gen)

Chad King (kingc@ohiodominican.edu) and **Ron Zielke** (zielker@ohiodominican.edu), Ohio Dominican University, Columbus

Delve into an aquaponics system designed, built, and operated by students that is a tool for the STEM disciplines and applies interdisciplinary inquiry, creativity, and innovation to address sustainability issues.

Advancing Environmental Stewardship Through Service Learning and Community Partnerships (Env)

Kara A. Salazar (salazark@iupui.edu), Indiana University–Purdue University Indianapolis

Environmental service learning creates an informed citizenry regarding contemporary environmental challenges. The Center for Earth and Environmental Science (CEES) program engages undergraduates in community activities to address urban water quality.

SESSION 21

Building STE(A)M: Revisiting the Importance of Art in STEM Education (Gen)

(General) 208, JW Marriott

Michele A. Korb (michele.korb@csueastbay.edu), California State University–East Bay, Hayward

Victoria Brady (tbrady@exploratorium.edu), Exploratorium, San Francisco, Calif.

STEM and art projects promote inquiry through design challenges. Participants design project graphic organizers that integrate STEM and art components using ecological sustainability themes.

SESSION 22

CSSS Session: The Governor’s Academy for Science and Mathematics Leadership (Gen)

(General) 209, JW Marriott

Anita Bernhardt (anita.bernhardt@maine.gov), Maine Dept. of Education, Augusta

Page Keeley (pkeeleym@mma.org), 2008–2009 NSTA President, and Maine Mathematics and Science Alliance, Augusta
Joyce B. Tugel (jtugel@mma.org), Maine Mathematics and Science Alliance, Augusta

This leadership academy model offers a rigorous two-year

program to prepare exemplary teachers to step into roles that require new understandings and increased knowledge of research-based science and mathematics education, staff development, and policy issues.

SESSION 23

PDI BEST Pathway Session: A Coherent Treatment of Energy in Chemistry (Chem)

(High School–College) White River Ballroom B, JW Marriott

Larry Dukerich (ldukerich@mac.com), Arizona State University, Tempe

Learn how to apply the tools developed in Modeling Instruction to represent energy storage and transfer in high school chemistry.

SESSION 24 (two presentations)

(General) White River Ballroom J, JW Marriott

Including Students in Assessments (Gen)

Amol Patel (amol.patel@fcps.edu), Heritage High School, Leesburg, Va.

Jim Lane, AFSA High School, Vadnais Heights, Minn.

Join us as we share our practices to integrate students into the assessment and data on student performance we have collected in our separate classrooms.

Classroom Formative Assessment: Strategies to Enhance Student Learning (Gen)

Amy E. Bentz (amy.e.bentz@wmich.edu), Western Michigan University, Kalamazoo

Walk away with ideas and strategies for implementing formative assessment practices into your classroom.

SESSION 25

Learn to Use Technology and Recursive Concept Mapping to Represent Learning (Gen)

(General) Indiana Ballroom A/B, Marriott Downtown

Kristoffer Carroll (kcarroll@interact.ccsd.net), **Eileen M. Gilligan** (emgilligan@interact.ccsd.net), and **Dara M. Marino** (dmmarino@interact.ccsd.net), Clark County School District, Las Vegas, Nev.

MaryKay Orgill (marykay.orgill@unlv.edu) and **Hasan Deniz** (hasan.deniz@unlv.edu) University of Nevada, Las Vegas

Join us as we describe the implementation and strategies learned from a two-year evaluation of recursive concept maps developed during two summer science institutes for elementary teachers.

SESSION 26

Pathways from Science-rich Institutions to Your Classroom (Gen)

(General) *Indiana Ballroom C/D, Marriott Downtown*

Meghan Groome (*mgroome@nyas.org*), New York Academy of Sciences, New York, N.Y.

Eleanor Miele (*eleanor.miele@gmail.com*), Brooklyn College, Brooklyn, N.Y.

Pamela Fraser-Abder (*pal@nyu.edu*), New York University, New York, N.Y.

Ann Marie Cunningham (*annmarie@scifri.org; amckon141@gmail.com*), Science Friday Initiative, New York, N.Y.

Alix Cotumaccio (*acotumaccio@amnh.org; amckon141@gmail.com*), American Museum of Natural History, New York, N.Y.

Denise McNamara (*dmcnama@schools.nyc.gov*), New York City (N.Y.) Dept. of Education

Presider: Meghan Groome

Join us for a panel discussion highlighting how you can identify, build, and sustain partnerships with scientific institutions in your geographic or digital sphere.

SESSION 27

Moving from Activity-Mania to Meaningful Inquiry-based Lessons (Gen)

(General) *Marriott Ballroom 1, Marriott Downtown*

Robbie L. Higdon (*rhigdon@clemsun.edu*) and **Jeff C. Marshall**, Clemson University, Clemson, S.C.

Doing “hands-on” science does not always produce meaningful inquiry-based lessons for students. Walk away with strategies for transforming activities into thoughtful learning experiences.

SESSION 28

Family Science Nights Excite the Entire Community! (Gen)

(General) *Marriott Ballroom 2, Marriott Downtown*

Robert T. Jefferson, Jr. (*mrrtj@yahoo.com*), Tantasqua Regional Senior High School, Fiskdale, Mass.

Family Science Nights engage the entire school community in the thrill of science. An added bonus is everyone is engaged and learns real science! Find out how to plan, organize, and fund a Family Science Night that actively engages students and their families in a participatory atmosphere.

SESSION 29

An Art and Science Collaborative Experience in a Teacher Preparation Program (Gen)

(General) *Marriott Ballroom 3, Marriott Downtown*

Lydia Dambekalns (*lydart@uwyo.edu*), University of Wyoming, Laramie

William Medina-Jerez (*wjmedinajerez@utep.edu*), The University of Texas at El Paso

During a three-week combined art and science education session, preservice teachers collaborated in the preparation of an artistic piece in order to find practical applications of these disciplines during their preservice teaching residency.

SESSION 30 (two presentations)

(General) *Marriott Ballroom 9, Marriott Downtown*

Foster International Collaborative Research Partnerships with Global Communication Technologies (Gen)

Aarti Mallya, Pascack Valley Regional High School District, Montvale, N.J.

Natalie A. Macke (*nmacke@pascack.k12.nj.us*), Pascack Hills High School, Montvale, N.J.

Ron Fortunato (*ron@trilliumlearning.com*), Trillium Learning, Pompton Lakes, N.J.

Discover the benefits of using global communication technologies that allow high school science classrooms in the United States to form authentic worldwide collaborative research partnerships.

International Cyber School Where People in the World Learn Science Together (Gen)

Jiyeon Yoon (*jiyeon@d.un.edu*), University of Minnesota, Duluth

Come hear about a computer simulation of a classroom environment—the international cyber school—that is designed to improve multicultural experiences for future global science classrooms without the limitations of time and space.

SESSION 31

Developing Creativity as We Engage in Science (Gen)

(General) *Marriott Ballroom 10, Marriott Downtown*

Sharon Schleigh (*schleighs@ecu.edu*) and **Timothy M. Messer** (*messert10@students.ecu.edu*), East Carolina University, Greenville, N.C.

Science requires creativity. Walk away with tools to foster the development of creativity through science. Explore how to identify and measure the development of creativity.

SESSION 32

Toward a Diverse Science Classroom: Tools and Topics for Engaging Discourse on Gender and Multiculturalism (Gen)

(General) *Michigan/Texas, Marriott Downtown*

Christina N. Dragon (christina.dragon@gmail.com), Johns Hopkins School of Public Health, Baltimore, Md.

Join me in continuing to subvert the one-size-fits-all image of science in the 21st-century classroom through discussions on gender, hermaphrodites, and multiculturalism.

SESSION 33

Field Investigations: Foster Student Learning of the Scientific Process with Outdoor Environments

(Env)

(General) *Cabinet, Westin*

Warren Gartner (wgartner@dnr.in.gov), Indiana Dept. of Natural Resources, Indianapolis

Scientific inquiry is essential to the study of environmental issues currently confronting society. Join me for an introduction to inquiry-based methodologies used by practicing field biologists.

SESSION 34

Understanding Lightning and Lightning Safety

(Earth)

(General) *Capitol II, Westin*

David Tucek, NOAA National Weather Service, Indianapolis, Ind.

John S. Jensenius (john.jensenius@noaa.gov), NOAA National Weather Service, Gray, Maine

Learn what causes lightning and exactly what happens during a lightning discharge with this animated presentation containing very slow motion video of actual lightning discharges.

SESSION 35

Bring the Great Lakes into Your Classroom (Gen)

(Elementary–High School) *Chamber, Westin*

Katie Larson (klarson@greatlakes.org), Alliance for the Great Lakes, Chicago, Ill.

Bring Great Lakes ecology, history, and issues into your school and into your teaching repertoire! Sample Great Lakes education materials will be modeled and provided.

SESSION 36 (two presentations)

(General) *Congress I/II, Westin*

EcoTipping Points: Success Stories from Around the World (Env)

Catherine E. Matthews (cmatthews@uncg.edu), The University of North Carolina at Greensboro

The EcoTipping Points Project provides a new approach to analyzing and understanding environmental and social issues that makes school/community green projects more effective.

Chums Partnership and Drip Irrigation (Env)

George L. Waymouth (gwaymouth@keyschool.org), The Key School, Annapolis, Md.

The Chums Partnership is a three-school partnership spanning three continents—Africa, North America, and Europe. Join me for an overview of Chums and the group's projects, highlighting drip irrigation work and the benefits of making connections with schools in other parts of the world to address environmental issues.

SESSION 37

NASA's WISE Mission Presents: More Than A Pretty Picture—Using Astronomical Data in the Classroom (Earth)

(Middle Level–High School) *Grand Ballroom 1, Westin*

Bryan J. Mendez (bmendez@berkeley.edu), University of California, Berkeley

The data from WISE, which stands for Wide-Field Infrared Survey Explorer, are public and accessible via the internet. Learn how to use real astronomical data to teach concepts in physical science.

SESSION 38

NASA, Supernovas, and the Crab (Earth)

(General) *Grand Ballroom 3, Westin*

Daryl Taylor (daryl@darylscience.com), Greenwich High School, Greenwich, Conn.

Receive four proven inquiry-based activities based on the science of supernovas by historically examining the Crab Nebula. NASA freebies for all!

SESSION 39

NMEA Session: Ocean Literacy in the Heartland: Bringing the Ocean to the Landlocked (Env)

(Middle Level) *Grand Ballroom 5, Westin*

Amy Larrison Gillan (agillan@saintmarys.edu), Saint Mary's College at Notre Dame, Ind.

Receive an overview of the status of ocean sciences education in landlocked states and a smorgasbord of standards-linked hands-on activities delivering the ocean to the Corn Belt.

9:30–10:30 AM Workshops



Curious Scientific Investigators: Flight Adventures (Phys)

(Elementary)

121, Convention Center

Rick E. Crosslin (rickc@childrensmuseum.org), The Children's Museum of Indianapolis, Ind.

Become a Curious Scientific Investigator and learn how models are tools we use to explore the science of flight. Join The Children's Museum of Indianapolis, NASA, and the Academy of Model Aeronautics to explore how models can be used to test ideas and solve problems.



Building a Sustainable Planet...One Biodegradable Utensil at a Time (Chem)

(Middle Level–High School)

123, Convention Center

Cara Hale-Hanes (chemexplorer@aol.com), Long Beach Polytechnic High School, Long Beach, Calif.

Learn how plastics are formed through hands-on activities and then see how chemists work to reengineer the polymer formation to create biodegradable plastics. Gain background information needed to design inquiry questions appropriate for students in middle school and high school.

Squishy Circuits (Phys)

(Informal Education)

126, Convention Center

Adine A. Thoreen (aathoreen@tpt.org) and **Sarah Carter** (scarter@tpt.org), Twin Cities Public Television, St. Paul, Minn.

Looking for a unique way to teach circuits? Use conductive and insulating dough to sculpt circuits and explore activities that add a twist to tech.

Different Approaches to Help Students Understand Gases (Chem)

(High School)

128, Convention Center

Scott Page (kspage@yahoo.com), Paoli High School, Paoli, Ind.

John Calhoun (jcalhoun@salemschools.com) and **Steve Riggle** (sriggle@salemschools.com), Salem High School, Salem, Ind. Three teachers, one topic, many approaches. Come do hands-on activities, see demonstrations, and learn how three experienced teachers approach the study of gases.

How Would You Find Out If Your Students Can Design Reasonable Biological Experiments? (Bio)

(Middle Level–College)

204, Convention Center

Kirk A. Janowiak (kirk.janowiak@gmail.com), Delphi Community High School, Delphi, Ind.

Elvia Solis (solise@ips.k12.in.us), Arsenal Technical High School, Indianapolis, Ind.

Omolola A. Adedokun (oadedok@purdue.edu), **Annwe-sa P. Dasgupta** (adasgupta@purdue.edu), **Nancy J. Pelaez** (npelaez@purdue.edu), and **Kari Clase** (kclase@purdue.edu), Purdue University, West Lafayette, Ind.

Leslie G. Fatum (fatumlg@ips.k12.in.us), Shortridge Magnet High School for Law and Policy, Indianapolis, Ind.

Presider: **Wilella Burgess** (wburgess@purdue.edu), Purdue University, West Lafayette, Ind.

Can your students apply the process of science and use quantitative reasoning? Assessments can help you diagnose and improve your students' experimental approaches to biology.

Build a Powerful Electric Motor Out of Junk (Phys)

(Middle Level–High School)

205, Convention Center

Brian P. Wright, Olympia High School, Olympia, Wash. Teach multiple STEM topics while exploring the relationship between electricity and magnetism. Test and build a powerful electric motor out of junk (inexpensive scrap metal, nails, wire, and plywood).

Show the Impact of Zebra Mussels via a Web-based Graphing Tool with Long-Term Data Sets (Bio)

(General)

209, Convention Center

Jay R. Holmes and **Hudson Roditi** (hroditi@amnh.org), American Museum of Natural History, New York, N.Y.

Emily Welch (ecwelch@gmail.com), MS 821 Sunset Park Prep, Brooklyn, N.Y.

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

Engage your students with an exploration of new understandings in ecology, ecosystems, and biological invasions. Investigate biotic and abiotic aquatic parameters charting the zebra mussel invasion of the Hudson River through the use of a 20-year data set and an online graphing tool.

Eat Your Way to Better Health (Bio)

(Elementary)

210, Convention Center

Matthew Kararo and **Kathryn Orvis**, Purdue University, West Lafayette, Ind.

Learn about a garden-based school nutrition education program full of activities and validated assessment tools. The program is geared toward increasing participants' fruit and vegetable consumption.

A 5E Learning Cycle Integrating Science, Health, and Language Arts (Gen)

(Elementary) 231, Convention Center

Brenda Turgeon (brenda.turgeon@purduecal.edu), Purdue University Calumet, Hammond, Ind.

Take part in an integrated 5E learning cycle that you can do with inexpensive materials to teach students about health and the spread of disease.

Soil Microbes, Land Management, and Global Climate Change (Gen)

(Informal Education) 232, Convention Center

John M. Greenler (jgreenler@glbrc.wisc.edu), University of Wisconsin, Madison

How we grow crops for food and fuel impacts soil carbon and greenhouse gases from soils. Learn how to monitor and experiment with soil respiration rates.

Inquiries into the Dynamic Earth—Beware of Change! (Earth)

(Elementary–Middle Level) 233, Convention Center

M. Jenice “Dee” Goldston (dgoldsto@bamaed.ua.edu), **Melissa (Lisa) Fowler** (mfowler@bamaed.ua.edu), **Elizabeth Allison**, and **Amanda Glaze** (amleel@crimson.ua.edu), The University of Alabama, Tuscaloosa

Presider: M. Jenice “Dee” Goldston

Elementary science has never been so exciting! Get fired up with geological processes that change rocks through science inquiries and simulations of Earth processes.

Powering the Future Through Museum/School Collaborations (Env)

(Elementary–Middle Level) 234, Convention Center

Michelle Kortenaar (mkortenaar@sciencecenter.org) and **Miriam Musco** (mmusco@sciencecenter.org), Sciencenter, Ithaca, N.Y.

Use hands-on activities to explore museum/school collaborations that teach students about climate change and renewable energy sources in and out of the classroom.

You're invited...
to the NSTA New Member
Orientation

Your Total Membership Experience starts with this conference but continues all year long as you share your thoughts, lend your voice, and become a true partner in science education with your professional membership association! Join us for an introduction to your membership experience and possibly a visit from the GEICO Gecko! An exceptional opportunity to meet your colleagues, make new friends, and enjoy refreshments!

Friday, March 30 • 3:30–4:30 PM
JW Marriott Indianapolis • JW Grand Ballroom 1
Courtesy of GEICO Insurance

Open to NSTA members who joined after 5/30/2011.



NIH K–12 LAB (Lessons About Bioscience) Challenge (Bio)

(Informal Education) 238, Convention Center

Carla L. Easter (easterc@mail.nih.gov), National Human Genome Research Institute, Bethesda, Md.

Cindy Allen (allency@od.nih.gov), National Institutes of Health, Bethesda, Md.

Join us for an overview of this national challenge by the National Institutes of Health and sample some of the winning experiments. Handouts!

Design Redesign: An Engineering Extravaganza (Gen)

(Elementary–Middle Level) 241, Convention Center

Kim Mechling, Karen Compton, and Diane Reckless (reckless@theellisschool.org), The Ellis School, Pittsburgh, Pa.

Integrate engineering activities into your present curriculum to excite and engage students. Hands-on design challenges include constructing catapults, windmills, and a model arm. Free resources!

Unravel the Mysteries of Genetics with Mummies (Bio)

(High School) 245, Convention Center

Kayla Anselmi (kanselmi@lcisd.net), Lubbock-Cooper High School, Lubbock, Tex.

Solve King Tut mysteries through scientific investigation in a cross-disciplinary simulation. Students analyze mummy DNA using modern techniques, including electrophoresis, to uncover his unknown pedigree.

NARST Session: Improving Science Instruction Through a Curriculum Topic Study on Inquiry (Gen)

(General) 202, JW Marriott

April A. Nelms (anelms@northgeorgia.edu), North Georgia College and State University, Dahlonega

Amy Fowler Murphy (amykfmurphy@gmail.com), The University of Alabama, Tuscaloosa

After presenting research on Pedagogical Content Knowledge (PCK) and inquiry, participants will have the opportunity to engage in a Curriculum Topic Study (CTS) on inquiry skills and dispositions.

DNA Subway in the Classroom (Bio)

(High School–College) JW Grand Ballroom 4, JW Marriott

Jason Williams (williams@cshl.edu), Cold Spring Harbor Laboratory, Cold Spring Harbor, N.Y.

Engage your students in discovering the principles of molecular biology while using the bioinformatics tools in “DNA Subway” (dnasubway.org) to find genes and compare genomes.



NSTA Press Session: Bringing Outdoor Science into Your Classroom (Gen)

(Elementary–Middle Level) JW Grand Ballroom 7, JW Marriott

Steve A. Rich (bflywriter@comcast.net), West Georgia Youth Science and Technology Center, Carrollton

Don’t have time to take your class outside? Bring the outdoors inside with lessons and ideas from a new NSTA Press resource. Door prizes!

Beekeeping: The Perfect Way to Merge Inquiry, Creativity, and STEM (Gen)

(General) Indiana Ballroom F, Marriott Downtown

Carol Jones (caroljones8710@yahoo.com), Lawrence Technological University, Southfield, Mich.

Eileen Byrnes (byrnes@wcskids.net), Grissom Middle School, Sterling Heights, Mich.

Presider: Elizabeth Niehaus (niehaus_p@msn.com), Niehaus and Associates Inc., South Lyon, Mich.

Though beekeeping has been done for thousands of years, it is still filled with excitement and unknowns. It can be investigated using all STEM areas!

Decreasing Ambiguity in Spoken Mathematics (Gen)

(General) Indiana Ballroom G, Marriott Downtown

Mick Isaacson, Purdue University, West Lafayette, Ind.

Ambiguity in spoken mathematics is problematic for students with print disabilities. Rules for nonambiguous speaking of mathematics will be demonstrated. Using these rules in the classroom will increase access by students with print disabilities.

Exploring Young Children’s Science Knowledge and Understanding (Gen)

(Preschool–Elementary) Marriott Blrm. 7, Marriott Downtown

Mary E. Hobbs (maryhobbs@mail.utexas.edu) and **Melissa Garcia** (melissagarcia@utexas.edu), The University of Texas at Austin

Experience easy-to-prepare hands-on assessment activities developed to explore what preK–2 students know and can do in science.

Ice Core Records—From Volcanoes to Stars (Earth)
(High School–College/Informal Education) Capitol III, Westin
Donna L. Young (donna@aavso.org), Chandra E/PO Office,
Cambridge, Mass.

Doug Lombardi (lombardi.doug@gmail.com), Southern
Nevada Regional Professional Development Program, North
Las Vegas

Pamela B. Perry (pperry@lewistonpublicschools.org), Lewiston
High School, Lewiston, Maine

Use absolute and relative dating techniques with high-
resolution ice core data and historic volcanic eruptions to
correlate and date supernova events from nitrate anomalies.

**Cereal Box Pinhole Projectors—“They’re
Grrreat!” (Earth)**

(Elementary–High School) Grand Ballroom 2, Westin

Adam Pettis (alp44@mail.mizzou.edu) and **Scott Kubik**
(spktgc@mail.missouri.edu), University of Missouri, Columbia
Come learn about various methods of safe solar observation
and build your own cereal box pinhole projector to take
home!

9:30–10:30 AM Exhibitor Workshop

**Active Chemistry: Incorporate STEM into a Chem-
istry Class Through a Simple Engineering Design
Cycle (Chem)**

(Grades 9–12) 132, Convention Center

Sponsor: It’s About Time

Arthur Eisenkraft, 2000–2001 NSTA President, and
University of Massachusetts Boston

Learn the benefits of the Engineering Design Cycle for teach-
ing and learning chemistry. See how Dr. Arthur Eisenkraft
designed a project-driven course that makes a difference in
performance for all levels of students from the start of the
semester to the completion. Also, you will be introduced to
the use of data logging technology to enhance the classroom
experience.



9:30–11:00 AM Exhibitor Workshops

The Life and Death of Our Sun and Other Stars

(Earth)

(Grades K–12) 101, Convention Center

Sponsor: Simulation Curriculum Corp.

Herb Koller (hkoller@simcur.com), Simulation Curriculum
Corp., Aurora, Ont., Canada

Where did our Sun come from and what will be its ultimate
fate? Join us as we try to answer these and other questions
using the award-winning Starry Night. See how the Starry
Night curriculum not only provides a complete solution to
your astronomy needs, but can also be used to help under-
stand current, future, and past astronomical phenomena.

**NSF/NBC Short Videos You Can Use in Your Class-
room (Gen)**

(Grades 7–12) 102, Convention Center

Sponsor: National Science Foundation

Zeke Kossover, Einstein Fellow, National Science Founda-
tion, Arlington, Va.

Mark Miano, NBC News/NBC Learn, Washington, D.C.
Understanding how the science content students learn in
classrooms applies to their everyday lives is challenging.
NSF and NBC Learn, the education arm of NBC News,
have partnered to offer groundbreaking short video collec-
tions that demonstrate how the principles of physics, math,
engineering, and chemistry apply to everyday life.

Mapping and Analyzing Science Data (Gen)

(Grades 5–College) 103, Convention Center

Sponsor: Esri

Joseph Kerski (jkerski@esri.com), **Tom Baker** (tbaker@esri.com), and **Charlie Fitzpatrick**, Esri, Redlands, Calif. Foster deeper investigation of the spatial patterns inherent in Earth, biological, environmental, and other science data with powerful and easy-to-use online Geographic Information Systems (GIS) tools. Running in a web browser, ArcGIS Online allows for multimedia-based presentations and analysis from earthquakes to water chemistry and more.

That's Amazing! Explore the Bizarre, Cool, and Exciting World of Project-based Biology (Bio)

(Grades 9–12) 104, Convention Center

Sponsor: Houghton Mifflin Harcourt

Michael Heithaus, Florida International University, North Miami

Drawing from cutting-edge research from around the world and fast-paced high-quality productions, *That's Amazing* project-based videos grab students' attention immediately. Kicking off with a high school student–posed question about the bizarre, the cool, and the exciting, Mike Heithaus takes students on a scientific investigation with the experts, but it's up to the students to work with the data they see collected to solve the mystery...or debate its merits! By engaging students' curiosity and immersing them in the scientific process, these project-based videos can help students grasp and retain key science standards. In this session, Mike will draw on his background in field research and documentary filmmaking to help you make the most of this exciting teaching tool.

Energy Education Strategies for the Middle Grades (Chem)

(Grades 6–9) 105, Convention Center

Sponsor: LAB-AIDS, Inc.

Mark Koker, LAB-AIDS, Inc., Ronkonkoma, N.Y.

Having trouble teaching your students the difference between conservation of energy and energy conservation? Join us as we explore some new approaches to teaching energy concepts from the SEPUP *Issues and Physical Science* program. Hands-on activities incorporate the use of several SEPUP and LAB-AIDS signature items.

I Think There's a Genetically Engineered Fly in My Genetically Modified Pea Soup! (Bio)

(Grades 9–12) 106, Convention Center

Sponsor: LAB-AIDS, Inc.

Barbara Nagle, Lawrence Hall of Science, University of California, Berkeley

Students often have trouble conceptualizing how selective gene expression works. In this workshop, participants will use manipulatives to teach this concept and explain how it is connected to genetic engineering. Innovative activities are selected from the new *Science & Global Issues Biology* program from SEPUP and LAB-AIDS. Activities focus on ways to integrate selective gene expression as a relevant and engaging sustainability issue.

Stand Back! We're Using Discovery Education's Science Techbook (Gen)

(Grades K–12)

110, Convention Center

Sponsor: Discovery Education

Brad Fountain, Discovery Education, Silver Spring, Md.

If you want to engage your students as they explore science through digital media in conjunction with hands-on resources, then this session is for you. We will explain how digital media can change the way you teach science, elaborate on how digital media can be used to meet the needs of every student, and evaluate student progress through science concepts.

Teaching STEM with Forensics (Gen)

(Grades 9–12)

130, Convention Center

Sponsor: WARD'S Natural Science

Kathy Mirakovits, Portage Northern High School, Portage, Mich.

Join us at the scene of the crime for a hands-on workshop that incorporates forensics with the elements of STEM. Participants will study evidence, plan and implement experimental investigations, formulate testable hypotheses, and use real-world technology and equipment of a forensic scientist. Investigations will include collecting, recording, and analyzing data.

Groundwater Pollution: The Case of the Toppled Tanker (Env)

(Grades 7–12)

131, Convention Center

Sponsor: WARD'S Natural Science

Steve Bryson, WARD'S Natural Science, Rochester, N.Y.

This “roll up your sleeves” session introduces groundwater principles and hazard assessment. Residents of Granite Falls are experiencing odd smells and tastes in their well water following a tanker accident. Through data collection, you will make recommendations for cleanup and remediation. You'll learn real-world experiences to share with students.

What's Your Evidence? Engaging K–5 Students in Constructing Explanations in Science (Gen)

(Grades K–5) 133, Convention Center

Sponsor: Pearson

Carla Zembal-Saul, Penn State, University Park, Pa.

Katherine L. McNeill, Boston College, Chestnut Hill, Mass.

Kimber Hershberger, Radio Park Elementary School, State College, Pa.

Walk away with strategies and resources for using the claim, evidence, and reasoning framework to engage younger students in constructing explanations in science. Learn how to use classroom videos to illustrate instructional strategies and scaffolds for talking and writing scientifically, and analyze samples of student writing using rubrics.

From Science to Engineering (Gen)

(Grades K–8) 134, 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.

An Invitation: Getting Started with the Next Generation Science Framework (Gen)

(Grades K–8) 143, Convention Center

Sponsor: Carolina Biological Supply Co.

Anne Reichel, Lake Forest College, Lake Forest, Ill.

The Next Generation Science Education Framework will challenge us to revitalize and reconceptualize the teaching of science. Join Anne Reichel as she shares insights on getting started. From crosscutting concepts to scientific and engineering practices, explore strategies and approaches that bring the dimensions of the framework to life in your classroom.

Autopsy: Forensic Dissection Featuring Carolina's Perfect Solution® Pigs (Bio)

(Grades 9–12) 144, Convention Center

Sponsor: Carolina Biological Supply Co.

Patti Kopkau, Carolina Biological Supply Co., Burlington, N.C.

Are you ready for a forensic dissection activity that is on the cutting edge? Engage students and revitalize your instruction of mammalian structure and function with a “real” classroom

autopsy! Participants dissect a Carolina's Perfect Solution pig by modeling the protocols of a forensic pathologist. Free materials and door prizes!

Introduction to Electrophoresis (Bio)

(Grades 9–12) 145, Convention Center

Sponsor: Carolina Biological Supply Co.

Angela White, Carolina Biological Supply Co., Burlington, N.C.

Explore the basics of electrophoresis as you separate 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. Load your own gels and perform electrophoresis.

How Is HIV Detected in Humans? Welcome to the Exciting World of Immunobiotechnology! (Bio)

(Grades 8–College) 201, Convention Center

Sponsor: Edvotek

Jack Chirikjian (info@edvotek.com), **Khuyen Mai** (info@edvotek.com), and **Lucia Dussan** (info@edvotek.com), Edvotek, Washington, D.C.

ELISA stands for enzyme-linked immunosorbent assay. Learn how ELISA is used as a diagnostic tool in medical diagnostics, toxicology tests, and the food industry. Edvotek's new, simple, and foolproof single-antibody ELISA can be completed in 40 minutes and analyzed by visual inspection. This procedure is much more rapid than the traditional two-antibody ELISA.

Molecular-Level Visualization in Middle School and High School Science Classrooms—Engage Your Students! (Chem)

(Grades 7–College) 203, Convention Center

Sponsor: Wavefunction, Inc.

Paul D. Price (sales@wavefun.com), Trinity Valley School, Fort Worth, Tex.

Would you like to teach more effectively with the help of molecular models and molecular simulations that are scientifically sound? Bring your laptop (Windows or Mac OS X) to this hands-on workshop and learn how to truly engage your students with the powerful 2012 release of *Odyssey High School Chemistry*.

**New Guided Inquiry Labs for Advanced Placement®
Biology from Flinn Scientific (Bio)**

(Grades 10–12) *Wabash Ballroom 1, Convention Center*

Sponsor: Flinn Scientific, Inc.

Irene Cesa and Maureen Hunt, Flinn Scientific, Inc.,
Batavia, Ill.

Four big ideas, more great labs! The revised AP Biology curriculum integrates scientific inquiry and reasoning through a series of student-directed, inquiry-based laboratory investigations. Join Flinn Scientific as we model the inquiry process and demonstrate activities from our new guided inquiry labs for AP Biology. We will share proven strategies for improving students' ability to generate meaningful questions, design experiments, and analyze scientific evidence. Handouts provided for all activities include alignment with the new AP Biology curriculum framework.

9:30 AM–12 Noon Meeting

**NSTA Committee on Professional Development in
Science Education Meeting**

306, JW Marriott



**10:00–10:10 AM Exhibits Opening/Ribbon
Cutting Ceremony**

Entrance to Exhibit Hall F, Convention Center

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

Welcoming Remarks: Carolyn Hayes, Chairperson, NSTA Indianapolis National Conference, and Indiana University School of Medicine, Indianapolis

Special Guests: Patricia Simmons; Carolyn Hayes; Alan J. McCormack, NSTA Retiring President, and San Diego State University, San Diego, Calif.; Karen Ostlund, NSTA President-Elect, and Retired Professor, The University of Texas at Austin; Bill Badders, NSTA President-Elect-Elect, Cleveland Metropolitan School District, Cleveland Heights, Ohio; Duane Nickell, President, Hoosier Association of Science Teachers, Inc., and Franklin Central High School, Indianapolis, Ind; Kate Baird, NSTA Director, District X, and Indiana University–Purdue University Columbus; Francis Q. Eberle, NSTA Executive Director, Arlington, Va.; Gerald Krockover, Program Coordinator, NSTA Indianapolis National Conference, and Purdue University, West Lafayette, Ind.; Monica Ellis, Local Arrangements Coordinator, NSTA Indianapolis National Conference, and HASTI Past President, Indianapolis, Ind.; Rick Smith, NSTA Managing Director, Advertising, Exhibits, and Workshops, Arlington, Va.

Musical Entertainment provided by Allison Greenwell, Franklin Community Middle School, Franklin, Ind.

10:00–10:45 AM Exhibitor Workshop

IBEX Education Resources and Program (Earth)

(Grades 6–12)

142, Convention Center

Sponsor: NASA

Heather Brubach, Adler Planetarium, Chicago, Ill.

Learn about NASA's IBEX spacecraft and how it can be used as an authentic connection to student understanding about our solar system and how it fits into the rest of the Milky Way Galaxy. The IBEX team is committed to promoting space science education in schools by providing both teacher and student programming and hands-on activities/resources!

National Earth Science Teachers Association Events at 2012 Indianapolis NSTA Conference



All NESTA sessions are in the Westin Indianapolis, Grand Ballroom 5, unless otherwise indicated

Friday, March 30

- 9:30 – 10:30 am **NESTA Geology Share-a-Thon**
- 11:00 am – noon **NESTA Atmospheres, Oceans, and Climate Change Share-a-Thon**
- 12:30 – 1:30 pm **NESTA Earth System Science Share-a-Thon**
- 2:00 – 3:00 pm **American Geophysical Union Lecture!** *"FrankenClimate: The Perils of Engineering Our Way Out of Global Warming"*, by Prof. Gabriel Filippelli, Indiana Convention Center, Sagamore Ballroom 3
- 2:00 – 3:00 pm **Drama in Near Earth Space – The Sun, Space Weather, and Earth's Magnetic Field As We Approach Solar Maximum!**, Westin Grand Ballroom 3
- 3:30 – 4:30 pm **Earth and Space Science Education Today in K-12: Status and Trends at the State and National Levels**
- 6:30 – 8:00 pm **Friends of Earth Science Reception**, Westin Grand Ballroom 1

Saturday, March 31

- 8:00 – 9:00 am **Activities Across the Earth System**
- 9:30 – 10:30 am **Strategies for Teaching Charged Topics in the Earth Science Classroom**
- 11:30 – 1:00 pm **NESTA Earth and Space Science Educator Luncheon**, *"Dust in the Wind – The Geological Record of Ancient Atmospheric Circulation"* by Prof. Steven Hovan, Westin State Room, tickets available through NESTA only at www.nestanet.org, \$40/person in advance. A few tickets may be available on 3/31 at \$45/person on-site.
- 2:00 – 3:00 pm **NESTA Astronomy, Space, and Planetary Science Share-a-Thon**
- 2:00 – 3:00 pm **Our Changing Planet**, Westin Grand Ballroom 3
- 3:30 – 5:00 pm **NESTA Rock and Mineral Raffle**
- 5:30 – 7:00 pm **NESTA Annual Membership Meeting**

NESTA gratefully acknowledges co-sponsorship of our events by the following organizations:



10:00–11:00 AM Presentation

SESSION 1



An Overview of NSDL's Science Literacy Maps

(Gen)

(Elementary–High School)

120, Convention Center

Ted Willard (twillard@nsta.org), Program Director, COM-PASS, NSTA, Arlington, Va.

Come see how to use the Science Literacy Maps at the National Science Digital Library to browse concepts as you look for digital resources to meet your students' needs.

10:00–11:00 AM Exhibitor Workshops

The Four It's of Science

(Gen)

(Grades 2–4)

135, Convention Center

Carrie Strohl and **Traci Wierman**, 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 and resource-based investigations. A better way to teach science, a better way to teach literacy—proven results in both!

Using LEGO® Bricks to Introduce Simple Machines

(Phys)

(Grades 1–3)

202, Convention Center

Sponsor: LEGO Education

Presenter to be announced

Experience firsthand how you can develop your first, second, and third graders' understanding of science, engineering, and mathematics concepts using the new Simple Machines Set from LEGO Education. Participants will explore gears by building a merry-go-round out of LEGO bricks and completing the corresponding classroom activity from the Simple Machines Activity Pack.

10:00–11:15 AM Exhibitor Workshops

STEM Professional Development Opportunity with Inquiry Investigations™ Forensics Module (Gen)

(Grades 7–10)

136, Convention Center

Sponsor: Frey Scientific/School Specialty Science

Lou Loftin, Northwest Regional Professional Development Program, Reno, Nev.

Learn about STEM education and how to integrate forensics and hands-on inquiry. Conduct STEM-focused activities that link STEM skills to solving evidence mysteries. See how the online program iNeo/SCI™ allows the integration of forensic activities into a STEM-based curriculum. Examine additional STEM-focused forensic activities through Correlation Station™ to help design STEM-based curriculum programs.

Delta Science Modules (DSM)—Never Heard of Them? Want to Know More? (Gen)

(Grades K–8)

138, 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. Take home literacy samples and activity resources.

10:00–11:30 AM Workshop

PDI BSCS Pathway Session: Videocase Lesson Analysis for Increased Teacher Content Understanding

(Gen)

(General)

309/310, JW Marriott

Paul Numedahl (pnumedahl@bscs.org), BSCS, Colorado Springs, Colo.

Experience how video-based lesson analysis has an impact on preservice teacher content understanding.

10:00–11:30 AM Exhibitor Workshops

Bio-Rad: Explore Inquiry and Ecology with Biofuel Enzymes (AP Big Idea 4) (Bio)

(Grades 6–College)

108, Convention Center

Sponsor: Bio-Rad

Damon Tighe (*biotechnology_explorer@bio-rad.com*), Bio-Rad, Hercules, Calif.

Need Energy? Reveal the power of enzyme kinetics by illustrating the theory through a real-world application of biofuels—using cellobiase, a key enzyme in the production of cellulosic ethanol (a highly researched biofuel). The core reaction serves as the jumping-off point for introducing experimental variables such as temperature, pH, substrate, and enzyme concentration. The capstone activity is for student-directed experiments using naturally occurring enzymes found in mushrooms. Expand the lab to ecological and evolutionary studies with mushrooms and fungi in different ecological niches.

Physics with Vernier (Phys)

(Grades 9–College)

116, Convention Center

Sponsor: Vernier Software & Technology

Matt Anthes-Washburn (*info@vernier.com*) and **David L. Vernier** (*info@vernier.com*), Vernier Software & Technology, Beaverton, Ore.

Experiments such as sound waves and motion of a cart on a ramp from our popular *Physics with Vernier* lab book will be performed. A variety of new physics accessories such as the Optics Expansion Kit will be available to try as well. Conduct these experiments using LabQuest and LabQuest Mini.

Water Quality with Vernier (Env)

(Grades 7–College)

117, Convention Center

Sponsor: Vernier Software & Technology

Robyn Johnson (*info@vernier.com*) and **Mike Collins** (*info@vernier.com*), Vernier Software & Technology, Beaverton, Ore.

Learn how to use LabQuest and sensors to study water quality in the field. Try LabQuest's Data Matrix mode, designed to make field data management easy. Learn how to map your sampling sites and data on Google Maps and ArcGIS using Logger Pro software.

Genetics: Crazy Traits and Adaptation Survivor (Phys)

(Grades 5–12)

139, Convention Center

Sponsor: CPO Science/School Specialty Science

Scott W. Eddleman, CPO Science/School Specialty Science, Nashua, N.H.

When students study genetics they learn new vocabulary 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.

AP® Biology: Cell Respiration in Germinating Peas (Bio)

(Grades 9–12)

140, Convention Center

Sponsor: PASCO scientific

Presenter to be announced

This session explores PASCO's state-of-the-art science teaching solutions for one of the toughest aspects of biological investigations—cell respiration. In this hands-on workshop, you will participate in standards-based probeware lab activities from PASCO's new AP biology curriculum. Be one of the first to experience how the SPARK Science Learning System™ can improve opportunities for inquiry and deepen student understanding of core topics and science practices.

Physics and Physical Science: Investigating Motion (Phys)

(Grades 9–12)

141, Convention Center

Sponsor: PASCO scientific

Presenter to be announced

Investigate the differences between speed and velocity in this hands-on, probeware-based workshop featuring PASCO carts and PASTrack. Your hands-on experience will include using one of PASCO's standards-based SPARKlabs® to improve student understanding of motion, which is a foundation topic in the study of physics and physical science. Additional activities will be demonstrated.

10:00 AM–12 Noon Workshop

PDI PSTEM Pathway Session: Cognitive Science Learning Principles in Action: Contrasting Cases (Gen)

(General) *White River Ballroom C, JW Marriott*

Chris Schunn (*schunn@pitt.edu*), University of Pittsburgh, Pa.

Using Contrasting Cases is a cognitive science, research-based learning principle that increases student learning in science. Come find out how to embed it in your teaching!

10:00 AM–12 Noon Meeting

NSTA Technology Advisory Board Meeting

Utah, Marriott Downtown

10:05–10:30 AM Special Session

Meet the Presidents and Board/Council (Gen)

(General) *NSTA Exhibit Hall Entrance, Convention Center*

Come “meet and greet” with your elected NSTA officers. The President, President-Elect, and Retiring President along with your Board and Council members are looking forward to talking with you at the conference! Stop by and join us for good conversation on your way to the exhibits.

10:10 AM–6:00 PM Exhibits

Exhibit Hall F, Convention Center

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



10:15–11:00 AM Global Conversations in Science Education Conference Poster Session

(General)

White River Ballroom E/F, JW Marriott

By Preregistration Only

Presider: Norman Lederman, Illinois Institute of Technology, Chicago

Here's an opportunity to have focused, unrestricted interactions with your science teaching colleagues from around the world. Posters will focus on projects from various cultures and will highlight similarities and differences across cultures.

New Educational Paradigm: STEAM Education in Korea

Juneuy Hong, Seowon University, Cheongju, Chungbuk, Republic of Korea

Bongwoo Lee, Dankook University, Suji-gu, Yongin-si, Republic of Korea

Sooah Lee, Sinsanggye Elementary School, Nowon-gu, Seoul, Republic of Korea

Teaching and Learning Model for STEAM Education in Korea

Jeongwoo Son, Gyongsang National University, Jinju-si, Republic of Korea

Youngjoon Shin, Gyeongin National University of Education, Gyodae-Gil, Incheon, Republic of Korea

SooHyung Lee, Seoul Metropolitan Office of Education, Jongro-gu, Seoul, Republic of Korea

Seize the Anniversary and Integrate Instructional Units into a Theme: 100 Years of Nuclear Physics

Jun-Ju Chiu, Chang Gung University, Taoyuan, Taiwan

Yes, a Preservice Course in Differentiated Instruction in Science and Math

Anthony W. Bartley, Ann Kajander, and Jennifer Holm, Lakehead University, Thunder Bay, Ont., Canada

Integrated Educational Projects to Contribute to Sustainable Development in Argentina

Carlos M. Castro-Acuña, National Autonomous University of Mexico, Mexico City

Jose M. Abraham and **Maria L. Azar**, National University of San Luis, Argentina

Education by Competences Through Formative and Integral Projects in COBAEH

Iliana V. Mayorga-Dominguez, Colegio de Bachilleres del Estado de Hidalgo, Pachuca, Hidalgo, Mexico

Ramiro E. Dominguez-Danache and Carlos M. Castro-Acuña, National Autonomous University of Mexico, Mexico City

Research Trends in Science Education: Princess Nora University Graduate Research

Hiya M. Almazroa, Princess Nora University, Riyadh, Saudi Arabia

Teaching Physical Chemistry at the Faculty of Chemistry in the National Autonomous University of Mexico

Ramiro E. Dominguez-Danache and **Carlos M. Castro-Acuña**, National Autonomous University of Mexico, Mexico City

The Periodic Table for Younger Students (Canada)

Patricia M. Betts and **Matthias Bierenstiel**, Cape Breton University, Sydney, N.S., Canada

A Sampling of African Attitudes Toward Science and Science Education

Anne K. Perry, American Cooperative School of Tunis, Laouina, Tunisia

Using Drama to Promote Understanding of Inquiry

Deb J. McGregor, University of Wolverhampton, Walsall, U.K.

The GLOBE Program Around the World

Teresa J. Kennedy, UCAR Satellite Office, Tyler, Tex.

Thriving in the Polar Seas

Christina Cheng, University of Illinois at Urbana–Champaign, Urbana

Connecting Policy with Practice: The Nigerian Case Study of Science Teacher Education Policy, Demand, Supply, and Quality

Peter A. Okebukola, Lagos State University, Lagos, Nigeria

Conceptualising Learning for 11- to 14-Year-Olds: Exploring Perspectives of Learning Science and Math from Teachers in the West Midlands, U.K.

Deb J. McGregor, University of Wolverhampton, Walsall, U.K.

Korean's New Revolution of Science Education

Choi Junghoon, University of Hanyang, Seoul, Republic of Korea

STEM Education Through the Education of Energy and Climate Change

Sunghee Lee, Woljung Elementary School, Seoul, Republic of Korea

Kapsu Kim, **Young Seok Jhun**, and **Dong Hoon Shin**, Seoul National University of Education, Seoul, Republic of Korea

Kwanghoon Chung and **Doo Won Lim**, Gwacheon National Science Museum, Gwacheon, Republic of Korea

So Hee Jeon, Korea Energy Management Corp., Yongin City

Investigation on the Use of High School Biology Textbooks in China Mainland: Perceptions of Students, Teachers, and Coordinators

Wenyuan Yang and **Enshan Liu**, Beijing Normal University, Beijing, China

Primary Teachers' Views of Nature of Science in Chile: Is It Possible to Improve It?

Hernan L. Cofre, Illinois Institute of Technology, Chicago

IIT Boeing Scholars Academy: Connecting Local and Global STEM Issues for High-achieving Urban Teens

Marya Spont, Illinois Institute of Technology, Chicago

10:30 AM–12 Noon Workshop

PDI McREL Pathway Session: What Works in Science Classrooms—Developing Student Understanding Using a Conceptual Change Model to Teach Nanoscience and Technology Concepts (Gen)

(General) *White River Ballroom G, JW Marriott*

Christine S. Jones, University of Colorado, Boulder

Anne Tweed (atweed@mcrel.org), 2004–2005 NSTA President, and McREL, Denver, Colo.

Learn how to plan instruction that reveals what students know about nanoscience and technology content and how you can help them develop understanding of these hard-to-teach concepts. We will provide a planning template and sample lessons. The strategies used come from a framework that forms the basis of *Designing Effective Science Instruction*.

10:30 AM–12 Noon Exhibitor Workshop

Using FOSSweb 2.0 and Technology to Support Learning (Gen)

(Grades K–8)

137, Convention Center

Sponsor: Delta Education/School Specialty Science—FOSS
Kate Jordan, Linda De Lucchi, and Nicole Medina,
Lawrence Hall of Science, University of California, Berkeley
The FOSS website (www.fossweb.com) has been redesigned with new features! We'll unveil new resources, including electronic versions of teacher's guides and student books, multimedia activities, streaming video, and interactive white board resources. Learn how to integrate new technology elements into your classroom to support student learning.

10:30 AM–12:30 PM Meeting

SESD Board Meeting

Atlanta, Marriott Downtown

The annual business meeting of Science Education for Students with Disabilities, an associated group with NSTA. Open to everyone—please join us! For more information, visit www.sesd.info.

10:30 AM–1:00 PM Meeting

AMSE Board Meeting

(By Invitation Only)

House, Westin

Please visit www.amsek16.org for further information.

11:00–11:45 AM Exhibitor Workshop

Expedition Earth and Beyond: Getting Students Actively Involved in NASA Exploration, Discovery, and the Process of Science (Earth)

(Grades 5–12)

142, Convention Center

Sponsor: NASA

Paige Graff, Jacobs/ESCG/NASA Johnson Space Center, Houston, Tex.

Bring the excitement of NASA to your classroom through meaningful connections with NASA scientists, resources, and standards-aligned, inquiry-based activities. To help motivate students in STEM, the Expedition Earth and Beyond (EEAB) program uses the unique platform of the International Space Station (ISS) and astronaut imagery. These NASA resources are used as a hook to inspire students to learn and investigate processes that have sculpted the surface of Earth and other worlds in our solar system. This workshop will train you to inspire, engage, and prepare your students for STEM careers.

11:00 AM–12 Noon Presentations

SESSION 1

NMLSTA Session: Win Big! Write a Grant (Gen)

(General)

240, Convention Center

Patty McGinnis, NBCT (pmcginnis@methacton.org), Arcola Intermediate School, Eagleville, Pa.

Kitchka P. Petrova, NBCT (kpetrova7@dadeschools.net), Ponce de Leon Middle School, Coral Gables, Fla.

Do you have a dream? What's stopping you? You can't win if you don't apply! Learn grant writing tips from two successful grant writers.

SESSION 2

PDI BEST Pathway Session: How Can Students in Grades 3–5 Understand Energy? (Gen)

(Elementary)

White River Ballroom B, JW Marriott

Sara J. Lacy (sara_lacy@terc.edu), TERC, Cambridge, Mass.
Presider: **Arthur Eisenkraft** (arthur.eisenkraft@umb.edu), 2000–2001 NSTA President, and University of Massachusetts Boston

Explore how students can look at common experiences in the elementary science curriculum in terms of energy transfer.

SESSION 3

NMEA Session: Teaching About the Ocean from Thousands of Miles Away (Gen)

(Elementary–Middle Level)

Grand Ballroom 5, Westin

Meghan Marrero (mmarrero3@mercy.edu), Mercy College, Dobbs Ferry, N.Y.

Lisa Chizek (ljchizek@gmail.com), NASA Endeavor Project, Traer, Iowa

Soi Chong Powell (spowell@evansvilledayschool.org), NASA Endeavor Project, Evansville, Ind.

All students have a natural curiosity about the ocean. Learn how to teach science standards through the ocean, even if you are far inland.

11:00 AM–12 Noon Workshops



NSTA Press Session: Solving “Earth Science Puzzles” with Data (Earth)

(Middle Level–High School) JW Grand Ballroom 7, JW Marriott
Margie Turrin (mkt@ldeo.columbia.edu), Lamont-Doherty Earth Observatory, Columbia University, Palisades, N.Y.
 Help your Earth science students improve their science process skills by addressing real-world scientific situations and data.

NASA in a Box

(Gen)

(General)

Capitol III, Westin

April A. Lanotte (perglator@yahoo.com; april.a.lanotte@nasa.gov), Einstein Fellow, NASA Headquarters, Washington, D.C.

This hands-on workshop allows participants to try free lessons and activities about flight, forces, and motion using NASA’s new “Museum in a Box” materials.

11:00 AM–12 Noon Exhibitor Workshop

Active Physics: Incorporate STEM in Physics Class Through a Simple Engineering Design Cycle (Phys)

(Grades 9–12)

132, Convention Center

Sponsor: It’s About Time

Arthur Eisenkraft, 2000–2001 NSTA President, and University of Massachusetts Boston

Learn the benefits of the Engineering Design Cycle for teaching and learning physics. See how Dr. Arthur Eisenkraft designed a project-driven course that makes a difference in performance for all levels of students from the start of the semester to the completion. Also, you will be introduced to the use of data logging technology to enhance the classroom experience.



11:00 AM–12:30 PM General Session

The Science Behind Chasing Tornadoes

(General)

Sagamore Ballroom 1–5, Convention Center



Tim Samaras (tsamaras@ecentral.com), Severe-Storms Researcher and National Geographic Emerging Explorer, National Geographic, Lakewood, Colo.

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

Platform Guests: Tim Samaras; Patricia Simmons; Alan J. McCormack, NSTA Retiring President, and San Diego State University, San Diego, Calif.; Karen Ostlund, NSTA President-Elect, and Retired Professor, The University of Texas at Austin; Bill Badders, NSTA President-Elect-Elect, Cleveland Metropolitan School District, Cleveland Heights, Ohio; Duane Nickell, President, Hoosier Association of Science Teachers, Inc., and Franklin Central High School, Indianapolis, Ind; Kate Baird, NSTA Director, District X, and Indiana University–Purdue University Columbus; LeRoy Lee, 1986–1987 NSTA President, NSTA Treasurer, and Wisconsin Science Network, DeForest; Francis Q. Eberle, NSTA Executive Director, Arlington, Va.; Carolyn Hayes, Chairperson, NSTA Indianapolis National Conference, and Indiana University School of Medicine, Indianapolis; Gerald Krockover, Program Coordinator, NSTA Indianapolis National Conference, and Purdue University, West Lafayette, Ind.; Monica Ellis, Local Arrangements Coordinator, NSTA Indianapolis National Conference, and HASTI Past President, Indianapolis, Ind.

With his vehicle jammed with GPS gear, radios, scanners, a wireless internet connection, and satellite tracking devices, Tim Samaras is able to get dramatic footage of twisters and lightning as you’ve never seen it. Join us for an enthralling presentation as Tim shares the science and technology involved in chasing tornadoes.

Denver native, Tim Samaras has made a fast-moving career out of storm chasing, especially mid-April through June. Using his background in engineering and science, Tim invented a tornado probe to record meteorological data inside of tornadoes. On June 24, 2003, Tim dropped a probe in the path of an F-4 tornado where it measured an astounding 100 millibar pressure drop—a record that still stands today. A driving force behind his research is to increase warning times in “Tornado Alley,” where seconds add up to saved lives.

This speaker is sponsored by National Geographic Learning.



11:15 AM–12:15 PM Global Conversations in Science Education Conference Concurrent Sessions

By Preregistration Only

These sessions feature papers from national and international science educators on issues relating to Science, Technology, Engineering, and Mathematics education in K–16.

Concurrent Session #1 *103, JW Marriott*
President: Selina L. Bartels, Illinois Institute of Technology, Chicago

CESI: Experimental Design—A Springboard to STEM Integration

Barbara Z. Tharp, Baylor College of Medicine, Houston, Tex.

Melissa C. Sleeper, Indian River School District, Vero Beach, Fla.

Concurrent Session #2 *104, JW Marriott*
President: Megan E. Faurot, Illinois Institute of Technology, Chicago

Conversation in Science Classes for a Comprehensive Understanding

Rachel Abadi, Levinsky College of Education and Kibbutzim College of Education, Tel-Aviv, Israel

Taha Massalha, The Academic Arab College of Education, Haifa, Israel

Concurrent Session #3 *105, JW Marriott*

President: Stephen A. Bartos, Illinois Institute of Technology, Chicago

A Practical Science in U.K. Schools—Is It Fit for Purpose?

Beth Jones and **Ginny Page**, The Gatsby Charitable Foundation, London, England

Concurrent Session #4 *106, JW Marriott*

President: Dionysius T. Gnanakkan, Illinois Institute of Technology, Chicago

Design and Use Two-Tier Test Fitting for Rasch Models to Investigate Grades 10–11 Students' Understanding of Photosynthesis

Cheng Liu, Illinois Institute of Technology, Chicago

Enshan Liu, Beijing, Normal University, Beijing, China

11:30 AM–12:30 PM Exhibitor Workshop

Enhancing the Elementary Classroom Through Robotics (Phys)

(Grades 2–4)

202, Convention Center

Sponsor: LEGO Education

Presenter to be announced

Learn how your students can explore science and math concepts through robotics by building moving models out of LEGO® bricks and programming the models using software developed specifically for elementary students. Participants will discover key science concepts by completing an actual classroom activity from the LEGO Education WeDo™ Robotics Set and Activity Pack.



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Booth #1641

Think outside the box



When it's time to purchase microscopes for your classroom consider the Swift M3600 Series with its **Student-Proof** design, built to withstand the rigors of daily classroom use. Science classrooms throughout the country share the same problem, expensive parts on their microscopes have a way of becoming lost, misplaced, broken or borrowed and end up in a box used for parts. Educators are finding that when you add up the high replacement costs of these parts, purchasing the Swift M3600 series really makes a lot of sense and saves a lot of dollars.

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and Forensics
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11:30 AM–1:00 PM Exhibitor Workshops

Digging into the Geosphere (Earth)

(Grades 6–9) 101, Convention Center

Sponsor: AIMS Education Foundation

Betty Cordel (blcordel@aimsedu.org), AIMS Education Foundation, Fresno, Calif.

Join AIMS for hands-on activities that focus on the geosphere—its layers, its profiles, and its historical record. We will build models and make diagrams, uncover a fossil record, and make inferences from it.

BIOZONE Biology Workbooks and Presentation Media (Grades 9–12) (Bio)

(Grades 9–College) 103, Convention Center

Sponsor: BIOZONE International

Richard Allan, BIOZONE International, Hamilton, New Zealand

BIOZONE's acclaimed student workbooks with their cutting-edge content can assist students to achieve success. With clear learning objectives, concept-based design, and engaging graphics, these workbooks encourage critical thinking and active interactions. Take home a free book.

Misconception Mania: Exciting and Engaging Ways to Address Common Misunderstandings in K–8 Science (Gen)

(Grades K–8) 104, 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. Participants will expand their 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.

Lemons and Light Bulbs: Exploring the Chemistry of Electricity (Chem)

(Grades 9–12) 105, Convention Center

Sponsor: LAB-AIDS, Inc.

Tom Hsu, Author, Andover, Mass.

The person who comes up with better batteries for electric cars will make oodles. The chemistry of electricity is cutting-edge chemical engineering and technology as well as the chemistry of our nervous system. Learn how to make a

lemon light a bulb, electroplate copper, and make a battery from simple chemicals. As teachers, we tell students that electrons make chemistry. This workshop will show you how those same electrons make electricity, too.

Reading the Rocks: Fossils, Evidence, and Crosscutting Concepts (Bio)

(Grades 6–9) 106, Convention Center

Sponsor: LAB-AIDS, Inc.

Bill Cline, LAB-AIDS, Inc., Ronkonkoma, N.Y.

Examine simulated drill core samples to develop a stratigraphic column and rise to the challenge of interpreting the stories fossils tell! Join us in this scenario from the LAB-AIDS *Issues and Life Science, Evolution* unit. Answer the challenge of “How can you determine which fossils are older, which are younger, and which are likely to be from extinct species?” This activity will cover core ideas from the Next Generation Science Framework for “Evidence of Common Ancestry and Diversity” as it weaves in crosscutting concepts such as stability and change.

Siemens STEM Academy: Top FREE STEM Resources for Your Classroom (Gen)

(Grades K–12) 110, Convention Center

Sponsor: Discovery Education

Lance Rougeux, Discovery Education, Silver Spring, Md.

Do you want to boost STEM learning in your classroom? Are you looking for tools and resources that you can use in your classroom immediately? Let's explore 10 dynamic websites that can help you make STEM a part of your class every day, including the Siemens STEM Academy (siemensstemacademy.com), a site with free resources, webinars, and professional development opportunities. You will walk away with a wealth of free tools and resources for your classroom.

STEM-ify Your Science Lessons! (Gen)

(Grades 7–12) 130, Convention Center

Sponsor: Science Kit

Andrew Fulton, VWR Education, West Henrietta, N.Y.

Encourage critical thinking and integrate STEM concepts in your science labs with the guided inquiry experiments in this hands-on workshop. We'll use Really Easy Data (RED) probeware to show how easy it is to add practical technology applications to every lesson. Learn and share ideas for life, environmental, and physical science.

Hands-On Science for the Elementary Classroom Using Probeware (Gen)

(Grades K–5)

131, Convention Center

Sponsor: Science Kit

Tim Montondo, VWR Education, Rochester, N.Y.

Learn how to engage the iPod generation by integrating probeware technology that looks and feels familiar to your elementary students. Discover how to incorporate Really Easy Data probeware and cross-curricular learning into your classroom so your students can spend more time on real science, math, and engineering concepts.

Inquiry and Evidence: Keys to Getting Students to Inquire (Gen)

(Grades K–8)

133, 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.

The Next Generation of Science Virtual Labs for the Entire Science Curriculum! No Cleanup! (Gen)

(Grades 9–12)

134, 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...with no cleanup!

OUTSTANDING SCIENCE TRADE BOOKS

WHAT ARE THEY? • HOW DO YOU PICK THEM? • HOW DO YOU USE THEM IN THE CLASSROOM?

Meet members of the Outstanding Science Trade Book selection committee—they'll help you open a new chapter in your teaching! Integrating science literacy keeps students interested and makes for an efficient classroom!

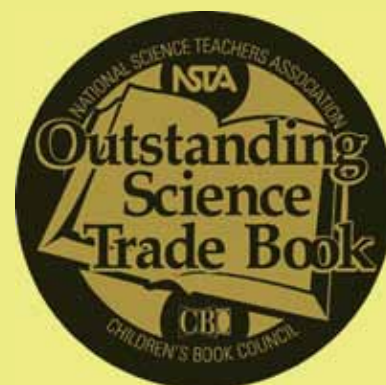


Friday, March 30, 2012

8:00–11:00 AM

JW Marriott Indianapolis

White River Ballroom D



BOOK RAFFLE!

MEET AUTHORS!

NSTA National
Science
Teachers
Association

Engineering in the Classroom: Opportunities for Integrating Across Your Curriculum (Gen)

(Grades K–8) 143, Convention Center

Sponsor: Carolina Biological Supply Co.

Ann P. McMahon (annp McMahon@gmail.com), Ann P. McMahon, LLC, St. Louis, Mo.

K–8 engineering requires a fundamentally different teaching process than typical science instruction. Explore how to integrate engineering design across your curriculum and develop collaboration skills in your students. Experience how to translate engineering processes into classroom best practices. Learn how incorporating engineering design processes affects assessment practices and professional development.

Comparative Mammalian Organ Dissection with Carolina's Perfect Solution® Specimens (Bio)

(Grades 6–12) 144, Convention Center

Sponsor: Carolina Biological Supply Co.

Andrew Uy, Carolina Biological Supply Co., Burlington, N.C.

Experience a far superior and safer alternative to formaldehyde with Carolina's Perfect Solution specimens. Participants dissect a sheep brain, cow eye, pig heart, and pig kidney and observe major internal and external structures to gain a better understanding of these mammalian organs. An excellent comparative dissection with Carolina's best specimens!

Introduction to Wisconsin Fast Plants® (Bio)

(Grades K–12) 145, Convention Center

Sponsor: Carolina Biological Supply Co.

Laurie Nixon, Carolina Biological Supply Co., Burlington, N.C.

Students can actively take part in science with new hands-on activities using Wisconsin Fast Plants. These minuscule and quick-growing plants are ideal classroom tools for exploring environmental effects, variation, life cycle, and nutrient cycling. Engage in hands-on activities such as planting seeds and pick up free materials.

Bring the Exciting World of PCR-based and Forensic Science into Your Classroom (Bio)

(Grades 8–College) 201, Convention Center

Sponsor: Edvotek

Jack Chirikjian (info@edvotek.com), **Khuyen Mai** (info@edvotek.com), and **Lucia Dussan** (info@edvotek.com), Edvotek, Washington, D.C.

Engage in new experiments featuring different techniques used in novel forensics such as Polymerase Chain Reaction (PCR) and other DNA analysis approaches. Learn fundamentals of how to prepare your own DNA for fingerprinting, and

how these procedures can be integrated into classroom experiments utilizing the affordable and user-friendly Edvocycler and electrophoresis equipment. Non-DNA-based identification methods that are adaptable for classroom experiments will also be featured.

Teaching AP Chemistry with Molecular-Level Visualization and Simulation Tools (Chem)

(Grades 8–College) 203, Convention Center

Sponsor: Wavefunction, Inc.

Paul D. Price (sales@wavefun.com), Trinity Valley School, Fort Worth, Tex.

Indispensable in many college chemistry courses, molecular modeling is also an effective learning tool for the high school classroom. Bring your laptop (Windows or Mac OS X) to this hands-on workshop and learn how to support your teaching of AP Chemistry with the powerful 2012 release of *Odyssey College Chemistry*.

Flinn Scientific Presents Best Practices for Teaching Chemistry™ Experiments and Demonstrations (Chem)

(Grades 9–12) Wabash Ballroom 1, Convention Center

Sponsor: Flinn Scientific, Inc.

Irene Cesa, Flinn Scientific, Inc., Batavia, Ill.

Join us as we present exciting and interactive demonstrations on the features and benefits of our new comprehensive Teaching Chemistry professional development program. You now have the opportunity to learn best practices from 20 award-winning master teachers as they carry out their favorite experiments, demonstrations, and chemistry lab activities. Discover how each 40-minute video can help you build content knowledge and improve your pedagogical skills and confidence! Handouts!



12 Noon–12:45 PM Exhibitor Workshop

Teaching from Space

(Gen)

(Grades K–12)

142, Convention Center

Sponsor: NASA

Matthew J. Keil, NASA Johnson Space Center, Houston, Tex.

Make science, technology, engineering, and mathematics, or STEM, come alive for learners. Each experience and resource offered through the NASA Teaching From Space Office is intended to be unique and accessible and to provide real-life connections to the world of STEM. Learn how to get involved in real NASA missions and research, gain access to NASA experts, and use NASA equipment to take learning to a new level.

12 Noon–1:15 PM Exhibitor Workshop

STEM Professional Development Opportunity:

STEM Education Using Inquiry Investigations™

(Gen)

(Grades 7–10)

136, Convention Center

Sponsor: Frey Scientific/School Specialty Science

Lou Loftin, Northwest Regional Professional Development Program, Reno, Nev.

Learn about STEM education and how to integrate technology and hands-on inquiry. Conduct a STEM-focused activity that links science concepts and new USB U-Log™ datalogging technology to construct and investigate frequency transmission in Bell's Gallows telephone. See how the online program iNeo/SCI™ allows the integration of activities into a STEM-based curriculum.

New in paperback March 13th with a dramatic new chapter on the 2011 Japan Tsunami

The POWER of the SEA

Tsunamis, storm surges, rogue waves, and our quest to predict disasters

BRUCE PARKER

"Mixes hair-raising descriptions of disasters with efforts to understand them. ... a lucid, original contribution to popular-science writing." – *Kirkus Reviews*

"Riveting" – *Booklist*

"a fascinating exploration" – Andrew Revkin, DotEarth blog, *New York Times*

"an engaging and essential history of science. ... It's also a terrific account of survival on our wild blue planet." – David Helvarg, author of *Saved by the Sea*

Palgrave Macmillan

"Parker's integration of theory with vivid descriptions of historical events sets this book in a class of its own Whether you're a sailor, scientist, or history buff, there is something for everyone in this book" – *Earth magazine*

"entertaining while at the same time providing a wealth of information ... very worthwhile and rewarding to read." – *J. of Coastal Research*

thePoweroftheSea.com

"Rarely does a book written by a practicing scientist grab you like this one. Intelligent, accurate, and accessible" – Richard Ellis, author of *The Empty Ocean*

"You will come away with a better understanding of why the sea will leave us in awe till the end of time." – Jim Cantore, Weather Channel

Facebook.com/thePoweroftheSea

12 Noon–1:30 PM Exhibitor Workshops

HHMI's *The Making of the Fittest: Natural Selection and Adaptation in Your Classroom* (Bio)

(Grades 7–College) 109, Convention Center

Sponsor: Howard Hughes Medical Institute

Ann Brokaw (abrokaw44@gmail.com), Rocky River High School, Rocky River, Ohio

View HHMI's new short film, *The Making of the Fittest: Natural Selection and Adaptation*, the story of the rock pocket mouse as a living example of Darwin's process of natural selection. Learn about and receive free brand-new resources to help you bring this memorable example of the evolutionary process into your classroom. Participants will receive classroom-ready materials appropriate for all levels of biology, including middle school, high school, and undergraduate.

K–8 Science with Vernier (Gen)

(Grades K–8) 116, Convention Center

Sponsor: Vernier Software & Technology

Matt Anthes-Washburn (info@vernier.com) and **David Carter** (info@vernier.com), Vernier Software & Technology, Beaverton, Ore.

Learn how easy it is to measure temperature, gas pressure, magnetic field, and more. Try experiments from our popular *Elementary Science with Vernier* and *Middle School Science with Vernier* lab books using sensors on our LabQuest or on a computer using our low-cost line of Go! products or LabQuest Mini.

Inquiry-based Biology with Vernier (Bio)

(Grades 9–College) 117, Convention Center

Sponsor: Vernier Software & Technology

Mike Collins (info@vernier.com) and **Elaine Nam** (info@vernier.com), Vernier Software & Technology, Beaverton, Ore. Do you need to add inquiry labs to your biology course? Vernier has done the work for you with our new book, *Investigating Biology through Inquiry*. In this hands-on workshop, you will be able to try an investigation using LabQuest and our LabQuest Mini.

Sound, Waves, and Music (Phys)

(Grades 5–12) 139, 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, and play music on a set of PVC palm pipes and learn how to make sets of your own. We'll show you how.

Middle School Life Science: Learning Biodiversity Through Hands-On, Probeware-based Activities (Bio)

(Grades 6–8) 140, Convention Center

Sponsor: PASCO scientific

Presenter to be announced

When you conduct an activity from the Sally Ride Science™ SPARKlab® series, you'll get hands-on experience with a state-of-the-art way to meet the Life Science standards. These activities from Sally Ride Science and PASCO cover the content you already teach through integrated, probeware-based guided inquiry lessons. The hands-on activity and teacher resources will cover concepts related to the biodiversity that is present in soil, through data collection and enhanced observational tools.

Chemistry—Atmospheric Pressure (Chem)

(Grades 9–12) 141, Convention Center

Sponsor: PASCO scientific

Presenter to be announced

This session explores PASCO's state-of-the-art science teaching solutions for a topic covered in all levels of chemistry classes—gases in the atmosphere. PASCO's Atmospheric Properties Chamber, with its closed system and ability to incorporate sensors, is an ideal vessel to study gas laws and equilibrium involving gases. Use this standards-based guided inquiry activity as a platform to teach your students about pressure, gases, stoichiometry, and much more. Experience how SPARKscience™ can change your teaching practice and improve your students' understanding of core chemistry topics.

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- **NSTA Learning Center.** Select high-quality, online learning opportunities to build content knowledge. Use our suite of tools for self-assessment and to document your progress.
- **Web Seminars.** Update your content knowledge with these free, 90-minute, online presentations and join the discussion. Voice questions and share in rich conversations with the presenters and other educators.
- **SciGuides.** Use these online resources, aligned with the national standards, to locate lessons organized by grade level and specific content themes to add to your classroom instruction.
- The **NSTA New Science Teacher Academy** supports science teachers during the often challenging, initial years by enhancing confidence, classroom excellence, and teacher content knowledge.

Expand Your Mind

- **NSTA Press®** publishes 20–25 new titles each year. Browse at the Science Bookstore and connect with authors to have your new book signed. Submit your new book idea to <http://mc.manuscriptcentral.com/nstapress>.
- **SciLinks®.** Link to science resources on the internet using sites recommended by science educators. You'll find vetted websites, effective pedagogy, and reliable content.

Add Your Voice

- **Science Matters,** our major public awareness campaign about science education and science literacy, is designed to rekindle a national sense of urgency and action among schools and families. Register to receive our monthly e-newsletter.

- The **John Glenn Center for Science Education Campaign.** NSTA's five-year, \$43 million national campaign to make excellence in science teaching and learning a reality for all will fund a series of forward-thinking programs and a state-of-the-art facility designed to promote leadership, learning, and advocacy in science education.

Distinguish Yourself

NSTA provides 17 awards programs to science teachers, K–College. Learn about them www.nsta.org.

Student Competitions:

- **Toshiba/NSTA ExploraVision®** is a team-based, K–12 student competition that awards up to \$240,000 in savings bonds annually.
- **THE DUPONT CHALLENGE®** Science Essay Competition is for grades 7–12 students with cash prizes and an expense-paid trip to Disney World® and the Kennedy Space Center.
- **The Siemens We Can Change the World Challenge,** a premier national environmental sustainability competition for grades K–12 students, requires creative solutions that impact our planet. More than \$300,000 in scholarships and prizes are awarded.
- **Disney's Planet Challenge** is a project-based environmental competition for grades 3–8 students to make a difference in their homes, schools, and communities.
- **Shell Science Lab Challenge** provides science laboratory equipment and professional development support to middle schools and high schools with limited resources. Learn how you can win a \$20,000 lab makeover support package.
- **America's Home Energy Education Challenge,** sponsored by the U.S. Dept. of Energy, helps grades 3–8 students learn about energy usage, costs, and conservation for \$200,000 in prizes.



12:15–1:15 PM Global Conversations in Science Education Conference Luncheon Plenary Session

Toward STEM Improvement in South Africa: Breaking the Vicious Cycle (Gen)

(General)

White River Ballroom E/F, JW Marriott

By Preregistration Only



Marissa Rollnick (marissa.rollnick@wits.ac.za), Chair of Science Education, Marang Centre for Mathematics and Science Education, Wits University, Johannesburg, South Africa

In this talk I will provide contextual information regarding the ups and downs of science education in South Africa. The challenges will be framed as a vicious cycle. I will then focus on two strategies used to break the cycle—second-chance tertiary access programs for students leaving school early and teacher development initiatives.

Marissa Rollnick is chair of science education in the Marang Centre for Science and Mathematics Education. She holds a BSc, H. Dip.Ed, and PhD from Wits University and MSc degree from the University of East Anglia.

Prior to taking up the position of chairperson of Science Education, Dr. Rollnick was director of the College of Science, an access program for students entering the science faculty.

Prior to returning to South Africa in 1990, she worked in Swaziland at the William Pitcher Teachers' College and the University of Swaziland.

12:30–1:30 PM Featured Presentation



The Art of Science and the Framework for Science Education (Gen)

(General)

Sagamore Ballroom 6, Convention Center



Jeff Goldstein (jeffgoldstein@ncesse.org), Director, National Center for Earth and Space Science Education, Capitol Heights, Md.

President: Kate Baird, NSTA Director, District X, and Indiana University–Purdue University Columbus

Science is an art, and researchers are artists. Fundamental to science research is the explorer's ability to ask questions, frame a pathway to an answer, and interpret what he or she finds. But this is also what science education in the classroom ought to be—immersing our children in authentic science experiences that bring to bear practices and core knowledge so they, too, can become artists. Through *A Framework for K–12 Science Education*, we are finally, hopefully, seeing a national emphasis on science education as classroom modeling of real science, and students given the ability to be scientists and engineers.

Dr. Jeff Goldstein is director of the National Center for Earth and Space Science Education (NCESSE), where he is responsible for overseeing the creation and delivery of national science education initiatives with a focus on Earth and space. These include programs for schools, families, and the public; professional development for grades K–12 educators; and exhibitions for museums and science centers. Dr. Goldstein oversees the Voyage National Program, which installs replicas of the Voyage Model Solar System in communities around the world.

12:30–1:30 PM Presentations**SESSION 1****Assessment for Learning: Increasing Students' Learning with Feedback (Gen)***(Middle Level–High School) 111/112, Convention Center***Robin Groves** (r.groves@curtin.edu.au), Curtin University of Technology, Perth, Western Australia, Australia

Join me as I outline evidence that formative assessment increases student achievement in science and provide science education strategies that teachers and students can use.

SESSION 2**Clue into Climate (Gen)***(Middle Level–High School) 113, Convention Center***Andrea Swensrud** (scienceed@kqed.org) and **Jessica Neely**, KQED, San Francisco, Calif.

Engage middle school and high school students in learning about climate using free digital media resources, hands-on activities, and standards-based lessons.

SESSION 3**Digitizing the Learning Experience and Taking IT Mobile (Gen)***(General) 120, Convention Center***Ben Smith** (ben@edtechinnovators.com) and **Jared Mader** (jared@edtechinnovators.com), Red Lion (Pa.) Area School District

Learn how to use iPods and other mobile devices in the science classroom. You can put your content on your students' devices.

SESSION 4**How Do You Know What They Know? Assessing Understanding (Gen)***(Preschool–Middle Level) 121, Convention Center***Anne Mechler** (amechler@jonssonschool.org) and **Karen Norris**, J. Erik Jonsson Community School, Dallas, Tex.

Exemplary assessment practices deepen student understanding and transform teaching and learning. Increase student performance with assessment strategies within the Understanding by Design framework.

TEACHERS IN GEOSCIENCES

Mississippi State University offers a unique and exciting M.S. degree program through distance learning—the **Teachers in Geosciences (TIG)** program. Students who successfully complete this two-year, 12-course, 36-hour curriculum are awarded an **M.S. degree in Geosciences**. The core courses in meteorology, geology, hydrology, oceanography, planetary science and environmental geoscience are taught via the internet. Over 300 students from across the country and around the world are enrolled.



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SESSION 5

Standards-aligned, Inquiry-based Physics Modules by and for High School Physics Teachers (Phys)

(High School) 126, Convention Center

Milijana Suskavcevic (*milijana@rice.edu*), Rice University, Houston, Tex.

Invigorate your physics lessons with several teacher-developed, inquiry-based modules in mechanics, electricity, and magnetism—a part of the Inquiry Physics program at Rice University.

SESSION 6

A Spiraling Chemistry Curriculum: Mastering Core Chemical Concepts (Chem)

(High School) 128, Convention Center

Christopher J. Carrillo (*carrilc@culver.org*) and **Phillip C. Cook** (*cookp@culver.org*), Culver Academies, Culver, Ind.

Help your students gain a better understanding of core chemical concepts. Join us as we highlight a chemistry curriculum that uses repetition of content in increasing complexity and learn how this approach facilitates students' mastery of core concepts as defined in the overall course standards.

SESSION 7

Dialogues for the Biology Classroom (Bio)

(Middle Level—College) 204, Convention Center

Greg Bisbee (*bisbee@ahs.k12.wi.us*), Arrowhead High School, Hartland, Wis.

Craig Berg (*caberg@uwm.edu*), University of Wisconsin—Milwaukee

Kathleen Westrich, Reagan High School, Milwaukee, Wis.

Come hear about Dialogues, a student-engaging activity in which pairs of students read and act out two-person conversations based on biology content and issues.

SESSION 8

Virtual Science Notebooking: Build Mechanical Toys with Engineering e-Mentors (Phys)

(Elementary—Middle Level) 206, Convention Center

Gail Bush (*gbush@bssd.net*), Blue Springs (Mo.) School District

Take science notebooking to the next level with the help of a camera, a wiki, and some experts from National Lab Network (*www.nationallabnetwork.org*).

SESSION 9

The Keys to Improved Learning: 19 Ways to Transform Teacher Performance (Phys)

(General) 207, Convention Center

Jeff C. Marshall (*marsha9@clemson.edu*), Clemson University, Clemson, S.C.

Begin transforming your classroom today! Come learn things that you can change (and how to change them) to improve student achievement in the K–12 science classroom.

SESSION 10

Medical Mysteries Web Adventures (Bio)

(General) 209, Convention Center

Lynn Lauterbach (*lynnlauterbach@gmail.com*) and **Yvonne Klisch** (*yvonne.klisch@rice.edu*), 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 11

From Seed to Fruit—Exploring the Garden and Pollination (Bio)

(Elementary) 210, Convention Center

Pamela S. Lottero-Perdue (*plottero@towson.edu*), Towson University, Towson, Md.

Explore how a children's book and a science/engineering unit engage primary students in learning about gardening and the interdependence of flowering plants and pollinators.

SESSION 12

Managing a Science Fair in the Classroom (Gen)

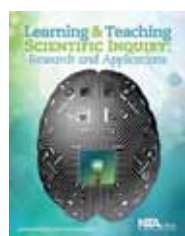
(Elementary) 212, Convention Center

JoEllen Schuleman (*missschuleman@yahoo.com*), P.S. 134M Henrietta Szold, New York, N.Y.

For many of our students, participating in the science fair is a challenge. Gone are the days of home-based projects and, increasingly, the classroom teacher is left to provide the support formerly given by parents. Learn how to easily manage a classroom full of projects.

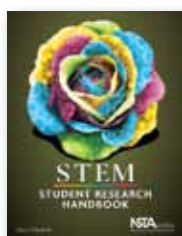
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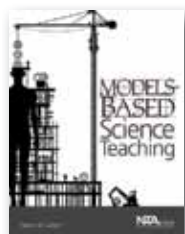
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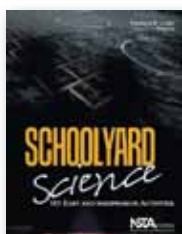
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Grades 9-12
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Non-members: \$24.95

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or buy online at www.nsta.org/store.

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SESSION 13

Compost: The “Rot” Thing for Our Earth (Env)

(Elementary) 235, Convention Center

Fred Estes (festes@nuevaschool.org), The Nueva School, Hillsborough, Calif.

Build Earth awareness and activism in early childhood students through the use of classroom composting and gardening to integrate science, math, and social studies.

SESSION 14

Not Just Tests and Lab Reports: Alternate Assessment in Chemistry (Chem)

(Middle Level–High School) 237, Convention Center

Patti Duncan (patti_duncan@discovery.com), Wallenpaupack Area School District, Hawley, Pa.

Tired of grading the same old papers over and over again? Ready to see what your students really know? Come find ways to let them shine!

SESSION 15

The Driving Question Board as a Professional Development Tool (Gen)

(Elementary–Middle Level) 242, Convention Center

Jeffrey C. Nordine (jnordine@trinity.edu), Trinity University, San Antonio, Tex.

Discover a visual organizer that can support you in planning and teaching inquiry-based science units.



SESSION 16 (two presentations)

(Middle Level)

243, Convention Center

Presider: **James E. Hollenbeck** (jehollen@umail.iu.edu), Indiana University Southeast, New Albany

Shining Star and Novas (Gen)

James E. Hollenbeck (jehollen@umail.iu.edu), **Natalie Bronson** (rmbronson@gmail.com), **Sarah Vaughn** (rossse@umail.iu.edu), **C. Michelle Kummer** (ckummer@ius.edu), **Katie M. Wright** (kamuriah@ius.edu), and **Angelica M. Ronke** (aj54@ius.edu), Indiana University Southeast, New Albany

Join us for a discussion on how the Shining Star Program provided experiences for students that led to improved STEM state exam scores for the Greater Clark School Corporation.

Enhancing Middle School Science Learning Through Exploration Curriculum and Service Learning (Gen)

Chih-Che Tai (cctai.etsu@gmail.com), East Tennessee State University, Johnson City

Mao-Cheng Lin, Guang Wu Junior High School, Hsinchu City, Taiwan

Hear about lessons learned from a 10-year practice of using exploration curriculum and service learning to advance middle school students' interest in and achievement of science learning

SESSION 17

If a Starfish Can Grow a New Arm, Why Can't I? Join the Classroom Regeneration Revolution! (Bio)

(Middle Level–High School) 244, Convention Center

Mark C. Krotec (mckrotec@yahoo.com), Pittsburgh Central Catholic High School, Pittsburgh, Pa.

Revolutionize middle school and high school biology, human anatomy and physiology, and integrative science courses by using Tissue Engineering (TE) strategies to enhance student interest and science process skills.

SESSION 18

NSELA Session: Publishing in the Science Educator, the Journal of NSELA (Gen)

(General)

201, JW Marriott

Brenda Wojnowski (bwojnowski@gmail.com), Wojnowski and Associates, Dallas, Tex.

David Wojnowski (david.wojnowski@unt.edu), University of North Texas, Denton

Learn about publishing in the *Science Educator*, the journal of the National Science Education Leadership Association. Meet the editor, see examples of accepted articles, and get your questions answered.

SESSION 19 (three presentations)*(High School–College)*

203, JW Marriott

SCST Session: Is DNA Alive? Confronting Students' Misconceptions About DNA Through Innovative Instruction (Gen)**Stephen B. Witzig** (sbwitzig@mail.mizzou.edu), University of Missouri, Columbia

Review findings from a study investigating student conceptions about the chemical nature of DNA. Through targeted instructional interventions, we found a persistent misconception about DNA with 63% of students claiming that DNA is alive prior to instruction. Implications for teaching/learning will be discussed.

SCST Session: Recruitment and Retention of STEM Majors and the Merit Model: How It Works and How We Know (Gen)

Tracey E. Hickox (hickox@illinois.edu), **Gretchen Adams** (gadams4@illinois.edu), and **Jennifer R. McNeilly** (jrmcneil@illinois.edu), University of Illinois at Urbana-Champaign, Urbana

Join us as we present the results from a five-year NSF-funded study demonstrating how the Merit Model has improved the recruitment and retention of STEM majors at the University of Illinois.

SCST Session: Assessment Challenges for Undergraduate Introductory Biology Courses: A Study of Online and Traditional Approaches (Bio)

Linda W. Crow (lcrow@lonestar.edu), **Joe Trackey** (joseph.l.trackey@lonestar.edu), and **Anitha Iyer**, Lone Star College–Montgomery, Conroe, Tex.

With the demand of documenting student success through outcome assessment, approaches for managing these assessments in introductory biology courses have become essential. Join us as we discuss approaches, both online and more traditional.

SESSION 20**ASTE Session: What Is ASTE? (Gen)***(General)*

204, JW Marriott

John W. Tillotson (jwtillot@syr.edu), Syracuse University, Syracuse, N.Y.

Lisa M. Nyberg (lnyberg@csufresno.edu), NSTA Director, Preservice Teacher Preparation, and California State University, Fresno

Join us as we share information about the Association for Science Teacher Education (ASTE) and its role in promoting excellence in science teacher education.

SESSION 21**Science Calculators on Computer Spreadsheets (Gen)***(High School–College)*

205, JW Marriott

Gordon L. Wells (gordon.wells@ovu.edu), Ohio Valley University, Vienna, W.Va.

Walk away with demonstrations, handouts, and visuals that can help you design electronic spreadsheets and calculators on computer spreadsheets to perform calculations appropriate to your classes.

SESSION 22**Existing Southern Slave Dwellings: What Are the STEM Connections? (Gen)***(General)*

208, JW Marriott

Cheryl O. Lane (clane@fmarion.edu) and **Carol M. McClain** (cmclain@fmarion.edu), Francis Marion University, Florence, S.C.

A National Trust for Historic Preservation project led to data collection on existing slave dwellings. STEM curriculum connections will be shared.

SESSION 23 (two presentations)*(High School–College/Supervision)*

209, JW Marriott

An Interdisciplinary Approach to Project Based Learning (PBL) in a STEM Content and Methods Class (Gen)

Katherine W. Stickney (kstickney@uindy.edu), **Deborah D. Sachs** (dsachs@uindy.edu), **Jean S. Lee** (jslee@uindy.edu), and **Krista E. Latham** (lathamke@uindy.edu), University of Indianapolis, Ind.

Find out about an innovative curriculum that uses PBL and clinical immersion to prepare STEM teachers for high-needs schools. The program revolves around a strong collaboration among School of Education and College of Arts and Sciences faculty. Leave with implementation ideas to encourage inter-departmental cooperation for curricular development at your educational institution.

Planning for a Complete STEM Program (Gen)

Bonnie Maur, Monroe (Conn.) Public Schools

Planning for an inquiry-based, integrated STEM school program can seem daunting. Let us show you a model for running a program that meets all STEM initiatives and allows for greater achievement for students.

SESSION 24

Virtual Labs in High School and College Physics, Astronomy, and Physical Science (Phys)

(High School–College) 302/303, JW Marriott

Stacy A. McCormack (smccormack@phm.k12.in.us), Penn High School, Mishawaka, Ind.

Virtual labs used in both high school and undergraduate physics allow tremendous data analysis practice for students. Come get some free online labs to use!

SESSION 25

CSSS Session: Implications of the Framework for Science Education from the National Academy of Sciences (Gen)

(General) JW Grand Ballroom 3, JW Marriott

Thomas Keller (tkeller@nas.edu), National Academy of Sciences, Washington, D.C.

Stephen Pruitt, Achieve, Inc., Washington, D.C.

Anita Bernhardt (anita.bernhardt@maine.gov), Maine Dept. of Education, Augusta

Brett D. Moulding (mouldingb@ogdensd.org), Utah Partnership for Effective Science Teaching and Learning, Ogden
Join us as we review the vision of science education and then explore addressing or aligning multiple “other” elements to foster effective implementation of the vision.

SESSION 26



NSTA Press Session: Misconceptions Matter—Where Do They Come From? Where Do They Go? (Gen)

(Middle Level–College/Supv.) JW Grand Blrm. 7, JW Marriott

Thomas P. O’Brien (tobrien@binghamton.edu), Binghamton University, Binghamton, N.Y.

Discrepant events and cartoons raise awareness of the origins of student misconceptions and model “brain-powered science” instructional strategies that activate attention and catalyze conceptual change.

SESSION 27 (two presentations)

(College)

White River Ballroom I, JW Marriott

Undergraduate Biology Students’ Conceptions of the Term “Animal” (Bio)

Andrea M. Bierema (a4kryger@wmich.edu), Western Michigan University, Kalamazoo

Join me for a presentation on undergraduate biology students’ conceptions of biodiversity in regards to the kingdom *Animalia*. How do students interpret the term “animal”?

Rediscovering Research at a Small Liberal Arts Institution (Bio)

Jennifer L. Poulton (poulton@graceland.edu), Graceland University, Lamoni, Iowa

Undergraduate research at small liberal arts institutions can thrive despite many challenges. Faculty-mentored research groups promote collaboration among students, leading to successful research experiences.

SESSION 28

The Gap Between Policy and Practice: The Impact of NCLB on Health and Science Education (Gen)

(Elementary/Supervision) White River Ballroom J, JW Marriott

Brenda Turgeon (brenda.turgeon@purduecal.edu), Purdue University Calumet, Hammond, Ind.

Review research findings that illustrate the impact of No Child Left Behind on health and science instruction in the elementary classroom.

SESSION 29

Inquiry Tech Pack: Building Global Awareness Through Questions (Gen)

(General) Indiana Ballroom A/B, Marriott Downtown

Sharon Sikora (sfranz@punahou.edu), **Paraluman Stice-Durkin** (pstice-durkin@punahou.edu), and **Gail A. Peiterson** (gpeiterson@punahou.edu), Punahou School, Honolulu, Hawaii

Learn how to develop authentic questions in a global context with an inquiry tech pack that includes an iPod Touch and GPS. See how the questions become the formative assessments.

SESSION 30

Help Students with Language-based Learning Disabilities Make Sense of Science (Gen)

(General) *Marriott Ballroom 2, Marriott Downtown*

Greg Hill-Ries (greg@mmfsnyc.org) and **Stacy Miller** (stacy@mmfsnyc.org), Mary McDowell Friends School, Brooklyn, N.Y.

Understanding, speaking, and writing about science are challenging for students with language-based learning disabilities. Explore strategies to support and enhance these students' abilities to access language.

SESSION 31

How Science Shapes Art: The Real Art/Science Connections Through Content (Gen)

(General) *Marriott Ballroom 10, Marriott Downtown*

Lauren D. Rentfro (rentfirla@lewisu.edu), Lewis University, Romeoville, Ill.

Brenda B. Rentfro (brenren@comcast.net), Alan B. Shepard High School, Palos Heights, Ill.

Many teachers struggle with making interdisciplinary connections between the sciences and art. Join us as we share real content connections among biology, chemistry, physics, and art.

SESSION 32

Investigating Student Understanding of Recycling and Composting Over the Course of an Environmental Inquiry Project (Env)

(General) *Cabinet, Westin*

Linda H. Plevyak (linda.plevyak@uc.edu), University of Cincinnati, Ohio

Let's review findings from a study focusing on students' understanding of waste reduction before, during, and after the implementation of an environmental inquiry project.



Elementary Extravaganza

Please join us!

- Friday, March 30, 2012 • 8:00–9:30 AM
- 500 Ballroom, Indiana Convention Center

This Extravaganza is not to be missed! Join elementary groups of professionals for an exceptional opportunity. Gather resources for use in your classroom immediately. Engaging hands-on activities, strategies to excite and encourage your students, a preview of the best trade books available, information about award opportunities, contacts with elementary science organizations, sharing with colleagues, door prizes, and much more will be available to participants.

Walk away with a head full of ideas and arms filled with materials.

Participating organizations include:

- Association of Presidential Awardees in Science Teaching
- Council for Elementary Science International
- NSTA Committee on Preschool–Elementary Science Teaching
- Science and Children authors and reviewers
- Society of Elementary Presidential Awardees

** Coffee, door prizes, and more... win an iPad!*

This event is sponsored in part by Delta Education~CPO Science~Frey Scientific and National Geographic Learning.

NSTA National Science Teachers Association

SESSION 33

The Great Lakes Fuel Cell Partnership (Env)

(General) *Caucus, Westin*

Edward A. Mottel (edward.mottel@rose-hulman.edu), Rose-Hulman Institute of Technology, Terre Haute, Ind.

Presider: Jody L. Levitt (jlevitt@starkstate.edu), Stark State College, North Canton, Ohio

Learn the basics of fuel cell technology and why it should be implemented in your curriculum. Sources of curriculum content and support will be identified.

SESSION 34

A Narrative-based Approach to Environmental Education (Gen)

(Elementary–High School) *Chamber, Westin*

Giuliano Reis (greis@uottawa.ca), University of Ottawa, Ont., Canada

Find out how the personal narratives of individual students and teachers can help with incorporating environmental education into the school science curriculum.

SESSION 35

Bring Remote Sensing Alive with Kites (Env)

(Middle Level–High School) *Congress I/II, Westin*

David Bydlowski (bydlowd@resa.net) and **Andy Henry** (henrya@resa.net), Wayne RESA, Wayne, Mich.

Use kite-based remote-sensing systems to engage students in inquiry STEM investigations. Also known as—students get to fly REALLY BIG KITES!

SESSION 36

NASA: Exploring the Universe Through the World Wide Telescope (Earth)

(Middle Level–High School/Informal) *Grand Ballroom 1, Westin*

Nancy Alima Ali (nancy.ali@ssl.berkeley.edu) and **Bryan J. Mendez** (bmendez@ssl.berkeley.edu), University of California, Berkeley

Get up close and personal with the cosmos with the free downloadable World Wide Telescope software that you can use to create tours of the universe with NASA images.

SESSION 37

NASA INSPIRE Project (Earth)

(High School) *Grand Ballroom 3, Westin*

Beth Ingram (beth.ingram@nasa.gov), NASA/Oklahoma State University, Huntsville, Ala.

Walk away with lots of ideas for encouraging the next generation of explorers in grades 9–12 to pursue an education and career in STEM fields.

SESSION 38

NMEA Session: Navigating Through Oceans of Data (Earth)

(Middle Level–High School) *Grand Ballroom 5, Westin*

Pat Harcourt (pharcour@usc.edu), Wrigley Institute for Environmental Studies, Los Angeles, Calif.

Do you want to use ocean data that's in a student-friendly format? Check out some wonderful sites about oceans, coasts, and climate—instructions included!

12:30–1:30 PM Workshops



Assessing Inquiry with Science Notebooks (Gen)

(Preschool–Middle Level) *122, Convention Center*

Janet C. MacNeil (janetmacneil@comcast.net), Brookline (Mass.) Public Schools

Learn how science notebooks can be used by teachers and students to assess inquiry skills. Take home an inquiry assessment tool kit, which includes inquiry skill learning goals, checklists, and resource lists.



NASA's Ready-to-Go Solar Science and Solar Energy Activities for the K–5 Classroom (Earth)

(Elementary) *123, Convention Center*

Ruth Paglierani (ruthp@ssl.berkeley.edu), University of California, Berkeley

Solar energy and solar science make a dynamic classroom combination. Use fun hands-on activities integrating literacy and math to learn more about our amazing Sun.

The Polymer Science of Sporting Spheres (aka Balls) (Chem)

(High School) *127, Convention Center*

Brian P. Wright, Olympia High School, Olympia, Wash.

Engage your students with the amazing chemistry of high-tech sporting goods. This hands-on workshop will provide numerous connections among sports and polymer chemistry, including nanotechnology and physics.

Differentiating Instruction in Middle School Physical Science (Phys)

(Middle Level–High School) 205, Convention Center

Barbara Nagle (bnagle@berkeley.edu) and **John Howarth** (john_howarth@berkeley.edu), Lawrence Hall of Science, University of California, Berkeley

Engage in a hands-on laboratory activity and explore strategies for differentiating lab activities for diverse learners in your classroom. Handouts.

Food Chains: Using Field Surveys That Give Real Numbers (Bio)

(Middle Level) 208, Convention Center

Frederick E. Maier (fmaier@itasca.com), Village of Itasca, Ill.

Roy F. Tison (globes@comcast.net), Wheaton Park District, Wheaton, Ill.

This session demonstrates three hands-on survey techniques that allow students to calculate actual numbers of plants, herbivores, and carnivores in creating a food chain.

Engage Young Learners with Digital Microscopes (Gen)

(Preschool) 211, Convention Center

Robert A. Williams, The University of Texas at Austin
Diana McMillan, Mathews Elementary School, Austin, Tex.

Presider: **Mary Hobbs** (maryhobbs@mail.utexas.edu), The University of Texas at Austin

Young learners are naturals at the use of technology. Experience activities that incorporate the use of digital microscopes and computers to facilitate inquiry in the preK classroom.

Addressing Core Science Standards Through Nano-scale Science for Grades K–5 (Gen)

(Elementary) 231, Convention Center

Joyce P. Allen (joyce.palmer@mirc.gatech.edu) and **Nancy Healy** (nancy.healy@mirc.gatech.edu), Georgia Institute of Technology, Atlanta

Explore teaching about small-scale objects with fun hands-on activities. Take home a CD full of activities.

What on Earth?! Teach the Toughest Earth Science Standards (Earth)

(Elementary) 232, Convention Center

Lara Arch (larch1@rice.edu), Rice University, Houston, Tex. Participants will rotate between four stations of Earth science lessons. Each station will address a misconception often taught regarding that concept.

Conduct Inquiry via Science Institutions (Earth) (Middle Level)

233, Convention Center

Petal A. McPherson, Catherine & Count Basie Middle School 72, Jamaica, N.Y.

Walk away with various creative methods that can be used to link state science standards with classroom activities and science institutions within the community. Learn how botanic gardens can be used to help middle school students conduct science investigations when studying plant reproduction.

The Three S's—Students, Stewardship, and Sustainability (Env)

(Middle Level) 234, Convention Center

Beth Thomas (beth_thomas@gfps.k12.mt.us) and **Cynde Jacobsen** (cynde_jacobsen@gfps.k12.mt.us), Great Falls (Mont.) Public Schools

Join us as we share how we designed and implemented a middle school environmental field studies program. Take home CDs containing teacher resources and lessons.

Problem-Based Learning—VISTA Style (Gen)

(Elementary–Middle Level) 239, Convention Center

Jacqueline McDonnough (jtmcdonnough@vcu.edu) and **Elizabeth Edmondson** (ewedmondson@vcu.edu), Virginia Commonwealth University, Richmond

Anne Mannarino (amannarino@wm.edu), College of William and Mary, Williamsburg, Va.

Join the VISTA team to investigate how elementary teachers learned about Problem-Based Learning, developed question maps, and taught in a summer enrichment camp.

NMLSTA Session: Electric Expressions: Energizing the Integration of Math and Science into Education (Gen)

(General) 240, Convention Center

Renee Anderson (randerson@imsa.edu) and **Liz Martinez** (emartinez@imsa.edu), Illinois Mathematics and Science Academy, Aurora

Presider: **Mary Lou Lipscomb** (lipscomb@imsa.edu), Illinois Mathematics and Science Academy, Aurora

Integrated STEM activities keep children coming back for more. Build circuits, collect and analyze data, and discuss variables. Experience it today; use it on Monday!

Young Engineers—Integrate Engineering into Your Science Classes (Gen)

(Elementary–Middle Level) 241, Convention Center

Christine G. Schnittka (christine.schnittka@uky.edu), University of Kentucky, Lexington

Learn fun and engaging ways to integrate engineering into elementary and middle level science classes so that the design activities actually support deep science learning.

Drop the Lecture and Let the Students Pick Up the Learning in AP Biology (Bio)

(High School) 245, Convention Center

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

Using a fast-paced group game to compare and contrast the cellular organelle of prokaryotes and eukaryotes, a team race to exemplify the separation of DNA fragments by PCR, and a bacterial social event to elucidate the critical points of conjugation and transformation—this session will add several new activities to your bag of tricks for teaching in-depth AP biology topics in an engaging and memorable manner.

Coaching: Knowledge That Works for Science Education Leadership—Strategies for Addressing Misconceptions (Gen)

(General) 101, JW Marriott

Tom Peters (tpeters@clemson.edu), South Carolina's Coalition for Mathematics & Science, Clemson

Dorothy Earle (dearle@greenville.k12.sc.us), S²TEM Centers SC, Greenville, S.C.

Betty W. Hadden (haddenb@upstatesc.org), S²TEM Centers SC, Simpsonville, S.C.

Explore strategies for identifying and addressing teacher and student misconceptions in science and how coaching helps teachers address misconceptions in their classrooms.

Dive In with Physical Models: The Impact of Water on Protein Structure (Bio)

(High School–College) JW Grand Ballroom 4, JW Marriott

Shannon Colton (colton@msoe.edu), **Tim Herman** (herman@msoe.edu), and **Margaret Franzen** (franzen@msoe.edu), Center for BioMolecular Modeling, Milwaukee School of Engineering, Milwaukee, Wis.

Discover the physical and chemical properties of water using magnetic water molecules. Explore how these chemical principles of water influence protein structure using physical models.

Halloween Chemistry Costume Show and Fun/ Informative Demos (Chem)

(High School–College) JW Grand Ballroom 9, JW Marriott

Kavita Gupta (kavita_gupta@fuhd.org), **Elizabeth McCracken** (elizabeth_mccracken@fuhd.org), and **Supriya Moore** (supriya_moore@fuhd.org), Monta Vista High School, Cupertino, Calif.

Students apply the concepts of chemistry to do a Halloween Chemistry Costume show, while you dazzle your students with fun and informative demos.

PDI BEST Pathway Session: Stop Faking It—Energy (Phys)

(Elementary–High School) White River Ballroom B, JW Marriott

Bill Robertson (wrobert9@ix.netcom.com), Bill Robertson Science, Inc., Woodland Park, Colo.

We'll model the learning cycle as we address basic energy concepts through hands-on activities. You get to pretend you're molecules, too. Whee!

PDI PSTEM Pathway Session: Cognitive Science Learning Principles in Action: Visualizations (Gen)

(General) White River Ballroom C, JW Marriott

Nora Newcombe (newcombe@temple.edu), Temple University, Philadelphia, Pa.

Teaching students to decode Visualizations is a cognitive science, research-based learning principle that increases student learning in science. Come find out how to embed it in your teaching!

STEM: What “Inquiring Minds” Need to Know (Earth)

(Supv/Admin) White River Ballroom H, JW Marriott

Barry Fried, John Dewey High School, Brooklyn, N.Y.

Learn how STEM projects help engage students in the learning process by providing authentic science experiences through design projects, competitions, and live-data analysis. Make science relevant by blending creativity, innovation, and inquiry to foster a deeper science understanding.

Online Professional Development: Just-in-time Science Workshops! (Gen)

(General) Indiana Ballroom C/D, Marriott Downtown

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

Want to stay current in your field, explore a new topic, or learn how to conduct new activities with your classes? Join us to explore BioEd Online (www.bioedonline.org) and gain access to “anytime, anywhere” free online workshops.

Models and Mysteries (Gen)
(Elementary–High School) Indiana Blrm. F, Marriott Downtown
Renee Schwartz (r.schwartz@wmich.edu) and **Cathy Northcutt**, Western Michigan University, Kalamazoo
Engage in inquiry with models as we investigate mysteries in science. Activities relate to nature of science and inquiry.

Family Science Fun: Engaging Urban Children and Families in Science and Literacy (Gen)
(General) Indiana Ballroom G, Marriott Downtown
Amy M. Marsch (amm52@psu.edu), Penn State Berks, Reading, Pa.
Experience science enrichment event activities and discuss techniques used for a successful event. Take home descriptions and handouts of several activities.

Strategies to Improve Our Students' Graphing and Graph Interpretation Practices (Gen)
(General) Marriott Ballroom 7, Marriott Downtown
Anthony W. Bartley (abartley@lakeheadu.ca), Lakehead University, Thunder Bay, Ont., Canada
G. Michael Bowen (gmbowen@yahoo.com), Mount Saint Vincent University, Halifax, N.S., Canada
Engage in model inquiry activities and take home a booklet on improving students' data literacy.

Object Lessons to Enhance Environmental Learning (Env)
(General) Capitol I, Westin
Jody A.C. Terrell (jterrell@twu.edu), Texas Woman's University, Denton
Learn creative ways to use object lessons when explaining environmental sustainability. Object lessons use common household products such as paper clips and rubber bands.

Opening Doors to CAREERS in Meteorology: Taking Summer Weather Camp Experiences Back to the Classroom (Earth)
(Middle Level–High School) Capitol III, Westin
H. Michael Mogil (hmmogil@weatherworks.com) and **Barbara Levine**, How the Weatherworks and Howard University, Naples, Fla.
Vernon Morris, 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.

Sunscope (Earth)
(Informal Education) Grand Ballroom 2, Westin
Tyler Morales and **Jesús Jimenez-Lara** (jjimenez@science-leadership.org), Science Leadership Academy, Philadelphia, Pa.
Derrick H. Pitts (dpitts@fi.edu), The Franklin Institute, Philadelphia, Pa.
Presider: Derrick H. Pitts
Join several students on their voyage to solve the mystery of capturing live images of the Sun. Learn a process of capturing the images, combining the images, and then doing more edits in a powerful picture editing software. Examples of the images are available at The Franklin Institute (www2.fi.edu).

12:30–1:30 PM Exhibitor Workshop

Engineering the Future: A Practical Approach to STEM for High School Students (Gen)
(Grades 9–12) 132, Convention Center
Sponsor: It's About Time
Lee Pulis, Museum of Science, Boston, Mass.
STEM is not a buzzword, it's a real need, and *Engineering the Future* is a real answer. See how the Museum of Science, Boston has packaged a project-based solution that makes implementing STEM as easy as 1, 2, 3, 4. Learn how *Engineering the Future's* four practical projects make real-world connections, giving students an opportunity to see how science, technology, engineering, and mathematics are part of their everyday world.

12:30–2:00 PM Workshop

PDI BSCS Pathway Session: Pedagogical Content Knowledge—Jargon or a Path to Improved Student Understanding? (Gen)
(General) 309/310, JW Marriott
Janet Carlson (jcarlson@bscs.org) and **April L. Gardner** (agardner@bscs.org), BSCS, Colorado Springs, Colo.
Explore the concept of Pedagogical Content Knowledge (PCK) with us—it is more than jargon. Consider how curriculum materials and professional development work together to strengthen the PCK of biology teachers.

12:30–2:00 PM Meeting

NSTA Development Advisory Board Meeting

(By Invitation Only)

301, JW Marriott

12:30–2:30 PM Presentation

SESSION 1

PDI ITEEA Pathway Session: STEM Resources for Grade 3 (Gen)

(Elementary) *White River Ballroom A, JW Marriott*

Barry N. Burke (bburke@iteea.org), International Technology and Engineering Educators Association, Gaithersburg, Md.

Joey H. Rider-Bertrand, Lancaster-Lebanon Intermediate Unit 13, Ardmore, Pa.

Explore standards-based, integrated STEM resources appropriate for grade 3 that transcend all disciplines and use contexts and themes from the Grand Challenges for Engineering.

12:30–2:30 PM Workshop

PDI McREL Pathway Session: What Works in Science Classrooms—Using a Formative Assessment Process to Determine Evidence of Student Understanding (Gen)

(General) *White River Ballroom G, JW Marriott*

Anne Tweed (atweed@mcrel.org), 2004–2005 NSTA President, and McREL, Denver, Colo.

Using a formative assessment process can help teachers gather evidence of student learning that can inform their instruction and help them adapt to the learning needs of their students. Learn about a feedback process and formative assessment strategies that can close the learning gap of your students. Handouts!

12:30–3:30 PM Workshops

ASTC Session: The UVA Bay Game: A Participatory Simulation of Environmental and Economic Sustainability in the Chesapeake Bay (Env)

(General) *JW Grand Ballroom 10, JW Marriott*

Candace J. Lutzow-Felling (cjl6b@virginia.edu), The State Arboretum of Virginia, Boyce

David Feldon (dff2j@virginia.edu), University of Virginia, Charlottesville

Presiders: Jeffrey Plank (jplank@virginia.edu), Eric Field (emfield@virginia.edu), and Michael Purvis (purvisl@virginia.edu), University of Virginia, Charlottesville

Experience a multiplayer simulation playing key stakeholder roles to balance environmental and economic needs in the Chesapeake Bay as a complex system.

PDI SPS Pathway Session: Scientific Inquiry Blended with the Writing in Science Approach (Gen)

(Elementary–Middle Level) *White River Blrm. D, JW Marriott*

Ana Crossman (accrossman@seattleschools.org), Seattle (Wash.) Public Schools

Lezlie DeWater (dewater@spu.edu), Seattle Pacific University, Seattle, Wash.

Betsy Rupp Fulwiler (brfulwiler@seattleschools.org), Seattle (Wash.) Public Schools

Through a physical science inquiry, participants will learn how to embed language instruction within inquiry to develop students' content understanding, scientific thinking, and expository writing skills.

1:00–1:45 PM Exhibitor Workshop

Zero Robotics: Students Competing with Robots on the ISS (Phys)

(Grades 6–12)

142, Convention Center

Sponsor: NASA

Jason Crusan, NASA Headquarters, Washington, D.C.

Zero Robotics (www.zerorobotics.org) is a robotics programming competition where the robots are SPHERES satellites inside the International Space Station. Students program the satellites to play a challenging game that changes every year. Students can create, edit, share, save, simulate, and submit code—ALL from a web browser. All tournaments are free of charge and all you need to participate is a team, mentorship, and the internet! An astronaut will conduct the championship competition in microgravity with a live broadcast from the ISS.

1:00–2:00 PM Exhibitor Workshop

Exploring Shoreline Science with an Integrated Science and Literacy Unit (Gen)

(Grades 2–4)

135, Convention Center

Traci Wierman and **Carrie Strohl**, Lawrence Hall of Science, University of California, Berkeley

Experience the Seeds of Science/Roots of Reading® program that enables you to expand the amount of time for inquiry science in your congested curriculum by addressing science and literacy standards simultaneously. Hear research results that provide compelling evidence that students learn more science when inquiry is supported by reading and writing.

1:00–2:15 PM Science Leadership Summit Session

SESSION 1

Indiana Science Initiative

(Gen)

(General)

JW Grand Ballroom 8, JW Marriott

Jennifer Hicks (jenny@istemnetwork.org), I-STEM K–12 Science Program Manager, Purdue University, West Lafayette, Ind.

Come learn from a panel of administrators, K–8 science teachers, and ISI trainers about how the Indiana Science Initiative (ISI) has been implemented through a unique partnership among the Indiana Department of Education, the I-STEM Resource Network, and Eli Lilly and Company. Panelists will share their challenges, successes, and how participation in the program has affected science education at their schools and classrooms.

DOROTHY K. CULBERT CHAPTER AND ASSOCIATED GROUPS SOCIAL

Are you a Chapter or
Associated Group leader with a
proven track record of moving
your organization forward?



Or do you struggle with
issues like membership,
board relations, and
conference planning?

Join us for this networking opportunity to share your experience and learn from other leaders who are “in the trenches” just like you. NSTA’s Chapter Relations staff will be available to offer their expertise, and Chapters and Associated Groups celebrating special anniversaries will be recognized.

Thursday, March 29

2:00–3:00 PM

JW Marriot Indianapolis
JW Grand Ballroom 1

NSTA National
Science
Teachers
Association

1:00–2:30 PM Exhibitor Workshops

Bio-Rad: Integrated Molecular Biology Labs for College Level (Bio)

(Grades 9–College) 108, Convention Center

Sponsor: Bio-Rad

Damon Tighe (*biotechnology_explorer@bio-rad.com*), Bio-Rad, Hercules, Calif.

Looking for authentic lab experiences that carry a gene or protein of interest from isolation to analysis? Bio-Rad's modular lab series provides validated procedures, easy preparation, and reproducible success year after year. Join us to learn about our advanced series for cloning, sequencing and bioinformatics, and protein expression and purification using affinity chromatography. This flexible modular lab series can be used as capstone projects or as a complete molecular biology course.

What's Going on in There? Inquiry Science for Supervisors, Teacher Trainers, and Trainers (Gen)

(Grades K–8) 138, 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.

1:00–3:00 PM Exhibitor Workshop

Taking Science Outdoors with FOSS K–6 (Gen)

(Grades K–6) 137, Convention Center

Sponsor: Delta Education/School Specialty Science–FOSS

Erica Beck Spencer (*ebspencer@berkeley.edu*) and **Joanna Snyder** (*joanna_snyder@berkeley.edu*), Lawrence Hall of Science, University of California, Berkeley

FOSS now reaches beyond the classroom and into the school yard and local environment. Learn how FOSS Third Edition engages children in meaningful outdoor science learning experiences. Participate in outdoor investigations that apply, extend, and expand classroom content and concepts to the real world. Take home a copy of *Taking FOSS Outdoors*.

1:00–3:30 PM Exhibitor Workshop

Bio-Rad GMO Investigator Kit (Bio)

(Grades 8–College) 107, Convention Center

Sponsor: Bio-Rad

Sherri Andrews (*biotechnology_explorer@bio-rad.com*), Bio-Rad, 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? Regardless of where you stand in the GM debate, wouldn't it be interesting to know which foods you eat are GM foods?

1:00–4:00 PM Workshop

PDI WestEd Pathway Session: Understanding the Conceptual Flow (Gen)

(General) 102, JW Marriott

Jo Topps (*jtopps@wested.org*), WestEd, Santa Ana, Calif.

Learn a collaborative process to identify the flow of conceptual understanding in instructional materials and how to augment flows that are less than robust for student understanding.

1:00–5:00 PM Short Courses

A+ Using Learning Progressions to Improve Science Teaching and Learning (SC-3)

(Elementary–High School) Fisher Ballroom A, Omni

Tickets Required: \$77

Hannah Sevia (*hannah.sevia@umb.edu*), University of Massachusetts Boston

Charles (Andy) W. Anderson (*andya@msu.edu*), Michigan State University, East Lansing

James E. Hamos (*jhamos@nsf.gov*), National Science Foundation, Arlington, Va

For description, see page 71.



Saving Energy, Saving Our Night Sky (SC-4)

(Middle Level–High School/Informal) Fisher Ballroom B, Omni

Tickets Required: \$51

Constance E. Walker (*cwalker@noao.edu*), **Robert T. Sparks** (*rsparks@noao.edu*), and **Stephen M. Pompea** (*spompea@noao.edu*), National Optical Astronomy Observatory, Tucson, Ariz.

Chuck Bueter, Nightwise.org, Granger, Ind.

For description, see page 71.



1:15–1:35 PM Global Conversations in Science Education Conference Panel Discussion

(By Preregistration Only) White River Blrm. E/F, JW Marriott

Joan Ferrini-Mundy, Assistant Director, Directorate for Education and Human Resources, National Science Foundation, Arlington, Va.

Marissa Rollnick, Chair of Science Education, Marang Centre for Mathematics and Science Education, Wits Schools of Education, Witwatersrand University, Johannesburg, South Africa

Presider: Norman Lederman, Illinois Institute of Technology, Chicago

This concluding session will engage the plenary speakers and other scholars regarding common issues that cut across cultures and various grade levels. Both benefits and obstacles will be addressed. This discussion will provide maximum interaction between the panel and audience.



1:30–3:00 PM Exhibitor Workshops

The Layered Earth: Geology, Atmosphere, and Climate for the Modern Classroom (Earth)

(Grades 5–College)

101, Convention Center

Sponsor: Simulation Curriculum Corp.

Herb Koller (hkoller@simcur.com), Simulation Curriculum Corp., Aurora, Ont., Canada

Manipulating models is an effective way to investigate scientific ideas, especially when dealing with things that are very slow, fast, large, or small. With *The Layered Earth*, you'll give your students a virtual model of Earth that can be measured, manipulated, and visualized, to build a deeper understanding of how the Earth system works. What powers the internal processes that produce volcanoes, earthquakes, and mountains? What is the rock cycle and how does it work? What is Earth's atmosphere made of? How can mountains affect rainfall patterns? What are some possible effects of global warming? Come experience this 3-D interactive curriculum.

Improve STEM Literacy for All Students (Gen)

(Grades 6–12)

102, Convention Center

Sponsor: The STEM Academy

Alan Gomez (alan.gomez@stem101.org), The STEM Academy, Peoria, Ariz.

William E. Ball (info@stem101.org), Montgomery County Public Schools, Rockville, Md.

After a brief review of true STEM pedagogy, engage in classroom-ready hands-on activities that represent national best practices. Learn how to apply science and mathematics using engineering habits of the mind. Apply to qualify for 1 of 15 available \$2,500 STEM JUMP START GRANT AWARDS for NSTA-affiliated schools.

AP Biology: Strategies for Teaching Within the New Framework (Bio)

(Grades 9–12)

103, Convention Center

Sponsor: BIOZONE International

Tracey Greenwood, BIOZONE International, Hamilton, New Zealand

A concept-based approach need not neglect covering a topic in depth. BIOZONE's authors describe innovative approaches to teaching the four big ideas in AP Biology. A thematic, interdisciplinary approach using contextual examples and case studies encourages understanding of core content and develops the inquiry-based skills demanded of today's science students. Free samples!

New Physics for New Students: Guiding Them as They See It for the First Time (Phys)

(Grades 9–12) 104, Convention Center

Sponsor: Houghton Mifflin Harcourt

Beth Swayze, Houghton Mifflin Harcourt, Boston, Mass. Join HMH consultant Beth Swayze and friends as she takes a look at physics from the eyes of students as they see it for the first time. During this session, participants will experience new techniques and tools in differentiation, inquiry, and problem solving using examples from the updated resources from *Holt McDougal Physics*.

Water, Water Everywhere...But I'm Not Drinking It! (Chem)

(Grades 9–12) 105, Convention Center

Sponsor: LAB-AIDS, Inc.

Tom Hsu, Author, Andover, Mass.

We think traditional lab activities determining the amount of water in a hydrate really need an upgrade! Let us show you our novel chemistry tools designed to improve student lab experiences and results. We'll conduct the classic hydrate lab...but with improvements found in *A Natural Approach to Chemistry*, new from LAB-AIDS!

Journaling: It's Not a Fad! Become a Fan (Gen)

(Grades 6–12) 106, Convention Center

Sponsor: LAB-AIDS, Inc.

Dick Duquin, LAB-AIDS, Inc., Ronkonkoma, N.Y.

Journaling promotes written and oral literacy and reading and vocabulary development, and identifies misconceptions for more effective teaching and learning. Get an overview of effective research-based and practical strategies designed to support your classroom implementation of this powerful tool! Using authentic experiences from the LAB-AIDS SEPUP core program, model journal setup, operationalize definition development, and move students toward owning their learning.

I Just Want to Sublimate: Phasing Digital Media into Your Science Classroom (Gen)

(Grades K–12) 110, Convention Center

Sponsor: Discovery Education

Mike Bryant, Discovery Education, Silver Spring, Md.

Students today engage with content differently than any previous generation. Districts across the country are selecting the Discovery Education Services to bring science to life in their classrooms. Examine the future of instructional materials, including the Discovery Education Science Supplemental and Techbook and see the instructional benefits and examples of current success in the science classroom.

WARD'S Presents Cenco AP Physics! (Phys)

(Grades 10–12) 130, Convention Center

Sponsor: WARD'S Natural Science

Matt Benware, VWR Education, Rochester, N.Y.

Try our NEW AP Physics kits and learn how they can make your class more engaging for students and easier for you! Using our newly designed inquiry-based labs and manuals—authored by an experienced AP Physics teacher—discover how to get the most out of your AP Physics labs.

Incorporating STEM in Middle School Lessons

(Gen)

(Grades 5–8)

131, Convention Center

Sponsor: Science Kit

Andrew Fulton, VWR Education, West Henrietta, N.Y.

Technology is second nature to today's iPod-savvy generation of middle school students. In this hands-on workshop, we'll show you how to engage their interest using ReallyEasyData Collectors to add technology and integrate STEM concepts into classic experiments. Learn and share ideas for life and physical science.

Web 2.0 and Science

(Gen)

(Grades K–8)

133, Convention Center

Sponsor: Pearson

Don Buckley, The School at Columbia University, New York, N.Y.

Is Web 2.0 related to science teaching? Can Web 2.0 be used to teach science? Why should scientists use Web 2.0 tools? In this workshop, Web 2.0 will be defined and examples given of how to apply this 21st-century pedagogy to your science teaching.

Going Green: Economical and Environmentally Friendly Inquiry in Chemistry (Chem)

(Grades 9–12)

134, 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.

Integrating Literacy Strategies into Science Instruction (Gen)

(Grades K–8) 143, Convention Center

Sponsor: Carolina Biological Supply Co.

Terri Sessoms, Carolina Curriculum Leadership Series, Burlington, N.C.

Looking for improved performance in both science and literacy? Join us to learn engaging strategies for developing literacy skills through scientific instruction. We'll explore ways to provide students with opportunities to use language while solving meaningful problems. These skills lead to better understanding in writing, speaking, and reading science.

Introducing Inquiry into the Chemistry Lab: Thermochemistry and Voltaic Cells (Chem)

(Grades 9–12) 144, Convention Center

Sponsor: Carolina Biological Supply Co.

Patti Kopkau, Carolina Biological Supply Co., Burlington, N.C.

Learn how to incorporate a 5E—Engage, Explore, Explain, Elaborate, and Evaluate—learning cycle into your curriculum and create engaging inquiry labs that can improve student comprehension of difficult science concepts. Perform guided experiments on voltaic cells and thermochemistry with our Inquiries in Science® kits, which include interactive tools and digital resources. Free giveaways!

Hands-On Science with Classroom Critters (Bio)

(Grades K–12) 145, Convention Center

Sponsor: Carolina Biological Supply Co.

Laurie Nixon, Carolina Biological Supply Co., Burlington, N.C.

Here's a sure-fire boost to your class—live organisms! Whether you use a hands-on curriculum (e.g., STC™, FOSS®) or develop your own lessons, animals broaden students' inquiry-based explorations and increase their interest in science. Participate in fun, simple hands-on activities with bess-bugs, pill bugs, termites, and more. Free materials provided.

A World In Motion® Primary Literacy-based STEM Workshop (Gen)

(Grades K–3) 201, Convention Center

Sponsor: SAE International's A World In Motion

Julie MacIntyre (awim@sae.org) and **Christopher M. Ciuca**, SAE International, Warrendale, Pa.

Join SAE International as we share our four new curricular additions to the award-winning A World In Motion (AWIM)

family—the new AWIM Primary (K–3) challenges. This workshop will give participants the tools to offer hands-on STEM activities to young learners through literacy-based challenges. Visit www.awim.org for more information.

Build and Explore the Future of Space with LEGO® Education (Phys)

(Grades 5–8) 202, Convention Center

Sponsor: LEGO Education

Presenter to be announced

Investigate the use of simple machines and forces in micro-gravity using LEGO Education models and the scientific method. Participants will follow the LEGO 4C process—Connect, Construct, Contemplate, and Continue. After being told a story, participants will be asked to solve a problem. They will use a LEGO Education Hammer model to conduct experiments, record data, compare results with data from the ISS via video, and answer questions. To complete the session, a design challenge will be issued.

Dive into Marine Ecology with National Geographic (Bio)

(Grades 9–12) 203, Convention Center

Sponsor: National Geographic Society

Mary Ford (mford@ngs.org), **Julie Brown**, and **Samantha Zuhlke**, National Geographic Society, Washington, D.C. National Geographic, along with classroom teachers from our National Teacher Leadership Academy, will demonstrate project-based activities about marine ecology, human impacts, and conservation. The activities feature National Geographic videos, photos, and maps. These resources are available for free online—come learn how to use them and take home supplemental resources.

Hands-On Integrated Science Activities for Middle School (Gen)

(Grades 6–8) Wabash Ballroom 1, Convention Center

Sponsor: Flinn Scientific, Inc.

Janet Hoekenga, Flinn Scientific, Inc., Batavia, Ill.

Hands-on science leads to minds-on learning! Flinn Scientific presents relevant and age-appropriate activities for middle school—integrating life, Earth, and physical science topics. Participants perform and observe experiments designed to capture the curiosity and engage the energy of adolescent students. Handouts!

1:30–4:00 PM Meetings

NSTA Retired Members Advisory Board Meeting
206, JW Marriott

NSTA Nominations Committee Meeting
207, JW Marriott

NSTA Committee on Multicultural/Equity in Science Education Meeting
305, JW Marriott

NSTA Committee on Coordination and Supervision of Science Teaching Meeting
306, JW Marriott

NSTA Committee on Preservice Teacher Preparation Meeting
307, JW Marriott

NSTA Committee on Research in Science Education Meeting
308, JW Marriott

NSTA Committee on Preschool–Elementary Science Teaching Meeting
311, JW Marriott

NSTA Committee on Middle Level Science Teaching Meeting
312, JW Marriott

NSTA Committee on High School Science Teaching Meeting
313, JW Marriott

NSTA Committee on College Science Teaching Meeting
314, JW Marriott



1:35–1:55 PM Global Conversations in Science Education Conference Update

Updates from Around the World

(By Preregistration Only) White River Blrm. E/F, JW Marriott

During this session, participants will be given the opportunity to briefly share (approximately five minutes) current events and concerns related to the teaching and learning of science in their home countries. This is an excellent opportunity to quickly find out what your colleagues have been doing and experiencing throughout the global science education community.

2:00–2:30 PM Presentation

SESSION 1

Packing Science Home (Gen)
(Elementary) 212, Convention Center

Elyse Litvack (elitvack@seattleschools.org), Maple Elementary School, Seattle, Wash.

Hands-on take-home science backpacks help bridge the gap between home and school through curriculum-related, inquiry-based science activities.

2:00–2:45 PM Exhibitor Workshop

Engineer a Satellite (Gen)
(Grades 6–12) 142, Convention Center

Sponsor: NASA

Ginger Butcher, NASA/Sigma Space, Beltsville, Md.

Let us introduce you to a technology activity where students build their own Earth-observing satellite model. Discover the types of instruments scientists use to observe the Earth system and engineer a model with all the satellite subsystems. Calculate the power required and determine the size of the solar array and battery capacity. Finally, test your model for launch readiness to select your launch vehicle.

2:00–3:00 PM Social

Dorothy K. Culbert Chapter and Associated Groups Social

JW Grand Ballroom 1, JW Marriott

Network with other chapter and associated group leaders while enjoying a nice treat! Share ideas about organization and development and expand your network of “go to” people to learn from.



*Explore the Ocean,
even if you live in the Heartland*

Introducing our self-contained, portable saltwater touch tank!

- Seeing and touching exotic marine animals is a great way to engage your class
- The tank is fully self-contained. All the equipment needed to support marine life is hidden inside the base. Simply plug it in!
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- The tank is on casters and fits through typical doorways. Roll it wherever you need it!



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The reinforced 1/2" thick acrylic corners and sides hold everything in place, while the open top allows students to observe and examine the wonders inside. An extra-wide rim around the edge prevents creatures from escaping. Tank measures 60 x 30 x 14", holds over 100 gallons and stands 44" high from top to wheels. Black ABS plastic base conceals included pumps, UV sterilizer, bioreactors and skimmers that keep the water fresh and pure. Heavy-duty locking casters. Complete instructions with detailed list of recommended animals. *Ships motor freight.*

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2:00–3:00 PM Presentations

SESSION 1

Carbon Capture and Sequestration: Novel Technology That Offers New Opportunities for Science Education (Gen)

(High School)

111/112, Convention Center

Kevin M. Ellett (kmellett@indiana.edu), Indiana University, Bloomington

Receive an introduction to some of the latest technologies proposed for reducing atmospheric emissions of carbon dioxide and the exciting new opportunities afforded for science education.

SESSION 2



Bioplastics—Going from Synthetic to Natural Polymers (Chem)

(Middle Level–High School)

123, Convention Center

Sherri Conn Rukes (scrukes@comcast.net), Libertyville High School, Libertyville, Ill.

Many of the items that we use today are becoming more Earth friendly. Learn how a bioplastic is made and what plant materials are used. Take home a CD with information and activities.

SESSION 3

NSTA NSTA Avenue Session: Research Insights into Online Communities of Practice and Teacher Learning Online: The NSTA Learning Center (Gen)

(General)

124, Convention Center

Al S. Byers (abyers@nsta.org), Assistant Executive Director, e-Learning and Government Partnerships, NSTA, Arlington, Va.

Greg Sherman, Radford University, Radford, Va.

Learn about our latest research insights conducted by the American Institutes for Research, North Carolina State (The Friday Institute), and Edvantia for NSTA's e-PD portal.

SESSION 4

Physics for All (Phys)

(High School)

125, Convention Center

Tracy G. Hood (thood@plainfield.k12.in.us), Plainfield High School, Plainfield, Ind.

A successful student-led physics community night provides opportunities for fund-raising, recruiting, and lasting experiences for participants.

SESSION 5

Real Science, Real Stories: Using a Research-based Lab Module to Model the Scientific Enterprise (Chem)

(High School)

127, Convention Center

Matthew Pilarz (mpilarz@purdue.edu), Purdue University, West Lafayette, Ind.

Sarah Nern, Seeger Memorial High School, West Lebanon, Ind.

Get pointers from high school chemistry teachers as they talk about their experiences and lessons learned with implementing a research-based lab module into their curriculum.

SESSION 6

Chromonoodles: Jump In the Gene Pool (Bio)

(Middle Level–College)

204, Convention Center

Kelsi J. Barnhart (kbarnhart@claymontschools.org), Claymont High School, Uhrichsville, Ohio

Jennifer Farrar, Triway High School, Wooster, Ohio

Make chromosomes with pool noodles! We will provide instructions for making “Chromonoodles” and simulate a variety of ideas for use in your classroom.

SESSION 7

CSI Web Adventures (Bio)

(General)

209, Convention Center

Lynn Lauterbach (lynnlauterbach@gmail.com) and **Yvonne Klisch** (yvonne.klisch@rice.edu), 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 8

Get Moving! Kinesthetic Tools for Excellence in Middle School Science (Gen)

(Middle Level–High School)

233, Convention Center

Mark Schlawin (mschlawn@princetoncharter.org), Princeton Charter School, Princeton, N.J.

Walk away with some of the standards-based physical activities and “kinesthetic clue” mnemonic devices currently used at one of New Jersey's top-performing middle schools.

SESSION 9

Building the Foundations of Climate Literacy in the Elementary Grades (Env)

(Elementary) 234, Convention Center

Jessica Fries-Gaither (*fries-gaither.1@osu.edu*), The Ohio State University, Columbus

News about climate change is everywhere these days. But how do you address this topic in the elementary classroom? Discover free resources that help.

SESSION 10

Cyberlearning: New Online Science Curricula for Remote Labs (Chem)

(Informal Education) 236, Convention Center

Kemi Jona, Northwestern University, Evanston, Ill.

Grounded in inquiry-based learning, students control actual laboratory equipment over the internet. Math/science students control usually inaccessible equipment and analyze their own data.

SESSION 11

Promoting Student Environmental Inquiry, Literacy, and Empowerment Through Research and Mentoring (Gen)

(High School–College/Informal) 237, Convention Center

Tahlia Bear (*tbear@ncseonline.org*) and **Jessica Soule** (*jsoule@ncseonline.org*), National Council for Science and the Environment, Washington, D.C.

Engage in a discussion on how classroom activities, mentoring, field trips, and university partnerships enhance students' abilities to understand environmental issues, conduct research, and be environmental stewards.

SESSION 12

Enhance Science Skills with Interactive Technology (Gen)

(Elementary–Middle Level) 239, Convention Center

Jessica S. Storer, Educational Consultant, Brooklyn, N.Y. Learn how to liven up your lessons and foster critical-thinking skills through the latest Web 2.0 tools. Leave with differentiated and interactive lesson templates.

SESSION 13

NMLSTA Session: Becoming a National Board Certified Teacher (Gen)

(General) 240, Convention Center

Patty McGinnis, NBCT (*pmcginnis@methacton.org*), Arcola Intermediate School, Eagleville, Pa.

Kitchka P. Petrova, NBCT (*kpetrova7@dadeschools.net*), Ponce de Leon Middle School, Coral Gables, Fla.

Are you interested in learning how to become a NBCT? Two NBCTs will present an overview of the process and answer questions.

SESSION 14

Growing STEM Sustainability in the Garden (Gen)

(Elementary–Middle Level) 242, Convention Center

Teddie Phillipson-Mower (*t0phil01@louisville.edu*), University of Louisville, Ky.

Tina A. Harris (*tiaharri@indiana.edu*), Indiana University, Bloomington

Taryn Chaifetz (*tchaifetz@mortonarb.org*), The Morton Arboretum, Lisle, Ill.

Join us for a demonstration of standards-based, inquiry-oriented interdisciplinary lessons for maximum STEM learning in the elementary school garden. Get tips for unique garden situations and intentional delivery.

SESSION 15

Inquiry for Everyone: Labs for Primary Content Delivery (Bio)

(Middle Level–High School) 244, Convention Center

Michael C. Ralph (*mralph03@gmail.com*), Olathe East High School, Olathe, Kans.

Shannon M. Ralph (*sralph81@gmail.com*), Dodge City High School, Dodge City, Kans.

Join us as we provide evidence for successfully using labs as a primary instructional tool with an overview of Biology Rocks! We'll share materials to replicate the labs and activities in your classroom.

SESSION 16

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

(Elementary–Middle Level/Informal) Sagamore 6, Conv. 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 17

NARST Session: Using Digital Media in the Science Classroom—When and How? (Bio)

(Middle Level—High School/Supervision) 201, JW Marriott

Alice Anderson (aanderson@edc.org), Education Development Center, Inc., New York, N.Y.

Laurie Asermily, Hobart and William Smith Colleges, Geneva, N.Y.

Presider: Camille Ferguson, Education Development Center, Inc., New York, N.Y.

Teachers and researchers from a research study will discuss successes and challenges teachers experienced in changing their practice to include digital media in inquiry-based lessons.

SESSION 18 (three presentations)

(High School—College) 203, JW Marriott

SCST Session: The Role of an Inquiry-based Science Program in Encouraging Undergraduate Research (Gen)

Kerry L. Cheesman (kcheesma@capital.edu), Capital University, Columbus, Ohio

Find out how revamping our freshman majors program to be inquiry driven yielded a significant increase in the number of students pursuing undergraduate research projects.

SCST Session: Facilitate Group Teamwork in an Inquiry-based Biology Lab via CATME (Gen)

Tarren Shaw (tjshaw@presby.edu), Presbyterian College, Clinton, S.C.

Review findings from a study using the Comprehensive Assessment for Team Member Effectiveness (CATME) program to assign students to lab groups in an open-inquiry biology lab. The attitudes and effectiveness of this group were then compared to a control group.

SCST Session: Tangent Worlds: Teaching Academic Science vs. Commercial Science Skills (Gen)

Brian R. Shmaefsky (brian.r.shmaefsky@lonestar.edu), SCST President, and Lone Star College—Kingwood, Tex.

Science-based industries are now the largest job source for science graduates. Find out how science teaching can prepare students with skills for these fields.

SESSION 19 (two presentations)

(High School—College)

205, JW Marriott

Professional Development Schools: A Setting for Teaching Science Methods (Gen)

Rebecca M. Monhardt, Loras College, Dubuque, Iowa

Leigh C. Monhardt (monhardt1@uwplatt.edu), University of Wisconsin, Platteville

Teaching science methods in a professional development school offers both opportunities and challenges in preparing preservice teachers to teach science. Join us as we share examples from two methods classes taught in an elementary and middle school setting.

Building Teacher Education Through University and School Partnerships (Gen)

Marcia Feters (marcia.feters@wmich.edu), Western Michigan University, Kalamazoo

Join us as we examine the challenges and rewards of two universities and five school districts partnering to shape clinical experiences for new secondary science and mathematics teacher education programs.

SESSION 20

Girls and STEM: How to Get Them Involved (Gen)

(General)

208, JW Marriott

Abigail N. James (anj3g@virginia.edu), University of Virginia, Falls Church

Traditionally, girls are not interested in STEM courses. Let's discuss the reasons as well as strategies to increase both their interest and involvement.

SESSION 21

CSSS Session: Scientific Inquiry and Engineering Design in New Standards (Gen)

(General)

209, JW Marriott

Jacob Foster (jfoster@doe.mass.edu), Massachusetts Dept. of Elementary & Secondary Education, Malden

Brett D. Moulding (mouldingb@ogdensd.org), Utah Partnership for Effective Science Teaching and Learning, Ogden

Explore the relationship of scientific inquiry and engineering design, their similarities and differences, and why engineering is included with traditional sciences in new standards.

SESSION 22

SYM-1 Follow-Up Session: Climate Toolbox: Tools for Educators (Env)

(Middle–High School/Informal) JW Grand Blrm. 2, JW Marriott

Peggy Steffen (peg.steffen@noaa.gov) and **Bruce Moravchik** (bruce.moravchik@noaa.gov), NOAA National Ocean Service, Silver Spring, Md.

Learn about tools for educators from federal agencies, including the Climate Change: Wildlife and Wildlands Toolkit and the online Climate Portal.

SESSION 23



NSTA Press Session: Safety and Liability—Is the Jury Out on Your Class? (Gen)

(General) JW Grand Ballroom 7, JW Marriott

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

Explore critical safety strategies to protect yourself from legal issues when students do hands-on science.

SESSION 24

I Thought Chemistry Was Just a Math Class: Textbook Reading Comprehension in High School Chemistry (Chem)

(High School–College) JW Grand Ballroom 9, JW Marriott

Taylor M. Owings (towings@purdue.edu), Purdue University, West Lafayette, Ind.

Let's examine the importance of reading comprehension as it applies to chemistry and the other sciences.

SESSION 25



BEST Pathway Session: Uncovering Students' (and Teachers') Ideas About Energy (Gen)

(Elementary–High School) White River Blrm. B, JW Marriott

Page Keeley (pkeeleey@mmsa.org), 2008–2009 NSTA President, and Maine Mathematics and Science Alliance, Augusta
Lynn C. Farrin (lfarrin@mmsa.org), Maine Mathematics and Science Alliance, Augusta

Learn about and examine formative assessment probes that reveal students' (and teachers') commonly held ideas about energy that can be used to inform instruction.

SESSION 26

An Overview of the Revised AP Biology Course (Bio)

(High School–College) White River Ballroom I, JW Marriott

Tanya D. Sharpe (isharpe@collegeboard.org), The College Board, Duluth, Ga.

Spencer Benson, University of Maryland, College Park

Jim Smanik (jsmanik@gmail.com), Sycamore High School, Cincinnati, Ohio

Presider: Tanya D. Sharpe

Join members of the AP Biology Curriculum Development and Assessment Committee as they provide an overview of the changes to the revised course, exam, and lab component.

SESSION 27

Effective Science Classroom Assessments for First-Year Teachers (Gen)

(General) White River Ballroom J, JW Marriott

Jon Yoshioka and **Scott D. Robinson** (scottdr@hawaii.edu), University of Hawaii at Manoa, Honolulu

Walk away with formative assessment strategies to support the new Core Standards by focusing on what has worked with first-year teachers.

SESSION 28 (two presentations)

(General) Indiana Ballroom A/B, Marriott Downtown

Design-based Science Teaching and Learning (Gen)
Rachel Abadi, Levinsky College of Education and Kibbutzim College, Tel-Aviv, Israel

Taha Massalha (tahamas@gmail.com), The Academic Arab College for Education in Israel, Haifa

See a demonstration of a design-based science teaching and learning process that we have used effectively in the past few years with our students.

Creating Standards-based Science Lessons Inspired by Public Policy (Gen)

Robert L. Ferguson (r.l.ferguson1@csuohio.edu) and **Debbie K. Jackson** (d.jackson1@csuohio.edu), Cleveland State University, Cleveland, Ohio

Based on policy talks given by scientists at the American Association for the Advancement of Science, seven standards-based science lessons were developed and field tested. These lesson plans will be discussed and distributed.

SESSION 29

The Science of Cooking: A New View on the Scientific Method (Gen)

(General) Marriott Ballroom I, Marriott Downtown

Kevin Miklasz (kmiklasz@stanford.edu), Iridescent, Pacific Grove, Calif.

Walk away with informal and formal educational materials to teach the scientific method through the process of cooking, which emphasizes its creative, inquiry-based nature.

SESSION 30

Supporting Science in Schools: Dynamic Districts and Classroom Champions (Gen)

(General) *Marriott Ballroom 2, Marriott Downtown*

Vanessa B. Lujan (*vlujan@berkeley.edu*), Lawrence Hall of Science, University of California, Berkeley

Learn how to create dynamic districts for science as well as classroom science champions through partnering with a local informal science institution such as a museum.

SESSION 31

Project Management 101 for the Teaching Professional (Gen)

(General) *Marriott Ballroom 9, Marriott Downtown*

Jennifer A. Carter (*carterja@vt.edu*), Virginia Tech, Arlington

Karen Kinsman (*kkinsman@unm.edu*), The University of New Mexico, Albuquerque

Emphasis will be placed on the concepts of project management and the development of a comprehensive project management plan (PMP). The Society for Science and the Public will show how applying project management concepts can result in better management of everyday challenges in scientific research programs.

SESSION 32

Looking at Learning to Teach Science: Support for Student Teachers in Diverse High School Science Classrooms (Gen)

(General) *Marriott Ballroom 10, Marriott Downtown*

Douglas 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 33

Teach Science with Adapted Primary Literature (Gen)

(Middle Level–College) *Michigan/Texas, Marriott Downtown*

W.R. Klemm (*wklemm@cvm.tamu.edu*), Texas A&M University, College Station

Discover an authentic way to teach the scientific method in a real-life context by implementing adapted primary literature in your science teaching. Handouts!

SESSION 34

Primary/Secondary Environmental Sustainability Day (Env)

(General) *Cabinet, Westin*

Patrick Herak, Westerville North High School, Westerville, Ohio

Angela Heath (*heatha@westerville.k12.oh.us*), Central College Magnet School, Westerville, Ohio

Teachers from Westerville City Schools will share the logistics and activities involved in creating a high school (grades 10–12) and elementary school (grades 1–5) collaboration.

SESSION 35

CSI: Climate Scene Investigation! Teaching Climate and Seasons as Scientific Mystery Stories (Earth)

(General) *Capitol II, Westin*

David Schuster (*david.schuster@wmich.edu*) and **Betty Adams**, Western Michigan University, Kalamazoo

Presider: Amy E. Bentz (*amy.e.bentz@wmich.edu*), Western Michigan University, Kalamazoo

The ultimate inquiry approach to climate and seasons! Two mysteries—take a trip and the temperature changes...or stay at home and the temperature changes. What on Earth is going on? Climate Scene Investigators (CSI) are on the case.

SESSION 36

Kicking the “Cookbook” Out of AP Environmental Science (Env)

(High School–College) *Caucus, Westin*

Mark Ewoldsen (*mewoldsen@lcsd.net*), La Canada High School, La Canada, Calif.

Karen Lionberger, The College Board, Duluth, Ga.

Gain insight into the AP® Science Practices and student-directed learning objective. Walk away with effective inquiry-based, student-directed activities, labs, and Geographic Information Systems (GIS) experiences.

SESSION 37

Sustainability Is for Urban Kids, Too! (Gen)

(General) *Chamber, Westin*

NancyLee Bergey (*nancylee@gse.upenn.edu*), University of Pennsylvania, Philadelphia

Find out how an Environmental Festival—after the high-stakes testing in the spring—refocuses an urban elementary school on science. Learn how we created the festival by working with local college students as an alternative to a science fair. Handouts!

SESSION 38

CropLife Ambassador Program (Env)

(General)

Congress I/II, Westin

Shannon Hudson (shudson@cville.k12.in.us), CropLife Ambassador, Crawfordsville, Ind.

Ray Sullivan (rays@mach1pc.com), CropLife Ambassador, Shelbyville, Ind.

This FREE agriculture-based program brings the speakers TO YOU! Many different programs for many different grade levels. Free handouts and door prizes!

SESSION 39

NASA: Evolution of the Universe (Earth)

(High School)

Grand Ballroom 1, Westin

Dana E. Backman (dbackman@sofia.usra.edu), SOFIA, NASA Ames Research Center, Moffett Field, Calif.

Stunning images from NASA's airborne observatory, the Stratospheric Observatory for Infrared Astronomy (SOFIA),

provide details regarding the evolution of the universe—star formation, formation of elements, and “life cycle” of organic compounds.

SESSION 40

Welcome to the Zooniverse: A Citizen—and Student—Science Network! (Earth)

(Informal Education)

Grand Ballroom 3, Westin

Pamela Gay (starstryder@gmail.com), Southern Illinois University, Edwardsville

Discover how to bring real science data from space satellites directly into your classroom for true inquiry learning for your students.



Come to FLINN SCIENTIFIC's *Morning of Chemistry*

Enlightening Indy!

By Rhonda Reist, Olathe North High School, Olathe, KS

Come to Flinn Scientific's free *Morning of Chemistry*! As they say in Indianapolis . . . Start Your Engines! . . . Wake up your brain with 16 demonstrations guaranteed to accelerate your students' interest in chemistry—with the help of laughter, music and fiery sparks! Join Rhonda Reist as she lights up the stage with some of her most effective demos such as “Red Hot Catalyst,” “Pillar O'Flame” and “Sparkling Periodicity.”

Based on Rhonda's equipment list alone, you're in for some memorable fun . . . swim flippers, tennis balls, marshmallows and a pressure cooker! Whether you teach middle school physical science or AP Chemistry, you'll pick up proven demo ideas and effective teaching strategies sure to entertain and enlighten your students. Bring your science-teaching friends to this free, must-see event!

Come to Flinn Scientific's *Morning of Chemistry*!
Handouts will be provided.

Friday, March 30, 2012 • 10:00 a.m. – 11:30 a.m.

Sagamore Ballroom, Indiana Convention Center

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2:00–3:00 PM Workshops



Authentic STEM for the Youngest Scientists (Gen)

(Preschool–Elementary) 122, Convention Center

Jennifer R. Freund (freundj@umsl.edu), University of Missouri–St. Louis

Inquire using authentic materials and writing with younger scientists. Explore activities that enhance math and writing while engaging students' natural curiosity to develop innovative skills.

Exploring the Science of Cooking! (Phys)

(Middle Level–College) 126, Convention Center

Joshua Bridger (bridgerj@doversherborn.org), Harvard University, Cambridge, Mass.

Joan Abrams, Cambridge Ringe & Latin School, Cambridge, Mass.

Explore the physics, chemistry, and engineering of cooking in this hands-on workshop. Labs have been adapted from the innovative science and cooking class offered at Harvard University.

Sustaining Students' Science Interest: An Inquiry-based Approach (Gen)

(Middle Level–High School) 128, Convention Center

Dionysius T. Gnanakkan (dgnanakk@iit.edu), **Selina L. Bartels** (sbartels@hawk.iit.edu), and **Judith S. Lederman** (ledermanj@iit.edu), Illinois Institute of Technology, Chicago
Presenter: Judith S. Lederman

Emphasis will be placed on effective classroom practices to sustain middle school and high school students' science interest by explicit reflective teaching of scientific inquiry and nature of science.

Build Your Bridge, Don't Burn It! (Phys)

(Middle Level–High School) 205, Convention Center

Fran Zakutansky (fzakutan@gmail.com), Retired Educator, Montvale, N.J.

Use creativity, teamwork, and inquiry to build a wooden bridge. Then test the strength of your design using technology. A perfect STEM activity!

Inquiry Activities in Light and Color (Phys)

(Elementary–Middle Level) 206, Convention Center

John W. Payne (payne_jw@mercer.edu), Mercer University, Lithia Springs, Ga.

Operation Physics has some great activities in light and color for upper elementary students. This hands-on workshop will allow you to try out some of them.

It Definitely Has Potential!

(Phys)

(Elementary)

207, Convention Center

James L. Neujahr (jneujahr@ccny.cuny.edu), City College of New York, N.Y.

Janice Porter and **Angula B. Camacho**, P.S. 005 Dr. Ronald McNair, Brooklyn, N.Y.

Donna Johnson (djohnson11@schools.nyc.gov), P.S. 21 Crispus Attucks School, Brooklyn, N.Y.

Learn how to make wind-up toys from recycled materials, and explore how these can lead to energy concepts for grade 2 and beyond!

Prairie Diversity Data: Applying Math and Science Skills (Bio)

(Middle Level)

208, Convention Center

Sue Sheehan (sheehan@fnal.gov), Fermilab, Batavia, Ill.

Learn what makes up a prairie habitat. For almost 20 years, middle school students have been conducting field studies where they collect plant data in the Fermilab prairie. Learn what tools they use and what online resources are available so that you can engage your students in prairie field studies.

Searching for Starch in the Food Pyramid (Bio)

(Elementary)

210, Convention Center

Suzanne M. Cunningham (scunning@purdue.edu) and **Sherry S. Fulk-Bringman**, Purdue University, West Lafayette, Ind.

Elementary school students visualize starch in various food products, including fruits, vegetables, and beans. Students learn that nutrients are found in many plants in various quantities.

Nuts About Nature

(Gen)

(Preschool–Elementary)

211, Convention Center

DeLene M. Hoffner, The da Vinci Academy, Colorado Springs, Colo.

Experience hands-on lessons in tracking, orienteering, nature notebooks, outdoor inquiry, and research. Walk away with student examples and hands-on lessons to use in your K–6 classrooms, including Nuts for Nature, Mystery Visitor, Track Casting, Nature Notebook, and L.O.S.T: Learning Outdoor Survival Techniques.

Pathways to Engineering: Engineering Is Science and Much, Much More (Gen)

(Elementary) 231, Convention Center

Kym B. Flowers, Indianapolis (Ind.) Public Schools

Learn how to integrate engineering concepts into your daily curriculum. Explore the engineering process with three hands-on engineering projects and receive other lesson plans/resources for future collaborative projects.

Support Student Environment Research with AnalyzingDigitalImages Software (Env)

(Informal Education) 235, Convention Center

Morton M. Sternheim (mort@umassk12.net) and **Rob Snyder** (snyder@umassk12.net), University of Massachusetts Amherst

Use digital images for much more than illustrating reports and presentations. With free AnalyzingDigitalImages soft-

ware, students can make spectral, special, temporal, and intensity measurements.

The Impossible Mission: Engineering, Strange Matter, and Nanotechnology (Gen)

(Elementary–Middle Level) 241, Convention Center

Jennifer J. Stormer (jstormer@northmontschools.com), O.R. Edgington Elementary School, Englewood, Ohio

Ian Berry, Monticello Elementary School, Huber Heights, Ohio

Presider: Jennifer J. Stormer

Experience hands-on inquiry-based lessons exploring engineering, strange matter, and nanotechnology. Learn to implement three units in which students guide Agent Pi in conducting secret missions.

“Life begins at retirement.”

—Author Unknown

Join the NSTA Retired Advisory Board for an insightful information-sharing session. Fellow colleagues will share ideas about staying active both in and out of the profession.

Before and After Retirement: Practicalities and Possibilities

Saturday, March 31

9:30–10:30 AM

JW Marriott Indianapolis
Room 108

For more information on the Retired Members Advisory Board, contact Mary Strother, chair, at mary.strother@communityeducation.com.

NSTA National Science Teachers Association

Turning “Game Time” into “Brain Time”: Linking In-Class Curricula with Video Games at Home (Bio)

(Middle Level–High School) 245, Convention Center
James Planey (planey@illinois.edu), **Barbara Hug** (bhug@illinois.edu) and **Donna Korol** (dkorol@illinois.edu), University of Illinois at Urbana-Champaign, Champaign
James Schreiner (jschreiner@bbchs.org), Bradley-Bourbonnais Community High School, Ill.
Project NEURON stands for Novel Education for Understanding Research On Neuroscience. Try out Project NEURON’s game *The Golden Hour* and receive free curriculum materials that explore the science and medicine behind brain injury.

NSELA Session: Promoting Inquiry in Our Classrooms: Hands-On Performance Assessment for K–12 Students (Gen)

(Supervision/Administration) 202, JW Marriott
Deborah L. Tucker (deborahlt@aol.com), Science Education Consultant, Napa, Calif.
Grant M. Gardner (grantmgardner@msn.com), Assessment Services, Inc., Pepperell, Mass.
Assessing inquiry is essential to instruction. Engage in a hands-on performance task and explore the uses and advantages of this form of assessment.

Maintaining Momentum: Methods to Analyze Student Work to Improve Teacher Practice (Gen)

(High School/Supervision) JW Grand Ballroom 3, JW Marriott
Scott Schneider (scott.schneider@jefferson.kyschools.us), **Miranda Messer** (miranda.messer@jefferson.kyschools.us), and **Tracy Ising** (tracy.ising@jefferson.kyschools.us), Jefferson County Public Schools, Louisville, Ky.
Elizabeth Edmondson (ewedmondson@vcu.edu), Virginia Commonwealth University, Richmond
Presider: Lee Ann Nickerson, Gheens Academy, Louisville, Ky.

Join us as districtwide resource teachers share Professional Learning Community (PLC) facilitation experiences, strategies to analyze student work, and tools for collegial classroom observation and feedback.

Integrating Bioinformatics into Introductory Biology Courses (Bio)

(High School–College) JW Grand Ballroom 4, JW Marriott
Jeanne Chowning, (jchowning@nwabr.org), Northwest Association for Biomedical Research, Seattle, Wash.
Learn how to integrate basic bioinformatics concepts and tools into introductory biology classrooms using a case study about genetic testing for breast cancer.

Down That “Dusty” Instructional Road Paved with Technology (Earth)

(Supervision/Administration) White River Blrm. H, JW Marriott
Barry Fried, John Dewey High School, Brooklyn, N.Y.
Learn how to differentiate instruction and engage students in the learning process to effectively address the needs of all students through technology and inquiry-based projects/investigations while creating alternative partnerships that will lead to innovations in science teaching.

Drop the Red Pen: SMARTer Assessment Strategies (Gen)

(Elem.–High School) Indiana Blrm. C/D, Marriott Downtown
Colleen J. Schafer (colleenschafer@teq.com), Tequipment, Inc., Cicero, N.Y.
Experience SMART Board and Notebook software that allows teachers to check for understanding, provide feedback, deliver state assessments, and create customized questions. Also engage in a “hands-on” SMART Response clicker experience.

Developing Academic Language in Young English Language Learners Using Science (Gen)

(General) Indiana Ballroom G, Marriott Downtown
Maria A. Alanis (aalanisl@austin.rr.com) and **Joy A. Moore** (joymoore@austinsd.org), Austin (Tex.) Independent School District
Find out how preK English language learners have advanced in academic language development through hands-on science experiences.

GUESS What? This Experiment Is “Sick”! (Gen)

(General) Marriott Ballroom 7, Marriott Downtown
Carrie J. Leopold (carrie.leopold@ndscs.edu), North Dakota State College of Science, Fargo
Explore cutting-edge hands-on experiments, including memory metal and electron microscopy. Discover why girls are calling our GUESS program (Girls Understanding and Exploring STEM Science) “sick” and why that’s a good thing!

Wetlands and Watersheds with Inquiry (Env)

(General) Capitol I, Westin
Judith Lucas-Odom (judy23@yahoo.com), The Village at Chester Upland, Aston, Pa.
Our water is a precious commodity. Let’s investigate how it will remain this way using hands-on inquiry activities.

Honey, I Shrunk the Data! (Earth)

(High School–College/Informal Education) Capitol III, Westin

John G. Van Hoesen (vanhoesenj@greenmtn.edu), Green Mountain College, Poultney, Vt.

Amy Work, The Institute for the Application of Geospatial Technology at Cayuga Community College, Inc., Auburn, N.Y.

Steven Hovan (hovan@iup.edu), Indiana University of Pennsylvania, Indiana

Join us for a drill-down approach to exploring Earth systems using ocean cores and geospatial technologies. Learn to use geospatial technologies and gigapixel image viewers in a scalable approach to investigate authentic Earth and ocean science data.

Teach the Electromagnetic Spectrum via the Sun and the 5Es (Earth)

(Middle Level–College) Grand Ballroom 2, Westin

Zodiac T. Webster (websterz@ncssm.edu), North Carolina School of Science and Mathematics, Durham

Juan-Carlos Aguilar (jaguilar@doe.k12.ga.us), Georgia Dept. of Education, Atlanta

Teach the electromagnetic spectrum and atomic energy levels using astronomical images. Lessons are organized with the constructivist 5E inquiry model (Engage, Explore, Explain, Elaborate, and Evaluate).

2:00–3:00 PM Meeting

Indiana Earth Science Teachers Association (IESTA) Meeting

Cameral, Westin

During the IESTA annual business meeting we will plan the 2012 spring and fall field trips and discuss scholarships offered and upcoming events related to Earth science.

2:00–3:00 PM Exhibitor Workshop

EarthComm: The American Geological Institute Takes an Earth Systems Approach to Introduce STEM Through a Simplified Engineering Design Cycle (Earth)

(Grades 8–12)

132, Convention Center

Sponsor: It's About Time

Gary Curts, Dublin (Ohio) Public Schools

Learn the benefits of the Engineering Design Cycle for teaching and learning Earth science. See how the American Geological Institute developed a project-driven course that makes a difference in performance for all levels of students from the start of the semester to the completion. Also, you will be introduced to the use of data logging technology to enhance the classroom experience.

2:00–3:30 PM Presentation

SESSION 1



More Than Just Probes

(Gen)

(General) 120, Convention Center

Ben Smith (ben@edtechinnovators.com) and **Jared Mader** (jared@edtechinnovators.com), Red Lion (Pa.) Area School District

Probes are a great way for students to collect data. What happens next? We use a variety of digital tools to enhance lab reports and student projects. Come learn how to change the face of the traditional lab report.



2:00–3:30 PM Exhibitor Workshops

HHMI's *Bones, Stones, and Genes: The Origin of Modern Humans* (Bio)

(Grades 9–College) 109, Convention Center

Sponsor: Howard Hughes Medical Institute

Mary Page Colvard (mcolvard@tds.net), Deposit, N.Y.

Keri Shingleton (kshingleton@hollandhall.org), Holland Hall, Tulsa, Okla.

Satoshi Amagai, Howard Hughes Medical Institute, Chevy Chase, Md.

When Darwin proposed that humans evolved from a common ancestor with the great apes, he lacked fossil evidence to support his idea. Now 150 years later, the evidence for human evolution is plentiful and growing, including detailed molecular genetics data, an impressive fossil record, and artifacts of early human culture like stone tools. Join us on a global exploration spanning millions of years to illuminate the rise of modern humans. Participants will be among the first to own a free DVD copy of HHMI's latest installment in the Holiday Lectures on Science series.

Biology with Vernier (Bio)

(Grades 8–College) 116, Convention Center

Sponsor: Vernier Software & Technology

Mike Collins (info@vernier.com) and **David Carter** (info@vernier.com), Vernier Software & Technology, Beaverton, Ore. Experiments such as transpiration, cell respiration, and EKG from our popular *Biology with Vernier* and *Advanced Biology with Vernier* lab books will be performed in this hands-on workshop. You will be able to try these experiments using LabQuest and our LabQuest Mini. Our new *Investigating Biology through Inquiry* lab book will also be on display.

Bridging STEM and Vernier Technology (Phys)

(Grades 7–12) 117, Convention Center

Sponsor: Vernier Software & Technology

Verle Walters (info@vernier.com) and **David L. Vernier** (info@vernier.com), Vernier Software & Technology, Beaverton, Ore.

Taking STEM education from buzzword to classroom implementation can be challenging. In this session, we will introduce you to several STEM activities—appropriate for middle school and high school students—that make use of Vernier technology. The activities will model an approach you can use to implement STEM education into your curriculum.

Master of Science in Geosciences via Distance Learning from Mississippi State University (Earth)

(Grades K–12) 136, Convention Center

Sponsor: Mississippi State University

Doug Gillham (dmg3@msstate.edu), Mississippi State University, Mississippi State, Miss.

Discover how you can earn an MS degree in geosciences via distance learning through our Teachers in Geosciences program. Our 12-course, 36-credit hour graduate program is designed to take two years and includes courses in meteorology, geology, planetary science, oceanography, hydrology, and environmental geosciences. We have alumni in all 50 states and all students qualify for in-state tuition rates.

Light and Optics: A Series of EnLIGHTening Experiments! (Phys)

(Grades 5–12) 139, 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, a laser, lenses, 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!

Equip Your iPad for Science (Gen)

(Grades K–12) 140, Convention Center

Sponsor: PASCO scientific

Presenter to be announced

Get a preview of SPARKvue® HD, PASCO's newly announced sensor-based science application for the iPad. SPARKvue HD is an integrated learning environment, offering a full suite of display and analytical tools, reflection prompts, journaling, and more—plus full support of PASCO's growing collection of SPARKlabs®. Get hands-on experience in collecting data on the iPad using PASCO's AirLink 2 Bluetooth interface and PASPORT sensors. Bring your own iPad or use ours!

Renewable Energy Exploration—Solar and Wind Power (Earth)

(Grades 9–12)

141, Convention Center

Sponsor: PASCO scientific

Presenter to be announced

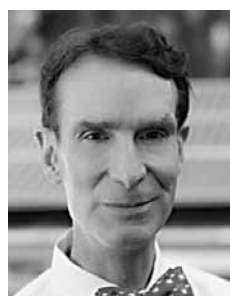
In this hands-on workshop featuring the Horizon Renewable Energy SPARKlab® collection, you'll investigate energy output from a solar cell and wind turbine under varying environmental conditions. Developed jointly by PASCO and Horizon Fuel Cell Technologies, this collection of 10 guided inquiry labs provides a standards-based, state-of-the-art science teaching solution to support your high school Earth or environmental science program. Additional labs from the collection will be demonstrated.

2:00–4:00 PM The Planetary Society Lecture

What Makes Space So Much Fun and So Hard? (Earth)

(General)

Sagamore Ballroom 1–5, Convention Center



Bill Nye, Executive Director, The Planetary Society, Pasadena, Calif.

Join Bill Nye for a far-ranging discussion of how physical science, life science, and planetary science are intertwined in understanding the environment of the icy blackness of space. Bill will shine a beacon on the wonder, the mystery, and the fun of

exploring the cosmos.

As a student at Cornell University, Bill Nye the Science Guy® was introduced to the wonders of astronomy in a class taught by Carl Sagan himself, one of the original founders of The Planetary Society. So, for Nye it was like coming full circle to join the Society's board of directors and later to become the organization's executive director. Scientist, comedian, teacher, and author, Nye became a household name with his innovative, fast-paced television series Bill Nye the Science Guy. Currently, Bill Nye is the host of three television series: The 100 Greatest Discoveries, The Eyes of Nye, and his latest project Stuff Happens, a show about environmentally responsible choices that consumers can make as they go about their day and their shopping. Nye earned a degree in mechanical engineering at Cornell University and spent several years working as an engineer until he combined his dual love of science and comedy to create the Science Guy.

This speaker is sponsored by The Planetary Society.

2:00–5:00 PM Short Course



DNA Subway in the Classroom (SC 5)

(High School–College)

Tickets Required: \$112

Uwe Hilgert, University of Arizona, Tucson

Gates, Omni

2:00–5:00 PM Workshop

PDI PSTEM Pathway Session: Cognitive Science Learning Principles in Action: Misconceptions and Their Use in Spaced Assessment (Gen)

(General)

White River Ballroom C, JW Marriott

Christine M. Massey (massey@seas.upenn.edu), University of Pennsylvania, Philadelphia

Using Spaced Assessment is a cognitive science, research-based learning principle that increases student retention. We will examine formative assessment practices that can help teachers understand what their students have “MIS”understood.

2:30–3:00 PM Presentation

SESSION 1

Systems Thinking for Science Success (Gen)

(Middle Level–College/Supervision)

302/303, JW Marriott

George W. Stickel, Cobb County Public Schools, Marietta, Ga.

How can struggling students grasp the whole of a science course or even a particular standard? By using a simple systems approach where they use key research-based strategies (writing, comparing, and nonlinguistic organizers) to get them thinking critically, discussing, and recording, students can take charge of their own learning.

2:30–3:30 PM Science Leadership Summit Session

SESSION 1

The Science Teacher Rubric (Gen)

(General)

JW Grand Ballroom 8, JW Marriott

Courtney Cabrera, Indiana Dept. of Education, Indianapolis

Indiana schools are currently working to understand and implement the requirements of IC 20-28-11.5, the teacher evaluation legislation. This session will provide an overview of these requirements, including how schools and stakeholders are able to use these requirements to improve science instruction and content-specific tools and resources to accomplish these goals. Participants will discuss these elements and their effects on measuring effective science instruction.

3:00–3:45 PM Exhibitor Workshop

Physics Applications Aboard the International Space Station (Phys)

(Grades 11–12)

142, Convention Center

Sponsor: NASA

Natalee Lloyd and **Monica Trevathan**, NASA Johnson Space Center, Houston, Tex.

NASA's Math and Science @ Work project provides AP math and science teachers with free content to be used in preparing students for college. Join us for an introduction to this project as well as highlights of physics activities from the project. Gain access to activities that introduce students to real-life physics applications and learn how to implement these applications in your classroom. A question-and-answer session will follow the presentation and feedback will be gathered to help in the development of future activities.

3:00–4:00 PM Meeting

NSTA Investment Advisory Board Meeting

301, JW Marriott

3:00–4:30 PM Workshop

PDI BSCS Pathway Session: Getting Ready for the Changes in AP Biology (Bio)

(High School)

309/310, JW Marriott

April L. Gardner (agardner@bscs.org), BSCS, Colorado Springs, Colo.

Bring your current Advanced Placement Biology textbook and other instructional materials to this session to learn how to identify (or create) a storyline for your course. We'll also identify opportunities to improve the instruction and assessment opportunities for better alignment with the new framework.

3:00–4:30 PM Exhibitor Workshop

Science Gnos—Scientists—Famous and Forgotten and Their Process Skills (Gen)

(Grades K–8)

138, Convention Center

Sponsor: Delta Education/School Specialty Science

John Cafarella, Consultant, Canadensis, Pa.

Join us for 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 Gnos humor, too.

3:00–6:00 PM Meeting

CESI Annual Board Meeting

Atlanta, Marriott Downtown

Get involved! Join CESI for their annual board meeting.

3:30–4:00 PM Presentations

SESSION 1

Conceptual Physical Science: Catapult Building!

(Phys)

(Middle Level–High School)

126, Convention Center

Rick Mitchell (rmitchel@pike.k12.in.us), Pike High School/Pike Freshman Center, Indianapolis, Ind.

Get help on preparing for your unit on catapult building. Hear about some of the pitfalls and successes you should encounter.

SESSION 2

When Is It Science? When Is It Engineering? What's the Difference Anyway? (Phys)

(Elementary–Middle Level)

207, Convention Center

Donald DeRosa (donder@bu.edu) and **Peter Garik** (garik@bu.edu), Boston University, Boston, Mass.

Join us as we report on the methods and impact of professional development for K–8 teachers that progressively immerses them more deeply in engineering or scientific inquiries.



SESSION 3

Have a Kids Inquiry Conference! (Gen)

(Elementary–Middle Level) 242, Convention Center

Paula A. Magee (pamagee@iupui.edu), Indiana University–Purdue University Indianapolis

Learn the basics for preparing for and having a Kids Inquiry Conference.

SESSION 4

School/District Programmatic Changes to Enhance K–12 Science Classrooms (Gen)

(General) Marriott Ballroom 9, Marriott Downtown

Dwight Schuster, Indiana University, Indianapolis

John Buckwalter (jkbuckwa@iupui.edu), Urban Center for the Advancement of STEM Education, Indianapolis, Ind.

Hear about innovative partnerships and initiatives that support new science teachers as they enter the classroom.

SESSION 5

Water Watcher: Community-based Learning with Standards-based Math and Science (Gen)

(Elementary–High School) Chamber, Westin

Sanghee Choi (schoi@northgeorgia.edu), North Georgia College & State University, Cumming

Learn about Water Watcher, community-based learning that promotes active student engagement in science and mathematics learning that reflects the cultural practices in their own communities. Walk away with the Water Watcher curriculum, teacher guideline, and actual data with middle school students. Engage in a hands-on sample activity that promotes a better understanding of community-based learning.



By invitation only, join your fellow NSTA Life Members for a breakfast filled with memories as well as meaning. Catch up with old friends, make new ones, trade war stories, and discuss ways to share your talents and vitality with the science education community.

NSTA Life Members' Buffet Breakfast

Sunday, April 1

7:00–9:00 AM

JW Marriott Indianapolis, White River Ballroom C/D

Tickets are required (M-12; \$45 on-site) and, if still available, must be purchased at the NSTA Registration Area by 3:00 PM on **Saturday, March 31**.

Participation is limited to NSTA life members only.



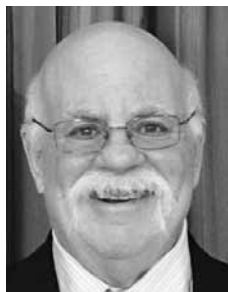
3:30–4:30 PM Featured Presentation



Forensic Science Education: Multidisciplinary Science—Bringing Critical Thinking, Interactive Learning, and Creativity to the Classroom (Chem)

(General)

Sagamore Ballroom 7, Convention Center



Jay Siegel (jasiegel@iupui.edu), Chair, Dept. of Chemistry and Chemical Biology, and Professor of Forensic and Investigative Sciences, Indiana University—Purdue University Indianapolis

Presider: Joe Ruhl, Lafayette Jefferson High School, Lafayette, Ind.

The STEM education movement is testimony to the reality that we can no longer study scientific disciplines as separate entities. All of our sciences have become interconnected, interdependent, and overlapping. Science education is evolving. Forensic science is the quintessential example of multidisciplinary applied science and engineering. Forensic scientists use any and all scientific methods and techniques to help them give voice to physical evidence that cannot speak and thus relate it to civil and criminal acts. The education of forensic science students involves teaching many sciences and applying them in creative ways. It provides numerous opportunities to reinforce critical-thinking skills and directly involve students in their own learning...and, it can also be fun!

Dr. Jay Siegel has testified more than 200 times as an expert witness in 12 states, federal court, and military court. He is Editor in Chief of the Encyclopedia of Forensic Sciences and has authored textbooks, including Fundamentals of Forensic Science and Forensic Science: A Beginner's Guide. From 1980 to 2004, he was professor of Forensic Chemistry and director of the Forensic Science Program at Michigan State University in the School of Criminal Justice. In 2004, he moved to Indiana University—Purdue University Indianapolis (IUPUI) to become director of the Forensic and Investigative Sciences Program, a position he held until August 2011. He received his PhD in analytical chemistry from George Washington University.

3:30–4:30 PM Scientist Talk

Bridging the Gap, Transforming the Future—Education, Collaboration, Innovation! (Gen)

(General)

Sagamore Ballroom 6, Convention Center



Catherine T. Hunt, The Dow Chemical Co., Spring House, Pa.

Join us as Catherine Hunt shares her work with building collaborative efforts between government agencies, corporate entities, and education institutions in order to impact STEM teaching and learning.

Catherine T. “Katie” Hunt is Government Technologies R&D Director, Innovation Sourcing and Sustainable Technologies at The Dow Chemical Company. Dr. Hunt is actively building collaborative technology programs with leading government agencies to focus on accelerating the pace of innovation on programs of strategic importance to Dow. She began her career as a senior scientist in analytical research at Rohm and Haas in 1984 after completing an NIH Postdoctoral Fellowship at Yale University. During her 25 years at Rohm and Haas, Katie held positions of increasing responsibility and ultimately served as corporate Sustainability Director and Leader for Technology Partnerships.



3:30–4:30 PM Presentations

SESSION 1

From Climbing Trees to Diving Deep: Careers in Science (Gen)

(Middle Level–High School)

113, Convention Center

Andrea Swensrud (scienceed@kqed.org) and **Jessica Neely**, KQED, San Francisco, Calif.

Scientists do everything from climb trees to SCUBA dive for their work. Spark students' interest in a career in science through an exploration of multimedia resources.

SESSION 2

A+ Differentiation Strategies for Meeting the Common Core State Standards (Gen)

(Elementary–Middle Level)

121, Convention Center

Larry W. Zimmerman, Teacher Created Materials, Alpharetta, Ga.

To meet the demands of the Common Core State Standards, differentiation is no longer an option. Learn quick and easy strategies to start differentiating your science content immediately.

SESSION 3

Close Enough: A Journey into Solar System Modeling for Hands-On Thinking (Earth)

(Preschool–Middle Level)

122, Convention Center

Martin G. Horejsi, The University of Montana, Missoula
Close Enough models use simple relationships simulating the many scales of the solar system, including light speed, geologic time, and space missions. All grades welcome!

SESSION 4

NSTA NSTA Avenue Session: The NSTA Learning Center: A Tool to Develop Preservice Teachers (Gen)

(General)

124, Convention Center

Al S. Byers (abyers@nsta.org), Assistant Executive Director, e-Learning and Government Partnerships, NSTA, Arlington, Va.

Carolyn Mohr, Southern Illinois University, Grayslake

Michael Odell and **Bambi Bailey** (bbailey@uttyler.edu), The University of Texas at Tyler

Presider: Zipporah Miller, Associate Executive, Director, Professional Programs and Conferences, NSTA, Arlington, Va.

Come learn about a new online system to assist professors in creating customized e-textbooks using Learning Center interactive and e-print resources for their preservice teachers.

SESSION 5

Hands-On Physics on a Tight Budget (Phys)

(Middle Level–High School)

125, Convention Center

Kathy Mirakovits (kmirakovits@portageps.org) and **Jessica Clark** (jclark1@portageps.org), Portage Northern High School, Portage, Mich.

Learn about numerous inexpensive, easy-to-make physics labs and demonstrations. Walk away with ideas ready for Monday class.

SESSION 6

(Middle Level/Informal Education)

208, Convention Center

Take a Bus-free Field Trip: Purdue zipTrips™ (Bio)

Jamie L. Loizzo (jloizzo@purdue.edu), **Joan Crow** (crow@purdue.edu), **Steven Doyle** (doyles@purdue.edu), and **Wilella Burgess** (wburgess@purdue.edu), Purdue University, West Lafayette, Ind.

Connect students to real-world scientists through the magic of technology. This session covers how to integrate an electronic field trip into the science classroom.

Evaluate the Impact of an Electronic Field Trip on Students' Perceptions of Scientists with a "Draw a Scientist" Test (Bio)

Wilella Burgess (wburgess@purdue.edu), **Jamie L. Loizzo** (jloizzo@purdue.edu), **Omolola A. Adedokun** (oadedok@purdue.edu), **Ann M. Bessenbacher** (ambessenbacher@purdue.edu), and **Loran Carleton Parker** (carleton@purdue.edu), Purdue University, West Lafayette, Ind.

Learn how an electronic field trip (zipTrips) impacts students' stereotypical views of scientists and examine viability of EFTs as an alternative to traditional field trips.

SESSION 7

Thinking Like a Scientist: Lessons Learned in the NSF-funded K–12 Experience (Bio)

(General)

209, Convention Center

Kathleen Marrs (kmarrs@iupui.edu) and **GK–12 Fellows**, Indiana University–Purdue University Indianapolis
Presider: **Mariah Judd** (juddm@iupui.edu), Indiana University–Purdue University Indianapolis

Drawing upon experience working with teachers in NSF-sponsored university/school partnership programs, we will provide useful strategies for bringing scientific communication and modern-day science laboratory experience into K–12 classrooms.

SESSION 8

A District Journey on Integrating Design into Science Inquiry...with an Engineering Backdrop

(Gen)

(Elementary) 212, Convention Center

Elizabeth Gajdzik (egajdzik@purdue.edu), Purdue University, West Lafayette, Ind.

Engineering in the classroom? EEK! Elementary teachers share their experiences, activities, and student outcomes in using engineering as their backdrop for STEM classroom activities.

SESSION 9

Get Moving 2! More Kinesthetic Tools for Excellence in Middle School Science

(Gen)

(Middle Level–High School) 233, Convention Center

Mark Schlawin (mschlawn@gmail.com), Princeton Charter School, Princeton, N.J.

Learn to use more of the standards-based physical activities and “kinesthetic clue” mnemonic devices used at one of New Jersey’s top-performing middle schools.

SESSION 10

Activities for Meaning and Significance in the Science Classroom

(Gen)

(Middle Level–High School) 234, Convention Center

Jeremy Forest Price (jeremy.price@bc.edu), Boston College, Chestnut Hill, Mass.

Ellen Marie Stanton (ellenstanton@k12.waltham.ma.us), Waltham High School, Waltham, Mass.

Enliven your classroom with activities that allow high school students to engage in discovering and discussing how science is connected and relevant to their lives.

SESSION 11

Science + GIS = Real-World Problem Solving + Core Knowledge

(Chem)

(Middle Level–High School) 237, Convention Center

Erika S. Klose (eklose@access.k12.wv.us), Winfield Middle School, Winfield, W.Va.

Maureen Miller (m.miller@access.k12.wv.us), Poca High School, Poca, W.Va.

Have access to Geographic Information Systems (GIS) software? We are presenting innovative ways to teach core science knowledge through GIS, bringing content to the real world.

SESSION 12

Co-Labbing: Differentiation in the Lab **(Gen)**

(Middle Level) 243, Convention Center

Shawtwain Hall (shawtwainhall@hotmail.com), Fulton County Schools, Riverdale, Ga.

Beverly Simmons-Johnson (simmjohn@bellsouth.net), Fulton County Schools, Atlanta, Ga.

Presider: Shawtwain Hall

You already know how to differentiate instruction in the classroom. Discover how to effectively implement the same ideas of differentiation in the science lab. Participants will go home with strategies to immediately begin differentiation in the lab.

SESSION 13

The Greatest Hits

(Bio)

(Middle Level–High School) 244, Convention Center

Christopher J. Donovan (donovan@rushville.k12.in.us) and **Heather Briggs** (hbriggs@bishoplucers.org), Indiana Association of Biology Teachers, Fort Wayne

Presider: Christopher J. Donovan

A collection of quick hits courtesy of Indiana biology teachers, including tried-and-true labs, demos, and inquiry activities that are easy and inexpensive.

SESSION 14

Coaching: Knowledge That Works for Science Education Leadership—Strategies for Balancing the Roles of Evaluating and Coaching **(Gen)**

(General) 101, JW Marriott

Tom Peters (tpeters@clemson.edu), South Carolina’s Coalition for Mathematics & Science, Clemson

Dorothy Earle (dearle@greenville.k12.sc.us), S²TEM Centers SC, Greenville

Betty W. Hadden (haddenb@upstatesc.org), S²TEM Centers SC, Simpsonville

Do your responsibilities include evaluation *and* coaching? Have you found the perfect balance between the roles of evaluating and coaching? Engage in dialogue, explore an observation structure, and share strategies and ideas for balancing the roles of evaluator and coach.

SESSION 15

ASTE Session: Inquiring Minds, Inquiring Methods: Preservice Teachers’ Inquiry Skills via the Elementary Science Fair **(Gen)**

(Elementary–Middle Level/College) 204, JW Marriott

Ken Paul King (kking@roosevelt.edu), Roosevelt University, Schaumburg, Ill.

Preservice teachers served as science fair mentors for elementary

English language learners. During this process, the science fair helped students to develop skills of inquiry and content knowledge growth on topics drawn from the local school district science curriculum. Let's examine perspectives on student growth among both preservice teachers and elementary students.

SESSION 16

From Your Mind to Your Classroom Practice (Gen)

(High School–College)

205, JW Marriott

Stephen A. Bartos (sbartos@iit.edu), **Norman Lederman**, and **Judith S. Lederman**, Illinois Institute of Technology, Chicago

Walk away with details on a means for better ensuring that your organization and conceptualization of subject matter comes through in your classroom practices.

SESSION 17

“No One Who Works Here Looks Like Me”: Motivation via Student Mentors (Gen)

(Elementary–High School)

208, JW Marriott

Sarah Sterling-Laldee (slaldee@paterson.k12.nj.us), School No. 2, Paterson, N.J.

Lynn Tarant (ltarant@paterson.k12.nj.us) and **Carlos Miranda**, Charles J. Riley School 9, Paterson, N.J.

Many urban students complain that STEM programming is run by people who don't look, sound, or act like them. Come see how developing student mentors from our community has increased student engagement and motivation in our out-of-school-time STEM programming.

SESSION 18

A Systematic Approach to Science Learning in Elementary Schools (Gen)

(Elementary/Supervision)

302/303, JW Marriott

Karl Topper (karltopper@gmail.com), Dillon Valley Elementary School, Silverthorne, Colo.

Learn how to identify the critical issues for implementation of a systematic approach for science learning within your school.

SESSION 19

SYM-1 Follow-Up Session: Explore Impacts of Different Carbon Emissions Scenarios on Eastern U.S. Birds and Trees (Bio)

(General)

JW Grand Ballroom 2, JW Marriott

Vicki Arthur (varthur@fs.fed.us), U.S. Forest Service, Washington, D.C.

Learn about a Forest Service–developed website that examines current distributions and models future climate habitats

for 134 trees and 150 bird species based on different carbon emissions scenarios.

SESSION 20

Teaching Physics and Related STEM Subjects with Electric Guitars (Phys)

(High School–College)

JW Grand Ballroom 9, JW Marriott

Debbie A. French, New Philadelphia High School, New Philadelphia, Ohio

Thomas Singer, Sinclair Community College, Dayton, Ohio

Tune in to hear about lessons that relate physics to the electric guitar. Find out how you can build electric guitars in your classroom.

SESSION 21

PDI BEST Pathway Session: Energy Literacy: Essential Principles and Fundamental Concepts for Energy Education (Gen)

(General)

White River Ballroom B, JW Marriott

Matthew Inman (matthew.inman@ee.doe.gov), U.S. Dept. of Energy, Washington, D.C.

Join me as I share energy literacy and the U.S. Global Change Research Program's recently adopted Essential Principles and Fundamental Concepts for Energy Education.

SESSION 22

Birth Control Methods: Cases for Teaching the Facts and Real-Life Decision Making (Bio)

(High School–College)

White River Ballroom I, JW Marriott

Stephanie J. Zojonc (stephanie.zojonc@mnsu.edu) and

Bethann Lavoie (bethann.lavoie@mnsu.edu), Minnesota State University, Mankato

These four mini-cases engage students in active discussion about a private topic. Students research, teach one another, and make recommendations about various birth control methods.

SESSION 23

Professional Development: The Need to Assess Yourself (Gen)

(General)

White River Ballroom J, JW Marriott

Michael P. Clough (mclough@iastate.edu), Iowa State University, Ames

Learn about approaches useful for monitoring classroom teaching practices, self-assessing those practices, making changes to improve practice, and helping administrators observe and acknowledge your expertise.

SESSION 24

The SOFIA Airborne Astronomy Ambassadors Program: Observing the Infrared Universe from the Stratosphere (Earth)

(General) *Indiana Ballroom A/B, Marriott Downtown*

David V. Black (*elementsuneearthed@gmail.com*), Walden School of Liberal Arts, Provo, Utah

In this golden age of astronomy, one more NASA Great Observatory is coming online—the Stratospheric Observatory for Infrared Analysis, or SOFIA. Astronomers gather observations from a 2.5 meter IR telescope mounted in a converted Boeing 747 flying at 41-45,000 feet, above 99% of the atmosphere's water vapor. Now, educators have the opportunity to ride along with the astronomers aboard SOFIA as part of the Airborne Astronomy Ambassadors program. Find out how this program can enhance how you teach science, technology, engineering, and math; why different parts of the electromagnetic spectrum are useful for astronomy; and how infrared astronomy can peek into the hearts of galaxies to answer fundamental questions about the universe.

SESSION 25 (two presentations)

(General) *Marriott Ballroom 2, Marriott Downtown*

Presider: Ben Carrigan, Harding University STEM Center, Searcy, Ark.

Science and Horse Sense (Gen)

Amy L. Adair (*aadair@harding.edu*), Harding University, Searcy, Ark.

Nanette Nichols (*nnichols@wilbur.k12.ar.us*), Wilbur D. Mills Educational Services Cooperative, Beebe, Ark.

Interaction with horses promotes the academic, social, and emotional growth of at-risk students. Students use 21st-century skills in the arena and in scientific inquiry.

WebQuests and Field Tests (Gen)

Jennifer Smith, Monticello Middle School, Monticello, Ill. Learn about the use of water quality field tests to complete a teacher-created WebQuest. Lesson plans and suggestions for replication will be presented.

SESSION 26 (two presentations)

(General) *Cabinet, Westin*

Using Google Earth in the Classroom (Earth)

Wendy Van Norden (*wvannorden@nasa.gov*), Harvard-Westlake School, North Hollywood, Calif.

Receive an introduction to the basic uses of Google Earth, demonstrating techniques such as adding placemarks,

pictures, overlays, and polygons and embedding videos. Examples of Google Earth exercises for Earth science will be highlighted.

Trees, Technology, Ecology, and Inquiry: Digital Ecological Modeling for Educators and Students (Env)

Robert J. Wallace (*rw56@nyu.edu*), New York University, New York, N.Y.

Learn about New York City students' participation in the Virtual Forest Project. Ecological tree data is collected and then measurements, drawings, and photographs are incorporated into virtual tree objects and placed on an interactive DEMES website. The data collected nationwide will be used to answer ecological questions such as how much carbon is stored by city trees *vs.* rural trees?

SESSION 27

How Can I Help? Empowering Students with Citizen Science (Env)

(Elementary–High School) *Capitol II, Westin*

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

Scientist and author Loree Griffin Burns makes a case for citizen science as a means of empowering students in this age of environmental uncertainty.

SESSION 28

Planetary Sustainability: Educators in Action (Env)

(General) *Caucus, Westin*

Jose I. Pareja (*parejjo@earlham.edu*), Earlham College, Richmond, Ind.

Jill Korach and **Kevin Matteson** (*mattesk@muohio.edu*), Miami University, Oxford, Ohio

Glen G. Schulte (*glenschulte64@gmail.com*), Zoo Academy, Hughes High School, Cincinnati, Ohio

Lead toward a sustainable future through life-changing international experiences. Formal and informal educators share how direct field experiences with scientists and community leaders worldwide—in areas such as Namibia, Trinidad, Kenya, Borneo, Costa Rica, the Amazon, and Thailand—have changed the way they approach teaching, learning, and environmental stewardship in their classroom and work settings.

SESSION 29 (two presentations)

(Middle Level–High School)

Congress I/II, Westin

Extreme Exploration: Journey to the Radiation Belts (Earth)

Dawn Turney (dawn.turney@jhuapl.edu), The Johns Hopkins Applied Physics Laboratory, Laurel, Md.

Hear how the radiation environment surrounding Earth can affect us. Explore the mysteries that a new mission to this dangerous region is seeking to solve.

Uncertain Answers: Exploring Climate Change and Water Sustainability with Models (Earth)

Chad Dorsey (cdorsey@concord.org), The Concord Consortium, Concord, Mass.

Students experiment with climate change and freshwater sustainability models while coming to grips with uncertainty in the scientific process with free, ready-to-use online curricula.

SESSION 30

Galaxies and Gravity Galore

(Earth)

(Middle Level–High School)

Grand Ballroom 3, Westin

Thomas R. Tretter (tom.tretter@louisville.edu), University of Louisville, Ky.

Voyage through visually immersive scientific data to explore gravitational interactions from Earth to the edge of the universe. Free resources available for the classroom!



3:30–4:30 PM Workshops



Develop Literacy, Math, Science, and Social Studies School-readiness Skills in Early Childhood Education via Local Wildlife and Farm Animals (Bio)

(Preschool)

123, Convention Center

J. William Hug (hug@calu.edu), **Deborah A. Farrer** (farrer@calu.edu), **Charlotte Orient** (orient@calu.edu), **Jane Bonari** (bonari@calu.edu), and **Clover Simms Wright** (wright_c@calu.edu), California University of Pennsylvania, California

Explore successful techniques that develop children's observation and data collection skills by incorporating animals into lessons. Walk away with hands-on activities and strategies for teaching scientific inquiry.

Developing 21st-Century Skills Through Issue-oriented Science (Gen)

(Middle Level–High School)

128, Convention Center

John Howarth (john_howarth@berkeley.edu) and **Barbara Nagle** (bnagle@berkeley.edu), Lawrence Hall of Science, University of California, Berkeley

21st-century science requires 21st-century skills. Look at ways of incorporating and assessing these skills in your science lessons.

Teach Biology Concepts with Magnetic Manipulatives on Chalkboard Cookie Sheets (Bio)

(Middle Level–College)

204, Convention Center

Mary A. Gobbett (mgobbett@uindy.edu) and **Nancy O. Steffel** (nsteffel@uindy.edu), University of Indianapolis, Ind. **Jill Bowen**, Clinton Prairie Junior/Senior High School, Frankfort, Ind.

Candace Smithson (csmithson@cowan.k12.in.us), Cowan Junior/Senior High School, Muncie, Ind.

Presider: Nancy Steffel

Receive sample templates and a packet of application ideas on how to improve your biology content instruction using inexpensive magnetic manipulatives on chalkboard cookie sheets.

Helping Students Understand Speed and Acceleration (Phys)

(Middle Level–High School)

205, Convention Center

Barbara Janes (barb802@comcast.net), Illinois Institute of Technology, Chicago

Engage in an activity that teaches students the concepts of speed and acceleration concretely and mathematically.

Bugs, Biodiversity, and Inflatable Biomes! A Celebration of Life! (Bio)

(Elementary) 210, Convention Center

Darla Jines, Breigh Rainey Rhodes (breigh.rhodes@zacharyschools.org), **Elizabeth Leger** (elizabeth.leger@zacharyschools.org), **Bianca Deliberto** (bianca.deliberto@zacharyschools.org), and **Aimee Davis**, Zachary Elementary School, Zachary, La.

Capture your students' inner biologists with these engaging hands-on activities featuring live mealworms and inflatable ecosystems. "Bug out" over these authentic, inquiry-based experiences.

Teaching Science Through Children's Literature in Kindergarten (Gen)

(Preschool–Elementary) 211, Convention Center

Kristen Poindexter (kpindexter@msdwt.k12.in.us), Spring Mill Elementary School, Indianapolis, Ind.

Learn inexpensive ways to teach science to kindergarten students through favorite literature.

Taking the Big Leap: Designing Inquiry That Makes Students' Minds Soar (Gen)

(Elementary) 231, Convention Center

Susan Johnson (sjohnso2@bsu.edu), Ball State University, Muncie, Ind.

Dick Dettmer (ddettmer@frontier.com), Retired Educator, Hometown, Ind.

Jessie Bloom, Most Precious Blood School, Fort Wayne, Ind.

Join us as we model the "leap" from a direct-instruction lesson on solid/liquid changes to a model set of inquiry investigations with a strong literacy component.



Preserve Biodiversity and Stop Aquatic Invaders with an Innovative Student Stewardship Model (Gen)

(Informal Education) 232, Convention Center

Robin Goettel, University of Illinois, Urbana

Terri Hallesy, Illinois-Indiana Sea Grant, Urbana

Aquatic invasive species continue to pose a serious threat to biodiversity in the Great Lakes, our oceans, and inland. Engage in hands-on activities on aquatic "hitchhikers" and learn about biology spread, impacts, and control of these species. Get started on action plans for student research and community partnerships. Take home lesson plans.

Teaching Science with Toys and Technology (Gen)

(General) 236, Convention Center

Anjana G. Arora (anjanagarora@gmail.com), Professional Development Provider, Lisle, Ill.

Learn how to use everyday toys and technology to teach science concepts. Activities that are aligned with the current core-content science standards will be presented and provided to participants in digital mode.

What Is Buzzing in Our Backyard? (Bio)

(Middle Level–High School/Informal) 238, Convention Center

Julie Bokor (julie@cpet.ufl.edu), University of Florida, Gainesville

Emerging pathogens are terrific interdisciplinary topics. Join me as I highlight a high school curriculum unit on Dengue fever, developed and classroom tested by Florida teachers.

Design Briefs: Combining Science with Technology Education (Gen)

(Middle Level) 239, Convention Center

William C. Metz (wmetzgolf@aol.com), Retired Educator, Fort Washington, Pa.

Julia T. Gooding (chemteacher007@aim.com), Hopewell High School, Aliquippa, Pa.

Challenge your students to go beyond the scripted nature of typical guided inquiry lessons through the use of STEM-based design brief investigations.

NMLSTA Session: Inquire and Learn (Gen)

(Middle Level) 240, Convention Center

Annette Barzal (abarzal@earthlink.net), Science Consultant, Medina, Ohio

Julie Bellomy (julie.bellomy@yahoo.com), St. Michael School, Independence, Ohio

Rajeev Swami, NMLSTA President, and Central State University, Wilberforce, Ohio

Invigorate your lessons with these exciting, engaging, and

effective techniques that use household materials to stimulate creativity and understanding of physical science concepts.

Engaging Elementary-aged Children in Family Engineering (Gen)

(Elementary–Middle Level) 241, Convention Center

Joan Schumaker Chadde (*jchadde@mtu.edu*), Michigan Technological University, Houghton

Jack Samuelson (*jsamuelson@wi.rr.com*), Wauwatosa STEM School, Wauwatosa, Wis.

Mia Jackson (*mjackson@davidheil.com*), Foundation for Family Science & Engineering, Portland, Ore.

Discover the excitement of hands-on engineering activities designed to engage the whole family in real-world challenges.

Middle School Fun with Biotechnology! DNA and the Principles of Gel Electrophoresis (Bio)

(Middle Level–High School) 245, Convention Center

Barbara Bielec, BioPharmaceutical Technology Center Institute, Madison, Wis.

Attention middle and high school teachers, would you like your students to get hands-on experience with DNA and gel electrophoresis? Visit www.btc.org for more information.

Enhancing STEM in the Elementary Classroom (Gen)

(General) 202, JW Marriott

Don Powers (*dt-powers@wiu.edu*), Western Illinois University, Macomb

How can you introduce and develop STEM in the elementary classroom? You'll be led through a variety of challenging and thought-provoking activities.

Let's Get Helical: Exploring DNA Structure/Function with Interactive Physical Models (Bio)

(High School–College) JW Grand Ballroom 4, JW Marriott

Margaret Franzen (*franzen@msoe.edu*), **Tim Herman** (*herman@msoe.edu*), and **Shannon Colton** (*colton@msoe.edu*), Center for BioMolecular Modeling, 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.

Conference Tips for First-Timers (Gen)

(General) JW Grand Ballroom 5, JW Marriott

NSTA Board and Council

Feeling overwhelmed by all there is see and do at an NSTA conference on science education? Join us for an interactive and participatory (fun!) walk through the conference program book. By the end of the session, we guarantee you'll know just how to get the most from your conference experience.

Prepare and Empower the New Generation of Women in Science: How to Build a High School/University Science Partnership (Gen)

(High School–College) White River Ballroom H, JW Marriott

Megan E. Faurot (*mfaurot@hawkiiit.edu*), Illinois Institute of Technology, Chicago

High school science teachers unite with scientists to replicate the high school/university science partnership model and contribute to the new generation of women scientists.

The International Masterclass Model: Real Research Data for Students (Gen)

(General) Indiana Ballroom C/D, Marriott Downtown

Kris Whelan (*kkwhelan@uw.edu*), University of Washington, Seattle

Kenneth Cecire (*kcecire@nd.edu*), University of Notre Dame, Ind.

Particle physics students in Masterclasses use real data from the Large Hadron Collider at CERN to investigate fundamental physics with the help of experts. We'll discuss the importance of the international aspect of the Masterclasses and of real science research. Bring your laptop to try out an actual slice of a Masterclass exercise; then we'll discuss how the model can be used in other science disciplines.

So You Did an Inquiry Activity...What Next? (Gen)

(General) Indiana Ballroom F, Marriott Downtown

Jesse L. Wilcox (*jwilcox.23@gmail.com*), Valley Southwoods Freshman High School, West Des Moines, Iowa

Elizabeth Potter-Nelson (*e.potter.nelson@gmail.com*), Antioch Community High School, Antioch, Ill.

Let's discuss how to move from the inquiry activity to effectively teaching students the science content behind the activity.

Sticky, Shaky, Bumpy: Exploring Extreme Scales
(Gen)

(Middle Level–College) Indiana Blrm. G, Marriott Downtown
Amy R. Taylor, University of North Carolina, Wilmington
Mike Falvo (falvo@physics.unc.edu), The University of North Carolina at Chapel Hill

Gail Jones, North Carolina State University, Raleigh
Join us as we explore the sticky, shaky, and bumpy nano-world and learn why these behaviors have given us innovative contributions in science.

Digital Storytelling in Science (Gen)

(Elementary–High School) Marriott Blrm. 7, Marriott Downtown
Jean M. Trusedell (jtrusedell@msddccatur.k12.in.us), MSD of Decatur Township, Indianapolis, Ind.

Presiders: Rhonda McCort and Cheri Meares, Valley Mills Elementary School, Indianapolis, Ind.

Learn how to engage students in science by having them create movies of their experiments. Discover how to use free resources to create multimedia projects that captivate students and deepen understanding.

Resources, Energy, and Oil—From Peaks to Spills
(Env)

(General) Capitol I, Westin

Jill A. Black, Missouri State University, Springfield
Do students understand the advantages and drawbacks of

fossil fuels? What is Peak Oil? Complete three hands-on inquiry-oriented energy activities in this unit.

Earthquakes, Gases, Geysers, and Explosions: Exploring Yellowstone’s Dynamic Landscape (Earth)

(Middle Level–High School) Capitol III, Westin

Shelley E. Olds (olds@unavco.org), UNAVCO, Boulder, Colo.

Nancy West (nancywwest@gmail.com), Quarter Dome Consulting, LLC, Fort Collins, Colo.

Explore the fascinating landscape of Yellowstone through historical and real-time data. This activity allows students to discover volcanism using seismic, hydrothermal, and GPS data.

NMEA Session: Seabirds as Ocean Ambassadors
(Env)

(Informal Education) Grand Ballroom 5, Westin

Meghan Marrero (mmarrero@mercy.edu), Mercy College, Dobbs Ferry, N.Y.

Use virtual bolus dissections to teach physiology, adaptations, reproduction, and conservation. Learn how seabirds can tell us about the health of our ocean.

3:30–4:30 PM Exhibitor Workshop

The First Comprehensive Astronomy Textbook Written Specifically for High School Students (Also Well Suited for Community Colleges) (Earth)

(Grades 9–College) 132, Convention Center

Sponsor: It’s About Time

Gary Curts, Dublin (Ohio) Public Schools

Investigating Astronomy was developed by TERC education experts to fill in the gaps in astronomy taught in high school. Most astronomy books used in high school classes are text heavy and have been originally developed and written for college courses. *Investigating Astronomy* engages students with a dynamic, active learning approach and allows them to explore all the major topics in astronomy. Also get introduced to the Starry Night software that can enhance your students’ classroom experience.

3:30–5:00 PM Workshop

PDI McREL Pathway Session: What Works in Science Classrooms—Instructional Technology and Virtual Manipulatives That Support Student Understanding (Gen)

(General) White River Ballroom G, JW Marriott

Cynthia Long (clong@mcrel.org), McREL, Denver, Colo.

Christine S. Jones, University of Colorado, Boulder

Understand how to incorporate technology-based inquiry learning tools such as virtual manipulatives into high-quality science instruction. Used correctly, technological simulations intellectually engage students and provide opportunities for them to use evidence-based data to support their understanding of science concepts. Virtual manipulatives will be modeled and participants are invited to share their favorite applets.

3:30–5:00 PM Exhibitor Workshops

Genetic Testing for Huntington's Disease (Bio)

(Grades 6–College) 101, 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 some 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. Also, information provided about related activities.

Using Weather to Teach Across Multiple Disciplines and to Help Students Stay Safe (Earth)

(General) 103, Convention Center

Sponsor: WeatherBug® Schools

Frank McCathran (fmccathran@earthnetworks.com), WeatherBug Schools, Germantown, Md.

Learn what it takes to connect your school to the WeatherBug Schools Program, the only program that puts a scientific-grade weather station on your school and provides advanced warning of severe weather and lightning. It also helps increase STEM concept connections and skills development, while providing real-time data to local television station broadcasts.

I Can See Clearly Now...Digital Projection Techniques for Better Demonstration Visibility (Gen)

(Grades 6–12) 104, Convention Center

Sponsor: Ken-A-Vision Manufacturing Co., Inc.

Brian P. Wright (ilovechem@gmail.com) and **Andrew G. Nydam** (andrewnydam@hotmail.com), Olympia High School, Olympia, Wash.

Learn how to take advantage of flexible neck cameras, portable digital microscopes, and digital projectors to inspire your students. This workshop will demonstrate techniques for observing microscale chemical reactions that happen in real time. Capturing chemical reactions that take place over extended time using time-lapse recording will be demonstrated as well. Also, techniques for teaching measurement and significant figures will be illustrated and discussed.

Phylogenetics—Barking Up a Better Tree? (Bio)

(Grades 9–12) 105, Convention Center

Sponsor: LAB-AIDS, Inc.

Maia Willcox, Lawrence Hall of Science, University of California, Berkeley

Experience classroom-tested, issue-oriented activities that help students understand the concepts of macroevolution and

apply evolutionary relationships from SEPUP's new *Science & Global Issues Biology* program from LAB-AIDS. The featured investigation uses physical evidence to allow participants to create an evolutionary tree of vertebrates and then apply data from four ecosystems to make decisions about conservation priorities.

Journaling: It's Not a Fad! Become a Fan (Gen)

(Grades 6–12) 106, Convention Center

Sponsor: LAB-AIDS, Inc.

Dick Duquin, LAB-AIDS, Inc., Ronkonkoma, N.Y.

Journaling promotes written and oral literacy and reading and vocabulary development, and identifies misconceptions for more effective teaching and learning. Get an overview of effective research-based and practical strategies designed to support your classroom implementation of this powerful tool! Using authentic experiences from the LAB-AIDS SEPUP core program, model journal setup, operationalize definition development, and move students toward owning their learning.

Science of Everyday Life (Bio)

(Grades K–8) 110, Convention Center

Sponsor: Discovery Education

Jannita Demian, Discovery Education, Silver Spring, Md.

Science is more than just Bunsen burners and beakers. Help students discover how science is actually a part of our everyday lives, and how they can apply this knowledge to win \$25,000 and the title of America's Top Young Scientist. In partnership with 3M, Science of Everyday Life (scienceofeverydaylife.com) offers teachers and families tools to facilitate learning and promotes innovative thinking using hands-on lesson plans and interactive features designed to motivate and inspire K–8 students! Join us for a chance to win an innovation kit filled with 3M supplies.

WARD'S Updates for AP Biology (Bio)

(Grades 11–12) 130, Convention Center

Sponsor: WARD'S Natural Science

Ashley Goff, VWR Education, Rochester, N.Y.

Bring your AP Biology labs up to date with this hands-on workshop using the latest activities and supplies from WARD'S. Learn how to bring more thought-provoking guided inquiry to your students with our new 3-in-1 labs.

Incorporating STEM Activities in Your Classroom
(Gen)

(Grades K–8)

133, Convention Center

Sponsor: Pearson

Kristi A. Zenchak, Oakton Community College, Des Plaines, Ill.

The world is and will be continually faced with challenges ranging from designing the best shoes for different sports to larger challenges such as global warming, natural disasters, and shortages of food, water, and energy. In order to meet these challenges, scientific concepts must be understood and used to develop practical solutions. STEM activities promote the problem-solving skills necessary to apply scientific concepts to designing solutions for real-world problems.

Online Learning Exchange, Powered by Pearson: Our Content, Your Content, All in One Place (Gen)

(Grades K–12)

134, Convention Center

Sponsor: Pearson

Chuck McMillan, Curriculum Specialist, Huron, Mich. 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!

Science-centered Language Development Using FOSS (Gen)

(Grades K–8)

137, Convention Center

Sponsor: Delta Education/School Specialty Science—FOSS

Joanna Totino and **Diana Velez**, 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.

Immerse Your Students in an Ocean Sciences Curriculum Sequence for Grades 3–5 (Gen)

(Grades 3–5)

143, Convention Center

Sponsor: Carolina Biological Supply Co.

Craig Strang, Lawrence Hall of Science, University of California, Berkeley

Lawrence Hall of Science, in partnership with NOAA and Rutgers University, has developed innovative tools to bring

ocean sciences to life for grades 3–5. These resources use inquiry-based activities, student readings, and classroom discourse to address science standards and develop students' ocean literacy. Come see what it's all about.

Take the Leap: Carolina's Perfect Solution® Frog Dissection (Bio)

(Grades 6–12)

144, Convention Center

Sponsor: Carolina Biological Supply Co.

Mary Alexander, Carolina Biological Supply Co., Burlington, N.C.

Frogs are ideal specimens for introducing basic human anatomy and body systems. Experience Carolina's Perfect Solution frogs, the most lifelike and safest preserved frog specimens available. Practice basic classroom dissection techniques and explore the anatomy and physiology of the frog. Free dissection supplies and door prizes.

Introduction to Protozoa (Bio)

(Grades 6–12)

145, Convention Center

Sponsor: Carolina Biological Supply Co.

Tim Woody, Carolina Biological Supply Co., Burlington, N.C.

Immerse your students in another world! The low-maintenance microorganisms showcased in this workshop are ideal for classroom inquiry, and the activities are designed for all learning levels. We'll share expert tips on care and maintenance...and free sample cultures and activities!

A World In Motion® Elementary STEM Workshop (Gen)

(Grades 4–6)

201, Convention Center

Sponsor: SAE International's A World In Motion

Julie MacIntyre (awim@sae.org) and **Christopher M. Ciuca**, SAE International, Warrendale, Pa.

This hands-on workshop will allow participants to experience SAE International's award-winning A World In Motion (AWIM) curriculum designed for grades 4–6. Participants will have a chance to build the popular JetToy car, as well as experience the Skimmer and Gravity Cruiser in a fun, interactive session.

Robotics in the Classroom—Science, Engineering, and Math Come Alive! (Phys)

(Grades 5–8)

202, Convention Center

Sponsor: LEGO Education

Presenter to be announced

Robotics is a proven and effective way to capture students' attention and keep them engaged in hands-on science, technology, engineering, and math learning. Participants

will complete an activity from the new LEGO® MINDSTORMS® and Renewable Energy Activity Pack and learn firsthand how LEGO Education MINDSTORMS can get students excited when they model real-life mechanisms and solve real-world challenges, all while building the critical-thinking and creative problem-solving skills that will serve them well for a lifetime.

Make Safety a Habit! Flinn Scientific Workshop (Gen)

(Grades 6–College) *Wabash Ballroom 1, Convention Center*
Sponsor: Flinn Scientific, Inc.

Irene Cesa, Flinn Scientific, Inc., Batavia, Ill.

Come discover simple, practical, effective solutions to increase safety awareness and improve safety in the science classroom! If you have questions about how to get students to comply with safety rules—or how to get action from your administrator—this workshop will help you solve your safety problems. Issues to be discussed include the right-to-know laws and teacher liability; lab ventilation; purchase, storage, and disposal of chemicals; chemical inventory; spill control; and more.

3:45–4:45 PM Science Leadership Summit Session

SESSION 1

Increasing Student Engagement and Achievement Through Teacher-led Professional Learning Communities (Chem)

(General) *JW Grand Ballroom 8, JW Marriott*

Deanna York (deanna.york@wayne.k12.in.us), Ben Davis High School, Indianapolis, Ind.

Learn how student engagement and student achievement increased at a large diverse urban high school in Indianapolis through teacher-led professional learning communities.

4:00–4:30 PM Presentation

SESSION 1

SCST Session: A New Model in STEM Preparation for Elementary Education Majors (Gen)

(College) *203, JW Marriott*

Tony P. Murphy (apmurphy@stkate.edu), St. Catherine University, St. Paul, Minn.

Education and STEM professors created a STEM certificate and teaching experience for St. Catherine University's elementary education majors. Review results showing gains in STEM knowledge and teaching confidence.

4:00–4:45 PM Exhibitor Workshop

MY NASA DATA: Data Visualization for Students (Earth)

(Grades 5–12)

142, Convention Center

Sponsor: NASA

Susan W. Moore, SSAI/NASA Langley Research Center, Hampton, Va.

MY NASA DATA (<http://mynasadata.larc.nasa.gov>) is a project that enables K–12 teachers and students, as well as citizen scientists, to explore the large volumes of data that NASA collects about Earth from space. Join us for an overview of the MY NASA DATA project. We'll share examples of Live Access Server (LAS) features and sample lessons for use in the classroom or for individual and collaborative student research projects. Copies of lessons and activities demonstrated in the session will be provided.

4:00–5:30 PM Exhibitor Workshops

Human Evolution: Genetic and Fossil Evidence (Bio)

(Grades 9–College)

109, Convention Center

Sponsor: Howard Hughes Medical Institute

Chris Monsour (biologyteacher77@gmail.com), Tiffin Columbian High School, Tiffin, Ohio

Students probably don't realize how important genetic analysis and fossil evidence are to recent advances in understanding human evolution. Right now is one of the most exciting times for human evolution studies as these lines of evidence inform our view of how modern humans, Neanderthals, *Ardipithecus*, and nonhuman primates are related. Participants will receive free classroom-ready resources from HHMI utilizing the Holiday Lectures on Science DVDs and BioInteractive website to enhance classroom instruction on applying the scientific method to understanding human origins.

Genetics: Crazy Traits and Adaptation Survivor (Phys)

(Grades 5–12)

139, Convention Center

Sponsor: CPO Science/School Specialty Science

Scott W. Eddleman, CPO Science/School Specialty Science, Nashua, N.H.

When students study genetics they learn new vocabulary 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.

Investigating Mitochondrial Genetics (Bio)

(Grades 9–12) 140, Convention Center

Sponsor: PASCO scientific

Presenter to be announced

When you participate in this hands-on activity from PASCO's *Advanced Biology Teacher Guide*, you'll investigate the connections between mitochondrial DNA, the electron transport chain, and human health and disease. This activity fuses modern molecular biology technology from Edvotek and PASCO with traditional pedigree analysis to provide a high-level experimental biology experience in the classroom.

Exploring Interference and Diffraction of Light (Phys)

(Grades 9–12) 141, Convention Center

Sponsor: PASCO scientific

Presenter to be announced

In this workshop you'll explore the wave characteristics of light. You will pass a beam through a narrow slit to create diffraction patterns and visualize the patterns using PASCO's award-winning SPARKvue® software. Using an Optics Bench, a High Sensitivity Light Sensor, Diffraction Slits, and a Red Diode Laser, you will explore the wave characteristics of light and in minutes produce real-time graphs of the intensity patterns caused by constructive and destructive interference between waves of light.

Hydrates: It Must Be Something in the Water! (Chem)

(Grades 7–12) 203, Convention Center

Sponsor: Adam Equipment Inc.

Penney Sconzo, The Westminster Schools, Atlanta, Ga. Some ionic compounds combine with water molecules without creating a chemical bond. How can that be? During this fascinating workshop, Penney Sconzo guides participants through a hands-on approach using mass measurement and heat to remove water that's physically attached. It's a workshop you won't want to miss!

4:30–6:00 PM Meeting

NSTA/CBC Outstanding Science Trade Books Committee Meeting

(By Invitation Only) 311, JW Marriott

4:30–6:00 PM Exhibitor Workshop

Family Engineering Ice Cream Social and Book Launch Party (Gen)

(Grades 1–6) Wabash Ballroom 2, Convention Center

Sponsor: Foundation for Family Science & Engineering

Mia Jackson and **David Heil**, Foundation for Family Science & Engineering, Portland, Ore.

Joan Schumaker Chadde, Michigan Technological University, Houghton

Family Engineering: An Activity and Event Planning Guide is full of fun hands-on activities and event planning resources that actively engage parents and children in exploring the world of engineering together. Join us to try out Family Engineering activities, meet the authors, win prizes, and celebrate this exciting new program.

4:30–6:30 PM Meeting

APAST Board Meeting

(By Invitation Only) Utah, Marriott Downtown

5:00–5:30 PM Presentation

SESSION 1

Visualizing the Chemistry of Climate Change (Chem)

(High School–College) White River Ballroom I, JW Marriott

Marcy H. Towns (mtowns@purdue.edu), Purdue University, West Lafayette, Ind.

Mary Kirchhoff (mkirchhoff@acs.org), American Chemical Society, Washington, D.C.

Presider: Marcy H. Towns

Join us as we highlight a series of interactive web-based digital learning objects that can help high school and undergraduate chemistry students visualize and understand the chemistry underlying global climate change.

5:00–6:00 PM Reception

Mars Education Challenge Award Reception

Marriott Ballroom 3/4, Marriott Downtown

5:00–6:00 PM Presentations

SESSION 1



Podcasting and Blogging for Students and Teachers in Science (Gen)

(General) 120, Convention Center

Ben Smith (ben@edtechinnovators.com) and **Jared Mader** (jared@edtechinnovators.com), Red Lion (Pa.) Area School District

Come create your own podcasts and blogs, learn the details of publishing, and gain new ideas for how to use podcasting and blogs in your classroom. Bring a laptop and make your first podcast and blog in seconds!

SESSION 2

Teaching Young Children to Use Scientific Tools (Gen)

(Elementary) 231, Convention Center

Catherine K. Scott (cmkowole@uncg.edu) and **Catherine E. Matthews** (cmatthews@uncg.edu), The University of North Carolina at Greensboro

Presider: Catherine K. Scott

Students can use virtual microscopes or manipulate radio telescopes remotely but can't read a thermometer, weigh produce, catch a butterfly, or measure its wingspan! We aim to change that by focusing on how to best use common data collection tools so that elementary students engage in doing authentic science.

SESSION 3

Introducing Nanotechnology into the Chemistry Classroom (Chem)

(Middle Level–High School) 237, Convention Center

Sherri Conn Rukes (scrukes@comcast.net), Libertyville High School, Libertyville, Ill.

Nanotechnology is a topic that is taking off in many different areas of science. Learn about what nanotechnology is as well as applications from ancient time to present day. Take home a CD with activities and concepts.

SESSION 4

NSELA Session: Action Research for Science Teachers: Useful Tools for Starting a Rewarding Professional Learning Community (Gen)

(General) 201, JW Marriott

Ann Hammersly (ahammersly@susd.org), Chaparral High School, Scottsdale, Ariz.

Learn how to start an action research–based science PLC, including techniques such as incorporating PLC protocols and curriculum topic studies.

SESSION 5



NSTA Press Session: Model-based Science Teaching (Gen)

(General) 203, JW Marriott

Steven W. Gilbert (stevengilb@gmail.com), Retired Educator, Bloomington, Ind.

Teach science in a contemporary context. Discover how modern notions of cognitive modeling can permit you to better define the goals and nature of science while engaging your students in inquiry and content learning.

SESSION 6

SYM-1 Follow-Up Session: Teaching About Climate Change and Public Health: Challenges and Strategies for Effective Communication (Env)

(General) JW Grand Ballroom 2, JW Marriott

Edward W. Maibach and **Erin Peters Burton** (erin.peters1@gmail.com), George Mason University, Fairfax, Va.

Join us as we highlight research on perceptions and belief systems regarding climate change and offer recommendations for strategies on framing discussions about climate change and public health concepts.

SESSION 7

PDI BEST Pathway Session: Energy in the AP Biology Redesign (Bio)

(High School–College) White River Ballroom B, JW Marriott

Jim Smanik (jsmanik@gmail.com), Sycamore High School, Cincinnati, Ohio

Spencer Benson (sbenson@umd.edu), University of Maryland, College Park

Presider: Tanya D. Sharpe (lsharpe@collegeboard.org), The College Board, Duluth, Ga.

Join us as members of the AP Biology Development Committee describe how energy is addressed in the redesign course and on the new exam.

SESSION 8

10 Ways to Use Technology in the Science Classroom (Gen)

(General) Indiana Ballroom C/D, Marriott Downtown

Patti Duncan (patti_duncan@discovery.com), Wallenpaupack Area School District, Hawley, Pa.

Today's technology is more than probeware and Excel spreadsheets. There are many ways to integrate technology in science. Come explore the possibilities!

SESSION 9

Investigating Climate Change and Remote Sensing (Env)

(Middle Level–High School)

Caucus, Westin

David Bydlowski (bydlowd@resa.net) and **Andy Henry** (henrya@resa.net), Wayne RESA, Wayne, Mich.

Learn how remote sensing and NASA resources can help teachers and students understand the science behind Global Climate Change and its relationship to human activity.

SESSION 10

Virtual Earth Science Investigations: Inquiry-based Field Geology in the Classroom (Earth)

(Informal Education)

Grand Ballroom 3, Westin

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

Don Duggan-Haas (dugganhaas@museumoftheearth.org), Museum of the Earth, Paleontological Research Institution, Ithaca, N.Y.

Presider: David M. Heiser

Learn how virtual field geology experiences increase student engagement through the inquiry process and provide valuable alternatives for field studies when trips are impossible.

SESSION 11

NMEA Session: Numerical Models as Predictors of Ocean Change (Phys)

(High School–College)

Grand Ballroom 5, Westin

David C. Wehunt (wehunt@hotmail.com), Soddy Daisy High School, Soddy Daisy, Tenn.

Mark Harris (maharris@dsdmail.net), Layton High School, Layton, Utah

Join us as we compare numerical models of the North Atlantic generated from remote-sensing data to models generated by data collected on location to determine which is more accurate.

5:00–6:00 PM Workshops

A+

Supporting Claim, Evidence, and Reasoning (CER) Across Grades and Curricula (Gen)

(Elementary–High School)

121, Convention Center

Katherine L. McNeill (kmcneill@bc.edu), Boston College, Chestnut Hill, Mass.

Pam Pelletier, Boston (Mass.) Public Schools

Join us as we discuss and provide examples of how to integrate the CER framework into curricula to support students in writing and talking across grades K–12.



Draw Your Way to Better Teaching and Learning in Science (Gen)

(Informal Education)

122, Convention Center

Phyllis Katz (pkatz15@gmail.com), Retired Educator, Silver Spring, Md.

J. Randy McGinnis (jmcginni@umd.edu), NARST President, and University of Maryland, College Park

Kelly Riedinger (riedingerk@uncw.edu), University of North Carolina, Wilmington

Even stick figures will do! Let's draw and consider effective science teaching and learning with a unique coding system. Thoughtful fun!

Book Bag Buddies: Integrating Science and Language Arts Through Science Stories (Gen)

(Elementary)

211, Convention Center

Angie Madden (angie.madden@eku.edu) and **Jeffrey Scott Townsend** (scott.townsend@eku.edu), Eastern Kentucky University, Richmond

To extend inquiry-based science units, we integrated language arts by having elementary students use their favorite stuffed animals as characters in fictional science stories. Handouts!

NMLSTA Session: Caving in the Classroom (Earth)

(Elementary–Middle Level)

240, Convention Center

Holly L. Yoder (hyoder@elkhart.k12.in.us), Pierre Moran Middle School, Elkhart, Ind.

Presider: Matt Hahn (hahn matt@mcsin-k12.org), Northridge Middle School, Middlebury, Ind.

Build a karst and water unit around caving. Use cardboard and tape and add cave creatures, water, formations, and classroom activities for in-depth experiential learning that students won't forget.

ASTC Session: DIY Forensics (Gen)
(General) JW Grand Ballroom 3, JW Marriott
April Chancellor (april.chancellor@msichicago.org) and
Kevin Conley (kevin.conley@msichicago.org), Museum of
 Science and Industry, Chicago, Ill.
 Develop forensic skills and activities on a budget. Experience
 blood spatter analysis, entomology, and more. Free lessons
 and prizes!



NSTA Press Session: Science as a Mystery (Gen)
(Elementary–Middle Level) JW Grand Ballroom 7, JW Marriott
Richard D. Konicek-Moran (konmor@comcast.net), Pro-
 fessor Emeritus, University of Massachusetts Amherst
Andrea Allen (andrea.allen@knoxschools.org), Knox County
 Schools, Knoxville, Tenn.
 Presider: Andrea Allen
 Science is an attempt to solve mysteries. Try out variations of
 the award-winning *Everyday Science Mysteries* series to increase
 inquiry skills in your classroom.

**Physics with a Purpose: Forensic Science Applica-
 tions (Phys)**
(High School–College) JW Grand Ballroom 9, JW Marriott
Kathy Mirakovits (kjmirakovits@chartermi.net), Portage
 Northern High School, Portage, Mich.
 Physics and forensic science? Apply physics via glass, blood-
 stain, and auto skid analysis. Bring new life to your repertoire
 of physics labs inexpensively!

**PDI SPS Pathway Session: Science-related Research in
 the Middle School (Gen)**
(Elementary–Middle Level) White River Blrm. D, JW Marriott
Nicollé C. von der Heyde (nvonderh@hazelwoodschoos.org),
 Hazelwood East Middle School, St. Louis, Mo.
Rebecca Cook (rcook@hazelwoodschoos.org), Hazelwood
 West Middle School, Hazelwood, Mo.
 Attention will be paid to effective instructional practices
 that help students develop research skills such as searching,
 assessing, and using relevant and reliable science information.

**Constructing a Pedagogical Content Knowledge
 Framework for Teaching High School Chemistry (Chem)**
(High School/Supervision) White River Blrm. H, JW Marriott
Andrea G. Van Duzor (agay@csu.edu) and **Rita Koziarski**
 (rkoziars@csu.edu), Chicago State University, Chicago, Ill.
 Learn how to conduct an inquiry activity and co-construct
 a pedagogical content knowledge framework on chemi-

cal equilibrium using a Concept Representations rubric
 addressing learning goals, teaching strategies, and assess-
 ments.

**ELF: Tools and Framework for Teaching Climate
 Change (Gen)**
(General) Indiana Ballroom F, Marriott Downtown
Louise T. Huffman (lhuffman@andrill.org), University of
 Nebraska–Lincoln

Jean Pennycook (jean.pennycook@gmail.com), Einstein Fel-
 low, National Science Foundation, Arlington, Va.
 Recognize the urgency to teach climate change science, but
 not sure where it fits the standards? Need resources? Come
 learn about the Environmental Literacy Framework (ELF)
 and leave armed with resources for integrating climate
 change science into any curriculum along with materials
 for teaching it.

Cutting Energy/Cutting Costs (Gen)
(General) Capitol I, Westin
Karen Reagor, The NEED Project, Manassas, Va.
 Use your school building as a living laboratory! Take home
 lessons and online resources that allow your students to do
 an audit and calculate energy use, emissions, and costs.



5:00–6:00 PM Exhibitor Workshop

Inquiry with Microgravity (Phys)

(Grades 5–12) 142, Convention Center

Sponsor: NASA

Matthew J. Keil, NASA Johnson Space Center, Houston, Tex.

Learn about the microgravity environment and how it affects the motion of familiar toys! A NASA Education Specialist will highlight NASA's microgravity website and education kits. Engage in a hands-on inquiry-based investigation of toys in space and view astronauts demonstrating the same toys on the International Space Station. This workshop will provide all the tools needed to replicate the activities in your classroom.

5:00–8:00 PM Meeting

Open Meeting: Addressing Key Content in the New Science Framework

Senate 1/2, Westin

Join us for a great opportunity to learn about computational thinking featured in the Next Generation Science Standards and to help shape its implementation. Dinner included; 20 participant maximum. Visit <http://opas.ous.edu/CTMeeting> for more information.

7:00–9:00 PM Social

HASTI Social

The Children's Museum of Indianapolis

The Children's Museum of Indianapolis is located at 3000 N. Meridian Street. Check signage for the room upon arrival. For more information on HASTI and this event, please visit www.hasti.org.

A Video Showcase of Legendary Icons, Inspiring Teachers, Memorable Performances, and Stimulating, Engaging Courses: Part 1

6:00 PM–12 Midnight • Indiana Ballroom A/B, Marriott Downtown



Mitchell E. Batoff (mbatoff@aol.com), New Jersey Science Teachers Association, Nutley

Gordon D. Clark, Retired Educator, Manalapan, N.J.

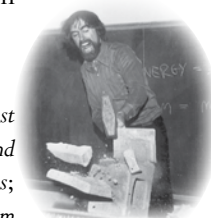
Presider: Gordon D. Clark

This three-part program offers screenings interspersed with commentary, discussion, and some live demonstrations. There will be humor, wonder, and perplexity mixed in with lots of information on a wide range of topics. Pick up ideas and content that will broaden your knowledge and that you can use in your teaching.

The audience will help select from an extensive and enticing menu of course excerpts:

The legendary **Richard Feynman** of California Institute of Technology, *A Visit to His Dentist* and other gems; **Judith Grabiner**, Pitzer College of Claremont, *You Bet Your Life: Statistics and Medicine*; **Michael Wyssession** of Washington University in St. Louis, *How the Earth Works*; **Richard Milner** of the American Museum of Natural History, *Darwin's Universe: Evolution from A to Z*; **Robert Greenler** of the University of Wisconsin, *The Clarinet, Washtub, and Musical Nails: How Musical Instruments Work*; **Carl Sagan** of Cornell University, *One Voice in the Cosmic Fugue*; **Jennifer Simonetti-Bryan**, *The Science of Wine*; **S. James Gates, Jr.**, of the University of Maryland, *Who Is Afraid of Music?* (an excerpt from his 24-lecture course, *Superstring Theory: The DNA of Reality*); **Verne Rockcastle** of Cornell University, *Quantitative Meaningful Science for Intermediate Grades*; **Stephen Ressler** of U.S. Military Academy at West Point, *Understanding the World's Greatest Structures: Science, Engineering, and Innovation*; the legacy of **Paul F-Brandwein**; **Bob Becker**, favorites from his chemistry course at Kirkwood (Mo.) High School, and his mentor **Ron Perkins**, Greenwich (Conn.) High School and later, Educational Innovations; **Neil deGrasse Tyson** of Princeton University and the Hayden Planetarium; **Tik Liem**, *Fascinating Bubbles*; **Sam Wang** of Princeton University, *The Neuroscience of Everyday Life*; **Jearl Walker** of Cleveland State University in conversation with Johnny Carson; **Jane Goodall**, *My Life with the Chimpanzees*; **Steven Strogatz** of Cornell University, *Chaos and the Double Pendulum*; **Harry Wong**, a mind-boggling demonstration; **Paul Hewitt**, demonstrations from his physics course at San Francisco State University; **Scott Page** of the University of Michigan, *Understanding Complexity*; **Alex Filippenko** of University of California, Berkeley, *Black Holes Explained*; **Jeanette Norden** of Vanderbilt University School of Medicine, *Understanding the Brain*; **Richard Muller**, University of California, Berkeley, *Physics for Future Presidents: The Science Behind the Headlines*; **Robert Hazen** of George Mason University and Carnegie Institution of Washington, choice excerpts from his 60-lecture course, *The Joy of Science*; **Michael Starbird** of The University of Texas at Austin, *Random Thoughts on Random Walks*

Dozens of door prizes directly related to this session will be raffled off throughout the evening right up to midnight. Receive a useful handout. Come and go, stay as long as you wish. Bring your dinner.



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Adam Equipment Inc. (Booth No. 959)

Thursday, March 29	4:00–5:30 PM	203, Conv. Center	Hydrates: It Must Be Something in the Water! (p. 198)
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AIMS Education Foundation (Booth No. 1758)

Thursday, March 29	11:30 AM–1:00 PM	101, Conv. Center	Digging into the Geosphere (p. 146)
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Bio-Rad (Booth No. 841)

Thursday, March 29	8:00–9:30 AM	108, Conv. Center	Bio-Rad: Implementing a Skills-based Biotech Program with Author Kirk Brown (p. 115)
Thursday, March 29	9:00–11:30 AM	107, Conv. Center	Bio-Rad Crime Scene Investigator PCR Basics Kit (p. 121)
Thursday, March 29	10:00–11:30 AM	108, Conv. Center	Bio-Rad: Explore Inquiry and Ecology with Biofuel Enzymes (AP Big Idea 4) (p. 139)
Thursday, March 29	1:00–2:30 PM	108, Conv. Center	Bio-Rad: Integrated Molecular Biology Labs for College Level (p. 166)
Thursday, March 29	1:00–3:30 PM	107, Conv. Center	Bio-Rad GMO Investigator Kit (p. 166)

BIOZONE International (Booth No. 1452)

Thursday, March 29	11:30 AM–1:00 PM	103, Conv. Center	BIOZONE Biology Workbooks and Presentation Media (Grades 9–12) (p. 146)
Thursday, March 29	1:30–3:00 PM	103, Conv. Center	AP Biology: Strategies for Teaching Within the New Framework (p. 167)

Carolina Biological Supply Co. (Booth No. 100)

Thursday, March 29	9:30–11:00 AM	145, Conv. Center	Introduction to Electrophoresis (p. 135)
Thursday, March 29	9:30–11:00 AM	144, Conv. Center	Autopsy: Forensic Dissection Featuring Carolina's Perfect Solution® Pigs (p. 135)
Thursday, March 29	9:30–11:00 AM	143, Conv. Center	An Invitation: Getting Started with the Next Generation Science Framework (p. 135)
Thursday, March 29	11:30 AM–1:00 PM	143, Conv. Center	Engineering in the Classroom: Opportunities for Integrating Across Your Curriculum (p. 148)
Thursday, March 29	11:30 AM–1:00 PM	144, Conv. Center	Comparative Mammalian Organ Dissection with Carolina's Perfect Solution® Specimens (p. 148)
Thursday, March 29	11:30 AM–1:00 PM	145, Conv. Center	Introduction to Wisconsin Fast Plants® (p. 148)
Thursday, March 29	1:30–3:00 PM	144, Conv. Center	Introducing Inquiry into the Chemistry Lab: Thermochemistry and Voltaic Cells (p. 169)
Thursday, March 29	1:30–3:00 PM	145, Conv. Center	Hands-On Science with Classroom Critters (p. 169)
Thursday, March 29	1:30–3:00 PM	143, Conv. Center	Integrating Literacy Strategies into Science Instruction (p. 169)
Thursday, March 29	3:30–5:00 PM	143, Conv. Center	Immerse Your Students in an Ocean Sciences Curriculum Sequence for Grades 3–5 (p. 196)
Thursday, March 29	3:30–5:00 PM	145, Conv. Center	Introduction to Protozoa (p. 196)
Thursday, March 29	3:30–5:00 PM	144, Conv. Center	Take the Leap: Carolina's Perfect Solution® Frog Dissection (p. 196)

CPO Science/School Specialty Science (Booth No. 1146)

Thursday, March 29	8:00–9:30 AM	139, Conv. Center	Chemistry and the Atom: Fun with Atom Building Games! (p. 115)
Thursday, March 29	10:00–11:30 AM	139, Conv. Center	Genetics: Crazy Traits and Adaptation Survivor (p. 139)
Thursday, March 29	12 Noon–1:30 PM	139, Conv. Center	Sound, Waves, and Music (p. 150)
Thursday, March 29	2:00–3:30 PM	139, Conv. Center	Light and Optics: A Series of EnLIGHTening Experiments! (p. 182)
Thursday, March 29	4:00–5:30 PM	139, Conv. Center	Genetics: Crazy Traits and Adaptation Survivor (p. 197)

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Delta Education/School Specialty Science (Booth No. 947)

Thursday, March 29	8:00–9:15 AM	138, Conv. Center	Learning the Design Process—Experiment or Product? (p. 114)
Thursday, March 29	10:00–11:15 AM	138, Conv. Center	Delta Science Modules (DSM)—Never Heard of Them? Want to Know More? (p. 138)
Thursday, March 29	1:00–2:30 PM	138, Conv. Center	What’s Going on in There? Inquiry Science for Supervisors, Teacher Trainers, and Trainers (p. 166)
Thursday, March 29	3:00–4:30 PM	138, Conv. Center	Science GnuS—Scientists—Famous and Forgotten and Their Process Skills (p. 184)

Delta Education/School Specialty Science–FOSS (Booth No. 947)

Thursday, March 29	8:00–10:00 AM	137, Conv. Center	The Next Generation of Active Learning with FOSS Third Edition (p. 117)
Thursday, March 29	10:30 AM–12 Noon	137, Conv. Center	Using FOSSweb 2.0 and Technology to Support Learning (p. 142)
Thursday, March 29	1:00–3:00 PM	137, Conv. Center	Taking Science Outdoors with FOSS K–6 (p. 166)
Thursday, March 29	3:30–5:00 PM	137, Conv. Center	Science-centered Language Development Using FOSS (p. 196)

Discovery Education (Booth No. 1567)

Thursday, March 29	7:30–9:00 AM	110, Conv. Center	It’s How They Learn: 21 Ways to Use Discovery Education (p. 102)
Thursday, March 29	9:30–11:00 AM	110, Conv. Center	Stand Back! We’re Using Discovery Education’s Science Techbook (p. 134)
Thursday, March 29	11:30 AM–1:00 PM	110, Conv. Center	Siemens STEM Academy: Top FREE STEM Resources for Your Classroom (p. 146)
Thursday, March 29	1:30–3:00 PM	110, Conv. Center	I Just Want to Sublimate: Phasing Digital Media into Your Science Classroom (p. 168)
Thursday, March 29	3:30–5:00 PM	110, Conv. Center	Science of Everyday Life (p. 195)

Edvotek (Booth No. 1750)

Thursday, March 29	9:30–11:00 AM	201, Conv. Center	How Is HIV Detected in Humans? Welcome to the Exciting World of Immunobiotechnology! (p. 135)
Thursday, March 29	11:30 AM–1:00 PM	201, Conv. Center	Bring the Exciting World of PCR-based and Forensic Science into Your Classroom (p. 148)

Esri (Booth No. 1737)

Thursday, March 29	9:30–11:00 AM	103, Conv. Center	Mapping and Analyzing Science Data (p. 134)
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Flinn Scientific, Inc. (Booth No. 1167)

Thursday, March 29	9:30–11:00 AM	Wabash. 1, Conv. Ctr.	New Guided Inquiry Labs for Advanced Placement® Biology from Flinn Scientific (p. 136)
Thursday, March 29	11:30 AM–1:00 PM	Wabash. 1, Conv. Ctr.	Flinn Scientific Presents Best Practices for Teaching Chemistry™ Experiments and Demonstrations (p. 148)
Thursday, March 29	1:30–3:00 PM	Wabash. 1, Conv. Ctr.	Hands-On Integrated Science Activities for Middle School (p. 169)
Thursday, March 29	3:30–5:00 PM	Wabash. 1, Conv. Ctr.	Make Safety a Habit! Flinn Scientific Workshop (p. 197)

Foundation for Family Science & Engineering (Booth No. 1556)

Thursday, March 29	4:30–6:00 PM	Wabash. 2, Conv. Ctr.	Family Engineering Ice Cream Social and Book Launch Party (p. 198)
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Frey Scientific/School Specialty Science (Booth No. 1047)

Thursday, March 29	8:00–9:15 AM	136, Conv. Center	Incorporating Online Virtual Lab Solutions with STEM-focused Skills (p. 114)
Thursday, March 29	10:00–11:15 AM	136, Conv. Center	STEM Professional Development Opportunity with Inquiry Investigations™ Forensics Module (p. 138)

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Frey Scientific/School Specialty Science, cont.

Thursday, March 29	12 Noon–1:15 PM	136, Conv. Center	STEM Professional Development Opportunity: STEM Education Using Inquiry Investigations™ (p. 149)
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Houghton Mifflin Harcourt (Booth No. 1467)

Thursday, March 29	7:30–9:00 AM	104, Conv. Center	Effective STEM Challenges for the Classroom (p. 101)
Thursday, March 29	9:30–11:00 AM	104, Conv. Center	That's Amazing! Explore the Bizarre, Cool, and Exciting World of Project-based Biology (p. 134)
Thursday, March 29	11:30 AM–1:00 PM	104, Conv. Center	Misconception Mania: Exciting and Engaging Ways to Address Common Misunderstandings in K–8 Science (p. 146)
Thursday, March 29	1:30–3:00 PM	104, Conv. Center	New Physics for New Students: Guiding Them as They See It for the First Time (p. 168)

Howard Hughes Medical Institute (Booth No. 1259)

Thursday, March 29	12 Noon–1:30 PM	109, Conv. Center	HHMI's The Making of the Fittest: Natural Selection and Adaptation in Your Classroom (p. 150)
Thursday, March 29	2:00–3:30 PM	109, Conv. Center	HHMI's Bones, Stones, and Genes: The Origin of Modern Humans (p. 182)
Thursday, March 29	4:00–5:30 PM	109, Conv. Center	Human Evolution: Genetic and Fossil Evidence (p. 197)

It's About Time (Booth No. 847)

Thursday, March 29	8:00–9:00 AM	132, Conv. Center	Project-Based Inquiry Science: PBIS™ Takes the Confusion Out of Implementing STEM in Middle School (p. 114)
Thursday, March 29	9:30–10:30 AM	132, Conv. Center	Active Chemistry: Incorporate STEM into a Chemistry Class Through a Simple Engineering Design Cycle (p. 133)
Thursday, March 29	11:00 AM–12:30 PM	132, Conv. Center	Active Physics: Incorporate STEM in Physics Class Through a Simple Engineering Design Cycle (p. 143)
Thursday, March 29	12:30–1:30 PM	132, Conv. Center	Engineering the Future: A Practical Approach to STEM for High School Students (p. 163)
Thursday, March 29	2:00–3:00 PM	132, Conv. Center	EarthComm: The American Geological Institute Takes an Earth Systems Approach to Introduce STEM Through a Simplified Engineering Design Cycle (p. 181)
Thursday, March 29	3:30–4:30 PM	132, Conv. Center	The First Comprehensive Astronomy Textbook Written Specifically for High School Students (Also Well Suited for Community Colleges) (p. 194)

Ken-A-Vision Manufacturing Co., Inc. (Booth No. 1267)

Thursday, March 29	3:30–5:00 PM	104, Conv. Center	I Can See Clearly Now...Digital Projection Techniques for Better Demonstration Visibility (p. 195)
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LAB-AIDS, Inc. (Booth Nos. 636 and 2167)

Thursday, March 29	7:30–9:00 AM	106, Conv. Center	Solving a Calendar Problem (NexGen Frameworks-style) and Discovering Seasonality (p. 101)
Thursday, March 29	7:30–9:00 AM	105, Conv. Center	Come Get a Charge Out of This! (p. 101)
Thursday, March 29	9:30–11:00 AM	106, Conv. Center	I Think There's a Genetically Engineered Fly in My Genetically Modified Pea Soup! (p. 134)
Thursday, March 29	9:30–11:00 AM	105, Conv. Center	Energy Education Strategies for the Middle Grades (p. 134)
Thursday, March 29	11:30 AM–1:00 PM	106, Conv. Center	Reading the Rocks: Fossils, Evidence, and Crosscutting Concepts (p. 146)
Thursday, March 29	11:30 AM–1:00 PM	105, Conv. Center	Lemons and Light Bulbs: Exploring the Chemistry of Electricity (p. 146)
Thursday, March 29	1:30–3:00 PM	106, Conv. Center	Journaling: It's Not a Fad! Become a Fan (p. 168)

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LAB-AIDS, Inc., cont.

Thursday, March 29	1:30–3:00 PM	105, Conv. Center	Water, Water Everywhere...But I'm Not Drinking It! (p. 168)
Thursday, March 29	3:30–5:00 PM	105, Conv. Center	Phylogenetics—Barking Up a Better Tree? (p. 195)
Thursday, March 29	3:30–5:00 PM	106, Conv. Center	Journaling: It's Not a Fad! Become a Fan (p. 195)

Lawrence Hall of Science (Booth No. 1157)

Thursday, March 29	8:00–9:00 AM	135, Conv. Center	33 Ways to Integrate Science (p. 114)
Thursday, March 29	10:00–11:00 AM	135, Conv. Center	The Four <i>It's</i> of Science (p. 138)
Thursday, March 29	1:00–2:00 PM	135, Conv. Center	Exploring Shoreline Science with an Integrated Science and Literacy Unit (p. 165)

LEGO Education (Booth No. 1357)

Thursday, March 29	8:00–9:30 AM	202, Conv. Center	Engaging Elementary Learners in STEM with LEGO® Education (p. 116)
Thursday, March 29	10:00–11:00 AM	202, Conv. Center	Using LEGO® Bricks to Introduce Simple Machines (p. 138)
Thursday, March 29	11:30 AM–12:30 PM	202, Conv. Center	Enhancing the Elementary Classroom Through Robotics (p. 144)
Thursday, March 29	1:30–3:00 PM	202, Conv. Center	Teaching Middle School STEM with LEGO® Education (p. 169)
Thursday, March 29	3:30–5:00 PM	202, Conv. Center	Robotics in the Classroom—Science, Engineering, and Math Come Alive! (p. 196)

Mississippi State University (Booth No. 2141)

Thursday, March 29	2:00–3:30 PM	136, Conv. Center	Master of Science in Geosciences via Distance Learning from Mississippi State University (p. 182)
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NASA Office of Education (Booth No. 2159)

Thursday, March 29	8:00–8:45 AM	142, Conv. Center	Making the NASA Connection—Online! NEON/AESP (p. 102)
Thursday, March 29	10:00–10:45 AM	142, Conv. Center	IBEX Education Resources and Program (p. 136)
Thursday, March 29	11:00–11:45 AM	142, Conv. Center	Expedition Earth and Beyond: Getting Students Actively Involved in NASA Exploration, Discovery, and the Process of Science (p. 142)
Thursday, March 29	12 Noon–12:45 PM	142, Conv. Center	Teaching from Space (p. 149)
Thursday, March 29	1:00–1:45 PM	142, Conv. Center	Zero Robotics: Students Competing with Robots on the ISS (p. 164)
Thursday, March 29	2:00–2:45 PM	142, Conv. Center	Engineer a Satellite (p. 170)
Thursday, March 29	3:00–3:45 PM	142, Conv. Center	Physics Applications Aboard the International Space Station (p. 184)
Thursday, March 29	4:00–4:45 PM	142, Conv. Center	MY NASA DATA: Data Visualization for Students (p. 197)
Thursday, March 29	5:00–6:00 PM	142, Conv. Center	Inquiry with Microgravity (p. 202)

National Geographic Education (Booth No. 1247)

Thursday, March 29	1:30–3:00 PM	203, Conv. Center	Dive into Marine Ecology with National Geographic (p. 169)
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National Science Foundation (Booth No. 2238)

Thursday, March 29	9:30–11:00 AM	102, Conv. Center	NSF/NBC Short Videos You Can Use in Your Classroom (p. 133)
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PASCO scientific (Booth Nos. 736 and 739)

Thursday, March 29	8:00–9:30 AM	141, Conv. Center	New for Elementary School Science: Learning Key Concepts Through Hands-On, Probeware-based Activities (p. 116)
Thursday, March 29	8:00–9:30 AM	140, Conv. Center	SPARKvue®: A 21st-Century Inquiry-based Science Learning Environment (p. 115)
Thursday, March 29	10:00–11:30 AM	140, Conv. Center	AP® Biology: Cell Respiration in Germinating Peas (p. 139)
Thursday, March 29	10:00–11:30 AM	141, Conv. Center	Physics and Physical Science: Investigating Motion (p. 139)
Thursday, March 29	12 Noon–1:30 PM	141, Conv. Center	Chemistry—Atmospheric Pressure (p. 150)

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PASCO scientific, cont.

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Thursday, March 29	2:00–3:30 PM	140, Conv. Center	Equip Your iPad for Science (p. 182)
Thursday, March 29	2:00–3:30 PM	141, Conv. Center	Renewable Energy Exploration—Solar and Wind Power (p. 183)
Thursday, March 29	4:00–5:30 PM	141, Conv. Center	Exploring Interference and Diffraction of Light (p. 198)
Thursday, March 29	4:00–5:30 PM	140, Conv. Center	Investigating Mitochondrial Genetics (p. 198)

Pearson (Booth No. 553)

Thursday, March 29	7:30–9:00 AM	133, Conv. Center	Stop Teaching and Start Coaching AP Chemistry (p. 102)
Thursday, March 29	7:30–9:00 AM	134, Conv. Center	Using Mastering to Improve Learning Outcomes (p. 102)
Thursday, March 29	9:30–11:00 AM	133, Conv. Center	What's Your Evidence? Engaging K–5 Students in Constructing Explanations in Science (p. 135)
Thursday, March 29	9:30–11:00 AM	134, Conv. Center	From Science to Engineering (p. 135)
Thursday, March 29	11:30 AM–1:00 PM	133, Conv. Center	Inquiry and Evidence: Keys to Getting Students to Inquire (p. 147)
Thursday, March 29	11:30 AM–1:00 PM	134, Conv. Center	The Next Generation of Science Virtual Labs for the Entire Science Curriculum! No Cleanup! (p. 147)
Thursday, March 29	1:30–3:00 PM	133, Conv. Center	Web 2.0 and Science (p. 168)
Thursday, March 29	1:30–3:00 PM	134, Conv. Center	Going Green: Economical and Environmentally Friendly Inquiry in Chemistry (p. 168)
Thursday, March 29	3:30–5:00 PM	133, Conv. Center	Incorporating STEM Activities in Your Classroom (p. 196)
Thursday, March 29	3:30–5:00 PM	134, Conv. Center	Online Learning Exchange, Powered by Pearson: Our Content, Your Content, All in One Place (p. 196)

SAE International's A World In Motion® (Booth No. 1472)

Thursday, March 29	1:30–3:00 PM	201, Conv. Center	A World In Motion® Primary Literacy-based STEM Workshop (p. 169)
Thursday, March 29	3:30–5:00 PM	201, Conv. Center	A World In Motion® Elementary STEM Workshop (p. 196)

Sargent-Welch (Booth No. 1333)

Thursday, March 29	7:30–9:00 AM	131, Conv. Center	Investigating Real-World Physical Science (p. 102)
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Science Kit & Boreal Laboratories (Booth No. 1237)

Thursday, March 29	11:30 AM–1:00 PM	130, Conv. Center	STEM-ify Your Science Lessons! (p. 146)
Thursday, March 29	11:30 AM–1:00 PM	131, Conv. Center	Hands-On Science for the Elementary Classroom Using Probeware (p. 147)
Thursday, March 29	1:30–3:00 PM	131, Conv. Center	Incorporating STEM in Middle School Lessons (p. 168)

Science Take-Out (Booth No. 1872)

Thursday, March 29	3:30–5:00 PM	101, Conv. Center	Genetic Testing for Huntington's Disease (p. 195)
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Simulation Curriculum Corp. (Booth No. 747)

Thursday, March 29	9:30–11:00 AM	101, Conv. Center	The Life and Death of Our Sun and Other Stars (p. 133)
Thursday, March 29	1:30–3:00 PM	101, Conv. Center	<i>The Layered Earth</i> : Geology, Atmosphere, and Climate for the Modern Classroom (p. 167)

The STEM Academy, Inc. (Booth No. 1572)

Thursday, March 29	1:30–3:00 PM	102, Conv. Center	Improve STEM Literacy for All Students (p. 167)
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Vernier Software & Technology (Booth No. 436)

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Thursday, March 29	8:00–9:30 AM	117, Conv. Center	Engineering with Vernier (p. 115)
Thursday, March 29	10:00–11:30 AM	117, Conv. Center	Water Quality with Vernier (p. 139)
Thursday, March 29	10:00–11:30 AM	116, Conv. Center	Physics with Vernier (p. 139)
Thursday, March 29	12 Noon–1:30 PM	117, Conv. Center	Inquiry-based Biology with Vernier (p. 150)
Thursday, March 29	12 Noon–1:30 PM	116, Conv. Center	K–8 Science with Vernier (p. 150)
Thursday, March 29	2:00–3:30 PM	116, Conv. Center	Biology with Vernier (p. 182)
Thursday, March 29	2:00–3:30 PM	117, Conv. Center	Bridging STEM and Vernier Technology (p. 182)

WARD'S Natural Science (Booth No. 1436)

Thursday, March 29	7:30–9:00 AM	130, Conv. Center	Forensic Science: Blood Spatter Across the Curriculum (p. 102)
Thursday, March 29	9:30–11:00 AM	131, Conv. Center	Groundwater Pollution: The Case of the Toppled Tanker (p. 134)
Thursday, March 29	9:30–11:00 AM	130, Conv. Center	Teaching STEM with Forensics (p. 134)
Thursday, March 29	1:30–3:00 PM	130, Conv. Center	WARD'S Presents Cenco AP Physics! (p. 168)
Thursday, March 29	3:30–5:00 PM	130, Conv. Center	WARD'S Updates for AP Biology (p. 195)

Wavefunction, Inc. (Booth No. 1029)

Thursday, March 29	9:30–11:00 AM	203, Conv. Center	Molecular-Level Visualization in Middle School and High School Science Classrooms—Engage Your Students! (p. 135)
Thursday, March 29	11:30 AM–1:00 PM	203, Conv. Center	Teaching AP Chemistry with Molecular-Level Visualization and Simulation Tools (p. 148)

WeatherBug® Schools (Booth No. 2130)

Thursday, March 29	3:30–5:00 PM	103, Conv. Center	Using Weather to Teach Across Multiple Disciplines and to Help Students Stay Safe (p. 195)
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Schedule at a Glance

G = General
P = Preschool
C = College

M = Middle School
H = High School
R = Research

S = Supervision/Administration
I = Informal Education
E = Elementary

T = Teacher Preparation

Biology/Life Science

8:00–9:00 AM	M–H	208, Conv. Center	Population Ecology: Wolf vs. Moose (p. 104)
8:00–9:00 AM	H	245, Conv. Center	Please “Bug” Me About Classification and Diversity (p. 106)
8:00–9:00 AM	H	204, Conv. Center	Biotechnology from Bench to Bedside (p. 110)
8:00–9:00 AM	M–H	244, Conv. Center	Mitosis and Meiosis with the 5Es (p. 104)
8:00–9:00 AM	C	White River I, JW Marriott	Difficult Life Science Concepts in Introductory College Courses (p. 107)
8:00–9:00 AM	M–H/I	123, Conv. Center	Tracking Water from Space: Classroom Resources Using a Global Visualization and NASA Data Sets (p. 110)
8:00–9:00 AM	M–C	JW Grand 4, JW Marriott	The Science and Ethics of Animal Research (p. 112)
8:00–9:30 AM	6–C	108, Conv. Center	Bio-Rad: Implementing a Skills-based Biotech Program with Author Kirk Brown (p. 115)
9:00–11:30 AM	7–C	107, Conv. Center	Bio-Rad Crime Scene Investigator PCR Basics Kit (p. 121)
9:30–10:30 AM	H–C	203, JW Marriott	SCST Session: Relationships and Responsibilities: Introducing Rising College Freshmen to a Science Community of Practice (p. 126)
9:30–10:30 AM	G	209, Conv. Center	Show the Impact of Zebra Mussels via a Web-based Graphing Tool with Long-Term Data Sets (p. 130)
9:30–10:30 AM	P–E	122, Conv. Center	A Hands-On Approach to Exploring Life Cycles (p. 123)
9:30–10:30 AM	M–C	204, Conv. Center	How Would You Find Out If Your Students Can Design Reasonable Biological Experiments? (p. 130)
9:30–10:30 AM	E–M	111/112, Conv. Center	STEM Learning in a Cultural Context: The Crow Education Partnership (p. 123)
9:30–10:30 AM	H	245, Conv. Center	Unravel the Mysteries of Genetics with Mummies (p. 132)
9:30–10:30 AM	E	210, Conv. Center	Eat Your Way to Better Health (p. 130)
9:30–10:30 AM	H–C	JW Grand 4, JW Marriott	DNA Subway in the Classroom (p. 132)
9:30–10:30 AM	M–H	244, Conv. Center	Earth First! Join the Green Life Science Revolution! (p. 126)
9:30–10:30 AM	G	243, Conv. Center	Snakes in the Classroom (Not on a Plane) (p. 126)
9:30–10:30 AM	M	208, Conv. Center	Designing for Inquiry in the Middle School Classroom—It Can Happen (p. 124)
9:30–10:30 AM	I	238, Conv. Center	NIH K–12 LAB (Lessons About Bioscience) Challenge (p. 132)
9:30–11:00 AM	9–12	104, Conv. Center	That’s Amazing! Explore the Bizarre, Cool, and Exciting World of Project-based Biology (p. 134)
9:30–11:00 AM	9–12	145, Conv. Center	Introduction to Electrophoresis (p. 135)
9:30–11:00 AM	9–12	144, Conv. Center	Autopsy: Forensic Dissection Featuring Carolina’s Perfect Solution® Pigs (p. 135)
9:30–11:00 AM	10–12	Wabash 1, Conv. Center	New Guided Inquiry Labs for Advanced Placement® Biology from Flinn Scientific (p. 136)
9:30–11:00 AM	8–C	201, Conv. Center	How Is HIV Detected in Humans? Welcome to the Exciting World of Immunobiotechnology! (p. 135)
9:30–11:00 AM	9–12	106, Conv. Center	I Think There’s a Genetically Engineered Fly in My Genetically Modified Pea Soup! (p. 134)
10:00–11:30 AM	6–C	108, Conv. Center	Bio-Rad: Explore Inquiry and Ecology with Biofuel Enzymes (AP Big Idea 4) (p. 139)
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11:30 AM–1:00 PM	6–12	144, Conv. Center	Comparative Mammalian Organ Dissection with Carolina’s Perfect Solution® Specimens (p. 148)
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11:30 AM–1:00 PM	9–C	103, Conv. Center	BIOZONE Biology Workbooks and Presentation Media (Grades 9–12) (p. 146)
11:30 AM–1:00 PM	8–C	201, Conv. Center	Bring the Exciting World of PCR-based and Forensic Science into Your Classroom (p. 148)
11:30 AM–1:00 PM	6–9	106, Conv. Center	Reading the Rocks: Fossils, Evidence, and Crosscutting Concepts (p. 146)
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12 Noon–1:30 PM	9–C	117, Conv. Center	Inquiry-based Biology with Vernier (p. 150)

Schedule at a Glance Biology/Life Science, cont.

12 Noon–1:30 PM	7–C	109, Conv. Center	HHMI's The Making of the Fittest: Natural Selection and Adaptation in Your Classroom (p. 150)
12:30–1:30 PM	C	203, JW Marriott	SCST Session: Assessment Challenges for Undergraduate Introductory Biology Courses: A Study of Online and Traditional Approaches (p.157)
12:30–1:30 PM	C	White River I, JW Marriott	Rediscovering Research at a Small Liberal Arts Institution (p. 158)
12:30–1:30 PM	M	208, Conv. Center	Food Chains: Using Field Surveys That Give Real Numbers (p. 161)
12:30–1:30 PM	H	245, Conv. Center	Drop the Lecture and Let the Students Pick Up the Learning in AP Biology (p. 162)
12:30–1:30 PM	H–C	JW Grand 4, JW Marriott	Dive In with Physical Models: Impact of Water on Protein Structure (p. 162)
12:30–1:30 PM	G	209, Conv. Center	Medical Mysteries Web Adventures (p. 154)
12:30–1:30 PM	M–H	244, Conv. Center	If a Starfish Can Grow a New Arm, Why Can't I? Join the Classroom Regeneration Revolution! (p. 156)
12:30–1:30 PM	M–C	204, Conv. Center	Dialogues for the Biology Classroom (p. 154)
12:30–1:30 PM	E	210, Conv. Center	From Seed to Fruit—Exploring the Garden and Pollination (p. 154)
12:30–1:30 PM	C	White River I, JW Marriott	Undergraduate Biology Students' Conceptions of the Term "Animal" (p. 158)
1:00–2:30 PM	9–C	108, Conv. Center	Bio-Rad: Integrated Molecular Biology Labs for College Level (p. 166)
1:00–3:30 PM	8–C	107, Conv. Center	Bio-Rad GMO Investigator Kit (p. 166)
1:30–3:00 PM	9–12	103, Conv. Center	AP Biology: Strategies for Teaching Within the New Framework (p. 167)
1:30–3:00 PM	K–12	145, Conv. Center	Hands-On Science with Classroom Critters (p. 169)
1:30–3:00 PM	9–12	203, Conv. Center	Dive into Marine Ecology with National Geographic (p. 169)
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2:00–3:00 PM	E	210, Conv. Center	Searching for Starch in the Food Pyramid (p. 178)
2:00–3:00 PM	M–H	245, Conv. Center	Turning "Game Time" into "Brain Time": Linking In-class Curricula with Video Games at Home (p. 180)
2:00–3:00 PM	M	208, Conv. Center	Prairie Data Master Class (p. 178)
2:00–3:00 PM	H–C	White River I, JW Marriott	An Overview of the Revised AP Biology Course (p. 175)
2:00–3:00 PM	H–C	JW Grand 4, JW Marriott	Integrating Bioinformatics into Introductory Biology Courses (p. 180)
2:00–3:00 PM	M–H	244, Conv. Center	Inquiry for Everyone: Labs for Primary Content Delivery (p. 173)
2:00–3:00 PM	M–C	204, Conv. Center	Chromonoodles: Jump In the Gene Pool (p. 172)
2:00–3:00 PM	G	209, Conv. Center	CSI Web Adventures (p. 172)
2:00–3:30 PM	8–C	116, Conv. Center	Biology with Vernier (p. 182)
2:00–3:30 PM	9–C	109, Conv. Center	HHMI's Bones, Stones, and Genes: The Origin of Modern Humans (p. 182)
3:00–4:30 PM	H	309/310, JW Marriott	BSCS Pathway Session: Getting Ready for the Changes in AP Biology (p. 184)
3:30–4:30 PM	G	JW Grand 2, JW Marriott	SYM-1 Follow-Up Session: Explore Impacts of Different Carbon Emissions Scenarios on Eastern U.S. Birds and Trees (p. 189)
3:30–4:30 PM	P	123, Conv. Center	Develop Literacy, Math, Science, and Social Studies School-Readiness Skills in Early Childhood Education via Local Wildlife and Farm Animals (p. 191)
3:30–4:30 PM	H–C	JW Grand 4, JW Marriott	Let's Get Helical: Exploring DNA Structure/Function with Interactive Physical Models (p. 193)
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3:30–4:30 PM	M/I	208, Conv. Center	Evaluate the Impact of an Electronic Field Trip on Students' Perceptions of Scientists with a "Draw a Scientist" Test (p. 187)
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Schedule at a Glance Biology/Life Science, cont.

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3:30–5:00 PM	6–12	144, Conv. Center	Take the Leap: Carolina's Perfect Solution® Frog Dissection (p. 196)
3:30–5:00 PM	K–8	110, Conv. Center	Science of Everyday Life (p. 195)
3:30–5:00 PM	11–12	130, Conv. Center	WARD'S Updates for AP Biology (p. 195)
3:30–5:00 PM	9–12	105, Conv. Center	Phylogenetics—Barking Up a Better Tree? (p. 195)
4:00–5:30 PM	9–12	140, Conv. Center	Investigating Mitochondrial Genetics (p. 198)
4:00–5:30 PM	9–C	109, Conv. Center	Human Evolution: Genetic and Fossil Evidence (p. 197)
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Chemistry/Physical Science

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8:00–9:00 AM	H–C	302/303, JW Marriott	Chemistry Misconceptions, Concept Inventories, and Measuring Student Learning (p. 106)
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8:00–9:00 AM	H–C	302/303, JW Marriott	A Closer Focus: Development of an Extended Mechanism Writing Assignment in Organic Chemistry (p. 106)
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9:30–10:30 AM	E–H	236, Conv. Center	Lessons Learned from Past AP Chemistry Exams (p. 125)
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11:30 AM–1:00 PM	8–C	203, Conv. Center	Teaching AP Chemistry with Molecular-Level Visualization and Simulation Tools (p. 148)
11:30 AM–1:00 PM	9–12	105, Conv. Center	Lemons and Light Bulbs: Exploring the Chemistry of Electricity (p. 146)
12 Noon–1:30 PM	9–12	141, Conv. Center	Chemistry—Atmospheric Pressure (p. 150)
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12:30–1:30 PM	H–C	JW Grand 9, JW Marriott	Halloween Chemistry Costume Show and Fun/Informative Demos (p. 162)
12:30–1:30 PM	H	127, Conv. Center	The Polymer Science of Sporting Spheres (aka Balls) (p. 160)
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1:30–3:00 PM	9–12	134, Conv. Center	Going Green: Economical and Environmentally Friendly Inquiry in Chemistry (p. 168)
1:30–3:00 PM	9–12	105, Conv. Center	Water, Water Everywhere...But I'm Not Drinking It! (p. 168)
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2:00–3:00 PM	H	127, Conv. Center	Real Science, Real Stories: Using a Research-based Lab Module to Model the Scientific Enterprise (p. 172)
2:00–3:00 PM	M–H	123, Conv. Center	Bioplastics—Going from Synthetic to Natural Polymers (p. 172)
3:30–4:30 PM	G	Sagamore Blrm. 7, Conv. Center	Forensic Science Education: Multidisciplinary Science—Bringing Critical Thinking, Interactive Learning, and Creativity to the Classroom (p. 186)
3:30–4:30 PM	M–H	237, Conv. Center	Science + GIS = Real-World Problem Solving + Core Knowledge (p. 188)
3:30–4:30 PM	H	127, Conv. Center	All It Takes Is a Little Data (p. 188)

Schedule at a Glance Chemistry/Physical Science, cont.

3:45–4:45 PM	G	JW Grand 8, JW Marriott	Science Leadership Summit Session: Increasing Student Engagement and Achievement Through Teacher-led Professional Learning Communities (p. 197)
4:00–5:30 PM	7–12	203, Conv. Center	Hydrates: It Must Be Something in the Water! (p. 198)
5:00–5:30 PM	H–C	White River I, JW Marriott	Visualizing the Chemistry of Climate Change (p. 198)
5:00–6:00 PM	H/S	White River H, JW Marriott	Constructing a Pedagogical Content Knowledge Framework for Teaching High School Chemistry (p. 201)
5:00–6:00 PM	M–H	237, Conv. Center	Introducing Nanotechnology into the Chemistry Classroom (p. 199)

Earth/Space Science

7:30–9:00 AM	6–9	106, Conv. Center	Solving a Calendar Problem (NexGen Frameworks-style) and Discovering Seasonality (p. 101)
8:00–9:00 AM	E–H	Grand Ballroom 2, Westin	Flat Maps to Models: Developing an Understanding of the Shape of Our World (p. 113)
8:00–9:00 AM	G	Capitol II, Westin	Extragalactic Explorations: Citizen Science Inquiry in Your Classroom (p. 108)
8:00–9:00 AM	M–H	Capitol III, Westin	Getting Hands On/Minds On with Earthquakes Through iPods, Laptops, and Other Portable Accelerometers (p. 113)
8:00–9:00 AM	H	Grand Ballroom 1, Westin	Let's Make Some Waves (p. 110)
8:00–9:00 AM	G	Congress I/II, Westin	Bring NASA Science into Your Classroom! (p. 110)
8:00–9:00 AM	E–H	Grand Ballroom 3, Westin	Project ASTRO™: Bringing the Universe into the Classroom by Partnering Astronomers with Teachers (p. 110)
8:00–9:00 AM	E–M/I	233, Conv. Center	CREATE Workshop Engaging Through STEM (p. 104)
9:00–10:00 AM	G	Sagamore Blrm 7, Conv. Center	Inspiring the Next Generation of STEM Leaders (p. 120)
9:30–10:30 AM	G	Grand Ballroom 3, Westin	NASA, Supernovas, and the Crab (p. 129)
9:30–10:30 AM	M–H	Grand Ballroom 1, Westin	NASA's WISE Mission Presents: More Than A Pretty Picture—Using Astronomical Data in the Classroom (p. 129)
9:30–10:30 AM	H–C/I	Capitol III, Westin	Ice Core Records—From Volcanoes to Stars (p. 133)
9:30–10:30 AM	G	Capitol II, Westin	Understanding Lightning and Lightning Safety (p. 129)
9:30–10:30 AM	E–H	Grand Ballroom 2, Westin	Cereal Box Pinhole Projectors—"They're Grrreat!" (p. 133)
9:30–10:30 AM	E–M	233, Conv. Center	Inquiries into the Dynamic Earth—Beware of Change! (p. 131)
9:30–11:00 AM	K–12	101, Conv. Center	The Life and Death of Our Sun and Other Stars (p. 133)
10:00–10:45 AM	6–12	142, Conv. Center	IBEX Education Resources and Program (p. 136)
11:00–11:45 AM	5	142, Conv. Center	Expedition Earth and Beyond: Getting Students Actively Involved in NASA Exploration, Discovery, and the Process of Science (p. 142)
11:00 AM–12 Noon	M–H	JW Grand 7, JW Marriott	NSTA Press Session: Solving "Earth Science Puzzles" with Data (p. 143)
11:30 AM–1:00 PM	6–9	101, Conv. Center	Digging into the Geosphere (p. 146)
12:30–1:30 PM	M–H	Grand Ballroom 3, Westin	NASA INSPIRE Project (p. 160)
12:30–1:30 PM	M–H	Capitol III, Westin	Opening Doors to CAREERS in Meteorology—Taking Summer Weather Camp Experiences Back to the Classroom (p. 163)
12:30–1:30 PM	M–H	Grand Ballroom 5, Westin	NMEA Session: Navigating Through Oceans of Data (p. 160)
12:30–1:30 PM	M–H/I	Grand Ballroom 1, Westin	NASA: Exploring the Universe Through the World Wide Telescope (p. 160)
12:30–1:30 PM	S	White River H, JW Marriott	STEM: What "Inquiring Minds" Need to Know (p. 162)
12:30–1:30 PM	M	233, Conv. Center	Conduct Inquiry via Science Institutions (p. 161)
12:30–1:30 PM	E	123, Conv. Center	NASA's Ready-to-Go Solar Science and Solar Energy Activities for the K–5 Classroom (p. 160)
12:30–1:30 PM	E	232, Conv. Center	What on Earth?! Teach the Toughest Earth Science Standards (p. 161)
12:30–1:30 PM	I	Grand Ballroom 2, Westin	Sunscope (p. 163)
1:30–3:00 PM	5C	101, Conv. Center	The Layered Earth: Geology, Atmosphere, and Climate for the Modern Classroom (p. 167)
2:00–3:00 PM	8–12	132, Conv. Center	EarthComm: The American Geological Institute Takes an Earth Systems Approach to Introduce STEM Through a Simplified Engineering Design Cycle (p. 181)
2:00–3:00 PM	M–C	Grand Ballroom 2, Westin	Teach the Electromagnetic Spectrum via the Sun and the 5Es (p. 181)
2:00–3:00 PM	G	Capitol II, Westin	CSI: Climate Scene Investigation! Teaching Climate and Seasons as Scientific Mystery Stories (p. 176)

Schedule at a Glance Earth/Space Science, cont.

2:00–3:00 PM	H	Grand Ballroom 1, Westin	NASA: Evolution of the Universe (p. 177)
2:00–3:00 PM	S	White River H, JW Marriott	Down That “Dusty” Instructional Road Paved with Technology (p. 180)
2:00–3:00 PM	H–C/I	Capitol III, Westin	Honey, I Shrunk the Data! (p. 181)
2:00–3:00 PM	I	Grand Ballroom 3, Westin	Welcome to the Zooniverse: A Citizen—and Student—Science Network! (p. 177)
2:00–3:30 PM	9–12	141, Conv. Center	Renewable Energy Exploration—Solar and Wind Power (p. 183)
2:00–3:30 PM	K–12	136, Conv. Center	Master of Science in Geosciences via Distance Learning from Mississippi State University (p. 182)
2:00–4:00 PM	G	Sagamore Blrm. 1–5, Conv. Center	What Makes Space So Much Fun and So Hard? (p. 183)
3:30–4:30 PM	9–C	132, Conv. Center	The First Comprehensive Astronomy Textbook Written Specifically for High School Students (Also Well Suited for Community Colleges) (p. 194)
3:30–4:30 PM	PM	122, Conv. Center	Close Enough: A Journey into Solar System Modeling for Hands-On Thinking (p. 187)
3:30–4:30 PM	M–H	Grand Ballroom 3, Westin	Galaxies and Gravity Galore (p. 191)
3:30–4:30 PM	M–C	Cabinet, Westin	Using Google Earth in the Classroom (p. 190)
3:30–4:30 PM	H	Congress I/II, Westin	Extreme Exploration: Journey to the Radiation Belts (p. 191)
3:30–4:30 PM	G	Indiana A/B, Marriott	The SOFIA Airborne Astronomy Ambassadors Program: Observing the Infrared Universe from the Stratosphere (p. 190)
3:30–4:30 PM	M–H	Capitol III, Westin	Earthquakes, Gases, Geysers, and Explosions: Exploring Yellowstone’s Dynamic Landscape (p. 194)
3:30–4:30 PM	M–H	Congress I/II, Westin	Uncertain Answers: Exploring Climate Change and Water Sustainability with Models (p. 191)
3:30–5:00 PM	G	103, Conv. Center	Using Weather to Teach Across Multiple Disciplines and to Help Students Stay Safe (p. 195)
4:00–4:45 PM	5	142, Conv. Center	MY NASA DATA: Data Visualization for Students (p. 197)
5:00–6:00 PM	E–M	240, Conv. Center	NMLSTA Session: Caving in the Classroom (p. 200)
5:00–6:00 PM	I	Grand Ballroom 3, Westin	Virtual Earth Science Investigations: Inquiry-based Field Geology in the Classroom (p. 200)

Environmental Science

8:00–9:00 AM	G	Grand Ballroom 5, Westin	NMEA Session: A Whale of a Tale Share-a-Thon (p. 113)
8:00–9:00 AM	M–H	Capitol I, Westin	Climate Change Made Fun and Easy Through Labs (p. 113)
8:00–9:00 AM	E	Cabinet, Westin	Teacher as Researcher (p. 108)
9:30–10:30 AM	P	235, Conv. Center	Developing Early Childhood Learners’ Inquiry Skills Through Play-based Nature Study Activities (p. 124)
9:30–10:30 AM	E–M	234, Conv. Center	Powering the Future Through Museum/School Collaborations (p. 131)
9:30–10:30 AM	M	Grand Ballroom 5, Westin	NMEA Session: Ocean Literacy in the Heartland: Bringing the Ocean to the Landlocked (p. 129)
9:30–10:30 AM	G	Congress I/II, Westin	EcoTipping Points: Success Stories from Around the World (p. 129)
9:30–10:30 AM	G	Cabinet, Westin	Field Investigations: Foster Student Learning of the Scientific Process with Outdoor Environments (p. 129)
9:30–10:30 AM	G	Congress I/II, Westin	Chums Partnership and Drip Irrigation (p. 129)
9:30–10:30 AM	H–C/I	205, JW Marriott	Advancing Environmental Stewardship Through Service Learning and Community Partnerships (p. 127)
9:30–10:30 AM	E–M/I	240, Conv. Center	NMLSTA Session: Flying WILD (p. 125)
9:30–11:00 AM	7–12	131, Conv. Center	Groundwater Pollution: The Case of the Toppled Tanker (p. 134)
10:00–11:30 AM	7–C	117, Conv. Center	Water Quality with Vernier (p. 139)
12:30–1:30 PM	G	Cabinet, Westin	Investigating Student Understanding of Recycling and Composting Over the Course of an Environmental Inquiry Project (p. 159)
12:30–1:30 PM	E	235, Conv. Center	Compost: The “Rot” Thing for Our Earth (p. 156)
12:30–1:30 PM	G	Capitol I, Westin	Object Lessons to Enhance Environmental Learning (p. 163)
12:30–1:30 PM	M	234, Conv. Center	The Three S’s—Students, Stewardship, and Sustainability (p. 161)
12:30–1:30 PM	G	Caucus, Westin	The Great Lakes Fuel Cell Partnership (p. 160)
12:30–1:30 PM	M–H	Congress I/II, Westin	Bring Remote Sensing Alive with Kites (p. 160)

Schedule at a Glance Environmental Science, cont.

12:30–3:30 PM	G	JW Grand 10, JW Marriott	ASTC Session: The UVA Bay Game: A Participatory Simulation of Environmental and Economic Sustainability in the Chesapeake Bay (p. 164)
2:00–3:00 PM	M–H/I	JW Grand 2, JW Marriott	SYM-1 Follow-Up Session: Climate Toolbox: Tools for Educators (p. 175)
2:00–3:00 PM	H–C	Caucus, Westin	Kicking the “Cookbook” Out of AP Environmental Science (p. 176)
2:00–3:00 PM	G	Capitol I, Westin	Wetlands and Watersheds with Inquiry (p. 180)
2:00–3:00 PM	I	235, Conv. Center	Support Student Environment Research with Analyzing Digital Images Software (p. 179)
2:00–3:00 PM	G	Cabinet, Westin	Primary/Secondary Environmental Sustainability Day (p. 176)
2:00–3:00 PM	G	Congress I/II, Westin	Crop Life Ambassador Program (p. 177)
2:00–3:00 PM	E	234, Conv. Center	Building the Foundations of Climate Literacy in the Elementary Grades (p. 173)
3:30–4:30 PM	E–H	Capitol II, Westin	How Can I Help? Empowering Students with Citizen Science (p. 190)
3:30–4:30 PM	G	Capitol I, Westin	Resources, Energy, and Oil: From Peaks to Spills (p. 194)
3:30–4:30 PM	I	Grand Ballroom 5, Westin	NMEA Session: Seabirds as Ocean Ambassadors (p. 194)
3:30–4:30 PM	G	Caucus, Westin	Planetary Sustainability: Educators in Action (p. 190)
3:30–4:30 PM	G	Cabinet, Westin	Trees, Technology, Ecology, and Inquiry: Digital Ecological Modeling for Educators and Students (p. 190)
5:00–6:00 PM	M–H	Caucus, Westin	Investigating Climate Change and Remote Sensing (p. 200)
5:00–6:00 PM	G	JW Grand 2, JW Marriott	SYM-1 Follow-Up Session: Teaching About Climate Change and Public Health: Challenges and Strategies for Effective Communication (p. 199)

Integrated/General

7:30–9:00 AM	38	104, Conv. Center	Effective STEM Challenges for the Classroom (p. 101)
7:30–9:00 AM	9–12	134, Conv. Center	Using Mastering to Improve Learning Outcomes (p. 102)
7:30–9:00 AM	K–12	110, Conv. Center	It's How They Learn: 21 Ways to Use Discovery Education (p. 102)
7:30–9:00 AM	7–12	130, Conv. Center	Forensic Science: Blood Spatter Across the Curriculum (p. 102)
8:00–8:30 AM	G	Marriott Blrm. 10, Marriott	Science College Readiness for All: A Research-based Working Definition (p. 102)
8:00–8:45 AM	K–12	142, Conv. Center	Making the NASA Connection—Online! NEON/AESP (p. 102)
8:00–9:00 AM	6–8	132, Conv. Center	Project-Based Inquiry Science: PBIS™ Takes the Confusion Out of Implementing STEM in Middle School (p. 114)
8:00–9:00 AM	24	135, Conv. Center	33 Ways to Integrate Science (p. 114)
8:00–9:00 AM	P–E	211, Conv. Center	Oobleck, Slime, and Dancing Spaghetti: Using Children's Literature to Enhance Your Science Curriculum (p. 111)
8:00–9:00 AM	G	Michigan/Texas, Marriott	Sanity: Integrating Classroom Projects Without Losing Your Mind (p. 108)
8:00–9:00 AM	E	122, Conv. Center	A Full Year of STEM Class...and the Kids Loved It! (p. 103)
8:00–9:00 AM	G	Indiana Ballroom G, Marriott	It's All in the Family: Hosting a Family Science Event (p. 113)
8:00–9:00 AM	I	232, Conv. Center	Teaching Inquiry Through Engineering (p. 104)
8:00–9:00 AM	G	202, JW Marriott	NARST Session: Venn Diagrams for Lesson Planning (p. 112)
8:00–9:00 AM	G	203, JW Marriott	NSTA Press Session: Front-Page Science: Engaging Teens in Science Literacy (p. 106)
8:00–9:00 AM	C	204, JW Marriott	ASTE Session: Making Science Matter: School/University Partnerships for Successful Teacher Education (p. 106)
8:00–9:00 AM	G	209, JW Marriott	CSSS Session: Crosscutting Concepts from the NRC Science Framework (p. 106)
8:00–9:00 AM	S	White River B, JW Marriott	BEST Pathway Session: Connecting Energy Concepts Through Professional Development (p. 107)
8:00–9:00 AM	G	101, JW Marriott	Coaching: Knowledge That Works for Science Education Leadership—Strategies for Authentic Literacy (p. 112)
8:00–9:00 AM	G	Marriott Blrm. 7, Marriott	Rubric Redesign (p. 113)
8:00–9:00 AM	G	208, JW Marriott	A Summer Research-based Program's Impact on Students' Attitudes Toward Science (p. 106)
8:00–9:00 AM	E	212, Conv. Center	Everybody Loves I.N.D.Y.C.A.R.S. (Incredible New Discoveries You Can Achieve Really Simply)! (p. 104)
8:00–9:00 AM	G	Indiana A/B, Marriott	Integrating Creativity and Technology to Increase Science Achievement (p. 108)

Schedule at a Glance Integrated/General Science, cont.

8:00–9:00 AM	G	Indiana C/D, Marriott	iLove Teaching Science with iPads (p. 113)
8:00–9:00 AM	E–M	242, Conv. Center	The Digital Natives Are Restless—Web 2.0 Tools to the Rescue! (p. 104)
8:00–9:00 AM	E	121, Conv. Center	I Am a Scientist! (p. 110)
8:00–9:00 AM	M	243, Conv. Center	Designing Creativity Assessments for the STEM Environment (p. 104)
8:00–9:00 AM	E–M	241, Conv. Center	wE-STEM, Do You? (p. 112)
8:00–9:00 AM	E–H	Marriott Blrm. 3, Marriott	Brilliant but Busted: Using Superseded Theories to Engage Students in Science and History (p. 108)
8:00–9:00 AM	E–M	JW Grand 7, JW Marriott	NSTA Press Session: Outdoor Science (p. 112)
8:00–9:00 AM	G	JW Grand 5, JW Marriott	Is This Your First NSTA Conference? (p. 112)
8:00–9:00 AM	M	Marriott Blrm. 9, Marriott	What's in Your School Yard? Strategies to Teach New Science Core Standards in the Middle Grades! (p. 108)
8:00–9:00 AM	G	Marriott Blrm. 2, Marriott	Science, Literacy, and Language Learning for English Language Learners and Students with Interrupted Formal Education (p. 108)
8:00–9:00 AM	M–H	111/112, Conv. Center	Digital Time Machine (p. 103)
8:00–9:00 AM	M–H	234, Conv. Center	Understanding Earth's Magnetism and Space Weather (p. 111)
8:00–9:00 AM	M–H	128, Conv. Center	Scientific Inquiry for All: Making Inquiry More Accessible for Students of All Skill Levels (p. 110)
8:00–9:00 AM	E	231, Conv. Center	Why Do I Have to Know This? Engineering Design Challenges That Drive Inquiry Science (p. 111)
8:00–9:00 AM	M	239, Conv. Center	Computer-supported Collaborative Science: Support Inquiry in the Middle School Science Classroom with Google Apps (p. 112)
8:00–9:00 AM	G	Chamber, Westin	An Arctic Connection: A Teacher Exchange Program Among U.S. and Swedish Educators (p. 110)
8:00–9:00 AM	H	113, Conv. Center	Increasing Inquiry and Engagement with Forensics (p. 103)
8:00–9:00 AM	E–M	240, Conv. Center	NMLSTA Session: What Goes Up, Must Come Down—Are All Parachutes Created Equal? (p. 112)
8:00–9:00 AM	G	208, JW Marriott	C-Print Captioning to Support STEM Learning of Diverse Students (p. 106)
8:00–9:00 AM	G	Marriott Blrm. 1, Marriott	Polar Science and Engineering: An Exciting Model for Inquiry (p. 108)
8:00–9:15 AM	K–6	138, Conv. Center	Learning the Design Process—Experiment or Product? (p. 114)
8:00–9:15 AM	7–12	136, Conv. Center	Incorporating Online Virtual Lab Solutions with STEM-focused Skills (p. 114)
8:00–9:30 AM	G	White River C, JW Marriott	PSTEM Pathway Session: More Best Practices in Teaching: A Look at the Research (p. 114)
8:00–9:30 AM	7–C	117, Conv. Center	Engineering with Vernier (p. 115)
8:00–9:30 AM	K–12	140, Conv. Center	SPARKvue®: A 21st-Century Inquiry-based Science Learning Environment (p. 115)
8:00–9:30 AM	46	141, Conv. Center	New for Elementary School Science: Learning Key Concepts Through Hands-On, Probeware-based Activities (p. 116)
8:00–9:30 AM	G	309/310, JW Marriott	BSCS Pathway Session: Understanding the Practices of Science for Classroom Implementation (p. 115)
8:00–9:30 AM	G	120, Conv. Center	Technology + Science = Making IT Work (p. 114)
8:00–10:00 AM	G	White River G, JW Marriott	McREL Pathway Session: What Works in Science Classrooms—Developing Student Understanding: Identifying Learning Goals and the Criteria for Success from the Common Core Science Standards (p. 116)
8:00–10:00 AM	G	White River A, JW Marriott	ITEEA Pathway Session: STEM Resources for Grades K–2 (p. 116)
8:00–10:00 AM	P–E	White River D, JW Marriott	SPS Pathway Session: They're Not Too Young: Emergent Writers Thinking and Writing Like Scientists (p. 116)
8:00–10:00 AM	K–6	137, Conv. Center	The Next Generation of Active Learning with FOSS Third Edition (p. 117)
8:00–11:00 AM	G	102, JW Marriott	WestEd Pathway Session: The TLC Is a PLC! (p. 117)
8:30–9:00 AM	G	White River E/F, JW Marriott	Today's Students and Tomorrow's Science: Global Opportunities in a Changing World (p. 119)
9:30–10:30 AM	G	Sagamore Blrm. 6, Conv. Center	Teaching Science Inquiry Through Storytelling (p. 123)
9:30–10:30 AM	G	209, JW Marriott	CSSS Session: The Governor's Academy for Science and Mathematics Leadership (p. 127)
9:30–10:30 AM	C	203, JW Marriott	SCST Session: Preferences of 21st-Century Students for Social Networking in College Science Classes (p. 126)

Schedule at a Glance Integrated/General Science, cont.

9:30–10:30 AM	H–C	203, JW Marriott	SCST Session: Optimizing Online Discussion Board Forums’ Content and Time Parameters for Increased Student Scientific Literacy (p. 126)
9:30–10:30 AM	G	202, JW Marriott	NARST Session: Improving Science Instruction Through a Curriculum Topic Study on Inquiry (p. 132)
9:30–10:30 AM	G	204, JW Marriott	ASTE Session: The Next Generation of Science Education Standards—Are You Prepared to Lead the Way? (p. 126)
9:30–10:30 AM	G	Indiana Ballroom F, Marriott	Beekeeping: The Perfect Way to Merge Inquiry, Creativity, and STEM (p. 132)
9:30–10:30 AM	G	Indiana A/B, Marriott	Learn to Use Technology and Recursive Concept Mapping to Represent Learning (p. 127)
9:30–10:30 AM	G	Marriott Blrm. 3, Marriott	An Art and Science Collaborative Experience in a Teacher Preparation Program (p. 128)
9:30–10:30 AM	E–M	239, Conv. Center	STEM Camp Model: Successes and Challenges (p. 125)
9:30–10:30 AM	E	231, Conv. Center	A 5E Learning Cycle Integrating Science, Health, and Language Arts (p. 131)
9:30–10:30 AM	G	Indiana Ballroom G, Marriott	Decreasing Ambiguity in Spoken Mathematics (p. 132)
9:30–10:30 AM	G	Marriott Blrm. 9, Marriott	International Cyber School Where People in the World Learn Science Together (p. 128)
9:30–10:30 AM	G	Indiana Ballroom C/D, Marriott	Pathways from Science-rich Institutions to Your Classroom (p. 128)
9:30–10:30 AM	I	232, Conv. Center	Soil Microbes, Land Management, and Global Climate Change (p. 131)
9:30–10:30 AM	E–M	JW Grand 7, JW Marriott	NSTA Press Session: Bringing Outdoor Science into Your Classroom (p. 132)
9:30–10:30 AM	G	White River J, JW Marriott	Classroom Formative Assessment: Strategies to Enhance Student Learning (p. 127)
9:30–10:30 AM	E–M	242, Conv. Center	Little Understanding: Preparing Students for Nanotechnology (p. 126)
9:30–10:30 AM	EU	201, JW Marriott	Taking Science to Go (p. 126)
9:30–10:30 AM	P–E	Marriott Blrm. 7, Marriott	Exploring Young Children’s Science Knowledge and Understanding (p. 132)
9:30–10:30 AM	G	White River J, JW Marriott	Including Students in Assessments (p. 127)
9:30–10:30 AM	G	Michigan/Texas, Marriott	Toward a Diverse Science Classroom: Tools and Topics for Engaging Discourse on Gender and Multiculturalism (p. 129)
9:30–10:30 AM	G	Marriott Blrm. 10, Marriott	Developing Creativity as We Engage in Science (p. 128)
9:30–10:30 AM	E–H	Chamber, Westin	Bring the Great Lakes into Your Classroom (p. 129)
9:30–10:30 AM	G	Marriott Blrm. 9, Marriott	Foster International Collaborative Research Partnerships with Global Communication Technologies (p. 128)
9:30–10:30 AM	G	Marriott Blrm. 2, Marriott	Family Science Nights Excite the Entire Community! (p. 128)
9:30–10:30 AM	E–M	241, Conv. Center	Design Redesign: An Engineering Extravaganza (p. 132)
9:30–10:30 AM	E	212, Conv. Center	Quality Elementary Science Teaching (QUEST) (p. 124)
9:30–10:30 AM	M–H	113, Conv. Center	A PBL Model Integrating Technology and Monitoring Daily Student Learning (p. 123)
9:30–10:30 AM	H–C/I	205, JW Marriott	Aquaponics: Teaching Sustainability Through Integrated Applied Inquiry (p. 127)
9:30–10:30 AM	G	208, JW Marriott	Building STE(A)M: Revisiting the Importance of Art in STEM Education (p. 127)
9:30–10:30 AM	G	Marriott Blrm. 1, Marriott	Moving from Activity-Mania to Meaningful Inquiry-based Lessons (p. 128)
9:30–11:00 AM	5C	103, Conv. Center	Mapping and Analyzing Science Data (p. 134)
9:30–11:00 AM	K–5	133, Conv. Center	What’s Your Evidence? Engaging K–5 Students in Constructing Explanations in Science (p. 135)
9:30–11:00 AM	K–8	134, Conv. Center	From Science to Engineering (p. 135)
9:30–11:00 AM	K–12	110, Conv. Center	Stand Back! We’re Using Discovery Education’s Science Techbook (p. 134)
9:30–11:00 AM	9–12	130, Conv. Center	Teaching STEM with Forensics (p. 134)
9:30–11:00 AM	K–8	143, Conv. Center	An Invitation: Getting Started with the Next Generation Science Framework (p. 135)
9:30–11:00 AM	7–12	102, Conv. Center	NSF/NBC Short Videos You Can Use in Your Classroom (p. 133)
10:00–11:00 AM	24	135, Conv. Center	The Four It’s of Science (p. 138)
10:00–11:00 AM	E–H	120, Conv. Center	An Overview of NSDL’s Science Literacy Maps (p. 138)
10:00–11:15 AM	70	136, Conv. Center	STEM Professional Development Opportunity with Inquiry Investigations™ Forensics Module (p. 138)

Schedule at a Glance Integrated/General Science, cont.

10:00–11:15 AM	K–8	138, Conv. Center	Delta Science Modules (DSM)—Never Heard of Them? Want to Know More? (p. 138)
10:00–11:30 AM	G	309/310, JW Marriott	BSCS Pathway Session: Videocase Lesson Analysis for Increased Teacher Content Understanding (p. 138)
10:00 AM–12 Noon	G	White River C, JW Marriott	PSTEM Pathway Session: Cognitive Science Learning Principles in Action: Contrasting Cases (p. 140)
10:05–10:30 AM	G	NSTA Exhibit Hall Entrance	Meet the Presidents and Board/Council (p. 140)
10:30 AM–12 Noon	G	White River G, JW Marriott	McREL Pathway Session: What Works in Science Classrooms—Developing Student Understanding Using a Conceptual Change Model to Teach Nanoscience and Technology Concepts (p. 141)
10:30 AM–12 Noon	K–8	137, Conv. Center	Using FOSSweb 2.0 and Technology to Support Learning (p. 142)
11:00 AM–12 Noon	E	White River B, JW Marriott	BEST Pathway Session: How Can Students in Grades 3–5 Understand Energy? (p. 142)
11:00 AM–12 Noon	E–M	Grand Ballroom 5, Westin	NMEA Session: Teaching About the Ocean from Thousands of Miles Away (p. 142)
11:00 AM–12 Noon	G	240, Conv. Center	NMLSTA Session: Win Big! Write a Grant (p. 142)
11:00 AM–12 Noon	G	Capitol III, Westin	NASA in a Box (p. 143)
11:00 AM–12:30 PM	G	Sagamore Blrm. 1–5, Conv. Center	The Science Behind Chasing Tornadoes (p. 143)
11:30 AM–1:00 PM	K–8	104, Conv. Center	Misconception Mania: Exciting and Engaging Ways to Address Common Misunderstandings in K–8 Science (p. 146)
11:30 AM–1:00 PM	9–12	134, Conv. Center	The Next Generation of Science Virtual Labs for the Entire Science Curriculum! No Cleanup! (p. 147)
11:30 AM–1:00 PM	K–8	133, Conv. Center	Inquiry and Evidence: Keys to Getting Students to Inquire (p. 147)
11:30 AM–1:00 PM	K–8	143, Conv. Center	Engineering in the Classroom: Opportunities for Integrating Across Your Curriculum (p. 148)
11:30 AM–1:00 PM	K–12	110, Conv. Center	Siemens STEM Academy: Top FREE STEM Resources for Your Classroom (p. 146)
11:30 AM–1:00 PM	K–5	131, Conv. Center	Hands-On Science for the Elementary Classroom Using Probeware (p. 147)
11:30 AM–1:00 PM	7–12	130, Conv. Center	STEM-ify Your Science Lessons! (p. 146)
12 Noon–12:45 PM	K–12	142, Conv. Center	Teaching from Space (p. 149)
12 Noon–1:15 PM	70	136, Conv. Center	STEM Professional Development Opportunity: STEM Education Using Inquiry Investigations™ (p. 149)
12 Noon–1:30 PM	K–8	116, Conv. Center	K–8 Science with Vernier (p. 150)
12:15–1:15 PM	G	White River E/F, JW Marriott	Toward STEM Improvement in South Africa: Breaking the Vicious Cycle (p. 152)
12:30–1:30 PM	G	Sagamore Blrm. 6, Conv. Center	The Art of Science and the Framework for Science Education (p. 152)
12:30–1:30 PM	9–12	132, Conv. Center	Engineering the Future: A Practical Approach to STEM for High School Students (p. 163)
12:30–1:30 PM	G	120, Conv. Center	Digitizing the Learning Experience and Taking IT Mobile (p. 153)
12:30–1:30 PM	G	101, JW Marriott	Coaching: Knowledge That Works for Science Education Leadership—Strategies for Addressing Misconceptions (p. 162)
12:30–1:30 PM	G	White River C, JW Marriott	PSTEM Pathway Session: Cognitive Science Learning Principles in Action: Visualizations (p. 162)
12:30–1:30 PM	H–C	203, JW Marriott	SCST Session: Is DNA Alive? Confronting Students' Misconceptions About DNA Through Innovative Instruction (p. 157)
12:30–1:30 PM	C	203, JW Marriott	SCST Session: Recruitment and Retention of STEM Majors and the Merit Model: How It Works and How We Know (p. 157)
12:30–1:30 PM	G	JW Grand 3, JW Marriott	CSSS Session: Implications of the Framework for Science Education from the National Academy of Sciences (p. 158)
12:30–1:30 PM	G	201, JW Marriott	NSELA Session: Publishing in the <i>Science Educator</i> , the Journal of NSELA (p. 156)
12:30–1:30 PM	H–C	205, JW Marriott	Science Calculators on Computer Spreadsheets (p. 157)
12:30–1:30 PM	G	204, JW Marriott	ASTE Session: What Is ASTE? (p. 157)
12:30–1:30 PM	G	Marriott Blrm. 10, Marriott	How Science Shapes Art: The Real Art/Science Connections Through Content (p. 159)

Schedule at a Glance Integrated/General Science, cont.

12:30–1:30 PM	es	White River J, JW Marriott	The Gap Between Policy and Practice: The Impact of NCLB on Health and Science Education (p. 158)
12:30–1:30 PM	HU	209, JW Marriott	An Interdisciplinary Approach to Project Based Learning (PBL) in a STEM Content and Methods Class (p. 157)
12:30–1:30 PM	M–H	111/112, Conv. Center	Assessment for Learning: Increasing Students' Learning with Feedback (p. 153)
12:30–1:30 PM	M	243, Conv. Center	Shining Star and Novas (p. 156)
12:30–1:30 PM	E	231, Conv. Center	Addressing Core Science Standards Through Nanoscale Science for Grades K–5 (p. 161)
12:30–1:30 PM	MI	JW Grand 7, JW Marriott	NSTA Press Session: Misconceptions Matter—Where Do They Come From? Where Do They Go? (p. 158)
12:30–1:30 PM	E	212, Conv. Center	Managing Science Fair in the Classroom (p. 154)
12:30–1:30 PM	G	240, Conv. Center	NMLSTA Session: Electric Expressions: Energizing the Integration of Math and Science into Education (p. 161)
12:30–1:30 PM	E–M	239, Conv. Center	Problem-Based Learning—VISTA Style (p. 161)
12:30–1:30 PM	G	Marriott Blrm. 2, Marriott	Help Students with Language-based Learning Disabilities Make Sense of Science (p. 159)
12:30–1:30 PM	P	211, Conv. Center	Engage Young Learners with Digital Microscopes (p. 161)
12:30–1:30 PM	E–M	242, Conv. Center	The Driving Question Board as a Professional Development Tool (p. 156)
12:30–1:30 PM	G	208, JW Marriott	Existing Southern Slave Dwellings: What Are the STEM Connections? (p. 157)
12:30–1:30 PM	M–H	113, Conv. Center	Clue into Climate (p. 153)
12:30–1:30 PM	M	243, Conv. Center	Enhancing Middle School Science Learning through Exploration Curriculum and Service Learning (p. 156)
12:30–1:30 PM	E–H	Chamber, Westin	Narrative-based Approach to Environmental Education (p. 160)
12:30–1:30 PM	PM	121, Conv. Center	How Do You Know What They Know? Assessing Understanding (p. 153)
12:30–1:30 PM	S	209, JW Marriott	Planning for a Complete STEM Program (p. 157)
12:30–1:30 PM	G	Indiana A/B, Marriott	Inquiry Tech Pack: Building Global Awareness Through Questions (p. 158)
12:30–1:30 PM	PM	122, Conv. Center	Assessing Inquiry with Science Notebooks (p. 160)
12:30–1:30 PM	G	Indiana Ballroom G, Marriott	Family Science Fun: Engaging Urban Children and Families in Science and Literacy (p. 163)
12:30–1:30 PM	G	Marriott Blrm. 7, Marriott	Strategies to Improve Our Students' Graphing and Graph Interpretation Practices (p. 163)
12:30–1:30 PM	G	Indiana C/D, Marriott	Online Professional Development: Just-in-time Science Workshops! (p. 162)
12:30–1:30 PM	E–H	Indiana Ballroom F, Marriott	Models and Mysteries (p. 163)
12:30–1:30 PM	E–M	241, Conv. Center	Young Engineers—Integrate Engineering into Your Science Classes (p. 162)
12:30–2:00 PM	G	309/310, JW Marriott	BSCS Pathway Session: Pedagogical Content Knowledge—Jargon or a Path to Improved Student Understanding? (p. 163)
12:30–2:30 PM	G	White River A, JW Marriott	ITEEA Pathway Session: STEM Resources for Grade 3 (p. 164)
12:30–2:30 PM	G	White River G, JW Marriott	McREL Pathway Session: What Works in Science Classrooms—Using a Formative Assessment Process to Determine Evidence of Student Understanding (p. 164)
12:30–3:30 PM	E–M	White River D, JW Marriott	SPS Pathway Session: Scientific Inquiry Blended with the Writing in Science Approach (p. 164)
1:00–2:00 PM	24	135, Conv. Center	Exploring Shoreline Science with an Integrated Science and Literacy Unit (p. 165)
1:00–2:15 PM	G	JW Grand 8, JW Marriott	Science Leadership Summit Session: Indiana Science Initiative (p. 165)
1:00–2:30 PM	K–8	138, Conv. Center	What's Going on in There? Inquiry Science for Supervisors, Teacher Trainers, and Trainers (p. 166)
1:00–3:00 PM	K–6	137, Conv. Center	Taking Science Outdoors with FOSS K–6 (p. 166)
1:00–4:00 PM	G	102, JW Marriott	WestEd Pathway Session: Understanding the Conceptual Flow (p. 166)
1:30–3:00 PM	K3	201, Conv. Center	A World In Motion® Primary Literacy-based STEM Workshop (p. 169)
1:30–3:00 PM	K–8	133, Conv. Center	Web 2.0 and Science (p. 168)
1:30–3:00 PM	6–12	102, Conv. Center	Improve STEM Literacy for All Students (p. 167)
1:30–3:00 PM	K–12	110, Conv. Center	I Just Want to Sublimate: Phasing Digital Media into Your Science Classroom (p. 168)
1:30–3:00 PM	6–8	Wabash 1, Conv. Center	Hands-On Integrated Science Activities for Middle School (p. 169)

Schedule at a Glance Integrated/General Science, cont.

1:30–3:00 PM	K–8	143, Conv. Center	Integrating Literacy Strategies into Science Instruction (p. 169)
1:30–3:00 PM	58	131, Conv. Center	Incorporating STEM in Middle School Lessons (p. 168)
1:30–3:00 PM	6–12	106, Conv. Center	Journaling: It's Not a Fad! Become a Fan (p. 168)
2:00–2:30 PM	E	212, Conv. Center	Packing Science Home (p. 170)
2:00–2:45 PM	6–12	142, Conv. Center	Engineer a Satellite (p. 170)
2:00–3:00 PM	G	124, Conv. Center	NSTA Avenue Session: Research Insights into Online Communities of Practice and Teacher Learning Online: The NSTA Learning Center (p. 172)
2:00–3:00 PM	E	231, Conv. Center	Pathways to Engineering: Engineering Is Science and Much, Much More (p. 179)
2:00–3:00 PM	E–H	White River B, JW Marriott	BEST Pathway Session: Uncovering Students' (and Teachers') Ideas About Energy (p. 175)
2:00–3:00 PM	G	209, JW Marriott	CSSS Session: Scientific Inquiry and Engineering Design in New Standards (p. 174)
2:00–3:00 PM	C	203, JW Marriott	SCST Session: The Role of an Inquiry-based Science Program in Encouraging Undergraduate Research (p. 174)
2:00–3:00 PM	C	203, JW Marriott	SCST Session: Facilitate Group Teamwork in an Inquiry-based Biology Lab via CATME (p. 174)
2:00–3:00 PM	H–C	203, JW Marriott	SCST Session: Tangent Worlds: Teaching Academic Science vs. Commercial Science Skills (p. 174)
2:00–3:00 PM	E–M	242, Conv. Center	Growing STEM Sustainability in the Garden (p. 173)
2:00–3:00 PM	P–E	211, Conv. Center	Nuts About Nature (p. 178)
2:00–3:00 PM	G	Indiana A/B, Marriott	Design-based Science Teaching and Learning (p. 175)
2:00–3:00 PM	P–E	122, Conv. Center	Authentic STEM for the Youngest Scientists (p. 178)
2:00–3:00 PM	E–M	239, Conv. Center	Enhance Science Skills with Interactive Technology (p. 173)
2:00–3:00 PM	M–H	233, Conv. Center	Get Moving! Kinesthetic Tools for Excellence in Middle School Science (p. 172)
2:00–3:00 PM	H/S	JW Grand 3, JW Marriott	Maintaining Momentum: Methods to Analyze Student Work to Improve Teacher Practice (p. 180)
2:00–3:00 PM	G	Indiana Ballroom G, Marriott	Developing Academic Language in Young English Language Learners Using Science (p. 180)
2:00–3:00 PM	C	205, JW Marriott	Professional Development Schools: A Setting for Teaching Science Methods (p. 174)
2:00–3:00 PM	G	White River J, JW Marriott	Effective Science Classroom Assessments for First-Year Teachers (p. 175)
2:00–3:00 PM	H–C	205, JW Marriott	Building Teacher Education Through University and School Partnerships (p. 174)
2:00–3:00 PM	G	Indiana A/B, Marriott	Creating Standards-based Science Lessons Inspired by Public Policy (p. 175)
2:00–3:00 PM	E–H	Indiana C/D, Marriott	Drop the Red Pen: SMARTer Assessment Strategies (p. 180)
2:00–3:00 PM	G	Marriott Blrm. 1, Marriott	The Science of Cooking: A New View on the Scientific Method (p. 175)
2:00–3:00 PM	G	Marriott Blrm. 2, Marriott	Supporting Science in Schools: Dynamic Districts and Classroom Champions (p. 176)
2:00–3:00 PM	M–H	128, Conv. Center	Sustaining Students' Science Interest: An Inquiry-based Approach (p. 176)
2:00–3:00 PM	H	111/112, Conv. Center	Carbon Capture and Sequestration: Novel Technology That Offers New Opportunities for Science Education (p. 172)
2:00–3:00 PM	G	Chamber, Westin	Sustainability Is for Urban Kids, Too! (p. 176)
2:00–3:00 PM	E–M/I	Sagamore 6, Conv. Center	Dazzling Deceptions: Discrepant Events That Delight and Mystify! (p. 173)
2:00–3:00 PM	G	208, JW Marriott	Girls and STEM: How to Get Them Involved (p. 174)
2:00–3:00 PM	G	JW Grand 7, JW Marriott	NSTA Press Session: Safety and Liability—Is the Jury Out on Your Class? (p. 175)
2:00–3:00 PM	G	240, Conv. Center	NMLSTA Session: Becoming a National Board Certified Teacher (NBCT) (p. 173)
2:00–3:00 PM	G	Marriott Blrm. 7, Marriott	GUESS What? This Experiment Is “Sick”! (p. 180)
2:00–3:00 PM	G	Marriott Blrm. 9, Marriott	Project Management 101 for the Teaching Professional (p. 176)
2:00–3:00 PM	E–M	241, Conv. Center	The Impossible Mission: Engineering, Strange Matter, Nanotechnology (p. 179)
2:00–3:00 PM	H–C/I	237, Conv. Center	Promoting Student Environmental Inquiry, Literacy, and Empowerment Through Research and Mentoring (p. 173)
2:00–3:00 PM	S	202, JW Marriott	NSELA Session: Promoting Inquiry in Our Classrooms: Hands-On Performance Assessment for K–12 Students (p. 180)

Schedule at a Glance Integrated/General Science, cont.

2:00–3:00 PM	G	Marriott Blrm. 10, Marriott	Looking at Learning to Teach Science: Support for Student Teachers in Diverse High School Science Classrooms (p. 176)
2:00–3:00 PM	M–C	Michigan/Texas, Marriott	Teach Science with Adapted Primary Literature (p. 176)
2:00–3:30 PM	G	120, Conv. Center	More Than Just Probes (p. 181)
2:00–3:30 PM	K–12	140, Conv. Center	Equip Your iPad for Science (p. 182)
2:00–5:00 PM	G	White River C, JW Marriott	PSTEM Pathway Session: Cognitive Science Learning Principles in Action: Misconceptions and Their Use in Spaced Assessment (p. 183)
2:30–3:00 PM	MI	302/303, JW Marriott	Systems Thinking for Science Success (p. 183)
2:30–3:30 PM	G	JW Grand 8, JW Marriott	Science Leadership Summit Session: The Science Teacher Rubric (p. 183)
3:00–4:30 PM	K–8	138, Conv. Center	Science GnuS—Scientists—Famous and Forgotten and Their Process Skills (p. 184)
3:30–4:00 PM	E–M	242, Conv. Center	Have a Kids Inquiry Conference! (p. 185)
3:30–4:00 PM	G	Marriott Blrm. 9, Marriott	School/District Programmatic Changes to Enhance K–12 Science Classrooms (p. 185)
3:30–4:00 PM	E–H	Chamber, Westin	Water Watcher: Community-based Learning with Standards-based Math and Science (p. 185)
3:30–4:30 PM	G	Sagamore Blrm. 6, Conv. Center	Scientist Talk: Bridging the Gap, Transforming the Future—Education, Collaboration, Innovation! (p. 186)
3:30–4:30 PM	E–M	121, Conv. Center	Differentiation Strategies for Meeting the Common Core State Standards (p. 187)
3:30–4:30 PM	M–H	233, Conv. Center	Get Moving 2! More Kinesthetic Tools for Excellence in Middle School Science (p. 188)
3:30–4:30 PM	E–M	241, Conv. Center	Engaging Elementary-aged Children in Family Engineering (p. 193)
3:30–4:30 PM	G	Marriott Blrm. 2, Marriott	Science and Horse Sense (p. 190)
3:30–4:30 PM	G	Marriott Blrm. 2, Marriott	WebQuests and Field Tests (p. 190)
3:30–4:30 PM	H–C	White River H, JW Marriott	Prepare and Empower the New Generation of Women in Science: How to Build a High School/University Science Partnership (p. 193)
3:30–4:30 PM	E–H	208, JW Marriott	“No One Who Works Here Looks Like Me”: Motivation via Student Mentors (p. 189)
3:30–4:30 PM	G	Indiana Ballroom F, Marriott	So You Did an Inquiry Activity...What Next? (p. 193)
3:30–4:30 PM	es	302/303, JW Marriott	A Systematic Approach to Science Learning in Elementary Schools (p. 189)
3:30–4:30 PM	E	231, Conv. Center	Taking the Big Leap: Designing Inquiry That Makes Students’ Minds Soar (p. 192)
3:30–4:30 PM	E	212, Conv. Center	A District Journey on Integrating Design into Science Inquiry—with an Engineering Backdrop (p. 188)
3:30–4:30 PM	E–H	Marriott Blrm. 7, Marriott	Digital Storytelling in Science (p. 194)
3:30–4:30 PM	G	Indiana C/D, Marriott	The International Masterclass Model: Real Research Data for Students (p. 193)
3:30–4:30 PM	M–H	113, Conv. Center	From Climbing Trees to Diving Deep: Careers in Science (p. 187)
3:30–4:30 PM	M–H	128, Conv. Center	Developing 21st-Century Skills Through Issue-oriented Science (p. 191)
3:30–4:30 PM	I	232, Conv. Center	Preserve Biodiversity and Stop Aquatic Invaders with an Innovative Student Stewardship Model (p. 192)
3:30–4:30 PM	G	202, JW Marriott	Enhancing STEM in the Elementary Classroom (p. 193)
3:30–4:30 PM	M	239, Conv. Center	Design Briefs: Combining Science with Technology Education (p. 192)
3:30–4:30 PM	M	240, Conv. Center	NMLSTA Session: Inquire and Learn (p. 192)
3:30–4:30 PM	P–E	211, Conv. Center	Teaching Science Through Children’s Literature in Kindergarten (p. 192)
3:30–4:30 PM	M–H	234, Conv. Center	Activities for Meaning and Significance in the Science Classroom (p. 188)
3:30–4:30 PM	M	243, Conv. Center	Co-Labbing: Differentiation in the Lab (p. 188)
3:30–4:30 PM	H–C	205, JW Marriott	From Your Mind to Your Classroom Practice (p. 189)
3:30–4:30 PM	G	White River J, JW Marriott	Professional Development: The Need to Assess Yourself (p. 189)
3:30–4:30 PM	G	236, Conv. Center	Teaching Science with Toys and Technology (p. 192)
3:30–4:30 PM	ec	204, JW Marriott	ASTE Session: Inquiring Minds, Inquiring Methods: Preservice Teachers’ Inquiry Skills via the Elementary Science Fair (p. 188)
3:30–4:30 PM	M–C	Indiana Ballroom G, Marriott	Sticky, Shaky, Bumpy: Exploring Extreme Scales (p. 194)
3:30–4:30 PM	G	JW Grand 5, JW Marriott	Conference Tips for First-Timers (p. 193)

Schedule at a Glance Integrated/General Science, cont.

3:30–4:30 PM	G	White River B, JW Marriott	BEST Pathway Session: Energy Literacy: Essential Principles and Fundamental Concepts for Energy Education (p. 189)
3:30–4:30 PM	G	101, JW Marriott	Coaching: Knowledge That Works for Science Education Leadership—Strategies for Balancing the Roles of Evaluating and Coaching (p. 188)
3:30–4:30 PM	G	124, Conv. Center	NSTA Avenue Session: The NSTA Learning Center: A Tool to Develop Preservice Teachers (p. 187)
3:30–4:30 PM	G	Sagamore 6, Conv. Center	Scientist Talk: Bridging the Gap, Transforming the Future—Education, Collaboration, Innovation! (p. 186)
3:30–5:00 PM	6–12	106, Conv. Center	Journaling: It's Not a Fad! Become a Fan (p. 195)
3:30–5:00 PM	35	143, Conv. Center	Immerse Your Students in an Ocean Sciences Curriculum Sequence for Grades 3–5 (p. 196)
3:30–5:00 PM	6–12	104, Conv. Center	I Can See Clearly Now...Digital Projection Techniques for Better Demonstration Visibility (p. 195)
3:30–5:00 PM	K–8	137, Conv. Center	Science-centered Language Development Using FOSS (p. 196)
3:30–5:00 PM	6–C	Wabash 1, Conv. Center	Make Safety a Habit! Flinn Scientific Workshop (p. 197)
3:30–5:00 PM	K–8	133, Conv. Center	Incorporating STEM Activities in Your Classroom (p. 196)
3:30–5:00 PM	K–12	134, Conv. Center	Online Learning Exchange, Powered by Pearson: Our Content, Your Content, All in One Place (p. 196)
3:30–5:00 PM	46	201, Conv. Center	A World In Motion® Elementary STEM Workshop (p. 196)
3:30–5:00 PM	G	White River G, JW Marriott	McREL Pathway Session: What Works in Science Classrooms—Instructional Technology and Virtual Manipulatives That Support Student Understanding (p. 194)
4:00–4:30 PM	C	203, JW Marriott	SCST Session: A New Model in STEM Preparation for Elementary Education Majors (p. 197)
4:30–6:00 PM	16	Wabash 2, Conv. Center	Family Engineering Ice Cream Social and Book Launch Party (p. 198)
5:00–6:00 PM	G	JW Grand 3, JW Marriott	ASTC Session: DIY Forensics (p. 201)
5:00–6:00 PM	G	120, Conv. Center	Podcasting and Blogging for Students and Teachers in Science (p. 199)
5:00–6:00 PM	E–M	White River D, JW Marriott	SPS Pathway Session: Science-related Research in the Middle School (p. 201)
5:00–6:00 PM	E–M	JW Grand 7, JW Marriott	NSTA Press Session: Science as a Mystery (p. 201)
5:00–6:00 PM	G	203, JW Marriott	NSTA Press Session: Model-based Science Teaching (p. 199)
5:00–6:00 PM	G	Indiana C/D, Marriott	10 Ways to Use Technology in the Science Classroom (p. 199)
5:00–6:00 PM	I	122, Conv. Center	Draw Your Way to Better Teaching and Learning in Science (p. 200)
5:00–6:00 PM	G	201, JW Marriott	NSELA Session: Action Research for Science Teachers: Useful Tools for Starting a Rewarding Professional Learning Community (p. 199)
5:00–6:00 PM	G	Capitol I, Westin	Cutting Energy/Cutting Costs (p. 201)
5:00–6:00 PM	G	Indiana Ballroom F, Marriott	ELF: Tools and Framework for Teaching Climate Change (p. 201)
5:00–6:00 PM	E	211, Conv. Center	Book Bag Buddies: Integrating Science and Language Arts Through Science Stories (p. 200)
5:00–6:00 PM	E	231, Conv. Center	Teaching Young Children to Use Scientific Tools (p. 199)
5:00–6:00 PM	E–H	121, Conv. Center	Supporting Claim, Evidence, and Reasoning (CER) Across Grades and Curricula (p. 200)
6:00 PM–12 Mid	G	Indiana A/B, Marriott	A Video Showcase of Legendary Icons, Inspiring Teachers, Memorable Performances, and Stimulating Engaging Courses, Part 1 (p. 203)

Physics/Physical Science

7:30–9:00 AM	59	131, Conv. Center	Investigating Real-World Physical Science (p. 102)
8:00–9:00 AM	M–H	205, Conv. Center	Circuit Training with LED Hula-Hoops™ (p. 111)
8:00–9:00 AM	M–H	125, Conv. Center	Physics at the Movies (p. 103)
8:00–9:00 AM	E	207, Conv. Center	Easy Hands-On Science for Grade 3 (p. 111)
8:00–9:30 AM	1–5	202, Conv. Center	Engaging Elementary Learners in STEM with LEGO® Education (p. 116)
8:00–9:30 AM	5	139, Conv. Center	Chemistry and the Atom: Fun with Atom Building Games! (p. 115)
9:30–10:30 AM	H	125, Conv. Center	ROKET and AILDI: Science from an American Indian Perspective (p. 124)
9:30–10:30 AM	E–H	207, Conv. Center	Newton on the Cheap (p. 124)

Schedule at a Glance Physics/Physical Science, cont.

9:30–10:30 AM	E–M	206, Conv. Center	We Stand on the Shoulders of Giants: Inspire Student Innovation with an Invention Convention (p. 124)
9:30–10:30 AM	M–H	205, Conv. Center	Build a Powerful Electric Motor Out of Junk (p. 130)
9:30–10:30 AM	I	126, Conv. Center	Squishy Circuits (p. 130)
9:30–10:30 AM	E	121, Conv. Center	Curious Scientific Investigators: Flight Adventures (p. 130)
10:00–11:00 AM	13	202, Conv. Center	Using LEGO® Bricks to Introduce Simple Machines (p. 138)
10:00–11:30 AM	9–C	116, Conv. Center	Physics with Vernier (p. 139)
10:00–11:30 AM	5	139, Conv. Center	Genetics: Crazy Traits and Adaptation Survivor (p. 139)
10:00–11:30 AM	9–12	141, Conv. Center	Physics and Physical Science: Investigating Motion (p. 139)
11:00 AM–12 Noon	9–12	132, Conv. Center	Active Physics: Incorporate STEM in Physics Class Through a Simple Engineering Design Cycle (p. 143)
11:30 AM–12:30 PM	24	202, Conv. Center	Enhancing the Elementary Classroom Through Robotics (p. 144)
12 Noon–1:30 PM	5	139, Conv. Center	Sound, Waves, and Music (p. 150)
12:30–1:30 PM	E–M	206, Conv. Center	Virtual Science Notebooking: Build Mechanical Toys with Engineering e-Mentors (p. 154)
12:30–1:30 PM	E–H	White River B, JW Marriott	BEST Pathway Session: Stop Faking It—Energy (p. 162)
12:30–1:30 PM	M–H	205, Conv. Center	Differentiating Instruction in Middle School Physical Science (p. 161)
12:30–1:30 PM	G	207, Conv. Center	The Keys to Improved Learning: 19 Ways to Transform Teacher Performance (p. 154)
12:30–1:30 PM	H–C	302/303, JW Marriott	Virtual Labs in High School and College Physics, Astronomy, and Physical Science (p. 158)
12:30–1:30 PM	H	126, Conv. Center	Standards-aligned, Inquiry-based Physics Modules by and for High School Physics Teachers (p. 154)
1:00–1:45 PM	6–12	142, Conv. Center	Zero Robotics: Students Competing with Robots on the ISS (p. 164)
1:30–3:00 PM	9–12	104, Conv. Center	New Physics for New Students: Guiding Them as They See It for the First Time (p. 168)
1:30–3:00 PM	58	202, Conv. Center	Teaching Middle School STEM with LEGO® Education (p. 169)
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2:00–3:00 PM	H	125, Conv. Center	Physics for All (p. 172)
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3:30–4:30 PM	M–H	125, Conv. Center	Hands-On Physics on a Tight Budget (p. 187)
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5:00–6:00 PM	H–C	Grand Ballroom 5, Westin	NMEA Session: Numerical Models as Predictors of Ocean Change (p. 200)
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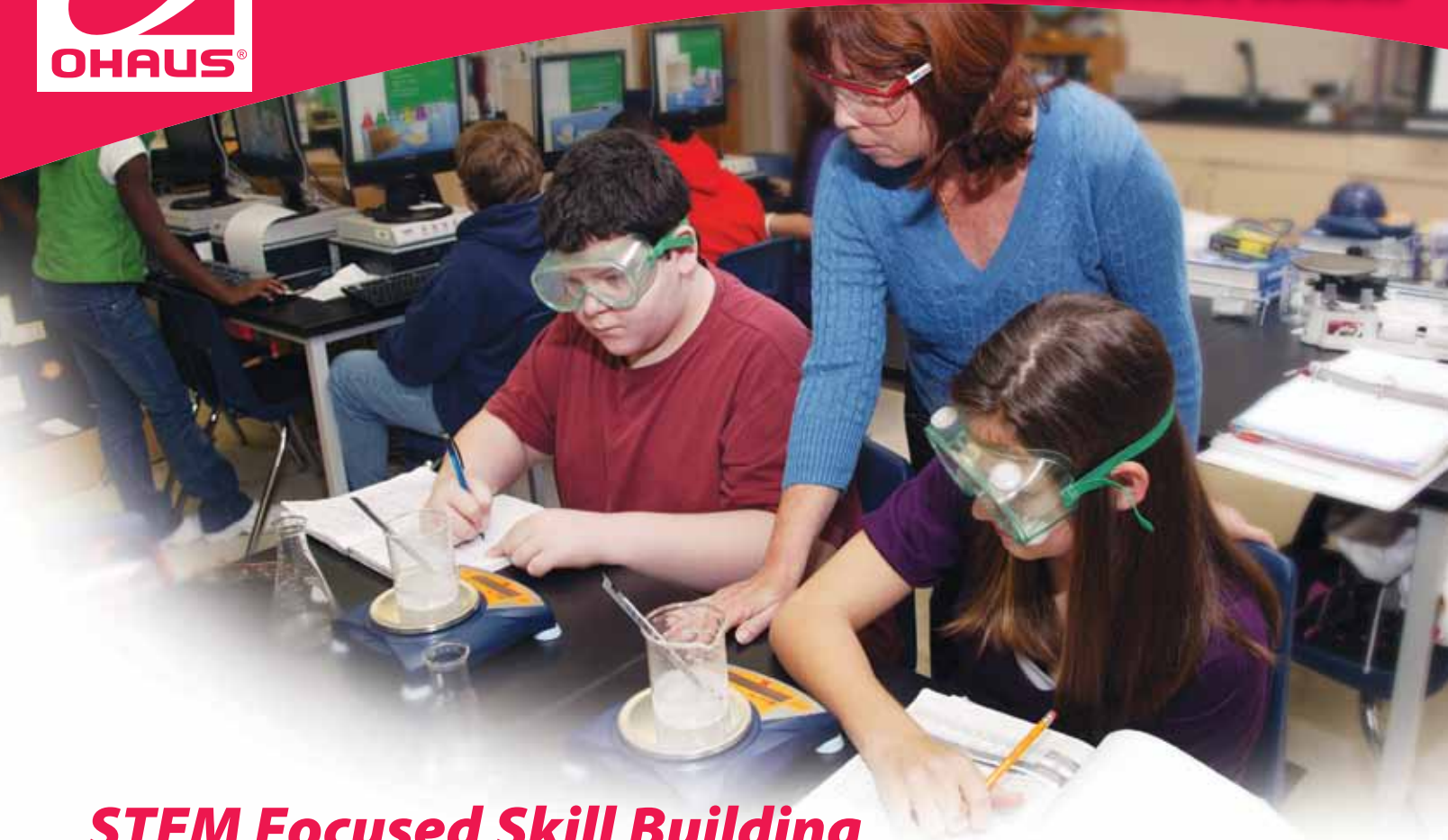
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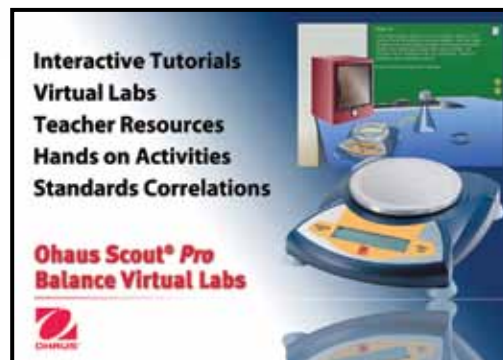
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