San Antonio

Next Generation Science: Learning, Literacy, and Living

1

General Information
Wed., April 10
Thurs., April 11

NSTA 2013
National Conference
on Science Education

NSTA National Science Teachers Association

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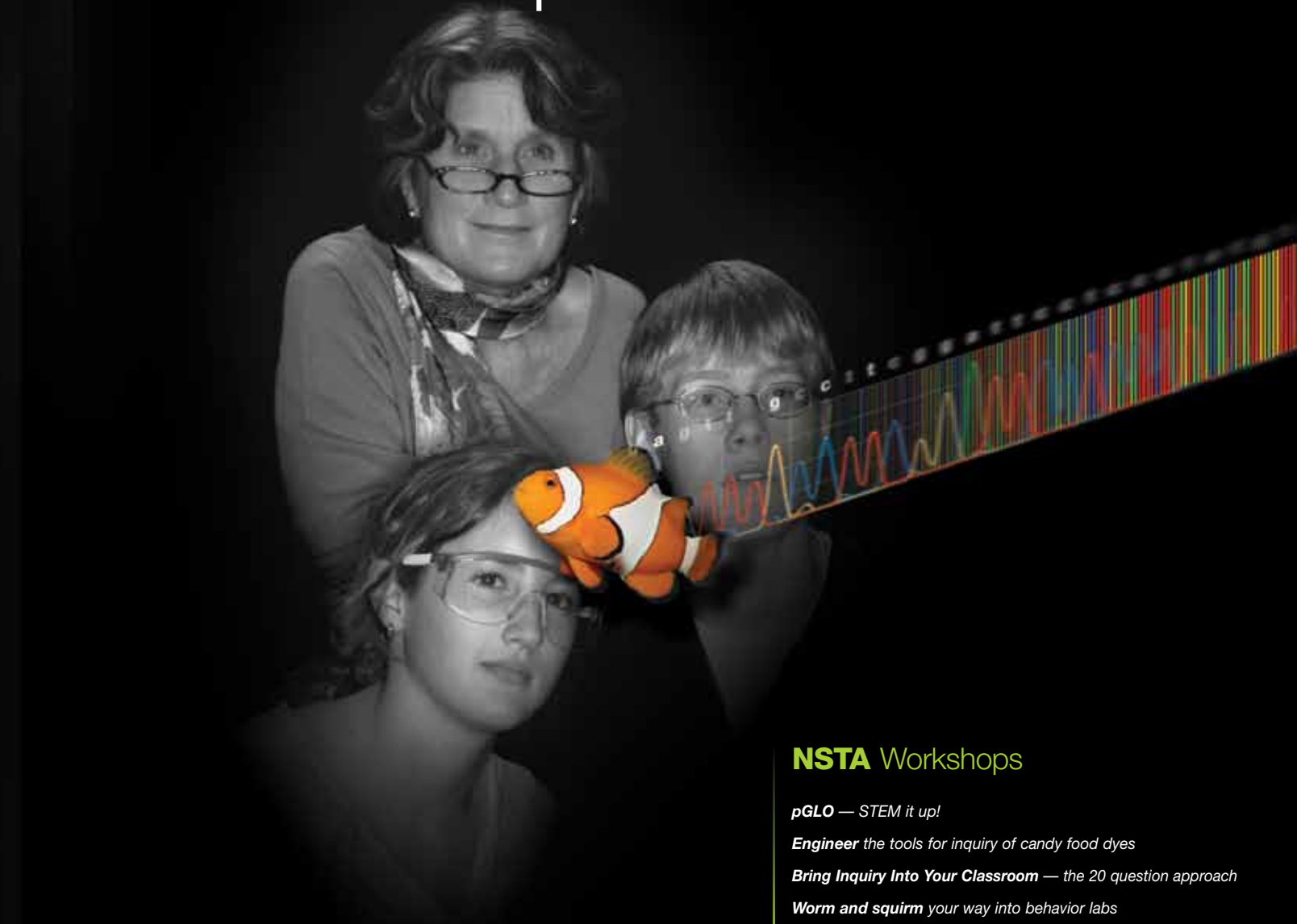

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NSTA 61st National Conference on Science Education

San Antonio, Texas • April 11–14, 2013

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Cover Photos: Starting left: Results are recorded from a balloon-powered car race at Harmony Science Academy–San Antonio. Photo courtesy of Harmony Science Academy–San Antonio. Top right, students evaluate the health of a watershed by examining aquatic invertebrate collections at Selah, Bamberger Ranch Preserve. Photo courtesy of Selah, Bamberger Ranch Preserve. Bottom right, a diver collects data at Diversion Spring in Spring Lake, San Marcos, Texas. Photo courtesy of Edwards Aquifer Authority.

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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.

—Steve Moore/San Antonio Convention and Visitors Bureau

National Science Teachers Association

1840 Wilson Blvd.
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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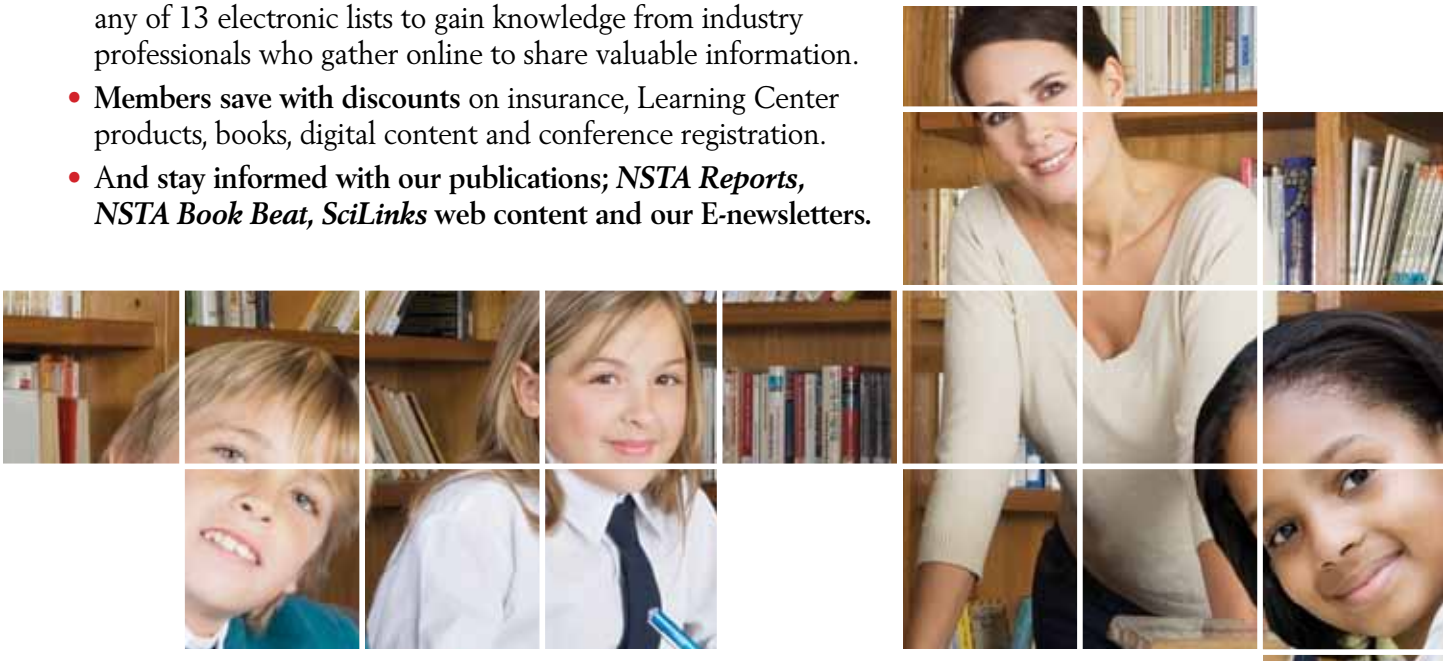
NSTA Membership

Become the Best Teacher You Can Be

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

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



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

National Science Teachers Association

President's Welcome

Build the Scaffolding for 21st-Century Science Literacy

Welcome to San Antonio and the NSTA San Antonio National Conference on Science Education! San Antonio has some of Texas' most visited attractions, including The Alamo, the River Walk, El Mercado, HemisFair Park, SeaWorld® San Antonio, San Antonio Zoo, and Six Flags® Fiesta Texas®. I hope you have time to explore this celebrated city while participating in an exemplary professional development experience!

This is OUR time in science education with the release of the Next Generation Science Standards (NGSS). The new science standards provide the foundation we need in order to push forward into the 21st century and ensure scientific literacy for all. The San Antonio Conference Planning Committee has built the conference program around the theme, Next Generation Science: Learning, Literacy, and Living. The strands supporting this theme focus on the following topics of relevance: "Next Generation Assessments: Effectively Measuring Student Learning," "Next Generation Elementary Science: Building the Foundation," "Next Generation Special Populations: Meeting the Needs of Diverse Learners," and "Next Generation Technology: Putting the 'T' in STEM." The conference offers an impressive array of workshops, featured speakers, field trips, exhibits, and networking opportunities. There are also a variety of special programs and ticketed events.

We are at a pivotal point to move science education forward in the 21st century with the publication of the NRC *Framework* and NGSS. These significant documents have the potential to restructure the teaching and learning of science. Be part of the change process by participating in the conversation. As science educators, we need to ensure that every child acquires the skills and knowledge to survive and thrive in the 21st century. Let's become equipped with the tools necessary to meet the challenges and take advantage of the opportunities to inspire our diverse student population to achieve success in the 21st century.

After the conference, I hope you will be energized with science activities and ideas that will provide the scaffolding for your efforts to help all students attain 21st-century science literacy.

Karen L. Ostlund, 2012–2013 NSTA President

Sponsors and Contributors to the San Antonio Conference

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

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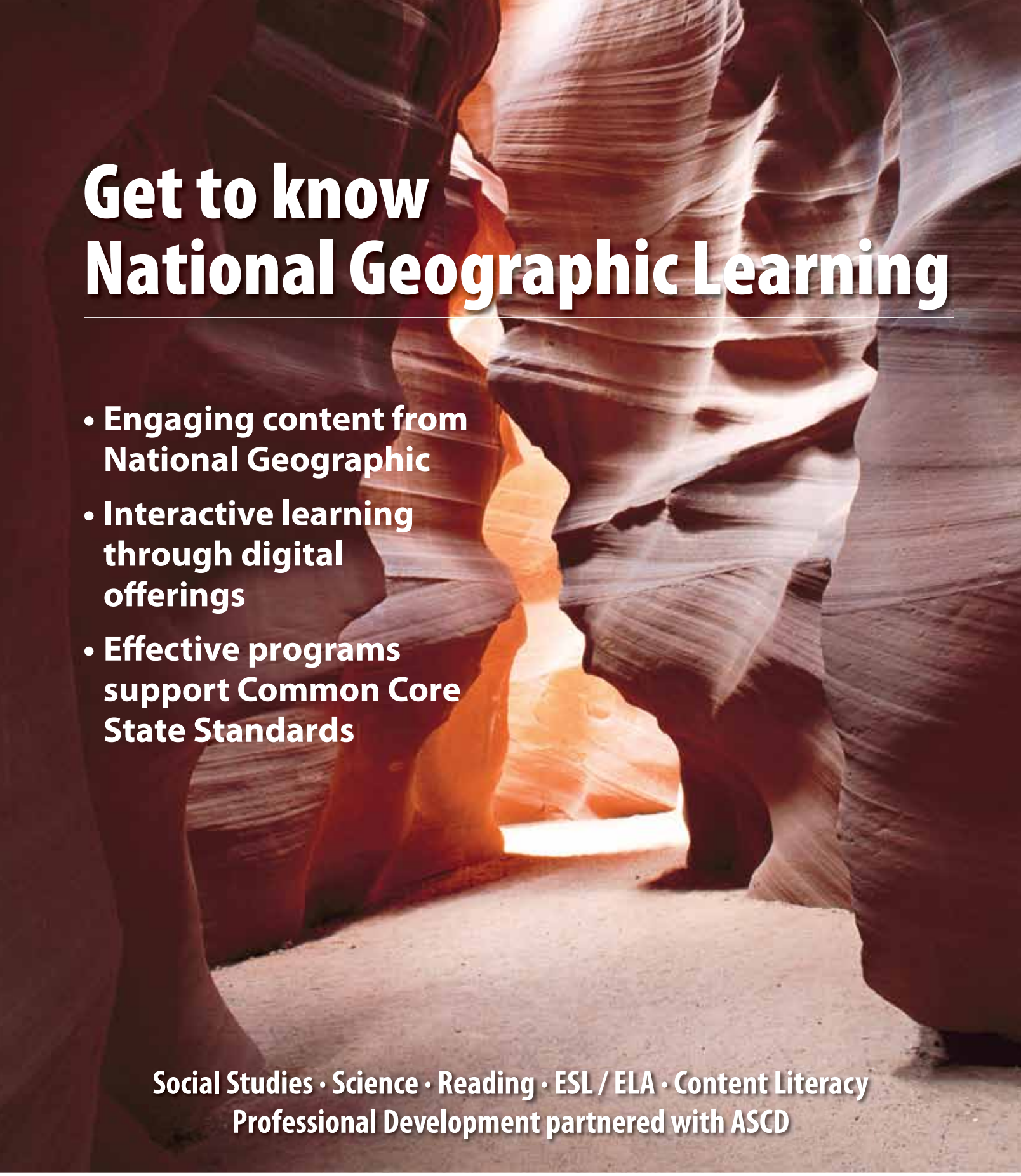
We at NSTA wish to express our heartfelt thanks to the members of the following organizations for the many hours of time they volunteered in planning this conference:

- *Science Teachers Association of Texas (STAT)*
- *Texas Science Education Leadership Association (TSELA)*
- *Texas Council of Elementary Science (TCES)*
- *Rio Grande Valley Science Association (RGVSA)*



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Welcome to San Antonio


Vanessa Westbrook


Susana Ramirez


Mary Poarch

Welcome to the NSTA San Antonio National Conference on Science Education. The city of San Antonio has a rich culture with its world-famous River Walk that we invite you to explore.

With the theme: *Next Generation Science: Learning, Literacy, and Living*, the conference strands focus on:

- Next Generation Assessments: Effectively Measuring Student Learning
- Next Generation Elementary Science: Building the Foundation
- Next Generation Special Populations: Meeting the Needs of Diverse Learners
- Next Generation Technology: Putting the "T" in STEM

The conference committee has worked hard to develop a series of sessions and presentations to stimulate professional growth, motivate your sense of inquiry, and promote lifelong learning.

The opportunities are here to discover methods and strategies for improving science learning and teaching, facilitate professional discussions, receive the latest information regarding science education, and network with colleagues from across the country and globe.

While in San Antonio, we encourage you to explore the exhibit hall and enhance your skills by participating in sessions. After the conference, you will return to your community refreshed and energized. Your days are sure to be filled with professional learning and interactions while your evenings filled with the elements of an international city and the cultures that have designed it.

Learn Hard and Lead Strong,

2013 San Antonio Conference Committee Leaders
Vanessa Westbrook, Susana Ramirez, and Mary Poarch

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Volunteers Manager
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Harlandale ISD
San Antonio, TX

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. Smartphone users can access evaluations via our new conference app. To download the app, go to *www.nsta.org/conferenceapp*.

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 Henry B. Gonzalez Convention Center

The Henry B. Gonzalez Convention Center is committed to enhancing sustainable practices and reducing its carbon impact on the environment while being the best steward it can be with its resources. Current green initiatives include:

- **Waste Reduction.** A strict cardboard recycling policy is in effect for all decorators/contractors. Paper, glass, plastic, and aluminum are among items recycled. From July 2009 to December 2011, the total tonnage diverted from a landfill exceeded 242 tons.
- **Energy Conservation.** Upgraded lighting fixtures and ballasts, solar thermal window film, improved HVAC components and control systems, and solar thermal domestic hot water keep energy use low. Ultimate goals are to reduce electrical consumption of the building by 35% and obtain future LEED certification.
- **Water Conservation.** Low-flow touchless automatic faucets and dual flush valves have been installed in all restrooms. Drought tolerant plants are used throughout the Convention Center.
- **Green Purchasing.** The Convention Center uses garbage bags made from 100% recycled material. Paper towel and tissue products are also made from recycled material. Cleaning products are biodegradable, nontoxic, eco-friendly, and noncorroding.

"Go Green" at the San Antonio Conference!

- Recycle your conference programs in the clearly marked recycle bins located throughout the Convention Center.
- Recycle or reuse your plastic badge holders—you can either turn them in at the NSTA Registration Counter or use them at future conferences.
- In advance of the conference, presenters are encouraged to post their presentations and handouts on the Session Browser/Personal Scheduler.
- 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.

NSTA New Science Teacher Academy 2013–2014

Comprehensive, Professional Development Fellowships for New Teachers

NSTA offers second- through fifth-year middle and high school science teachers the opportunity to participate in the New Science Teacher Academy, a yearlong professional development and mentoring program co-founded with a grant from the Amgen Foundation. 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 educational resources.

Academy Fellow Benefits:

- All-expense-paid (accommodations, airfare, meals, and registration fees) trip to the NSTA National Conference on Science Education
- Full membership in the National Science Teachers Association
- Access to facilitated, web-based curriculum devoted to content and classroom pedagogy
- Professional development web seminars conducted by leaders in science education
- E-mentoring from experts in the Fellow's science discipline and grade level
- Attendance at a Professional Development Institute or a Research Dissemination Conference

Eligibility:

- Applicants must reside in the United States.
- Applicants must be entering their second through fifth 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 August 1, 2013.

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NSTA National Science Teachers Association

Registration, Travel, and Hotels

—Tim Thompson/San Antonio Convention and Visitors Bureau

Meeting Location and Times

The conference headquarters hotels are the Grand Hyatt San Antonio and San Antonio Marriott Rivercenter. Conference registration, the exhibits, and the NSTA Science Store will be located at the Henry B. Gonzalez Convention Center. Most sessions will be held at the Convention Center, Marriott Rivercenter, Grand Hyatt, and San Antonio Marriott Riverwalk. Please note that sessions are scheduled in both the Marriott Rivercenter and Marriott Riverwalk. Short courses will be held at the Hilton Palacio del Rio.

The conference will begin on Thursday, April 11, at 7:30 AM and end on Sunday, April 14, at 12 Noon.

Registration

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

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

Wed., April 10	5:00–8:00 PM
Thu., April 11	7:00 AM–6:00 PM
Fri., April 12	7:00 AM–5:00 PM
Sat., April 13	7:00 AM–5:00 PM
Sun., April 14	7:30 AM–12 Noon

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

Purchasing Ticketed Events

The San Antonio Conference Committee has scheduled a variety of ticketed events (e.g., professional development institutes, symposia, short courses, field trips, and networking events). 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 46) for details. Note that some events may have required advance registration.

Airlines/Amtrak

NSTA has made arrangements with several major airlines and Amtrak to offer discounted fares to San Antonio conference attendees. Visit *http://bit.ly/Sp6kAK* for details.

Ground Transportation to/from Airport

The San Antonio International Airport (SAT) is located eight miles from downtown San Antonio.

GO Airport Shuttle kiosks are located in the baggage claim areas. Service from the airport to downtown hotels runs 7:00 AM–1:30 AM daily; service from downtown hotels to the airport, 4:00 AM–10:00 PM daily. The rate is $18 one way, $32 round-trip per person. Fuel surcharges may apply. Reservations are recommended. To make your shuttle reservation, call 877-358-8687 or visit *http://citytoursinc.com/airport-shuttle*.

Taxi fare to downtown San Antonio is approximately $24 to $26 per taxicab (up to six may share a cab, if both luggage and passengers fit safely).

Getting Around Town

Lined with restaurants, shops, and bars, the River Walk is a network of walkways along the banks of the San Antonio River. Visit *http://bit.ly/Y9Gr9S* to access a map of the River Walk.

Open-air riverboats provide both tours and taxi service throughout the River Walk. Visit *www.riosanantonio.com* for details.

San Antonio's metropolitan transit system, VIA, serves the city with an extensive bus and streetcar system. A reproduction of an authentic San Antonio railcar, the VIA Streetcar offers routes to major attractions.

Special (Bus No. 7) goes to must-see stops, including the River Walk, The Alamo, Japanese Tea Garden, and the San Antonio Zoo

A $4 unlimited one-day pass allows you to ride as much as you want all day long on the VIA Streetcar or bus route. Visit *www.viainfo.net* for more information.

Visit *www.visitsanantonio.com/nsta2013* to search for restaurants, access special dining deals, and more.

Parking

Visit *http://bit.ly/11zBAzM* for parking options near the Convention Center.

Discounted Rental Cars

The toll-free number to contact an NSTA-designated car rental company is:

Enterprise 800-593-0505 16AH230

** go to* www.enterprise.com *and use "16AH230" in the "Optional: Coupon, Customer, or Corporate Number" box and enter PIN "NST."*

Conference Hotels

See pages 12–13 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 *mike@orchidevent solutions.com*.

—*Marks Moore/San Antonio Convention and Visitors Bureau*

Full of bright, bold colors and beautiful treasures, Market Square also offers authentic Mexican dining and music.

STEM Scopes
Online STEM Curriculum
Science, Technology, Engineering, and Mathematics
Elementary K-5 ★ Middle School 6-8 ★ Biology, Chemistry, and Physics
★ Online science curriculum developed by Rice University
★ Covers all science concepts and skills using inquiry-based, hands-on activities
★ Based on the 5E model + intervention and acceleration
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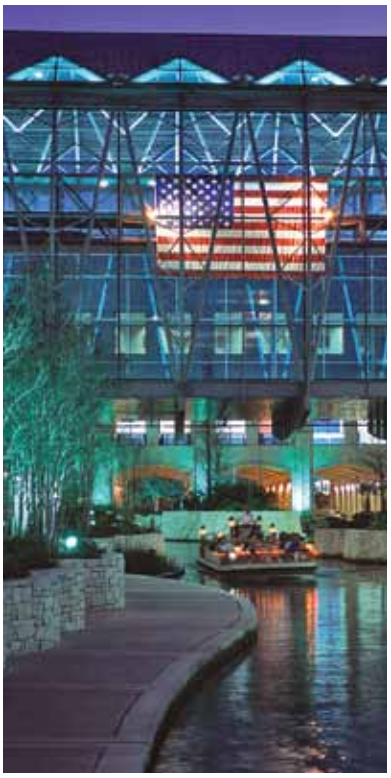


—Courtesy of San Antonio Convention and Visitors Bureau

NSTA Conference Hotels

Numbers correspond to map on facing page.

1. Crockett Hotel
   320 Bonham
   210-225-6500

2. Drury Inn & Suites Riverwalk
   201 N. St. Mary's St.
   210-212-5200

3. Drury Plaza Hotel Riverwalk
   105 S. St. Mary's St.
   210-270-7799

4. Embassy Suites San Antonio Riverwalk Hotel
   125 E. Houston St.
   210-226-9000

5. Four Points by Sheraton San Antonio Downtown by the Riverwalk
   524 S. St. Mary's St.
   210-354-1333

6. Grand Hyatt San Antonio
   Co-Headquarters Hotel
   600 E. Market St.
   210-224-1234

7. Hilton Palacio del Rio
   200 S. Alamo St.
   210-222-1400

8. Historic Menger Hotel
   204 Alamo Plaza
   210-223-4361

9. Holiday Inn Express Hotel & Suites–Rivercenter Area
   1309 E. Commerce St.
   210-220-1010

10. Holiday Inn San Antonio–Riverwalk
    217 N. St. Mary's St.
    210-224-2500

11. Hotel Contessa
    306 W. Market St.
    210-229-9222

12. Hotel Indigo at the Alamo
    105 N. Alamo
    210-933-2000

13. Hotel Valencia Riverwalk
    150 E. Houston St.
    210-227-9700

14. Hyatt Regency San Antonio
    123 Losoya
    210-222-1234

15. La Quinta Inn & Suites Convention Center
    303 Blum
    210-222-9181

16. Marriott Plaza San Antonio
    555 S. Alamo St.
    210-229-1000

17. Omni La Mansión del Rio
    112 College St.
    210-518-1000

18. San Antonio Marriott Rivercenter
    Co-Headquarters Hotel
    101 Bowie St.
    210-223-1000

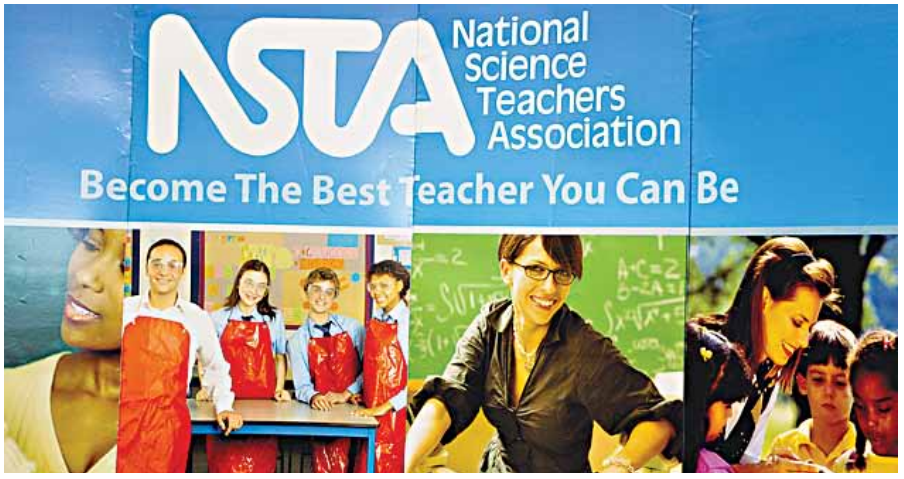
19. San Antonio Marriott Riverwalk
    889 E. Market St.
    210-224-4555

20. Sheraton Gunter Hotel
    205 E. Houston St.
    210-227-3241

21. The St. Anthony Riverwalk Wyndham Hotel
    300 E. Travis St.
    210-227-4392

22. The Westin Riverwalk
    420 W. Market St.
    210-224-6500

NEXT GENERATION SCIENCE
LEARNING, LITERACY, AND LIVING
SAN ANTONIO NATIONAL CONFERENCE
APRIL 11-14, 2013



NSTA can help you become the best teacher you can be. Stop by NSTA Avenue (Booth #1114) for details on all that NSTA offers teachers.

NSTA Exhibits

The NSTA Exhibit Hall is a must-see! NSTA brings you the leading science education companies and organizations to showcase products, services, curricula, and much more. You'll discover something new and exciting in the world of science teaching.

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 map display of the Exhibit Hall will be on-site in Attendee Registration and in the Exhibit Hall, and maps will be accessible via our new Conference app (see page 16). See Volume 4 for a complete list of exhibitors and contact information.

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

Thu., April 11	10:00 AM–6:00 PM
Fri., April 12	9:00 AM–5:00 PM
Sat., April 13	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 B.

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 187.

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 153 for details.

NSTA Science Store

You are invited to browse the newly redesigned NSTA Science Store, where you're sure to find hundreds of the very best teaching resources for science educators. NSTA Press® books uniquely blend accurate scientific content with sound teaching strategies, and they appeal to science educators of all grade bands and disciplines. Examine some of our latest books—including *Integrating Engineering and Science in Your Classroom*; *The Everyday Science Sourcebook; Teaching Science Through Trade Books*; and the brand-new *Science Fair Warm-Up* series. Also, be sure to check out our first-ever line of children's books—from NSTA Kids.

In addition, we carry dozens of wonderful NSTA Gear items—such as T-shirts, mugs, and pencils—as reminders of your conference experience or as gifts for your family, colleagues, and students. Show your love of science and pride in teaching with items from our "Science Matters" and "I Love Science" NSTA Gear product lines.

The Science Store is located in Exhibit Hall B of the Convention Center. All attendees receive discounts of 20% on NSTA Press and Gear items and 10% on books from other publishers. Perhaps best of all—enjoy free shipping when you place your order online in the on-site store for both books and Gear.

STAT Booth

The **Science Teachers Association of Texas (STAT)** booth is located in the NSTA Registration Area. Stop by for information about San Antonio and the state of Texas and the benefits of becoming a member of STAT. Membership forms and information on association activities will be available. This is your opportunity to update your information, renew your membership, or become a member. Find out what is happening in science education in Texas!

TSELA, TCES, RGVSA Booth

The Texas Science Education Leadership Association (TSELA), Texas Council of Elementary Science (TCES), and Rio Grande Valley Science Association (RGVSA) share a booth located in the NSTA Registration Area. Stop by to learn more about these Texas science education associations.

Wi-Fi in Convention Center

Free wireless internet is available in all public spaces of the Convention Center. To access, choose the "Free Internet" option; there is no code.

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 in Hall B/Bridge Hall of the Convention Center for a special session. 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.

Conference Evaluation

All conference attendees are invited to complete a conference evaluation form online at *www.surveymonkey.com/s/HXL7DML*.

First Aid Services/Security

The First Aid Room is located in Room H62 in Exhibit Hall C of the Convention Center. Look for the red cross. In case of emergency, dial 9-207-7773 from any of the courtesy phones located throughout the Convention Center to contact 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

Republic C at the Grand Hyatt 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.

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.

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

San Antonio conference attendees can earn one or two graduate-level credit hours in professional development through Our Lady of the Lake University. Participants must attend conference sessions totaling at least 15 documented hours for one credit hour, or 30 documented hours for two credit hours. The registration fee is $100 per credit hour. To learn more about the assignment requirements and registration, visit *www.nsta.org/sanantonioresources*. *Note:* Credit is by pass/fail only.

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.

New NSTA Conference App

Navigate the conference from the palm of your hand! The new NSTA Conference app provides all the tools necessary for a successful conference experience. Features include the ability to view session and workshop listings by time and presenter; maps of the Convention Center, hotels, and Exhibit Hall; Click! Photo scavenger hunt; Social Media plugins; Dining Guide; and a note-taking tool. Scan the QR code or visit *www.nsta.org/conference-app* to download the app.

Business Services

The UPS Store®, located in the lobby of the Convention Center next to Cockerell Theater, offers complete business services, including photocopying and printing, document finishing, fax services, and packing and shipping. Too much to carry? Rent a box at The UPS Store for $5.00 per day to avoid the hassle of carrying heavy materials back to your hotel. If you have rented a box for three or more days during the conference, you will receive a 10% discount on packing and shipping it home. The UPS Store is open Thursday–Friday 7:30 AM–6:30 PM; Saturday 7:30 AM–5:30 PM; and Sunday 9:00 AM–1:00 PM. For more information, call 210-258-8950 or e-mail *store4180@theupsstore.com.*

Located at the Marriott Rivercenter, The UPS Store offers a full-service business center. The UPS Store at Rivercenter is on the third floor (meeting room level) and is open Monday–Thursday 6:30 AM–7:00 PM; Friday 6:30 AM–6:00 PM; and Saturday–Sunday 7:30 AM–4:00 PM. For more information, call 210-554-6208 or e-mail *store6130@theupsstore.com.*

FedEx® Office at the Grand Hyatt offers printing, packing, shipping, copying, and office supplies. Hours are Monday–Friday 7:00 AM–7:00 PM; Saturday–Sunday 10:00 AM–5:00 PM. For more information, call 210-212-7133 or e-mail *usa5046@fedex.com.*

Located at the Marriott Riverwalk, The UPS Store offers printing, copying, packaging, shipping, and computer services. The UPS Store at Riverwalk is on the seventh floor next to the pool/exercise facility and is open Monday–Thursday 7:00 AM–7:00 PM; Friday 7:00 AM–5:00 PM; and Saturday–Sunday 7:30 AM–4:00 PM. For more information, call 210-299-6555 or e-mail *store6140@theupsstore.com.*

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

NSTA 2013 San Antonio 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). Use this form to keep track of all sessions/events attended during the San Antonio conference. Sessions/events such as field trips, short courses, meetings, and exhibit hall visits are not available for online evaluation. However, these events still qualify for professional development.

Beginning May 1, 2013, San Antonio transcripts can be accessed at the NSTA Learning Center *(learningcenter.nsta.org)* by logging on with your San Antonio Badge ID# and then clicking on "My PD Record and Certificates." Keep this form and use it to add the following activities to your San Antonio 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#** _____

Evaluate sessions via your smartphone using our new conference app (download instructions page 16), or go to ***www.nsta.org/evaluations*** to evaluate sessions (workshops, presentations, and exhibitor workshops) online. See page 17 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 HD 8.9"!***

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, April 10 6:00 AM–8:00 PM

Start Time	End Time	Activity/Event Title

Thursday, April 11 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, April 12 7:30 AM–12 Midnight

Start Time	End Time	Activity/Event Title

Saturday, April 13 7:00 AM–12 Midnight

Start Time	End Time	Activity/Event Title

Sunday, April 14 7:00 AM–12 Noon

Start Time	End Time	Activity/Event Title

Audiovisual Needs

NSTA will provide an LCD projector and screen for teacher sessions. 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	Room 218 *(Concourse level, Tower View Registration)*
Grand Hyatt	Bonham A
Marriott Rivercenter	Conf. Room 19
Marriott Riverwalk	Crockett
Hilton Palacio del Rio	La Duquesa

—Courtesy of San Antonio Convention and Visitors Bureau

Site of a historic battle in 1836, The Alamo has come to symbolize a heroic struggle against impossible odds—a place where men made the ultimate sacrifice for freedom.

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 April 10–25, 2013, while the session is fresh in your mind! Visit *www.nsta.org/conferenceapp* to download our conference app for your smartphone. Or, visit *www.nsta.org/evaluations* at a later time to complete a short online session evaluation for each session you attend. **And this year, we're giving away two Kindle Fires HD 8.9" to lucky 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:*

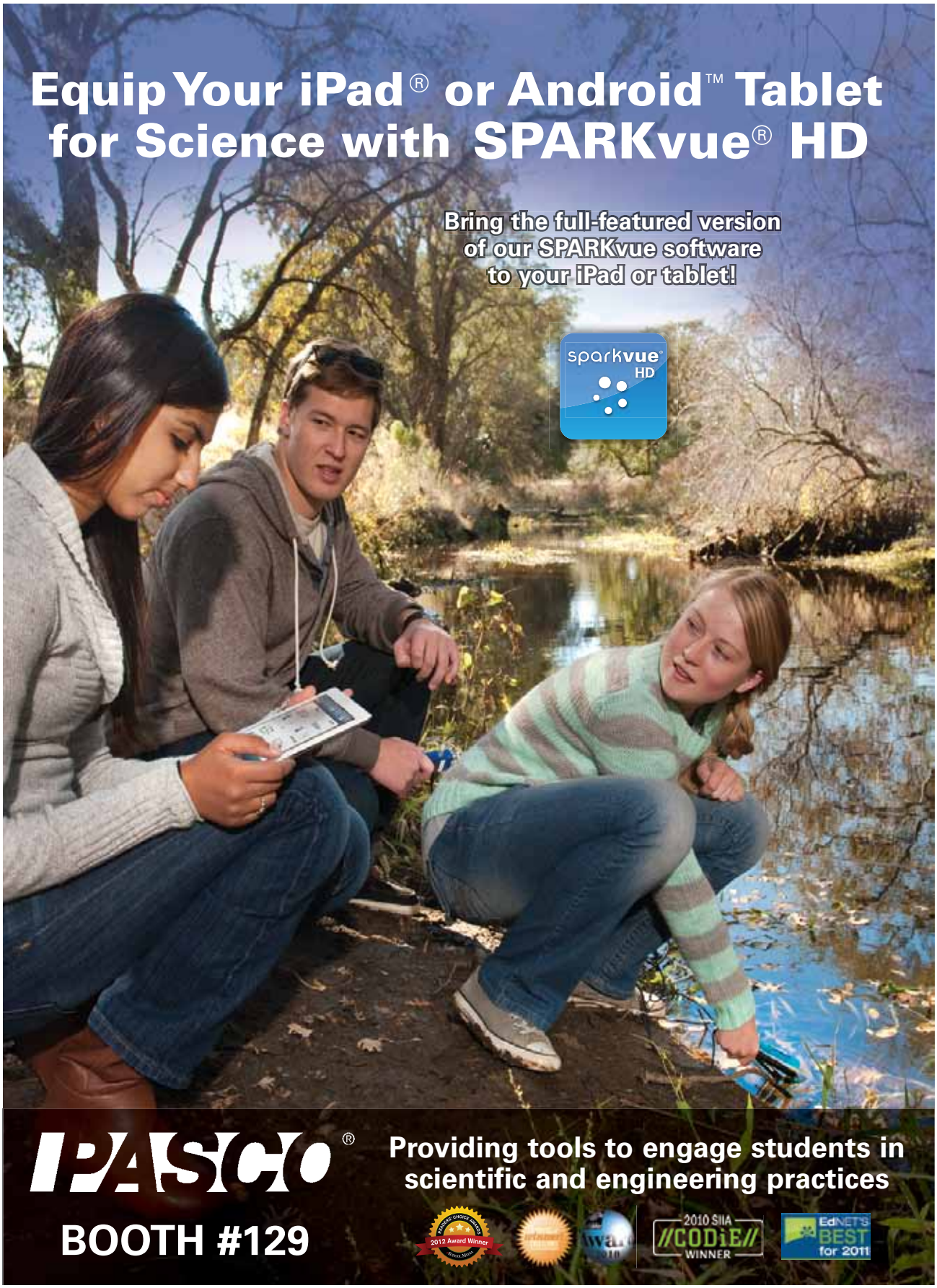
- Enter your badge number (if you don't remember your badge number, click "help me find my badge number").
- Type the beginning of the session title in the "Lookup Session" field, scroll down to find the correct session, and click the "Submit Session" button. The session information will appear and you 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 our conference app and click on the checkmark icon labeled "Evaluations" 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 May 1, 2013, 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, 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.


Equip Your iPad® or Android™ Tablet for Science with SPARKvue® HD
Bring the full-featured version of our SPARKvue software to your iPad or tablet!
sparkvue HD
PASCO®
BOOTH #129
Providing tools to engage students in scientific and engineering practices
2012 Award Winner
2010 SIIA CODiE WINNER
EdNET's BEST for 2011

FREE, Hands-On Workshops



Thursday, April 11 - Room 006C

8:00-9:30 - Equip Your iPad® or Android™ Tablet for Science with SPARKvue® HD – A Full-Featured Science Application (K-12)
10:00-11:30 - Next Generation Science Standards: Advancing the Vision of the Framework with Probeware
12:00-1:30 - Equip Your iPad® for Science with SPARKvue HD® – A Full-Featured Science Application for the iPad® featuring Sally Ride Science™
2:00-3:30 - General Biology with Probeware
4:00-5:30 - Equip Your iPad® or Android™ Tablet for Science with SPARKvueHD® – A Full-Featured Science Application (K-12)

Thursday, April 11 - Room 006D

8:00-9:30 - AP* Physics - Impulse and Momentum
10:00-11:30 - Chemistry: Achievable Inquiry with SPARKvue HD®
12:00-1:30 - Investigating Motion: Understanding and Interpreting Graphs
2:00-3:30 - AP* Chemistry: Guided Inquiry Labs using Probeware
4:00-5:30 - Environmental Science: Modeling Ecosystems with Probeware

Friday, April 12 - Room 006C

8:00-9:30 - Achievable Inquiry in AP* Biology
10:00-11:30 - Equip Your iPad® or Android™ Tablet for Science with SPARKvue® HD – A Full-Featured Science Application (K-12)
12:00-1:30 - Human Physiology with PASCO
2:00-3:30 - Earth Science Investigation: Modeling Ocean Circulation and Layers of the Atmosphere
4:00-5:30 - Equip Your iPad® or Android™ Tablet for Science with SPARKvue® HD – A Full-Featured Science Application (6-8)

Friday, April 12 - Room 006D

8:00-9:30 - Renewable Energy Exploration with SPARKscience™ and iPad®
10:00-11:30 - Exploring Basic Optics
12:00-1:30 - STEM: Meeting the Standards in Your Classroom
2:00-3:30 - AP* Physics - Friction
4:00-5:30 - STEM: Air Bags – Project-based Chemistry Activities

PASCO is the proud sponsor of the STEM Educator Award:
Recognizing excellence and innovation in the field of STEM education.

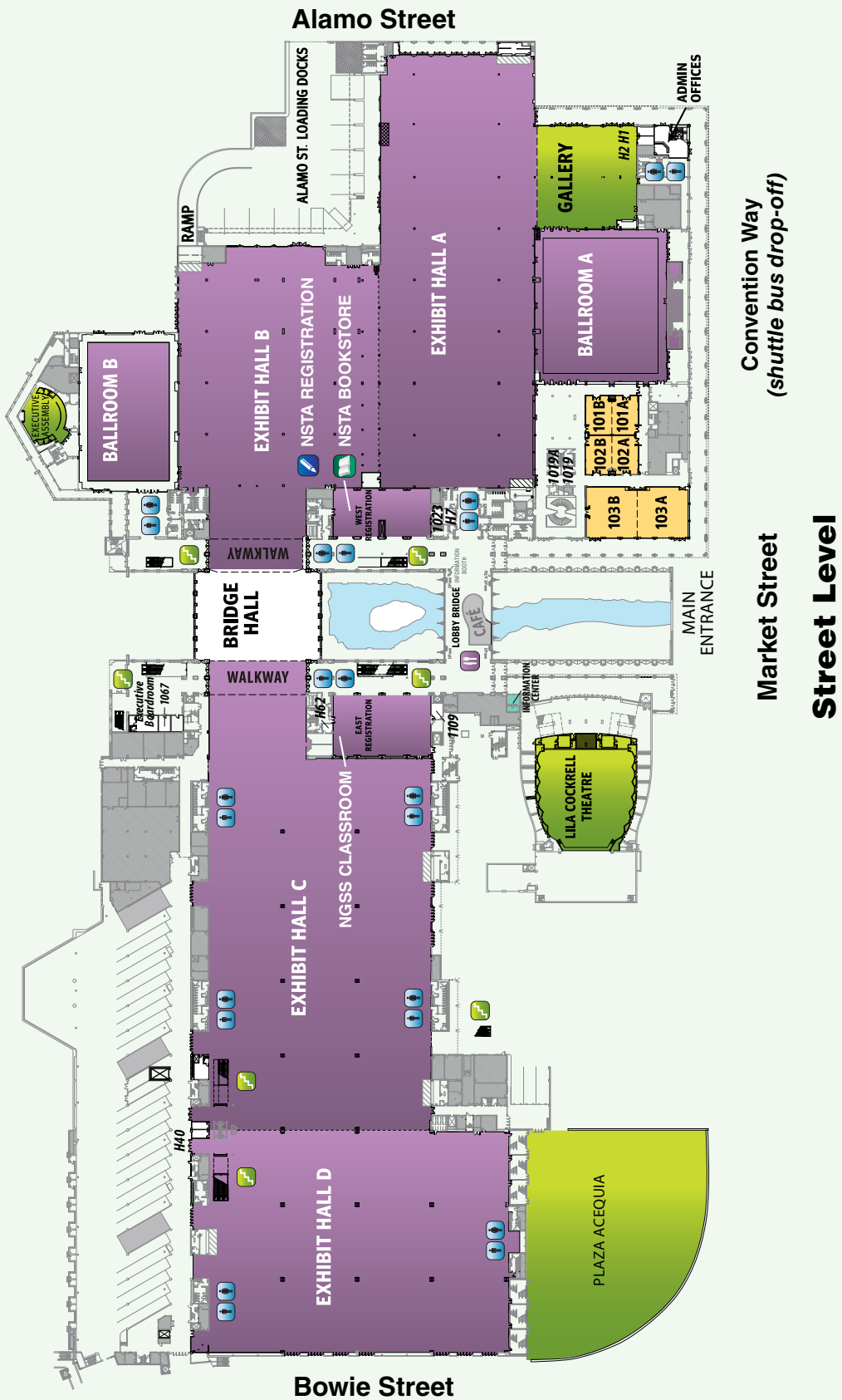
STEM EDUCATOR AWARD

NSTA National Science Teachers Association

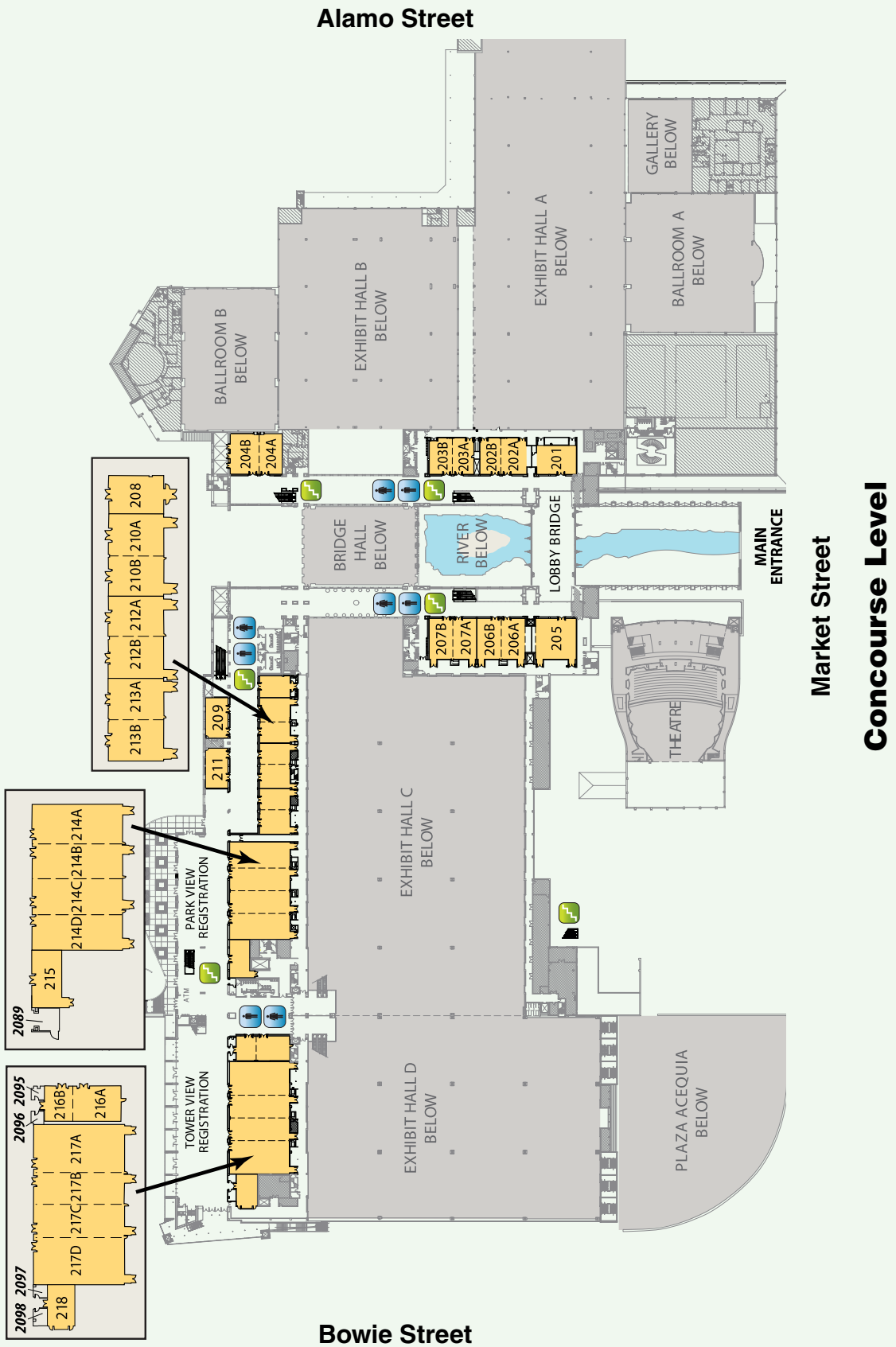
PASCO
www.pasco.com

*AP is a registered trademark of the College Board, which was not involved in the production of, and does not endorse, this product.

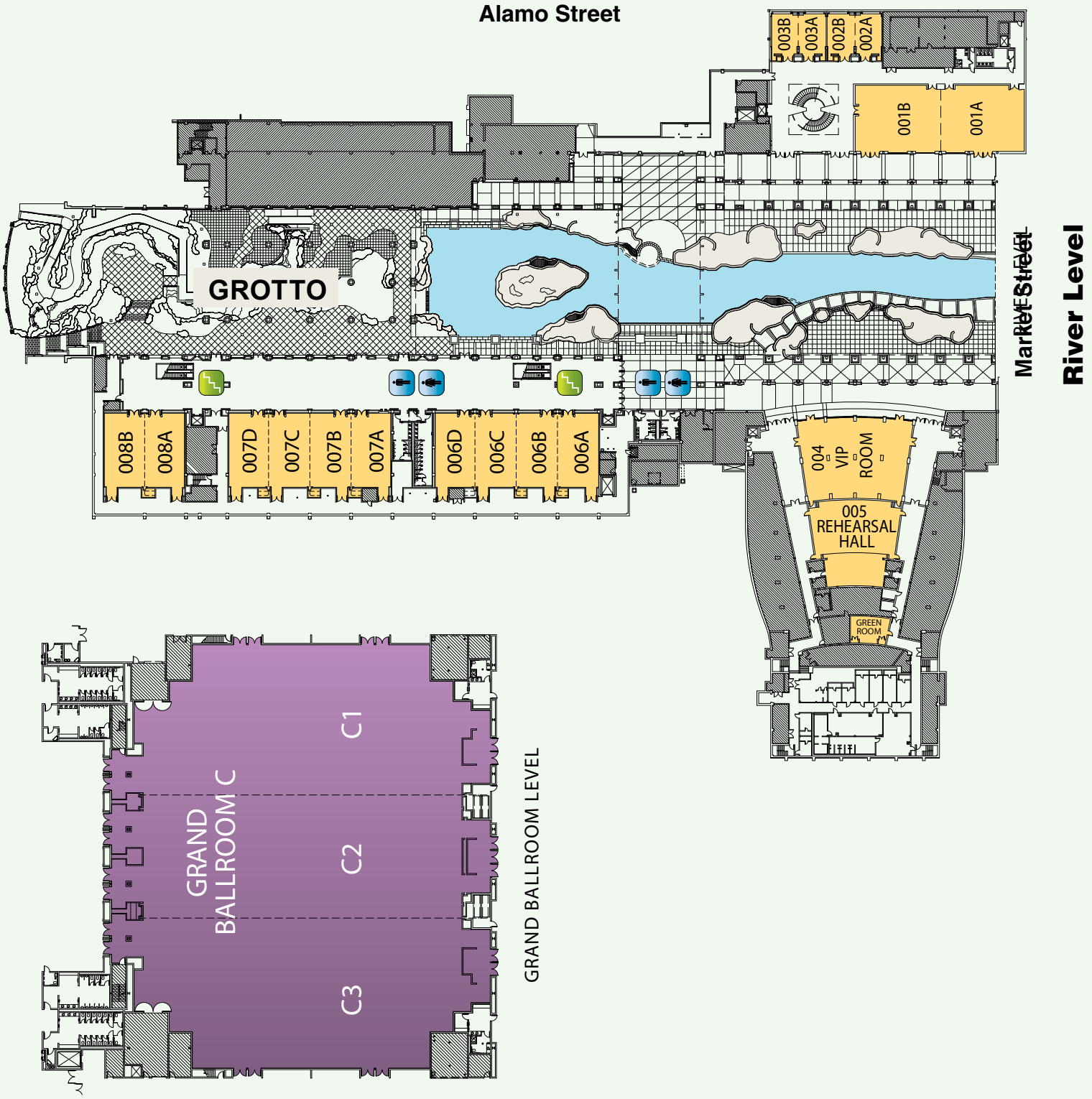
Henry B. Gonzalez Convention Center



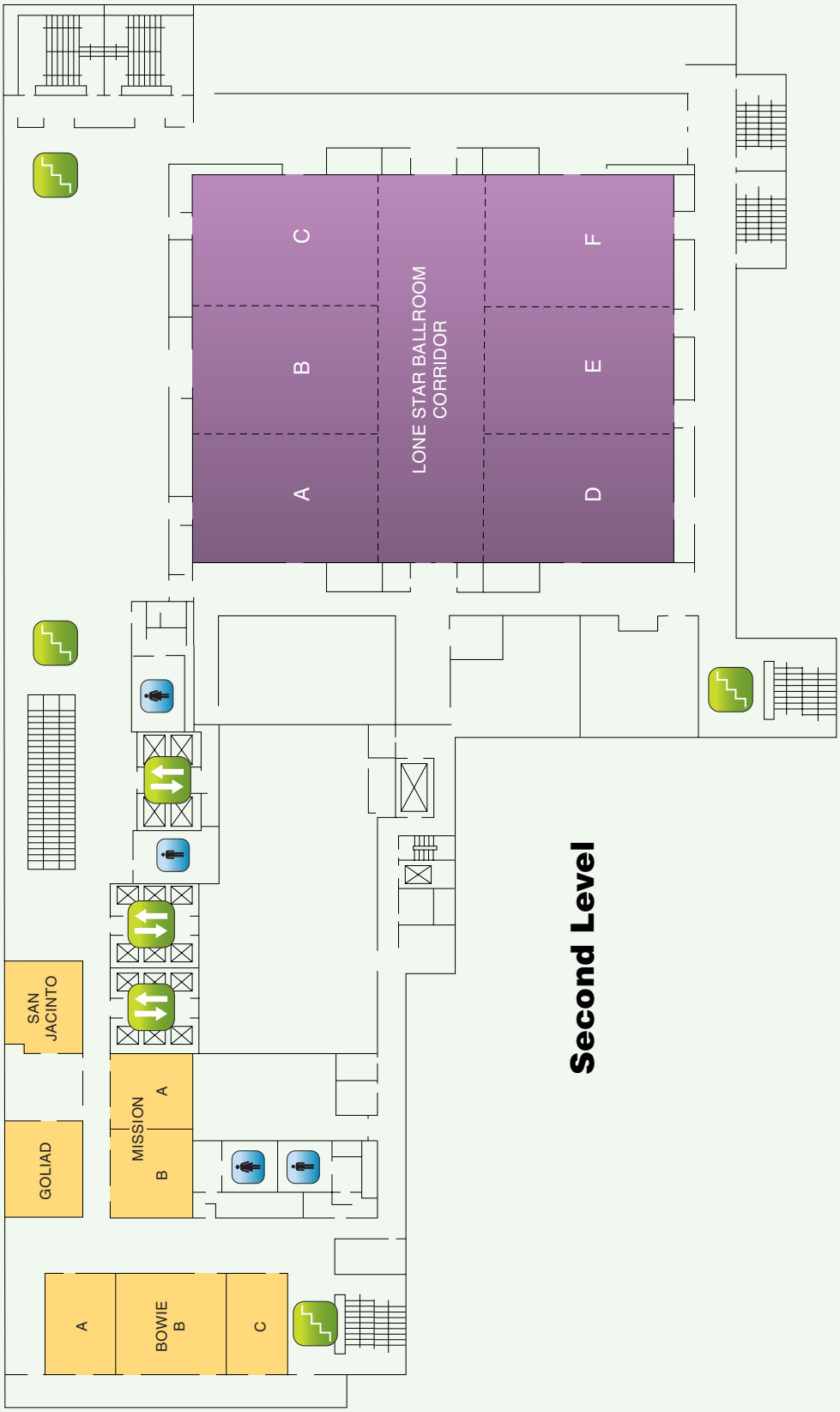
Henry B. Gonzalez Convention Center



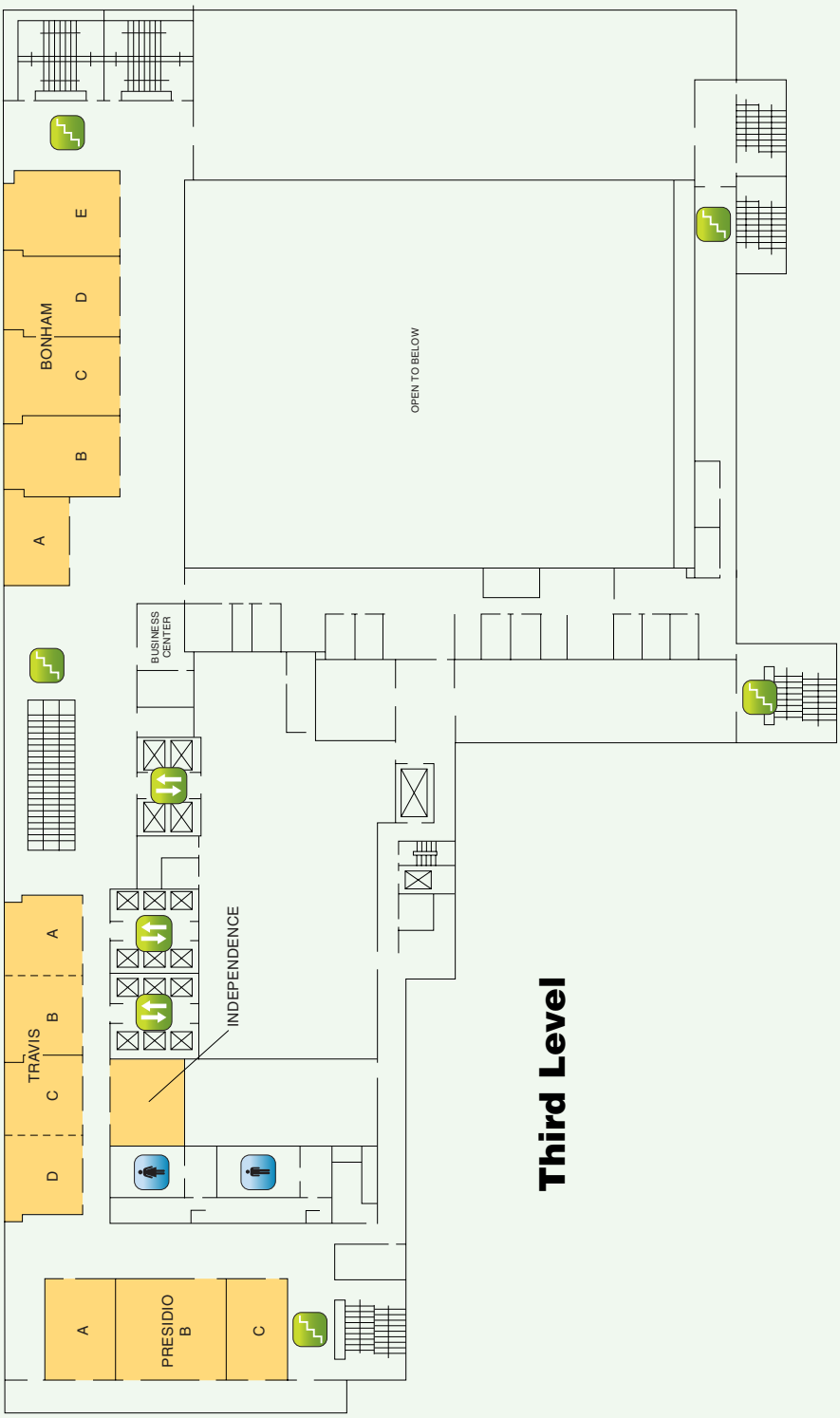
Henry B. Gonzalez Convention Center



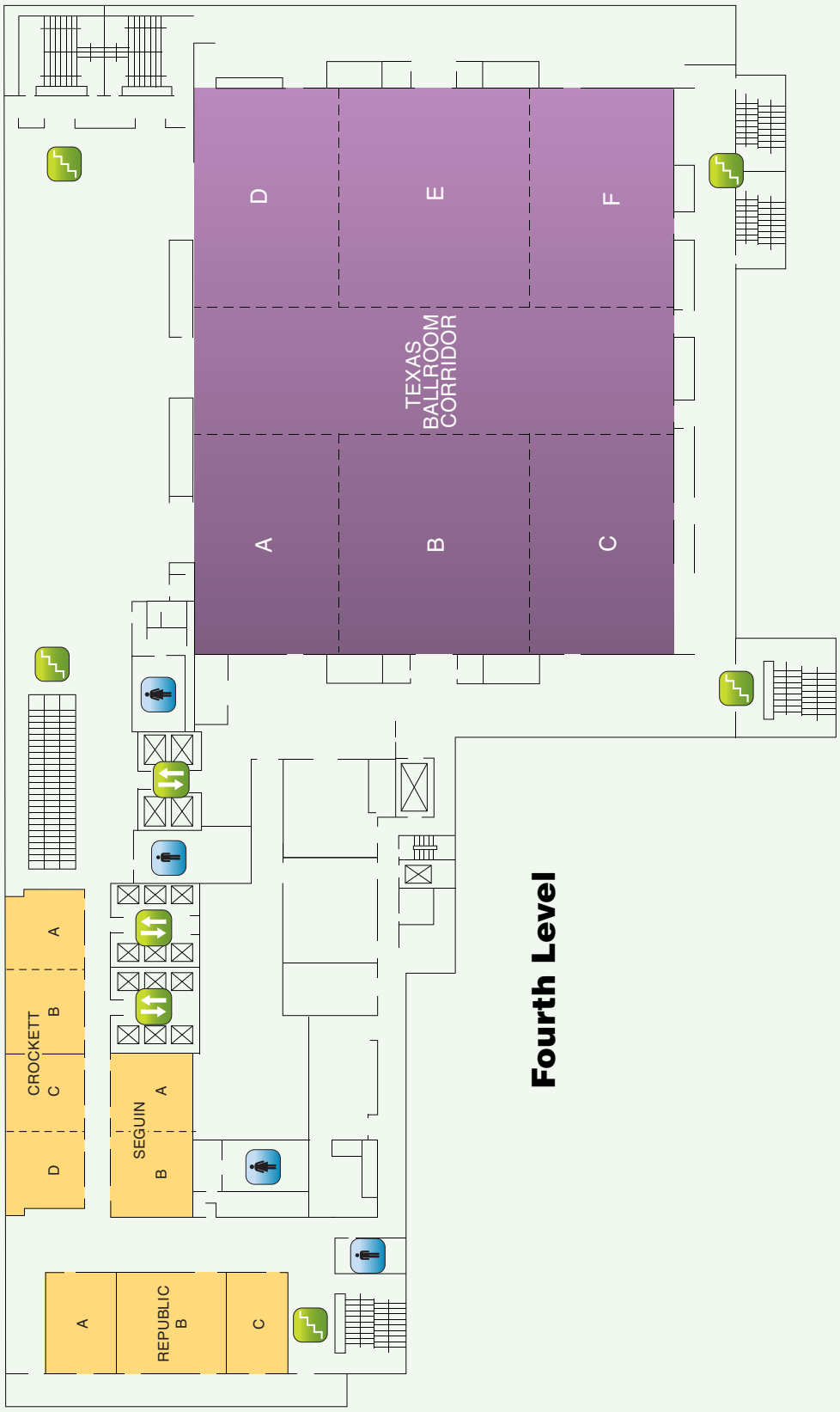
Grand Hyatt San Antonio



Grand Hyatt San Antonio



Grand Hyatt San Antonio



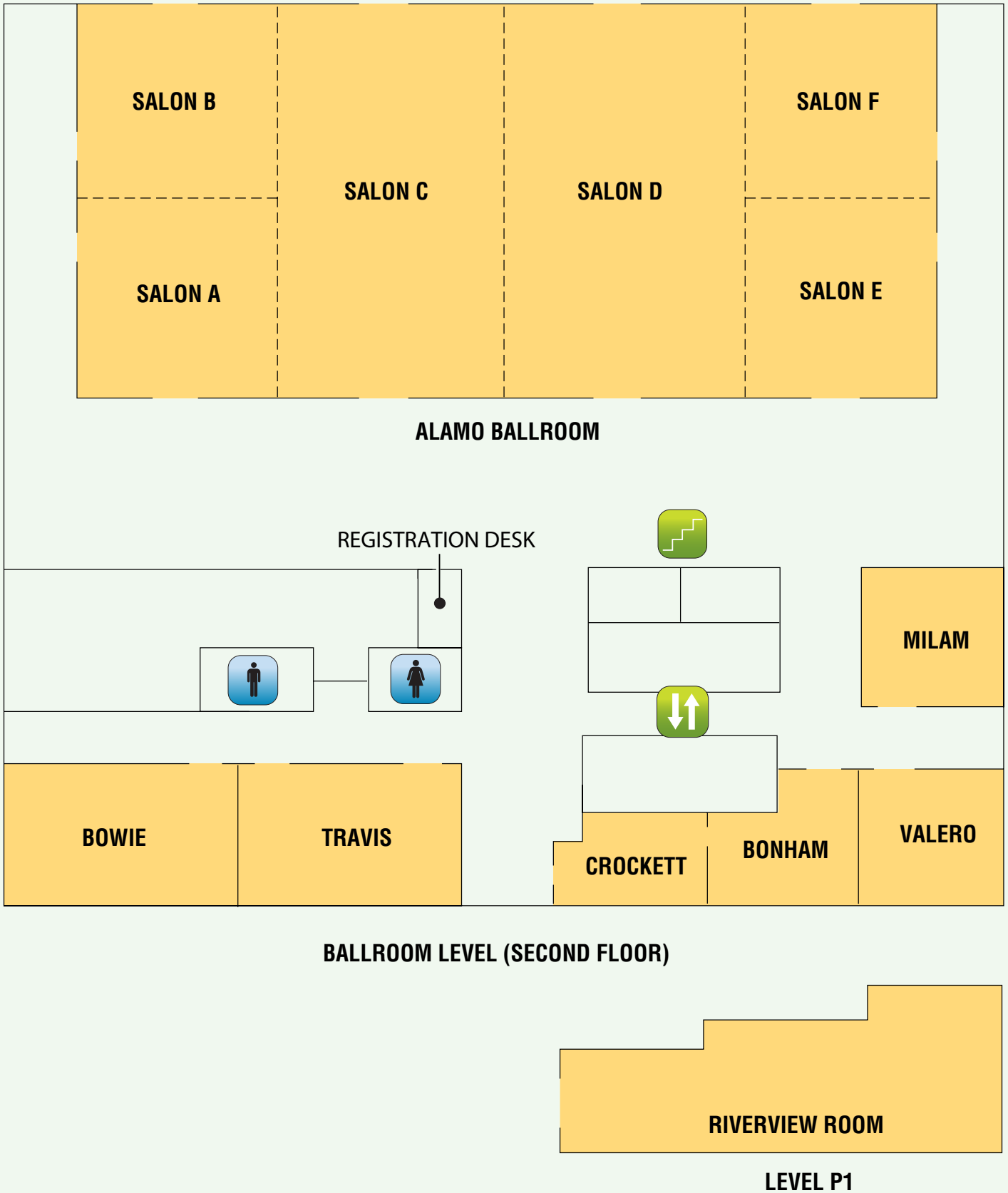
San Antonio Marriott Rivercenter

Third Floor

Fifth Floor

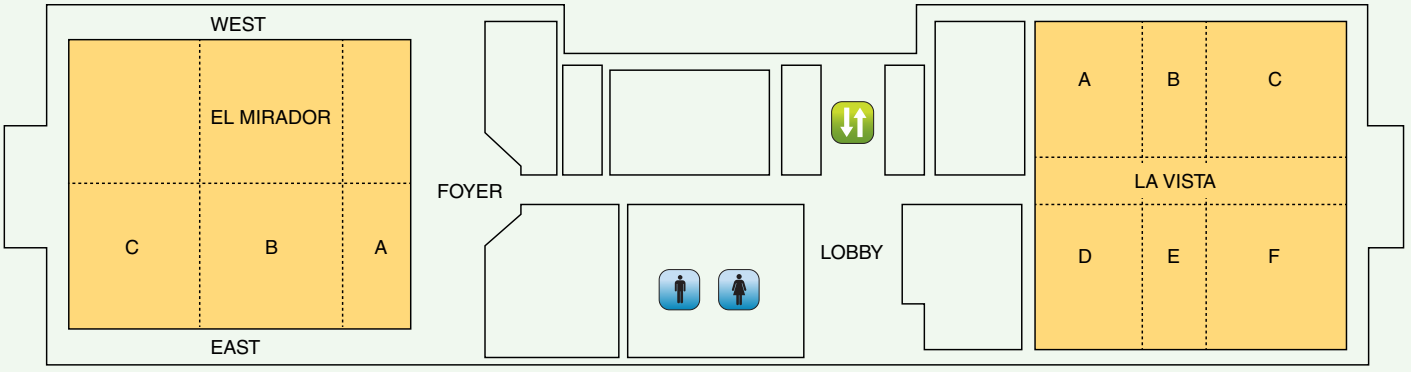
- Conference Suite 514
- Conference Suite 529
- Conference Suite 530
- Conference Suite 544

San Antonio Marriott Riverwalk

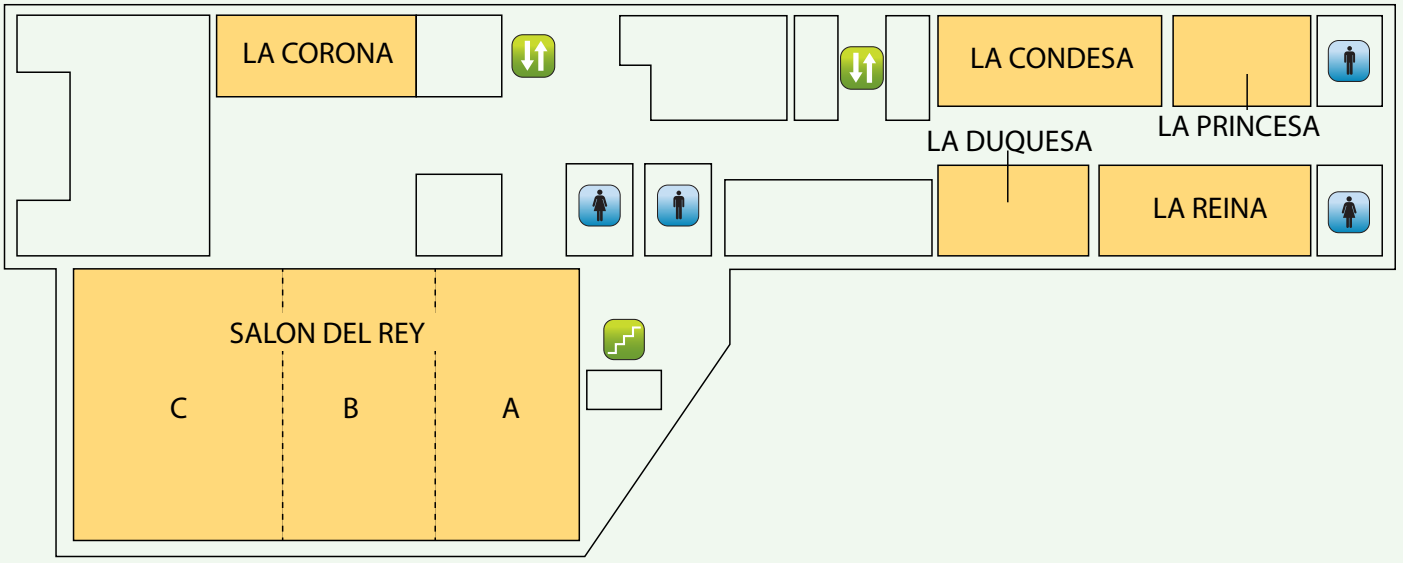


Hilton Palacio del Rio

Conference Center



Mezzanine



FREE WORKSHOPS

VERNIER DATA-COLLECTION TECHNOLOGY

Vernier

THURSDAY | April 11th | Workshop Room 210A		
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	

THURSDAY | April 11th | Workshop Room 210B		
8:00 - 9:30 a.m.	Human Physiology with Vernier	
10:00 - 11:30 a.m.	Using iPad® and Vernier Technology to Enhance Inquiry-Based Learning	
12:00 - 1:30 p.m.	Inquiry-Based Chemistry with Vernier	
2:00 - 3:30 p.m.	Water Quality with Vernier	

FRIDAY | April 12th | Workshop Room 210A		
8:00 - 9:30 a.m.	K-8 Science with Vernier	
10:00 - 11:30 a.m.	Physics with Vernier	
12:00 - 1:30 p.m.	Chemistry with Vernier	
2:00 - 3:30 p.m.	Biology with Vernier	

FRIDAY | April 12th | Workshop Room 210B		
8:00 - 9:30 a.m.	Engineering with Vernier	DEMO
10:00 - 11:30 a.m.	Inquiry-Based Biology with Vernier	
12:00 - 1:30 p.m.	Connected Science System®: Leveraging Vernier Technology with Mobile Devices in the Classroom	
2:00 - 3:30 p.m.	STEM Activities using Vernier Technology	

SATURDAY | April 13th | Workshop Room 210A		
8:00 - 9:30 a.m.	Inquiry-Based Chemistry with Vernier	
10:00 - 11:30 a.m.	Inquiry-Based Biology with Vernier	
12:00 - 1:30 p.m.	Physics with Vernier	
2:00 - 3:30 p.m.	Advanced Physics with Vernier	

SATURDAY | April 13th | Workshop Room 210B		
8:00 - 9:30 a.m.	Using iPad® and Vernier Technology to Enhance Inquiry-Based Learning	
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 and Earth Science with Vernier	

NO PRE-REGISTRATION! NO FEE!

Hands-On Workshop DEMO Demonstration Workshop

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David L. Evans, Executive Director

Board Relations

Michelle Butler, Executive Administrator and Manager

COMPASS

Ted Willard, Program Director

Development Office

Ann Korando, Director, Major Gifts
Christina Rice, Development Services Coordinator
LaKeisha Hines, Administrative Coordinator/Development Services

Legislative and Public Affairs

Jodi Peterson, Assistant Executive Director
Kate Falk, Senior Manager, Public Relations
Cindy Workosky, Communications Specialist

Nominations and Teacher Awards Program

Amanda Upton, Manager

Operations

Moira Fathy Baker, Associate Executive Director, COO, and CFO
Shantee Young, Administrative Assistant

Business and Finance

David Dhala, Controller
Kristin Carter, Director, Grants and Contracts
Diane Cash, Manager, Accounts Payable
Beth Custer, Manager, Cash Receipts
Stephanie Steffer, Coordinator, Accounts Receivable
Gaby Bathiche, Accountant

Facilities and Operations

Christine Gregory, Director
Rodney Palmer, Building Engineer
Donovan Parker, Mailing Services Coordinator
Joe Harpe, Mailing Services Assistant

Human Resources

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Janine Smith, HR Generalist

Management Information Systems

Todd Wallace, CIO
Ryan Foley, Director, Systems Development
Mike Sullivan, Director, IT
Edwin Pearce, Manager, IT Support
Martin Lopong, Manager, Web Development
Edward Hausknecht, Web and Database Developer

Membership

Howard Wahlberg, Assistant Executive Director
Teshia Birts, Senior Manager, Chapter Relations
Ken Rosenbaum, Chapter Relations Consultant

Service Central

Michelle Chauncey, Director, Customer Service
Nelly Guacheta, Senior Manager
Jasmine McCall, Special Projects Coordinator/CSR
Cindy Thomas, Fulfillment Coordinator/Claims Correspondent
Kiara Pate, Customer Service Representative
Pam Mitchell, Receptionist

Sales and Marketing

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Jeffrey LeGrand, Marketing and Sales Associate

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Jason Sheldrake, Assistant Director
Kimberly Hotz, Exhibits Manager
Olenka Dobczanska, Advertising Production Manager
Becky Shoemaker, Advertising Sales Associate

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Brian Short, Director, Science Education Competitions
Mohamud Warsame, Assistant Manager, Science Education Competitions
Sue Whitsett, eCYBERMISSION Outreach Manager
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Matt Hartman, eCYBERMISSION Content Coordinator
Alexis Mundis, eCYBERMISSION Volunteer Coordinator
Jacqueline Fuller, eCYBERMISSION Communications Coordinator

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Michele Soulé, Director
Jennifer Gulley, Marketing Manager

NSTA Mailing Lists

Danielle McNeill, Project Manager

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Caroline Nichols, Executive Administrator and International Program Coordinator

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Dayna Anderson, Coordinator

e-Learning Production

Leisa Clark, Director/Producer
Kara Pantalena, Course Developer
Whitney Swain, Multimedia Specialist

NASA Explorer Schools Program

Jodie Rozzell, Director

NSTA Learning Center

Flavio Mendez, Senior Director
Brynn Slate, Web Seminars/Symposia Manager
Jeff Layman, Web/Technical Coordinator

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Dina Weiss, Associate Director
Linda Crossley, Assistant Director/Managing Editor
Dave Berenhaus, Conference Coordinator
Donna Fletcher, Conference Coordinator
Christina Dierssen, Project Editor
Kimberlyn McDonald, Registration Supervisor/Administrative Assistant
Jo Neville, Database Manager
Beverly Shaw, Conference Administrator
Marcelo Nunez, Exhibit Services Coordinator

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Wendy Binder, SPIR Project Director

Science Matters

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Sherri Bracey, Program Manager
Tiffany McCoy, Program Coordinator

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Emily Brady, Executive Administrator

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Joseph Butera, Senior Graphic Designer
Rashad Muhammad, Graphic Designer

New Products and Services

Tyson Brown, Director

NSTA Press

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J. Andrew Cooke, Senior Editor
Wendy Rubin, Associate Editor
Amy America, Book Acquisitions Coordinator

NSTA Recommends

Emily Brady, Manager

NSTA Reports

Lynn Petrinjak, Editor
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NSTA Mission Statement

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

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Deborah Hanuscin, NARST
Rajeev Swami, NMLSTA
Darlene Ryan, NSELA
Brian Shmaefsky, SCST

All cities are subject to change pending final negotiation.

National Conferences on Science Education

Boston, Massachusetts
April 3–6, 2014

Chicago, Illinois
March 26–29, 2015

2013 STEM Forum & Expo

St. Louis, Missouri
May 15–18

Area Conferences on Science Education

2013 Area Conferences

Portland, Oregon—October 24–26
Charlotte, North Carolina—November 7–9
Denver, Colorado—December 12–14

2014 Area Conferences

Richmond, Virginia—October 16–18
Orlando, Florida—November 6–8
Long Beach, California—December 4–6

NSTA CONFERENCES ON SCIENCE EDUCATION

2013

SAVE THE DATES

Portland, OR — OCTOBER 24–26

Professional Development Strands

- Bridging Elementary and Secondary Science with the Common Core
- Bridging to the Highly Anticipated Next Generation Science Standards—What's in It for Me?
- Building Bridges Within STEM Education

Charlotte, NC — NOVEMBER 7–9

Professional Development Strands

- Engineering: Promoting the "E" in STEM
- Merging Literacy into Science Instruction
- Accelerating the Skills of Digital Learners

Denver, CO — DECEMBER 12–14

Professional Development Strands

- PreK–8 Science: A Playground for Literacy and Mathematics
- Engineering the Engineering: Connecting the Why to the How
- Exploring STEM: Inside and Out

FOR UPDATES AND INFORMATION, VISIT
www.nsta.org/conferences

NSTA National Science Teachers Association

National Science Teachers Association

Legacy Award

This NSTA award posthumously recognizes long-standing members of NSTA for significant lifelong service to NSTA and contributions to science education.

Donna Bogner
1994–1995 Kansas Association of Teachers of Science (KATS) President
Hutchinson, Kans.

Emma Walton
1999–2000 NSTA President
Anchorage, Alaska

Presidential Citation

During the July 2012 opening session of the National Congress on Science Education, NSTA President Karen Ostlund presented Dr. Carl Wieman, Associate Director of Science for the White House Office of Science and Technology and a Nobel laureate, with the NSTA Presidential Citation in recognition of his lifetime achievement in science education.

Robert H. Carleton Award

for National Leadership in the Field of Science Education

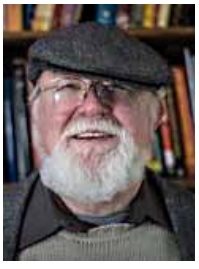
Sponsored by Dow Chemical Co.

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

"Angela" Award

Kaleela Thompson
Student
Hunter B. Andrews PreK–8 School
Hampton, Va.

Distinguished Service to Science Education Award



William Lamb
Head of Science
Oregon Episcopal School
Portland, Ore.

Distinguished Teaching Award

Ellen O'Donnell
Science Teacher
Deerfield Community School
Deerfield, N.H.

Distinguished Informal Science Education Award

Rachel Meyer
Executive Director
CuriOdyssey
San Mateo, Calif.

Joe Muskin
Education Coordinator
Center for Nanoscale Chemical-Electrical-Mechanical Manufacturing Systems
University of Illinois
Urbana, Ill.

Shell Science Teaching Award

Sponsored by Shell Oil Co.

Awardee

Gary Koppelman
Elementary Science Teacher
Blissfield Community Schools
Blissfield, Mich.

Finalist

Bridgette Sparks
Science Teacher
Saline High School
Ann Arbor, Mich.

Finalist

Joel Truesdell
Science Teacher
Kamehameha Schools Hawaii Campus
Keaau, Hawaii

2013 Shell Science Lab Challenge

Grand-Prize Winner

Merrie Rampy
Science Teacher
Highland High School
Craigmont, Idaho

National Finalist

Joyce H. Corriere
Science Teacher
Hampton High School
Hampton, Va.

National Finalist

Elizabeth J. Ciancio
Science Teacher
Hampton High School
Hampton, Va.

National Finalist

Sally Austin Hundley
Science Teacher
Bethel Middle School
Waynesville, N.C.

National Finalist

Cathleen Tinder
Science Teacher
Sebastian Charter Junior High School
Sebastian, Fla.

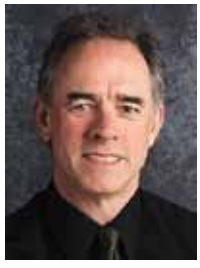
National Finalist

Rachel Willcutts
Biology Teacher
IDEA Frontier College Preparatory
Brownsville, Tex.

Wendell G. Mohling Outstanding Aerospace Educator Award

Shella Condino
Science Teacher
Presidio High School
Presidio, Tex.

Sylvia Shugrue Award for Elementary School Teachers



Chris Tower
Science Teacher
Concord Elementary School
Edina, Minn.

Ron Mardigian Memorial Biotechnology Explorer Award

Sponsored by Bio-Rad Laboratories

Susan Hartley
Science Teacher
Hinkley High School
Aurora, Colo.

PASCO STEM Educator Awards

Sponsored by PASCO scientific

Elementary Level

Evan Mirenberg
Science Teacher
P.S. 188 Michael E. Berdy School
Brooklyn, N.Y.

Middle Level

Ella Bowling
Science Teacher
Mason County Middle School
Maysville, Ky.

June Teisan
Science Teacher
Harper Woods Secondary School
Harper Woods, Mich.

High School

Lisa Damian-Marvin
Science Teacher
Camden Hill Regional High School
Rockport, Maine

Coit Hendley
Science Teacher
Eleanor Roosevelt High School
Upper Marlboro, Md.

Faraday Science Communicator Award

Andrew Fraknoi
Professor
Foothill College
San Francisco, Calif.

DuPont Challenge Science Essay Teacher Awardees

Junior Division

Eric Zhang
Biology Teacher
Bergen County Academies
Hackensack, N.J.

Senior Division

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

Vernier Technology Awards

Sponsored by Vernier Software & Technology

Middle Level

Christine Herald
Science Teacher
Dwight D. Eisenhower Middle School
Manhattan, Kans.

Kristy Schneider
Science Teacher
La Center Middle School
La Center, Wash.

High School Level

Darrell Coston
Science Teacher
Goldsboro High School
Knightdale, N.C.

Cara Hale-Hanes
Science Teacher
Long Beach Polytechnic High School
Long Beach, Calif.

Katherine Schenkelberg
Science Teacher
West High School
Torrance, Calif.

High School Level

Crystal Sengstaken
Science Teacher
The Archer School for Girls
Los Angeles, Calif.

College Level

Heidi Bulfer
Biology Instructor
Colby Community College
Colby, Kans.

Delta Education/CPO/Frey Scientific Education Awards for Inquiry-based Science Teaching

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

Elementary Level

Cynthia Bardwell
Science Teacher
Brookside Elementary School
Ossining, N.Y.

Middle Level

Brian McDowell
Science Teacher
Mason County Middle School
Maysville, Ky.

High School Level

Steven Sogo
Science Teacher
Laguna Beach High School
Laguna Beach, Calif.

The Maitland P. Simmons Memorial Award for New Teachers

Kevin Fleming
Science Teacher
Old Saybrook Senior High School
Old Saybrook, Conn.

Kacey Ford
Science Teacher
Great Bend High School
Great Bend, Kans.

Taylor Fusinatto
Science Teacher
Dr. Bessie Rhodes Magnet School
Skokie, Ill.

Richard Henry
Science Teacher
Tri-Central High School
Sharpsville, Ind.

Jennifer Jones
Science Teacher
Ogallala High School
Ogallala, Neb.

Rebecca Koza
Science Teacher
The Arts Based School
Winston-Salem, N.C.

Rebecca Kurson
Science Teacher
Golda Och Academy
South Orange, N.J.

Katie Schmidt
Science Teacher
Discovery Charter School
Columbus, Wis.

Ian Shea
Science Teacher
Silver Lake Regional Middle School
Kingston, Mass.

Elizabeth Wenk
Science Teacher
West Boca Raton Community High School
Boca Raton, Fla.

Students at Busch Gardens assist the Animal Care Team with the care of an injured bird.

You all know one - the exceptional student that loves nature. The one that likes to clean the home of the class' guinea pig or fish bowl. The one that is always staring out the window, wishing to be outside. The one that idolizes famous scientists like Jacques Cousteau. Yes, that student. The one who will someday become a conservation leader.

And you, their teacher, are the key to their inspiration.

At SeaWorld Parks & Entertainment we are reminded of the importance and influence of teachers every day. The animals we rescue, the people we educate, and the species we save were often influenced by the teachers in our lives.

We were that student in your classroom.

We owe a lot to you - the teacher. For more than 50 years, we've been sharing our passion for protecting wildlife and wild places, and providing ways to extend this passion into your classroom. Visit our new website, created just for you, for free resources and ways to inspire your students to protect the world we share.

SeaWorld.com\teachers

SEAWORLD PARKS & ENTERTAINMENT

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— Courtesy of Al Rendon/San Antonio Convention and Visitors Bureau

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!

See pages 99 and 174 for details.

Ribbon-Cutting Ceremony

An opening ceremony is scheduled on Thursday at 10:00 AM in Exhibit Hall B.

Wednesday, April 10 (Volume 1)

9:00 AM–4:00 PM	NSTA Professional Development Institutes and Work Sessions (check-in opens at 8:00 AM) 52–55, 84–85

Thursday, April 11 (Volume 1)

8:00–9:00 AM	First-Timers' Meeting (Is This Your First NSTA Conference?) . . 99
8:30 AM–2:30 PM	Global Conversations in Science Education Conference (M-1) . . 104
10:00–10:10 AM	Exhibits Opening/Ribbon-Cutting Ceremony 118
10:05–10:30 AM	Meet the Presidents and Board/Council 120
10:10 AM–6:00 PM	Exhibits 121
11:00 AM–12:30 PM	General Session: Cheryl M. McNair 123
12:30–1:30 PM	Mary C. McCurdy Lecture: Yvonne M. Spicer 130
2:00–3:00 PM	Featured Presentation: Jorge G. Ibáñez-Cornejo 154
2:00–4:00 PM	The Planetary Society Lecture: Bill Nye 167
3:30–4:30 PM	First-Timers' Meeting (Conference Tips for First-Timers) 174
6:00 PM–12 Mid	Special Evening Session: A Festival of Award-winning Film Classics and Inspiring Legends, Part I 184–185

Friday, April 12 (Volume 2)

See Conference Highlights, Volume 2, for page numbers.

7:30–9:00 AM	High School Breakfast (M-2): Fuk K. Li
8:00–10:00 AM	Elementary Extravaganza
8:00 AM–3:00 PM	Teacher Insights from the Writing Team and Town Hall Meeting
8:30–9:30 AM	Featured Presentation: Paul A. Stokstad
8:30–9:30 AM	Featured Presentation: Mireya Mayor
9:00 AM–12 Noon	NSTA Exemplary Science Programs (ESP)
9:00 AM–5:00 PM	Exhibits
10:30 AM–12 Noon	Science Seminar: Susan L. Mooberry
10:30 AM–12 Noon	Science Seminar: Louis L. Jacobs
12 Noon–2:00 PM	NSELA/ASTE Luncheon (M-3): Heidi Schweingruber
12 Noon–2:00 PM	NSTA/NMLSTA Middle Level Luncheon (M-4): Warren Phillips
12:15–1:45 PM	Science Seminar: Eloy Rodriguez
1:30–3:00 PM	Science Seminar: Deborah J. Thomas
2:00–3:00 PM	Featured Presentation: Next Generation Science Standards Town Hall Meeting: Stephen Pruitt
2:00–3:00 PM	AGU Lecture: Andrew Dessler
2:00–3:30 PM	NSTA Chapter and District Meet and Greet in Honor of Wendell Mohling
3:30–4:30 PM	Robert H. Carleton Lecture: Michael J. Padilla
6:00–8:45 PM	NSTA Teacher Awards Gala (M-5)
6:00 PM–12 Mid	Special Evening Session: A Festival of Award-winning Film Classics and Inspiring Legends, Part II

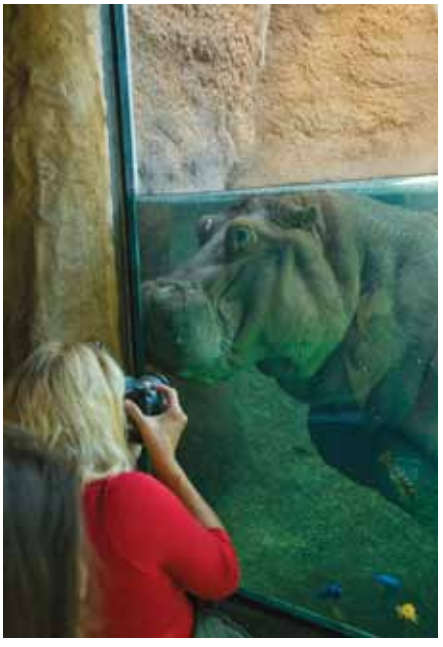
General Session

Thursday, April 11, 11:00 AM–12:30 PM

Cheryl M. McNair
Founder and Chairperson, Dr. Ronald E. McNair Educational (D.R.E.M.E.) Science Literacy Foundation, Houston, Tex.

D.R.E.M.E. Foundation Makes Science for All Learners a Reality

Cheryl M. McNair will share the vision and goals of the Dr. Ronald E. McNair Educational (D.R.E.M.E.) Science Literacy Foundation, honoring the life and legacy of the late Dr. Ronald E. McNair.
(See page 123 for details.)



—Timothy O'Keefe/San Antonio Convention and Visitors Bureau

See pages 65 and 68 for field trips to the San Antonio Zoo.

Saturday, April 13 (Volume 3)

See Conference Highlights, Volume 3, for page numbers.

7:30–9:00 AM	Science in the Community Breakfast: David Heil
7:30 AM–4:30 PM	Informal Science Day
8:00 AM–12 Noon	NSTA/SCST Symposium on Biotechnology
8:30 AM–4:30 PM	Teacher Researcher Day
9:00 AM–12:30 PM	NSTA Community Science Festival
9:00 AM–5:00 PM	Exhibits
10:30 AM–12 Noon	Science Seminar: Bobby Jeanpierre
10:30 AM–12 Noon	Science Seminar: Judy St. Leger
11:00 AM–12 Noon	Paul F-Brandwein Lecture: Arthur Morris
12 Noon–1:30 PM	NSTA/SCST College Luncheon (M-7): Michael W. Klymkowsky
12 Noon–2:00 PM	CESI/NSTA Elementary Science Luncheon (M-8): Dinah Zike
12 Noon–2:00 PM	Aerospace Educators Luncheon:(M-9): Joseph M. Acaba
1:30–3:00 PM	Science Seminar: Karen Lozano
1:30–3:00 PM	Science Seminar: O'dell M. Owens
2:00–3:00 PM	NSTA/ASE Honors Exchange Lecture: Liz Lawrence
3:30–4:30 PM	Featured Presentation: Paul Andersen
6:00 PM–12 Mid	Special Evening Session: A Festival of Award-winning Film Classics and Inspiring Legends, Part III
7:00–8:15 PM	President's Reception (M-10)
8:30–9:30 PM	President's Evening Featured Presentation: David Hanson
9:45 PM–12 Mid	President's Mixer with DJ and cash bar

Sunday, April 14 (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-11)

The San Antonio Conference Committee has planned the conference around these 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.

✓ **Next Generation Assessments: Effectively Measuring Student Learning**

Use of assessments to measure students' understanding of science concepts is becoming increasingly important for science teachers across the country. Administrators and policy makers use assessments to determine how well their schools are preparing the next generation. Student learning is effectively measured when curriculum, instruction, and assessment are aligned. A variety of assessment strategies can provide feedback to inform teaching and learning. Assessments should be used to adjust course content and rigor, teaching techniques, and learning strategies to improve student science achievement. Moreover, assessment data should be used to craft appropriate professional development and student interventions. This strand will deepen participants' understanding of assessments and their impact on teaching and learning.

Next Generation Elementary Science: Building the Foundation

One of the primary roles of elementary teachers is to build a strong foundation for science. Research indicates that many elementary educators feel unprepared to deliver effective science instruction. Foundational practices in the elementary classroom, laboratory, and field include building background knowledge, teaching scientific and engineering practices, integrating content, and developing scientific literacy. This strand will expand participants' implementation of research-based best practices for teaching science.

Next Generation Special Populations: Meeting the Needs of Diverse Learners

Special student populations—including limited English proficient, special education, economically disadvantaged, and culturally diverse—are traditionally underserved in science instruction. In order to meet student needs, teachers must have the tools necessary to effectively differentiate and accommodate for individual needs. This strand will strengthen participants' knowledge of differentiated instruction, Response to Intervention, federally defined subpopulations, accessibility to a guaranteed and viable curriculum, and children's rights and safety in special populations.

Next Generation Technology: Putting the "T" in STEM

As educators we must prepare all learners for a future we can only imagine. Appropriate and effective technology must be integrated with instruction to support Science, Technology, Engineering, and Mathematics (STEM) learning. The use of technology enhances students' scientific and engineering practices, and fosters the development of scientific literacy. This strand provides opportunities for science educators to experience appropriate use and integration of technology in teaching and learning, and increases their confidence in incorporating these tools into their practices.

Next Generation Assessments: Effectively Measuring Student Learning

Thursday, April 11

8:00–9:00 AM
Students Steer the Course—Don't Crash and Burn with Meaningless Assessment

9:30–10:30 AM
Improving Instruction Through Better Assessments: A Framework for Teacher-Leaders

12:30–1:30 PM
How Do You Explain the Explanation? Incorporating Claim Evidence Reasoning (CER) into Your Classroom

2:00–3:00 PM
Interactive Science Notebooks (Middle School)

3:30–4:30 PM
Using the 5E Model to Impact Student Learning: Align Instruction and Assessment to Make Student Thinking Visible

5:00–6:00 PM
Ranking Tasks as a Next Generation Physics Assessment

Friday, April 12

8:00–9:00 AM
Activities That Lead to Conceptual Understanding of Chemistry Content

11:00 AM–12 Noon
Formative Assessment in Middle Grades Science

12:30–1:30 PM
Using the Nation's Report Card (NAEP) to Improve Science Education

2:00–3:00 PM
Go Hands On with the Nation's Report Card: Do HOTs, Observe ICT Simulations, and Learn About Linking NAEP to TIMSS Results

3:30–4:30 PM
The Nation's Report Card Will Provide the First National Test of How Well Students Do in Technology and Engineering Literacy

5:00–6:00 PM
Photographs for Assessment—"Take a Picture When…": Digital Photography Makes It Easy to Engage Elementary Students in Assessment

Saturday, April 13

8:00–9:00 AM
Developing Science Assessments That Support Inquiry

8:00 AM–12 Noon
Short Course: Redesigning Testing in Science: Bringing Research-based Diagnostic Assessments into the Classroom (By Ticket: SC-14)

9:30–10:30 AM
Whoooo Knew? Assessment Strategies for Inquiry Science

12:30–1:30 PM
Let's Talk Science: Learning Conversations in Formal and Informal Science Education

2:00–3:00 PM
Student-designed Experiments: A Strategy That Works for Them and You!

3:30–4:30 PM
Exploring and Understanding the New Science Framework and Common Core Standards

5:00–6:00 PM
The Mystery of the Mummy Brothers

Sunday, April 14

8:00–9:00 AM
You Said It, But Did They Get It?

9:30–10:30 AM
Science as Inquiry: Linking Instruction with Assessment

Next Generation Elementary Science: Building the Foundation

Thursday, April 11

8:00–9:00 AM
Magical Illusions for K–9 Teachers

9:30–10:30 AM
MORE Science on the Cheap

12:30–1:30 PM
Mary C. McCurdy Lecture: Beyond the Three Rs: Inspiring Curious Minds (Speaker: Yvonne M. Spicer)

Putting a New "Spin" on Moon Phases

2:00–3:00 PM
Inquiring Minds Want to Know

3:30–4:30 PM
The Science Magic Show

Friday, April 12

8:00–9:00 AM
Fee Fi Fo Fum! Getting Elementary Students Excited About Plants!

8:00–10:30 AM
Short Course: Maury Morning of Oceanography (By Ticket: SC-6)

9:30–10:30 AM
Investigating Soil in the Elementary Classroom

11:00 AM–12 Noon
Magical Illusions and Scintillating Simulations for Science—It's Showtime!

12:30–1:30 PM
Circuits to Go!

1:00–4:30 PM
Short Course: Real-Life Science Learning on a Budget (By Ticket: SC-12)

2:00–3:00 PM
Let It Slide!

5:00–6:00 PM
Growing a Garden of Learners

Next Generation Elementary Science: Building the Foundation, cont.

Saturday, April 13

8:00–8:30 AM
Climate Change…on Our Playground?

9:30–10:30 AM
Dazzling Deceptions: Discrepant Events That Delight and Mystify!

11:00 AM–12 Noon
Engineering Design: An Instructional Strategy to Close the Gap?

12:30–1:30 PM
Into the Woods for Environmental Literacy

2:00–3:00 PM
CSI for Small Fry: Classroom Science Investigations That Encourage Science Processes

3:30–4:30 PM
Growing Science Achievement with the Junior Master Gardener Program

Sunday, April 14

8:00–9:00 AM
Scribble-Bots

Next Generation Special Populations: Meeting the Needs of Diverse Learners

Thursday, April 11

8:00–9:00 AM
How to Present to African-American Men

8:00–10:30 AM
Short Course: Bioinspiration: An Artistic Expression of the Imagination (By Ticket: SC-1)

9:30–10:30 AM
Interactive, Conceptual Word Walls: Transforming Content Vocabulary Instruction One Word at a Time

11:00 AM–12:30 PM
General Session: D.R.E.M.E. Foundation Makes Science for All Learners a Reality (Speaker: Cheryl M. McNair)

12:30–1:30 PM
Strategies and Tools to Facilitate Science Instruction for ELLs and SIFE Students

Severe Science: Using Science Instruction for Students with Severe Disabilities

Friday, April 12

8:00–8:30 AM
A Little PDA Goes a Long Way: Content Literacy Strategies

8:00–9:00 AM
The Do's and Don't's of the Flipped Classroom: Best Practices

9:30–10:30 AM
Diverse Science Tools for Diverse Science Learners

11:00 AM–12 Noon
Deduce to Reduce English Language Learners' Frustration with Science Text

12:30–1:30 PM
STEM Comes to Preschool

Team Teaching in the Science Classroom

12:30–3:30 PM
Short Course: Squishy Circuits, Toy Engineering, and More! (By Ticket: SC-11)

2:00–3:00 PM
Adapting Space Adventures: Using Real NASA Data to Engage Students with Special Needs

4:00–4:30 PM
Aprendiendo Ciencas: Acquiring and Expanding Scientific Language and Literacy

5:00–6:00 PM
Photosynthesis: The Musical!

Saturday, April 13

8:00–9:00 AM
Addressing the Unique Needs of Diverse Learners in Introductory Biology Curricula, Particularly Those with Learning Disabilities

8:30–11:30 AM
Short Course: Language for Meaning: Supporting English Language Learners in the Science Classroom (By Ticket: SC-15)

9:30–10:30 AM
Successful Tools for Engaging Girls in Science: A National Panel of Women in STEM Share Proven Strategies and Programs

11:00 AM–12 Noon
Developing Inquiry with Young Learners: Outdoor Explorations with Diverse Audiences

Empower ALL Learners with Neuroscience

12:30–1:30 PM
Active Engagement of All Students—ELL, Gifted, and Learning Disabled

2:00–3:00 PM
How to Present STEM to African-American Women

3:30–4:30 PM
Engaging Science Instruction for Special Needs Students

5:00–6:00 PM
Science Camp: An Effective High-Stakes Test Intervention

Sunday, April 14

8:00–9:00 AM
Effective Strategies for Enhancing Science Learning for Diverse Students

Next Generation Technology: Putting the "T" in STEM

Thursday, April 11

8:00–9:30 AM
Using iPads to Create Innovative Scientists

8:00–11:30 AM
Nanotechnology in the STEM Curriculum
(By Ticket: SC-3)

10:00–11:00 AM
The World of Google in Science

1:00–2:30 PM
Science 2.0: Putting Web 2.0 into the Science Classroom

3:00–4:30 PM
sTem—You've Never Seen Student Technology Work Like This!

Friday, April 12

8:00–9:00 AM
Digitize the Learning Experience and Take IT Mobile

8:00 AM–5:00 PM
Short Course: Meeting the Next Generation Engineering Practices with Exemplary Resources
(By Ticket: SC-9)

8:30–9:30 AM
Featured Presentation: What a Difference a Measurement Makes
(Speaker: Paul A. Stokstad)

9:30–10:30 AM
Going Beyond Data Collection: Sharing in a Science Classroom

11:00 AM–12:30 PM
Google Me This: How to Make Collaboration Work in a Wiki World

2:00–3:00 PM
Tech Talk: A Terabyte of Ideas in an Hour

3:30–4:30 PM
STEM Digital: Digital Cameras as Scientific Instruments

5:00–5:30 PM
Designing and Developing STEM Collaborative Field Studies

Saturday, April 13

8:00–9:00 AM
CPR: Revive Writing in the Science Classroom Without Killing Yourself

8:00–11:00 AM
Short Course: Expedition Earth and Beyond—Getting Students Actively Involved in NASA Exploration, Discovery, and the Process of Science (By Ticket: SC-13)

9:30–10:30 AM
Being Smart with Graphs!

11:00 AM–12 Noon
Climate Models: Everything You Ever Wanted to Know, Ask, and Teach

12:30–1:30 PM
Citizen Science Investigations in the Classroom

1:30–4:30 PM
Short Course: Building Sound Technology into Your Science Curriculum
(By Ticket: SC-18)

2:00–3:00 PM
Using LabQuest2 with iPads in Modeling Instruction

3:30–4:30 PM
iPads Go Outdoors: Young Students Become Citizen Scientists

5:00–6:00 PM
Incorporating STEM Research with Technology Inquiry in Low Socioeconomic Classrooms

Sunday, April 14

8:00–9:00 AM
NASA's Goldstone Apple Valley Radio Telescope Program

9:30–10:30 AM
Google Earth in the Classroom

11:00 AM–12 Noon
Using PhET Simulations to Teach Introductory Physics

Global Conversations in Science Education Conference

Balancing Rigor and Instructional Choice: Impact of National Curricula and Reforms

Thursday, April 11, 8:30 AM–2:30 PM
Texas Ballroom A/B, Grand Hyatt
By Preregistration Only (M-1)

NSTA has planned a day dedicated to science education from an international perspective. The conference commences with a plenary talk by Dr. Doris Jorde, director of Norwegian Centre for Science Education in Oslo, Norway. This plenary session will be followed by concurrent sessions, a poster session, and an afternoon plenary talk by Dr. Jonathan Osborne, The Shriram Family Professorship of Science Education at Stanford University. The day will conclude with short presentations from participants on current trends, issues, and best practices from around the world. During this event, there will be numerous opportunities for international visitors to network with science educators from various cultures. *For an agenda on Global Conversations Conference events, see page 104.*

Thursday, April 11

8:30–8:45 AM	Welcome and Introductions *(Texas Ballroom A/B)*
8:45–9:30 AM	Plenary Session *(Texas Ballroom A/B)* *Recent Trends in Science Education in Europe—Converging or Diverging?* Speaker: Doris Jorde, Director, Norwegian Centre for Science Education, Oslo, Norway
9:30–9:40 AM	Break
9:45–10:45 AM	Concurrent Sessions: Session 1, *(Crockett A);* Session 2, *(Crockett B)*; Session 3, *(Texas Ballroom A/B)*
10:45–11:30 AM	Poster Session *(Texas Ballroom A/B)*
11:30 AM–12 Noon	Lunch (on your own)
12 Noon–12:45 PM	Plenary Session *(Texas Ballroom A/B)* *Do Standards in Science Education Matter?* Speaker: Jonathan Osborne, The Shriram Family Professorship of Science Education, Graduate School of Education, Stanford University, Stanford, Calif.
1:00–2:00 PM	Concurrent Sessions: Session 1, *(Crockett A)*; Session 2, *(Crockett B)*; Session 3, *(Texas Ballroom A/B)*
2:10–2:25 PM	Updates from Around the World *(Texas Ballroom A/B)*
2:25–2:30 PM	Closing Remarks *(Texas Ballroom A/B)*

Next Generation Science Standards

Friday, April 12, 8:00 AM–3:00 PM
Convention Center

In San Antonio, NGSS takes center stage. This conference is a premier event for science educators to join NGSS writers, reviewers, contributors, and others to explore this landmark document. Don't miss the multitude of events and sessions to learn more about NGSS and plan next steps for implementation.

Teacher Insights from the Writing Team and Town Hall Meeting

Join K–12 teachers who are writers of the Next Generation Science Standards for an exploration of the development of NGSS—*from* teachers *for* teachers. In four back-to-back sessions, writing team members will share the thinking and ideas that went into writing this landmark document, and the challenges they experienced along the way. Individual sessions focus on elementary, life science, physical science, and Earth and space science and will explore what NGSS will mean for classroom science teachers.

The four sessions will culminate with a Town Hall Meeting with Stephen Pruitt, vice president for Content, Research, and Development at Achieve, Inc. This interactive forum will be an opportunity for teachers to ask questions and discuss the next steps in the implementation of NGSS.

See the Friday daily program (Vol. 2) for details on these NGSS sessions.

A complete list of NGSS @ NSTA *sessions scheduled on Wednesday and Thursday is on page 156. See Volumes 2 and 3 for a list of* NGSS @ NSTA *sessions scheduled Friday–Sunday.*

8:00–9:00 AM	Elementary NGSS
9:30–10:30 AM	Middle/High School NGSS—Life Science
11:00 AM–12 Noon	Middle/High School NGSS—Physical Science
12:30–1:30 PM	Middle/High School NGSS—Earth Science
2:00–3:00 PM	NGSS Town Hall Meeting

NSTA Exemplary Science Program (ESP)

ESP: Unique Features of Programs That Meet "More Emphasis" Features in the NSES

Friday, April 12, 9:00 AM–12 Noon

215, Convention Center

NSTA's Exemplary Science Programs (ESP) series identifies people and places where the reforms recommended have emerged. The exemplary include: 1) Exemplary Science in Grades PreK–4; 2) Exemplary Science in Grades 5–8; 3) Exemplary Science in Grades 9–12; 4) Exemplary Science: Best Practices in Professional Development; 5) Inquiry: The Key to Exemplary Science; 6) Exemplary Science in Informal Education Settings; and 7) Exemplary Science for Resolving Societal Challenges.

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

ESP symposia are described in the daily program (Volume 2).

Coordinator: **Brenda Wojnowski,** WAI Education Solutions, Dallas, Tex.

Promoting Inquiry with Preservice Elementary Teachers
Thomas R. Lord, Retired Educator, Lewes, Del.

More Emphasis on Teacher Quality
Susan B. Koba, Retired Educator, Omaha, Neb.

Creating a Pipeline to STEM Careers
Anton Puvirajah and Lisa M. Martin-Hansen, Georgia State University, Atlanta
Geeta Verma, University of Colorado, Denver

Bring School Science to College
Sondra B. Akins, William Paterson University, Wayne, N.J.

"Who Ate Our Corn?"
Craig Wilson, USDA/Hispanic Serving Institutions National Program and Texas A&M University, College Station

Sowing the Seeds of Future Success
Timothy P. Scott, Texas A&M University, College Station

The Talent Marketplace—Where Science Careers Are Made
S. Anders Hedberg, Hedberg Consulting, LLC, Ottsville, Pa.

Developing Students' Authentic Inquiry Skills
Judith A. Scheppler, Illinois Mathematics and Science Academy®, Aurora

Preparing Students for Careers That Do Not Yet Exist
Glenn "Max" McGee, Illinois Mathematics and Science Academy®, Aurora

Securing a "Voice"
David L. Brock, Roland Park Country School, Baltimore, Md.

Stop Talking, Start Listening
Peter Veronesi, The College at Brockport, N.Y.

Revising Majors Biology: A Departmental Journey
Elizabeth Allan, University of Central Oklahoma, Edmond

Revising an Old Strategy with New Frameworks
Teddie Phillipson-Mower, University of Louisville, Ky.

Ways to Interest More Students in Science Careers
Claudia Khourey-Bowers, Kent State University at Stark, North Canton, Ohio; Vicki McCamon, Joseph Welty Middle School, New Philadelphia, Ohio

Success with Science Outdoors
Beth Ann Krueger, Central Arizona College–Aravaipa Campus, Winkelman

Implementing the Jigsaw Technique to Enhance Learning
Sandhya N. Baviskar, University of Arkansas–Fort Smith

Inspiring the Next Generation of Scientists
Gerard J. Putz, Science Olympiad, Oakbrook Terrace, Ill.
Jennifer L. Wirt, New Jersey Science Olympiad, Livingston

Developing Inquiry Skills
Robert Wolffe, Bradley University, Peoria, Ill.

Why STEM—Why Now?
Karen Charles, RTI International, Research Triangle Park, N.C.

NSTA/SCST Symposium: Using Biotechnology as an Interdisciplinary STEM Education Teaching Strategy

Symposium Jointly Sponsored by NSTA and SCST

Saturday, April 13, 8:00 AM–12 Noon

Bowie B, Grand Hyatt

This year's joint symposium by NSTA and the Society for College Science Teachers (SCST) will focus on the theory and practice of teaching STEM and science workforce skills in college and high school science teaching. Biotechnology techniques will be demonstrated as a unifying theme for the integration of biology, chemistry, engineering, math, and physics into each specific discipline. Workforce readiness for STEM careers will be discussed by speakers from BioLink and Bio-Rad. *See Volume 3 for details.*

Following the symposium, don't miss the NSTA/SCST College Luncheon (Ticket M-7) from 12 Noon to 1:30 PM (see Vol. 3).

Saturday, April 13

8:00 AM–12 Noon	Biotechnology Discussion *Moderator:* Brian R. Shmaefsky, SCST President, and Professor of Biology and Service Learning Coordinator, Lone Star College–Kingwood, Tex. *Presenters:* Damon Tighe, Curriculum Training Specialist, Bio-Rad Laboratories, Hercules, Calif. Sulatha Dwarakanath, Bio-Link, and Adjunct, Associate Professor, Austin Community College, Austin, Tex. Breakout Session One: *Engineer the Tools for Inquiry of Candy Food Dyes (Biology)* Breakout Session Two: *Engineer the Tools for Inquiry of Candy Food Dyes (Chemistry and Physics)*
12 Noon–1:30 PM	NSTA/SCST College Luncheon (Tickets Required: M-7) *Making the Future Teacher the Target of Disciplinary Program Design—Toward More Coherent, Engaging, and Effective Curricula in the Sciences* Michael W. Klymkowsky, Professor of Molecular, Cellular, and Developmental Biology, University of Colorado Boulder, and Institute of Molecular Systems Biology, ETH Zurich, Switzerland

Teacher Researcher Day

Saturday, April 13, 8:30 AM–4:30 PM

Texas Ballroom A/B, Grand Hyatt

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 Volume 3.*

Saturday, April 13

8:30–9:30 AM	Poster Session: *Teacher Research in Science Education in Multiple and Diverse Settings*
9:30–10:30 AM	Presentation: *Finding Meaning as a Teacher Researcher—Overview of Teacher Researchers*
10:30–11:00 AM	Concurrent Sessions
11:00 AM–12 Noon	Concurrent Sessions
12 Noon–12:30 PM	Science Inquiry Group Network
12:30–1:30 PM	Concurrent Sessions
1:30–2:00 PM	Concurrent Sessions
2:00–3:00 PM	Concurrent Sessions
3:30–4:30 PM	Concurrent Sessions

Informal Science Day

Saturday, April 13, 7:30 AM–4:00 PM
Ballroom B, Convention Center

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 Volume 3.*

Saturday, April 13

7:30–9:00 AM	Science in the Community Breakfast (Tickets Required: M-6) *Stretching Our Collective Science and Engineering Wings Through Community-based Resources* David Heil, David Heil & Associates, Inc., Portland, Ore.
9:30–10:30 AM	Breakout Sessions
11:00 AM–12 Noon	Breakout Sessions
12:30–1:30 PM	Little Shop of Physics Demo Show
2:00–4:00 PM	Informal Science Day Share-a-Thon

NSTA Community Science Festival

Saturday, April 13, 9:00 AM–12:30 PM
Exhibit Hall, Convention Center

Bring science to life for your students and children with the folks that do it best! NSTA is hosting a FREE community event to electrify parents, teachers, students, and other community members about the exciting world of science. ENGAGE in exciting hands-on activities and discover new ways to bring science to life for students and children. The community event starts with an exciting display of science experiments with Mr. Wizard.

FREE tote bags filled with cool giveaways* will be distributed to the first 250 people who attend. Doors open at 8:30 AM.

**One gift bag per person. You must be over the age of 18 to receive a bag. Bags are for participants only.*

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, April 11

8:00–9:00 AM

CCSS for ELA and Literacy + NGSS = Even More Brain-powered Science

9:30–10:30 AM

CCSS for Mathematics + NGSS = More Brain-powered Science

11:00 AM–12 Noon

Next Time You See…

12:30–1:30 PM

Uncovering K–12 Students' (and Teachers') Ideas on the Earth and Space Sciences

2:00–3:00 PM

Uncovering K–2 Student Ideas About Science

3:30–4:30 PM

STEM Activities—Are You Addressing Safety?

5:00–6:00 PM

Everyday Engineering

Friday, April 12 (Volume 2)

8:00–9:00 AM

Classroom Activities to Accompany *Stop Faking It! Force & Motion*

9:30–10:30 AM

Brain-powered Science Teaching and Learning with Discrepant Events

Classroom Activities to Accompany *Stop Faking It! Energy*

11:00 AM–12 Noon

Ways to Approach Doing POE Exercises in Your Classroom

Picture-Perfect Science Lessons: Using Picture Books to Guide Inquiry

12:30–1:30 PM

Uncovering K–12 Students' (and Teachers') Ideas About Matter and Energy

2:00–3:00 PM

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

3:30–4:30 PM

Good-Bye MSDS, Hello SDS

Visualizing the World of Atoms and Molecules: Virtual Technologies That Wow Students

5:00–6:00 PM

Five E(z) Guidelines for Designing Research-informed Science Lesson Sequences

Saturday, April 13 (Volume 3)

8:00–9:00 AM

Picture Not Faking It! Using Trade Books and Activities to Understand Buoyancy

9:30–10:30 AM

Whole Class Inquiry, The Story Continues

Stop Faking It! Finally Understand Light and Sound So You Can Teach It

11:00 AM–12 Noon

What About Those Hard-to-Teach-and-Learn Concepts?

Uncovering K–12 Students' (and Teachers') Ideas on Life Science

Bringing Outdoor Science In

12:30–1:30 PM

Using Science Mystery Stories—The Details

2:00–3:00 PM

Authors Share Favorite Lessons from Teaching Science Through Trade Books

3:30–4:30 PM

Inquiring Scientists, Inquiring Readers: Using Nonfiction Text Sets in Scientific Inquiry, Grades 3–5

Designing Effective Science Instruction with the Next Generation Science Standards

5:00–6:00 PM

Linking Science, Math, and Art Instruction

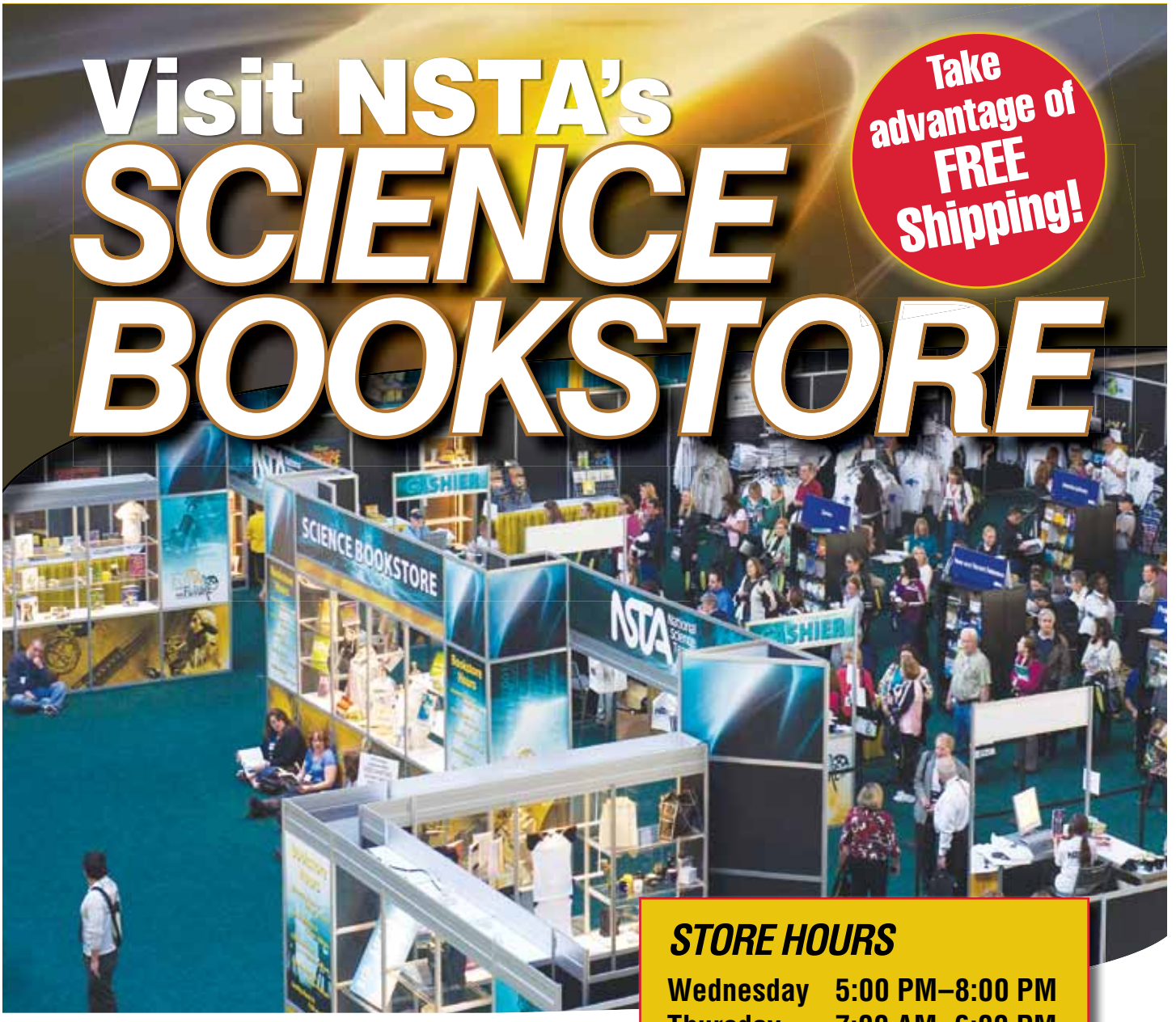
Sunday, April 14 (Volume 3)

11:00 AM–12 Noon

Teaching and Learning Biology Through Scientific Argumentation

Visit NSTA's SCIENCE BOOKSTORE

Take advantage of FREE Shipping!



STORE HOURS

Wednesday	5:00 PM–8:00 PM
Thursday	7:00 AM–6:00 PM
Friday	7:00 AM–5:00 PM
Saturday	7:30 AM–12 Noon

ENJOY ALL OF THESE AND MORE:

- Award-winning books filled with best practices, science content, teaching tips, and lesson plans.
- New books hot off the press: *Inquiring Scientists, Inquiring Readers; Scientific Argumentation in Biology;* NSTA Kids books; *Everyday Engineering*; to name a few.
- Meet many of your favorite authors at sessions and book signings.
- T-shirts, totes, and other science gifts to take back to your classroom.
- **All attendees get member pricing—20% off all NSTA Press® products**.

NSTA National Science Teachers Association

NSTA Professional Development Institutes

Wednesday, April 10

9:00 AM–4:00 PM*

PDIs and work sessions were available by preregistration only.

The vision of K–12 science education painted by the NRC *Framework* that has been used to develop the Next Generation Science Standards has two goals—educating all students in science and engineering and providing the foundational knowledge for those who will become the scientists, engineers, technologists, and technicians of the future. To create a classroom culture that supports this vision, NSTA presents 12 Professional Development Institutes (PDIs) and one-day work sessions, which are focused, content-based programs that explore key topics in pursuit and support of this vision in significant depth. The four work sessions are one-day sessions at a reduced fee because they do not include pathway sessions. Check-in opens at 8:00 AM.

**PDI-12 is scheduled 9:00 AM–3:30 PM*

Bringing Outdoor Science into Your Classroom (PDI-1)

Provider: Steve Rich, West GYSTC

Steve Rich, NSTA Director, Professional Development, and West GYSTC, Carrollton, Ga.
Level: Grades K–8
Location: Conference Room 7, Marriott Rivercenter

Whatever your school's setting—urban, suburban, or rural—you can create stimulating outdoor classrooms for your students, with a little help from the author of *Outdoor Science.* This professional learning opportunity will show you how to create outdoor learning spaces that can be used from year to year. Explore hands-on resources and ideas from related NSTA Press® books, which include mathematics, social studies, and language arts experiences that can be easily integrated into the curriculum and that support the Common Core State Standards.

Outdoor Pathway Sessions
All sessions are located in Salon F. See daily program for details.

Thursday, April 11
12:30–1:30 PM
How Does Your Garden Grow?

2:00–3:00 PM
Bringing Outdoor Science In

Friday, April 12
11:00 AM–12 Noon
Integrating Mathematics and Science

12:30–1:30 PM
Teaching Outdoor Science Through Trade Books

2:00–3:00 PM
Even More Math and Science Integration

3:30–4:30 PM
Growing Curricular Inclusion in an Outdoor Classroom

Building a Professional Learning Community Through Shared Leadership (PDI-2)

CANCELED

Provider: Achieving Student Success through Excellence in Teaching (ASSET), Inc.

Sharon Beddard-Hess, ASSET STEM Education, Pittsburgh, Pa.
Level: Grades K–12
Location: Conference Room 8, Marriott Rivercenter

The success of a Professional Learning Community (PLC) depends upon a clear and focused mission and vision that guides schoolwide learning-focused work. Participants will develop strategies for developing shared ownership of this process by exploring the dimensions of a PLC. Through group work, discussion, video, and reflection, experienced practitioners will model and share leadership strategies that contribute foundational knowledge toward the development and sustainability of a PLC.

ASSET Pathway Sessions
All sessions are located in Conference Room 8. See daily program for details.

Thursday, April 11
9:30–10:30 AM
Building a Collaborative Culture Within Your Professional Learning Community

2:00–5:00 PM
Examining Student Work in Your Professional Learning Community

ASSET Pathway Sessions CANCELED

Friday, April 12
11:00 AM–12 Noon
Professional Learning Communities: The Role of the Administrator

12:30–3:30 PM
What's Your Personality Type?

What Matters Most™: Effective Science Instruction That Promotes a Positive Learning Environment, Scientific Inquiry, and the Next Generation Science Standards (PDI-3)

Provider: McREL

Anne L. Tweed, 2004–2005 NSTA President, and McREL, Denver, Colo.
Level: Grades K–12
Location: Salon K, Marriott Rivercenter

Using a framework developed by McREL that is based on what research says matters most for ensuring student success, this institute addresses the critical area of guaranteeing challenging, engaging, and intentional instruction. It will engage participants in activities to help them understand how effective science instruction promotes a positive learning environment, includes scientific inquiry, and addresses the Next Generation Science Standards.

McREL Pathway Sessions
All sessions are located in Salon K. See daily program for details.

Thursday, April 11
8:00–9:00 AM
Creating a Classroom Environment Where All Students Can Learn

9:30–10:30 AM
Using a Formative Assessment Process to Provide Effective Feedback

12:30–1:30 PM
Nanoscience and Technology—Teaching Emerging Science Content

2:00–3:00 PM
Using Computer-based Experiences Effectively in Science Instruction

3:30–4:30 PM
Using the Core Ideas in the Projected Next Generation Science Standards

Friday, April 12
9:30–10:30 AM
Designing Effective Science Lessons—Revealing and Addressing Preconceptions

11:00 AM–12 Noon
Designing Effective Science Instruction—the Role of Science Discourse

12:30–1:30 PM
Engaging Students in Inquiry for Developing Scientific Thinking

2:00–3:00 PM
Designing Effective Science Instruction—Learning Goals That Clearly Align to Instructional Activities

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

Provider: Writing in Science Partnership (WISP)

Betsy Rupp Fulwiler, Writing in Science Partnership, Seattle, Wash.
Level: Grades K–5
Location: Salon L, Marriott Rivercenter

The teaching and learning of science and expository writing is a symbiotic relationship in the approach presented in this PDI that meets the Common Core State Standards in English Language Arts and the principles outlined in the NRC *Framework*. 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). Participants will 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.

WISP Pathway Sessions
Most sessions are located in Salon L. See daily program for details.

Thursday, April 11
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

Friday, April 12
8:00–9:00 AM
Reading and Writing the News

9:30 AM–12:30 PM
Integrating Science and Literacy—A Journey, Not a Destination

1:00–3:00 PM
Taking Little Ones from Questions to Claims: K–3 Inquiry Using the SWH

3:30–4:30 PM
Science-related Research in the Middle School

STEM Programming 101: Creating Integrated STEM Programs (PDI-5)

Provider: International Technology and Engineering Educators Association (ITEEA)

Joey Rider-Bertrand, Lancaster-Lebanon IU13, Lancaster, Pa.
Level: Grades K–12
Location: Conference Room 3/4, Marriott Rivercenter

What does it take to create a STEM program? Using the Common Core State Standards, the Standards for Technological Literacy, and the Grand Challenges for Engineering, participants will understand the integrative nature of K–12 STEM. This PDI will focus primarily on helping educators, schools, districts, and states to understand that all four components of STEM build a framework for students to understand how the natural world and the designed world coexist and how human wants and needs drive invention, innovation, and thus engineering.

ITEEA Pathway Sessions
All sessions are located in Conference Room 3/4. See daily program for details.

Thursday, April 11
9:30–10:30 AM
STEM Building for the Elementary Grades

12:30–1:30 PM
STEM Building for the Middle School

2:00–3:00 PM
STEM Bulding for the High School

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

Provider; WestEd

Kathy DiRanna, WestEd, Santa Ana, Calif.
Level: Grades K–12
Location: Conference Room 12, Marriott Rivercenter

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 Conference Room 12. See daily program for details.

Thursday, April 11
9:30–10:30 AM
Understanding the Conceptual Flow

12:30–1:30 PM
The TLC Is a PLC

2:00–3:00 PM
Designing Rubrics and Feedback

Friday, April 12
11:00 AM–12 Noon
Assessment-centered Teaching

2:00–3:00 PM
Common Core Science Literacy

Using Science Notebooks (PDI-7)

Provider: BSCS

Betty Stennett, BSCS, Colorado Springs, Colo.
Level: Grades 4–12
Location: Conference Room 13/14, Marriott Rivercenter

Learn how science notebooks can be used as an effective sensemaking and formative assessment tool in the science classroom. Notebooks give students the meta-cognitive experience of recording, assessing, and reflecting upon their journey of learning. As emphasized in the NRC *Framework* and in alignment with the Common Core State Standards in English Language Arts, using written language and illustrations to organize data, document experiences, construct explanations, and reflect on scientific understanding is important for students to be actively engaged in their own science learning.

BSCS-N Pathway Sessions
Most sessions are located in Conference Room 13/14. See daily program for details.

Thursday, April 11
8:00 AM–12 Noon
Uncovering Student Science Ideas as a Springboard to Deeper Understanding

12:30–4:30 PM
Making Sense of Sense-Making: Strategies to Use in Your Classroom

Inquiring into Inquiry: Creating an Inquiry-based Classroom (PDI-8)

Provider: BSCS

Paul Numedahl, BSCS, Colorado Springs, Colo.
Level: Grades K–12
Location: Conference Room 1/2, Marriott Rivercenter

Are you interested in developing an inquiry-based science classroom to advance student learning and support the practices of science and engineering as outlined in the NRC *Framework?* Immerse yourself in a day of scientific inquiry! This PDI will model and provide an understanding of what inquiry means for teaching and learning. Participants will 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-I Pathway Sessions
Most sessions are located in Conference Room 1/2. See daily program for details.

Thursday, April 11
8:00 AM–12 Noon
Using Evidence to Construct a Scientific Explanation

12:30–4:30 PM
Beyond the Cookbook—Student-driven Investigations

Friday, April 12
8:00 AM–12 Noon
Using Models to Enhance How Students Learn Science

12:30–4:30 PM
Analyzing and Interpreting Data in Your Classroom

One-Day Work Session: It's Not JUST Science: Integration Across the Elementary Curriculum (PDI-9)

Provider: Center for Educational Outreach, Baylor College of Medicine

Nancy Moreno, Baylor College of Medicine, Houston, Tex.
Level: Grades K–6
Location: Salon H, Marriott Rivercenter

Come work through a variety of science examples that demonstrate how a single topic, such as water cycles in a local watershed, can be used to teach about crosscutting concepts, such as cause and effect and flows/cycles of energy and matter, in addition to covering reading/language arts, social science, and even ethics. Topics will be addressed through inquiry-based, hands-on investigations with integrated mathematics and reading content that encompass many of the practices of science outlined in the NRC *Framework* and that meet the Common Core State Standards. Each participant will receive a complete unit set of printed interdisciplinary teaching materials.

One-Day Work Session: Using Cognitive Science to Improve Science-Learning in Earth Science (PDI-10)

Provider: The 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, Robert Morris University, and the 21st Century Partnership in STEM Education (PSTEM)

Donna P. Cleland, The 21st Century Partnership for STEM Education, Conshohocken, Pa.
Level: Grades 6–12
Location: Salon F, Marriott Rivercenter

There has been a continuing debate in science education over the relative value of deepened teacher content knowledge versus pedagogy. This session will be a merger of professional development in four cognitive science learning principles that are embedded in our research materials along with experiences to deepen a teacher's personal Earth science content knowledge. Participants will receive materials for teaching students geology (rocks and minerals, rock cycle, geologic time, earthquakes and volcanoes, and plate tectonics) and some meteorology (seasons, weather, and climate). We will also spend time exploring the current knowledge base in each of those topic areas.

One-Day Work Session: Moving the Next Generation Science Standards into the Classroom (NGSS @ NSTA) (PDI-11)

SOLD OUT

Sponsored by NSTA

Rodger Bybee, NGSS Writing Team Leader and Chair, Science Forum and Science Expert Group, Golden, Colo.
Kim Bess, San Diego County Office of Education, San Diego, Calif.
Level: Grades K–12
Location: Salon E, Marriott Rivercenter

With the release of the Next Generation Science Standards (NGSS), educators across the country are faced with the question of what NGSS might look like in the classroom. Join Rodger Bybee, the former executive director for Biological Sciences Curriculum Study (BSCS) and NGSS life science writing team leader; and Kim Bess, energy education coordinator at the San Diego County Office of Education to explore examples of lessons designed to address both the letter and spirit of NGSS. Participants will leave with a greater understanding of the standards as well as what may be required to implement them in the classroom.

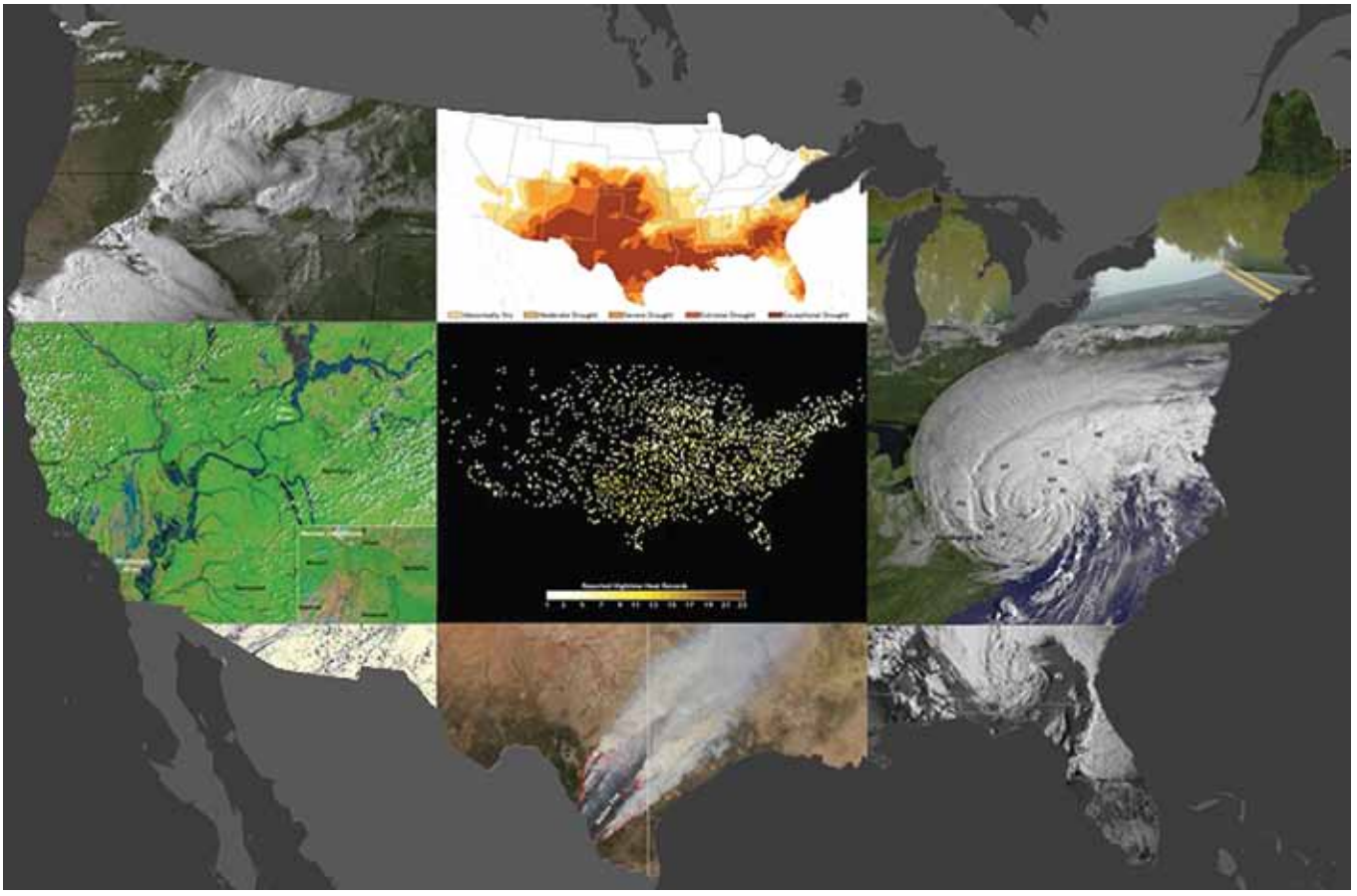
One-Day Work Session: Addressing Engineering and Technology in the Next Generation Science Standards (NGSS @ NSTA) (PDI-12)

Provider: Mariel Milano, Next Generation Science Standards Writing Team Member

SOLD OUT

Mariel Milano, Orange County Public Schools, Orlando, Fla.
Level: Grades K–12
Location: Salon G, Marriott Rivercenter

What does it mean to integrate engineering into the Next Generation Science Standards? Using sample standards, participants will learn how to integrate the core ideas of engineering into science content while developing the science and engineering practices outlined in the NRC *Framework*. Join Mariel Milano, K–12 STEM Specialist for Orange County Public Schools and part of the NGSS writing team, for an in-depth experience to understand the student outcomes for engineering in elementary, middle school, and high school across all disciplines of science.



—*Photo courtesy of NOAA ClimateWatch*

NOAA Climate Data in the Classroom (SYM-1)

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 NOAA and NSF. 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.

NOAA Climate Data in the Classroom (SYM-1)

Deke Arndt, NOAA National Climatic Data Center, Asheville, N.C.
LuAnn Dahlman *(luann.dahlman@noaa.gov),* NOAA Climate Program Office, Silver Spring, Md.
Carolyn Rose *(carolyn.rose@utexas.edu)*, Mission-Aransas National Estuarine Research Reserve, Port Aransas, Tex.
Bree Murphy, NOAA National Estuarine Research Reserve System, Silver Spring, Md.
Paulo S. Maurin *(paulo.maurin@noaa.gov),* NOAA Coral Reef Conservation Program, Silver Spring, Md.
Level: Middle Level–High School
Date/Time: Thursday, April 11, 1:30–6:00 PM
Location: Conference Room 17/18, Marriott Rivercenter
Registration Fee: $54

During this half-day symposium, scientists and education specialists from the National Oceanic and Atmospheric Administration (NOAA) will discuss how NOAA collects, manages, and analyzes data about climate and how educators can access and use this data in the classroom. Participants will learn about websites

and resources that utilize climate data, including drought, sea surface temperature, coastal water quality, and ocean acidification. In addition, impacts of coastal changes on habitats and ocean chemistry impacts on coral communities will be highlighted.

NOAA is pleased to provide a stipend to the first 50 participants who register for the symposium upon completion.

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

Presession sessions
Conference Room 17/18, Marriott Rivercenter

Thursday, April 11, 8:00–9:00 AM
Demystifying Ocean Acidification (p. 96)

Thursday, April 11, 9:30–10:30 AM
Warming Oceans and Marine Organisms (p. 110)

Follow-Up Sessions *See Volume 2 for details.*
Conference Room 3/4, Marriott Rivercenter

Fri., April 12, 8:00–9:00 AM
Get Real! Use Real-Time NOAA Data to Understand Our Changing World

Fri., April 12, 9:30–10:30 AM
Get Muddy! How to Adopt One of Our Nation's Estuaries and Get Your Students Excited About Data

Fri., April 12, 11:00 AM–12 Noon
Teaching About Climate Change—Here and Now

Fri., April 12, 12:30–1:30 PM
A Changing Climate Here and Now

Flight of the Monarch Butterflies (SYM-2)

Jim O'Leary, Maryland Science Center, Baltimore
Grant Bowers and **Kelly Nail,** University of Minnesota, St. Paul
Level: Grades K–12
Date/Time: Friday, April 12, 8:00 AM–1:00 PM
Location: Conference Room 17/18, Marriott Rivercenter
Registration Fee: $54

Presented by the Maryland Science Center in conjunction with Monarchs in the Classroom at the University of Minnesota and made possible by a grant from the National Science Foundation, this half-day symposium is a high-quality learning experience designed to enhance teachers' knowledge of both science content and best teaching practices. Join us to view the latest IMAX film *Flight of the Butterflies* and engage in classroom activities focused on the monarchs' amazing migration across North America, as well as their habitats and life cycle. Hear from experts in the field of monarch study about how you and your students can become involved in citizen science projects to help the monarchs. Educational materials will be provided for classroom use. Each participant will receive a $75 stipend for attendance.

This blended professional development opportunity is followed by two NSTA follow-up sessions, which extend the interactivity between the participants and presenters at the conference. Also included are two public NSTA Web Seminars that will take place later in the spring.

—Courtesy of Jim O'Leary/Maryland Science Center

Related sessions open to all conference attendees. See Volume 2 for details.

Follow-Up Sessions
Conference Room 17/18, Marriott Rivercenter

Fri., April 12, 2:00–3:00 PM
Monarch Life Cycles and Raising Monarchs in Captivity

Fri., April 12, 3:30–4:30 PM
Classroom Lessons with Monarchs

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.

Bioinspiration: An Artistic Expression of the Imagination (SC-1)

Auburn Buehring *(abuehring@txstateaq.org)* and **Adriana Reza** *(areza@txstateaq.org),* Texas State Aquarium, Corpus Christi
Level: General
Date/Time: Thursday, April 11, 8:00–10:30 AM
Location: La Corona, Hilton
Registration Fee: $42

Use your observation skills of living organisms to create art and design inventions based on bioinspiration. Let nature be your inspiration! Join us as we explore biomimicry and use art to express the connection between animal adaptations and human inventions. Learning about the special functions and adaptations of animals can foster students' long-term science literacy and may influence future career paths in the sciences. In this short course, you will receive an introduction to the concept of bioinspiration and basic field sketching skills. We hope that bioinspiration will let participants' imaginations soar and allow science to be the star!

Nanotechnology in the STEM Curriculum (SC-3)

Morton M. Sternheim *(mort@umassk12.net)* and **Rob Snyder** *(snyder@umassk12.net),* UMASS Amherst, Massachusetts
Level: Secondary
Date/Time: Thursday, April 11, 8:00–11:30 AM
Location: Salon del Rey B, Hilton
Registration Fee: $48

Using inexpensive materials, make a thin film with a nanoscale dimension in a process that illustrates the nature of nanoscale self-assembly. The significance of decreasing the dimensions of materials to 1/100,000th of the diameter of a human hair will be explored. Learn how nanoscale measurements are made, what makes materials with a nanoscale dimension special, and how nanoscale science and engineering enables us to design and manufacture products that are smaller, cheaper, faster, and more effective than structures with larger dimensions, such as electronic devices, catalysts, water purification, solar cells, sunscreens, coatings, fabrics, medicines, and more.

—Photo courtesy of Morton M. Sternheim

Nanotechnology in the STEM Curriculum (SC-3)

We'll describe additional activities and multimedia materials, which can seamlessly be integrated into many STEM programs while meeting local, state, and national learning standards that lead to many nanotechnology education and career pathways.

And the Thunder Rolls: Energy Transformations in Mid-Latitude Thunderstorms (SC-4)

April Chancellor *(april.chancellor@msichicago.org)* and **Laura Rico-Beck** *(laura.rico-beck@msichicago.org),* Museum of Science and Industry, Chicago, Ill.
Level: Middle Level–High School
Date/Time: Thursday, April 11, 1:00–4:00 PM
Location: La Reina, Hilton
Registration Fee: $28

Tornado chasing and storm watching are hot topics, avidly followed by many on TV shows and IMAX movies. Whether you are scared or excited, it is hard to ignore thunderstorms. The science behind thunderstorms is equally fascinating and is a perfect demonstration of energy transfers and transformations within and among Earth's systems. Participants will explore the birth, development, and dissipation of thunderstorms through a series of hands-on activities, and will be able to explore how energy transformations are the building blocks of these powerful storms. We will also highlight technology used to track and study thunderstorms and associated phenomena such as tornadoes and lightning. We will show how to use tools such as Google Earth to help students visualize and track storms just like scientists do.

Oceans Plastic Pollution: Issues and Solutions (SC-5)

Mary Whaley *(mwhaley@mbayaq.org),* Monterey Bay Aquarium, Monterey, Calif.
Level: Middle Level–High School
Date/Time: Thursday, April 11, 1:00–4:00 PM
Location: Salon del Rey B, Hilton
Registration Fee: $43

In this short course, Monterey Bay Aquarium educators will share a suite of inquiry-based, standards-based, hands-on activities exploring issues and solutions surrounding plastic pollution and marine debris. Four activities will be presented: Gyre in a Bottle, Albatross Bolus Dissection, Plastic Densities, and Map that Trash. Topics explored will include the chemical composition of plastic, physical properties of plastic (density and buoyancy, strength, flexibility), and transportation of plastic by ocean currents. Emphasis will be on exploring solutions to plastic pollution, alternatives to single-use plastics, and empowering students to tackle environmental problems without experiencing ecofatigue. Participants will need to bring a clean two-liter plastic bottle and will receive curriculum and reuseable alternatives to single-use plastics. Door prizes!

Maury Morning of Oceanography (SC-6)

Kevin Tambara *(tambarak@einsteinfellows.org)*, Einstein Fellow, National Science Foundation, Arlington, Va.
Carol A. Kraft *(carol.kraft@rps205.com)*, Rockford Environmental Science Academy, Rockford, Ill.
Level: Grades 6–8
Date/Time: Friday, April 12, 8:00–10:30 AM
Location: Salon del Rey A, Hilton
Registration Fee: $23

This short course will provide ready-to-use lessons about oceanography that can be integrated into most middle school curricula. Engage in activities that investigate the role of the Moon in generating the ocean tides, delve into density-driven circulation, and explore global winds. We will also examine two of the most important characteristics of ocean water—temperature and salinity. Together they govern the density of seawater, which is the major factor controlling its vertical movement and circulation. The accumulation of temperature and salinity measurements from water samples taken at a variety of locations and depths has revealed that there is a 3-D structure to the ocean.

Be a Winner! Get a Grant and Your Students Win, Too! (SC-7)

Kitchka Petrova *(kpetrova7@dadeschools.net)*, Ponce de Leon Middle School, Coral Gables, Fla.
Patty McGinnis, NSTA Director, Middle Level Science Teaching, and Arcola Intermediate School, Eagleville, Pa.
Level: Elementary–High School
Date/Time: Friday, April 12, 8:00–11:00 AM
Location: La Corona, Hilton
Registration Fee: $32

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 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.

—*Photo courtesy of Diana Vélez/The Lawrence Hall of Science*

Teachers from Oakland, California, learn ways to engage students in science learning and language development (SC-15).

The STEM Innovation Equation: Nine Keys to Improving STEM Education in America's Schools (SC-8)

Diana Laboy-Rush, AuthenticSTEM, Portland, Ore.
Level: K–12/Administration
Date/Time: Friday, April 12, 8:00–11:00 AM
Location: Salon del Rey C, Hilton
Registration Fee: $48

This short course will outline nine keys to implementing successful schoolwide or districtwide STEM initiatives. The best way to ensure success in a STEM reform initiative is to be sure that all stakeholders understand the reasons why reform is necessary and to work together to outline the ultimate goals of the initiative. From this shared vision, focus can be put on determining how best to shape the design of a STEM education initiative. Discussion centers on best practices in STEM school design, industry collaboration, and teacher training. Participants will leave the workshop with the tools and resources necessary to begin or continue work on a STEM education reform initiative in their school or district. Please bring materials for taking notes (pen/pencil or laptop/tablet).

Meeting the Next Generation Engineering Practices with Exemplary Resources (SC-9)

Peter Y. Wong *(pwong@mos.org),* **Yvonne M. Spicer**, and **Michelle DiIeso** *(mdiieso@mos.org)*, Museum of Science, Boston, Mass.
Linda M. Morris *(linda.m.morris@dartmouth.edu)*, U.S. Ice Drilling Program, Dartmouth Thayer School of Engineering, Hanover, N.H.
Gary D. Clow, U.S. Geological Survey, Boulder, Colo.
Jay Johnson, Ice Drilling Design and Operations, University of Wisconsin–Madison
Level: Elementary–High School
Date/Time: Friday, April 12, 8:00 AM–5:00 PM
Location: Salon del Rey B, Hilton
Registration Fee: $50

The highly anticipated Next Generation Science Standards encourage increased integration of engineering practices and activities into your science curricula. Teachers and administrators are tackling this new challenge in diverse ways. This short course provides an opportunity to hear from experts at the National Center for Technological Literacy (NCTL), whose years of work at the Museum of Science in Boston have resulted in proven strategies and materials for your district planning. Join Dr. Yvonne Spicer as she shares lessons learned from the Gateway to Engineering and Technology Education project, involving school district leadership teams in Massachusetts. Gain real-world distinctions between science "practices" and engineering "processes" as they are modeled in person by leading researchers studying climate through ice cores in Antarctica. Experience hands-on activities you can use in your classroom, designed by NCTL educators. School-level breakout sessions will culminate this short course, offering guidance by the panel and networking among participants focused on how to take these engineering best practices back to your school. Suitable for teachers, supervisors, administrators, and teams. For more information, visit *www.climate-expeditions.org* and *www.icedrill.org*.

Interpreting seismic data, teachers use inflatable globes to help them first e earthquake (SC-19).

Science Is Cool: Bringing Climate Science to the Elementary Classroom (SC-10)

Susan Kelly *(susan.kelly@montana.edu)* and **Christine Foreman** *(cforeman@montana.edu),* Montana State University, Bozeman
Louise Huffman *(lhuffman@andrill.org)*, ANDRILL Science Management Office, Lincoln, Neb.
Walter Woolbaugh *(walter@montana.com),* Montana Public Schools and Montana State University, Bozeman
Brent C. Christner *(xner@lsu.edu),* Louisiana State University, Baton Rouge
Level: Elementary–Middle Level

—Photo courtesy of IRIS

estimate and then determine the location of a recent newsworthy

Date/Time: Friday, April 12, 8:30–11:30 AM
Location: La Reina, Hilton
Registration Fee: $26

Need cutting-edge classroom tools for teaching polar science? Join educators and polar scientists and engage in inquiry activities for upper elementary and middle school students. The highly anticipated Next Generation Science Standards incorporate climate change learning goals across grade levels and disciplines. This short course will provide participants with the knowledge and resources to address these learning goals in their existing curriculum. Participants will interact with polar scientists and with educators experienced in polar and climate change science as they build essential knowledge of science content and inquiry pedagogy.

Squishy Circuits, Toy Engineering, and More! (SC-11)

Didey Muniz *(dideymuniz@mail.utexas.edu)*, Women in Engineering Program, The University of Texas at Austin
Katelyn Wamsted *(katelyn@girlstart.org)*, Girlstart, Austin, Tex.
Melissa R. Cigarroa *(melissa@wowsciencelaredo.org),* Informal Science Learning Associates (ISLA) of Laredo, Tex.
Karen A. Peterson *(kpeterson@edlabgroup.org)*, National Girls Collaborative Project, Lynnwood, Wash.
Level: Elementary–Middle Level
Date/Time: Friday, April 12, 12:30–3:30 PM
Location: Salon del Rey C, Hilton
Registration Fee: $23

From using dough to teach basic circuitry principles to creating the bounciest ball using everyday materials, participants will experience a variety of activities used to teach basic STEM concepts in a way that engages all learners. Each participant will have access to more than 20 hands-on STEM activities and other resources (including videos and games) based on the Emmy award-winning show *SciGirls*. Aligned to the National Science Education Standards and the Standards for Technological Literacy, the activities provide a creative twist on teaching STEM. A PBS Kids television series, *SciGirls* features groups of middle school girls engaged in authentic, inquiry-based science and engineering projects around the country. The *SciGirls* television series, website, and outreach initiatives all emphasize current research on proven strategies to increase girls' engagement in STEM and can be used to engage all types of learners. Educators will then be able to apply the same strategies and modify their own activities in a way that can engage all learners. For more information, visit *http://txgcp.org/scigirls*.

Real-Life Science Learning on a Budget (SC-12)

Carolyn Lowe *(clowe@nmu.edu)*, North Michigan University, Marquette
Level: Elementary
Date/Time: Friday, April 12, 1:00–4:30 PM
Location: La Corona, Hilton
Registration Fee: $36

This short course will provide four inexpensive hands-on activities, all addressing specific K–8 life science standards. Participants will have access to complete instructions, materials, and associated presentation materials. Misconceptions commonly held by teachers and students will be addressed. Included will be activities in the definition of life, ecology, classification, development and growth, and photosynthesis. Upon completion, participants will have a number of completed lesson plans and the standards they address as well as the background knowledge they need to use them in their own classrooms.

Expedition Earth and Beyond—Getting Students Actively Involved in NASA Exploration, Discovery, and the Process of Science (SC-13)

Paige Graff *(paige.v.graff@nasa.gov),* Engineering and Science Contract/Jacobs Technology, NASA Johnson Space Center, Houston, Tex.
Timothy McCollum *(tmccollum@eiu.edu)*, Eastern Illinois University, Charleston
Level: Middle Level–High School
Date/Time: Saturday, April 13, 8:00–11:00 AM
Location: Salon del Rey C, Hilton
Registration Fee: $23

This short course will build educators' confidence in the use of technology in the classroom. Discover how the Expedition Earth and Beyond (EEAB) program provides your students with access to NASA data online, allowing participation with interactive online presentations with scientists and use of Wikispaces to help them develop, conduct, and share their own student-led investigations. The standards-aligned, hands-on activities reinforce inquiry. You will develop your own investigation and populate your Wikispace area to gain experience in the use of this tool in the classroom. Learn how to inspire, engage, and prepare students for STEM careers through the use of technology, facilitating students' active involvement in NASA exploration, discovery, and the process of science. *Note:* Laptop helpful, but not required. For information, visit *http://1.usa.gov/W2Shzl*.

✓ Redesigning Testing in Science: Bringing Research-based Diagnostic Assessments into the Classroom (SC-14)

Theo Dawson *(theo@lectica.org)*, and **Carol Bennett Dessereau** *(carol@lectica.org),* Lectica, Inc., Northampton, Mass.
Level: K–16
Date/Time: Saturday, April 13, 8:00 AM–12 Noon
Location: Salon del Rey B, Hilton
Registration Fee: $38

This short course will provide an overview of the DiscoTest™ Initiative, a movement dedicated to building and disseminating free, research-based, standardized, formative assessments that focus on a variety of academic topics. DiscoTests serve as rich diagnostics of individual differences and facilitate the delivery of developmentally optimized curricula. We will discuss the advances in learning research that make this possible, including cutting-edge work in cognitive neuroscience and developmental psychology. Learn how to use DiscoTest-scoring rubrics and explore ways in which DiscoTest diagnostics can inform instruction. Walk away with an understanding of positive new directions for the future of educational assessment in the sciences and a set of assessment tools you can begin to use immediately. Bring your laptop or tablet. For information, visit *www.discotest.org.*

Families design experiments to demonstrate the power of erosion in different landscapes and soil structures, and then hypothesize and test solutions to reduce the erosion risk (SC-17).

—*Photo courtesy of RIT Insight Lab*

Language for Meaning: Supporting English Language Learners in the Science Classroom (SC-15)

Diana Velez *(dvelez@berkeley.edu)*, Lawrence Hall of Science, University of California, Berkeley
Claudio Vargas, Oakland Unified School District, Oakland, Calif.
Level: K–8
Date/Time: Saturday, April 13, 8:30–11:30 AM
Location: Salon del Rey A, Hilton Palacio del Rio
Registration Fee: $31

We will present a conceptual framework to examine the relationship between science content learning, the literacy domains, scaffolds for English language learners, and the research on how people learn (NRC 2000). Experience firsthand the importance of activating prior knowledge, providing comprehensible input, using oral discourse, and developing vocabulary in the meaning making process. We will set the context of the short course by having participants experience a mini-lesson in Spanish with and without scaffolds in order to illustrate the importance of

considering comprehensible input in instruction. An array of effective strategies will be modeled through a hands-on physics lesson with a comprehensive language objective using the four language domains. Strategies include thinking maps, science talk, student notebooks, pictorials, concept maps, reading comprehension strategies, interactive word walls, and other best practices for academic language development. The short course ends by having participants reflect on these strategies and their role in making content accessible to language learners and in developing academic language.

The Ultimate Plate Tectonics Meet and Greet and Make and Take (SC-16)

Sharon Katz Cooper *(scooper@oceanleadership.org),* Deep Earth Academy, Consortium for Ocean Leadership, Washington, D.C.
Level: Elementary–High School
Date/Time: Saturday, April 13, 9:00 AM–12 Noon
Location: La Reina, Hilton
Registration Fee: $50

Come work with Katerina Petronotis of Texas A&M University and her colleagues from Deep Earth Academy and the Integrated Ocean Drilling program. Together we'll investigate the world's best and most important plate tectonics data, prepare sediment samples, review a hot-off-the-press instructional video, assemble ready-to-use teaching kits personalized for your classroom needs, and meet and make plans to collaborate with scientists aboard the *JOIDES Resolution* (the nation's largest research vessel) during upcoming expeditions. Caution: Be prepared to be surprised! Laptops and cameras helpful but not required. For more information about the *JOIDES Resolution*, see *www.joidesresolution.org*.

Family Science 101 (SC-17)

Jacob Noel-Storr *(jake@cis.rit.edu),* **Greg Wyllie, Alex Triassi,** and **Colby Carll,** Rochester Institute of Technology Insight, Rochester, N.Y.
Level: Elementary–Middle Level/Informal
Date/Time: Saturday, April 13, 12:30–4:30 PM
Location: La Condesa, Hilton
Registration Fee: $39

Join us as we lead participants through the process of creating a family science program that truly involves the entire family, focusing on parent-child interaction, generational understandings of science, and how to provide "parent professional development" as a part of the program. Participants will leave with a solid plan of how family science can be implemented in their setting—be it a school-based or informal education-based program. For more information on the short course, visit *http://bit.ly/UdQ9Eg*.

Building Sound Technology into Your Science Curriculum (SC-18)

Christopher Knowlton *(cknowlton@uri.edu),* **Holly Morin** *(holly_morin@mail.uri.edu),* and **Gail Scowcroft** *(gailscow@gso.uri.edu)*, University of Rhode Island, Narragansett
Kathleen Vigness-Raposa *(kathleen.vigness@marineacoustics.com)*, Marine Acoustics, Inc., Middletown, R.I.
Level: Middle Level–High School
Date/Time: Saturday, April 13, 1:30–4:30 PM
Location: La Corona, Hilton
Registration Fee: $67

Students must actively practice science to develop deeper understandings of core principles and interdisciplinary content. Gain scientific background and skills to integrate acoustics into your physical science curricula with engaging interactive content and activities. You will be guided through an activity to build a hydrophone (an underwater listening device commonly used in acoustics research) to take back to your classroom. Explore methods that scientists use to investigate underwater sound. You will also discover how to record underwater sound with your hydrophone and analyze sounds using free and/or low cost state-of-the-art visualization programs. The interdisciplinary scientific content on the physical science of underwater sound and other supporting educational resources are available on the Discovery of Sound in the Sea (DOSITS) website *(www.dosits.org)*.

Explore the World Beneath Your Feet Using Modern Technologies to Learn About Plate Tectonics and Earthquakes (SC-19)

Shelley E. Olds *(olds@unavco.org)*, UNAVCO, Boulder, Colo.
John Taber *(taber@iris.edu)*, IRIS, Washington, D.C.
Nancy West *(nancywwest@gmail.com),* Quarter Dome, Fort Collins, Colo.
Level: Middle Level–High School
Date/Time: Saturday, April 13, 2:00–6:00 PM
Location: La Reina, Hilton
Registration Fee: $49

Engage in hands-on activities that can be used in your classroom to teach about plate tectonics and earthquakes in Earth and physical sciences. Using data-rich, place-based activities, you will practice using modern high-precision GPS and seismic technologies and data to explore how plates slide and twist. We will connect the science to society by investigating these processes and how plate motion results in volcanic and other hazards. The activities are designed to enhance students' basic science inquiry skills through data explorations using multiple lines of evidence, maps with multiple types of data, and assessment of data quality. The materials will draw attention to new discoveries yielded through high-precision GPS and seismology. While not required, it is useful to bring your laptop. For more information, visit *bit.ly/W6JEn9*.

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 Convention Way shuttle lane, in front of the Convention Center (west side of building) off Market Street at least 15 minutes prior to departure time.

—Doug Wilson/San Antonio Convention and Visitors Bureau

Photo of Mission Nuestra Señora de la Purisima Concepción de Acuña, which was dedicated in 1755, and appears very much as it did over two centuries ago.

Enchanted Rock State Natural Area—Geology of Central Texas Tour **$49;** *by preregistration only*

T-1 Thursday, April 11 8:00 AM–4:30 PM

This is an incredible opportunity to visit the 1,643-acre Enchanted Rock State Natural Area, which is an important geological site because of its distinctive 500-foot-high exfoliation dome. We will hike to the top of the dome and view examples of igneous dikes, a granite cave, and exfoliation. Bring your camera. Box lunch included in ticket price. For more information, visit *www.tpwd.state.tx.us/state-parks/enchanted-rock.*

Note: Dress for the weather and wear shoes appropriate for hiking. Must be in good physical condition for a moderate hike. Bring a water bottle. Travel time is two hours each way.

SeaWorld in Depth **$206**

T-2 Thursday, April 11 8:00 AM–5:15 PM SOLD OUT

Get more than just your feet wet during this immersive trip to SeaWorld. Slip into a wetsuit and interact with beluga whales and sea lions. Go behind the scenes to meet penguins and learn about SeaWorld's successful breeding programs. Discover bottlenose dolphins and spend time with animal care specialists—and even participate in a training session. Lunch on own at the concessions. Be sure to bring a swimsuit and towel. SeaWorld will provide toiletries and hair dryers.

Note: Participation is limited to adult attendees. Participants will be using wetsuits and are expected to be able to swim. The animal interactions are not for expectant mothers.

Southwest Research Institute Tour **$27**

T-3 Thursday, April 11 8:30 AM–12:25 PM

Join us for this unique opportunity! Founded in 1947 by Thomas Baker Slick, Jr., an oilman-rancher-philanthropist, Southwest Research Institute is an internationally known scientific research center. On our visit, we will hear presentations from staff members in the Mechanical Engineering Division, Space Science and Engineering Division, and Applied Physics Division. For more information, visit *www.swri.org.*

Note: Tour is open to United States citizens only. Participants must provide evidence of U.S. citizenship. Do not bring cameras on this tour; no photos allowed.

San Antonio Botanical Garden Tour **$38**

T-4 Thursday, April 11 8:30 AM–12:40 PM

The San Antonio Botanical Gardens showcase some of San Antonio's most diverse and beautiful formal and display gardens. The Garden Highlights Tour will include the Lucile Halsell Conservatory, featuring plants from desert regions as well as equatorial rain forests housed in individual glass buildings. Don't forget your camera!

Note: Dress for the weather and wear shoes appropriate for walking. Bring a water bottle. The gardens are handicapped accessible.

Texas Biomedical Research Institute Tour

$22; *by preregistration only*

T-5 Thursday, April 11 8:50 AM–12:30 PM

Texas Biomedical Research Institute is one of the nation's leading independent research institutions, specializing in genetics, virology, and immunology. The field trip begins with a talk and video about Texas Biomed's history and research, with a Q&A from scientists. Participants will be taken on a driving tour of their Southwest National Primate Research Center, which has the nation's only seventh-generation, pedigreed baboon colony as well as other primates. To learn more, go to *www.txbiomed.org*.

Note: Participants must provide proof of U.S. or Canadian citizenship. Do not bring cameras as no photos or audio taping are allowed.

San Antonio Zoo: "Awesome Adaptations" Workshop for Elementary Teachers $78

T-6 Thursday, April 11 9:00 AM–6:00 PM

Attend a workshop on "Awesome Adaptations" created especially for elementary teachers with engaging standards-based classroom activities designed to make teaching adaptations fun. Take home a variety of activities and lessons. After the workshop, participants will have the opportunity to visit the San Antonio Zoo. Lunch on own at concessions.

Note: Six hours of Continuing Education (CE) credits are being offered for this excursion. Please note that teachers will be responsible for getting the hours approved through local authority/level on state-by-state basis.

Natural Bridge Caverns Tour, a Texas BBQ Dinner, and View the Bat Emergence at Bracken Bat Cave $61

T-7 Thursday, April 11 1:00–8:45 PM SOLD OUT

F-9 Friday, April 12 1:00–8:45 PM

During the 75-minute tour at Natural Bridge Caverns, you will see ancient formations centuries in the making and still growing today, such as amazing stalagmites, stalactites, soda straws, and chandeliers.

Note: For the caverns portion, participants must be able to walk three-quarters of a mile. Wear sturdy rubber-soled shoes as the trails in the cave are steep and wet. No leather-soled or open-toed shoes.

Dinner on own at Rudy's BBQ Restaurant. The evening highlight will be the Bat Emergence at Bracken Bat Cave, which is the summer home to the world's largest bat colony. Every spring a maternal colony of Mexican Free-tail bats leave their wintering grounds in the caves of Mexico and

—Photo courtesy of San Antonio Botanical Garden

return to Bracken Cave where they will give birth to their pups and teach them how to fly. The emergence of these millions of bats, as they spiral out of the cave at dusk for their nightly insect hunt, is an unforgettable sight. We recommend bringing a camera but no flash photography is allowed. You may want to bring binoculars as hawks and other birds of prey may be seen.

Note: No flash photography allowed. Unisex porta-potties are on-site. Do NOT bring chairs, food, pets, alcohol, or any items such as cigarettes, cigars, pipes, matches, or lighters. Absolutely NO SMOKING is allowed at Bracken Bat Cave.

Canyon Lake Gorge Hike and Texas Heritage Museum Tour **$58;** *by preregistration only*

F-1 Friday, April 12 8:00 AM–4:30 PM

On the Gorge three-hour 1.2-mile guided hike, you will view the geology of central Texas, including Hidden Valley Fault, geologic formations, the Trinity Aquifer in action, as well as springs and waterfalls. Bring a camera for the scenery. For more information, visit *www.canyongorge.org*. Our next stop will be the Heritage Museum of the Texas Hill Country where we will eat a box lunch (included in ticket price). The museum has displays on Native-American artifacts, early pioneers, the Canyon Dam history, fossils, and a spectacular display of dinosaur tracks. Travel time is 75 minutes each way.

Note: Wear good walking shoes. Must be in good physical condition for a slightly strenuous hike. No rock/fossil collecting is allowed on Gorge tours. Everyone who enters the Gorge must sign a Liability Release Form prior to admittance (this form will be provided in advance).

Caves, Karst, and Groundwater Field Trip **$59**

F-2 Friday, April 12 8:00 AM–4:30 PM

Karst is a terrain formed by the dissolution of limestone in water. This action creates caves, sinkholes, sinking streams, and springs. Learn what karst is, how it forms, why it's different, and why it needs special protection. This field trip will visit the recharge and artesian zones of the Edwards Aquifer. We will discuss recharge to the aquifer, urbanization of a karst landscape, and resource management with a growing population. The field trip will include stops at two cave entrances, an urban karst landscape, rock outcrops, and Comal Springs, the largest spring in the southwestern U.S. A boxed lunch will be provided at Landa Park in New Braunfels. Travel time in total is approximately three hours. Don't forget your camera! For more information on Edwards Aquifer, go to *www.edwardsaquifer.org*.

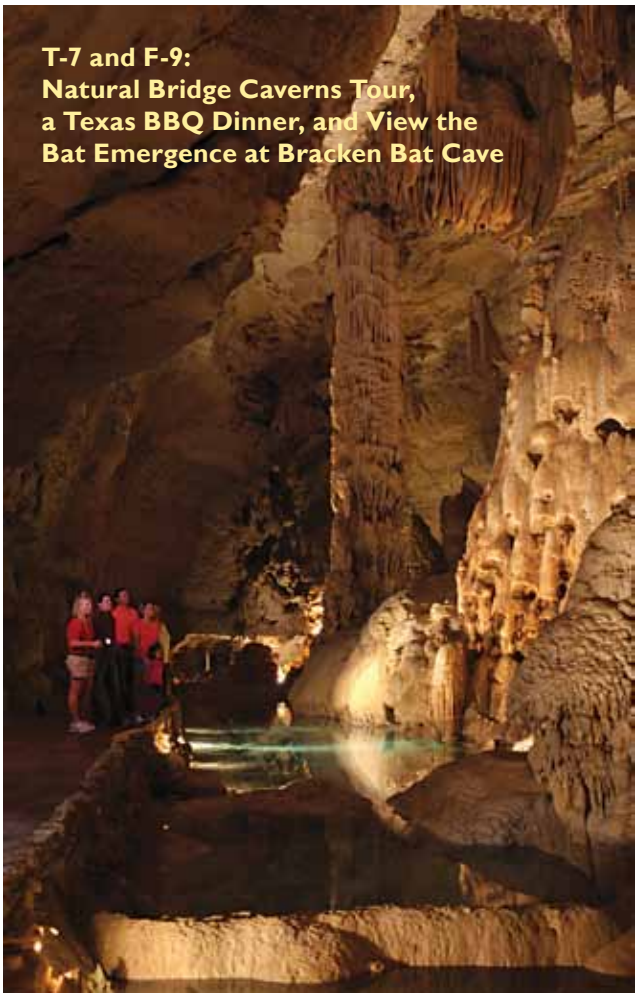


Photo of the Castle of White Giants

—Photo courtesy of Natural Bridge Caverns

Note: Dress for the weather and wear shoes appropriate for hiking, no open-toed shoes or flip flops. This field trip will require the ability to walk the length of a football field at a couple of stops. The terrain may be somewhat irregular or rocky. We will not be entering any caves. Bring a water bottle.

SeaWorld in the Classroom **$81**

SOLD OUT

F-3 Friday, April 12 8:00 AM–5:15 PM

Delve into the fascinating world of animals as SeaWorld takes you on an incredible educational adventure. Learn about animal adaptations, natural history, and behaviors. And then learn how these amazing animals can help you connect with students in a range of subjects, including math, writing, science, and social studies. Participants will have lunch on their own along with a break that will allow for time to explore SeaWorld attractions and shows. *Tentative Schedule: (9:00 AM Learn about and feed bottlenose dolphins;*

—Photo courtesy of Mitchell Lake Audubon Center

9:30 AM Learn about Sharks and Coral Reef fish, tour above the scenes at the aquarium; *10:00 AM Learn about and feed Pinnipeds; 10:30 AM View the Sea Lion Show; 11:00 AM Lunch Break—On own; 12:30 PM View Shamu Show in reserved seating with group and talk with Animal Trainers; 1:00 PM Learn about penguins; 1:30 PM Visit with SeaWorld Animal Ambassadors; 2:00 PM Optional Activities—Behind the Scenes at SeaWorld Zoological Support areas OR Free time for rides and attractions; 3:30 PM Meet at Beluga Stadium to see Azul show)*

Note: Program is for adult participants only. Must be able to walk distances. Park is wheelchair accessible.

Selah, Bamberger Ranch Preserve Tour $63

F-4 Friday, April 12 8:30 AM–4:00 PM

Selah, Bamberger Ranch Preserve has been described as the largest habitat restoration project on private land in Texas. You can learn how J. David Bamberger took an overgrazed property and turned it into an environmental showcase that has won numerous conservation awards. On our visit, we will travel throughout the ranch on the "Bluebonnet Express" to see dinosaur tracks; hunt for Cretaceous fossils; see the Chiroptorium, a man-made bat cave; and visit the largest herd of the endangered scimitar-horned oryx in the world. We will also hike a nature trail and view a variety of native plants, such as Texas wildflowers. Bring a water bottle. Binoculars optional, but recommended. Box lunch included. Travel time is 80 minutes each way.

Note: Must be able to hike short distances. The majority of the ranch tours are conducted on a covered trailer that has a modified area to accommodate a wheelchair. Nature trails are not wheelchair accessible.

—Photo courtesy of Mitchell Lake Audubon Center

San Antonio Water System Rain to Drain Tour $10

F-5 Friday, April 12 8:30 AM–4:30 PM

Consider this: We should drink eight glasses of water a day. We flush 29 gallons of water a day. And about 70 percent of the Earth's surface is covered by water. Every eight seconds, a child dies from a water-related cause amounting to 4,000 children per day, and 1.1 billion people worldwide are without safe water. Those vast statistics, all related to water use and consumption, are covered in detail during the "Rain to Drain" tour. Graciously sponsored by San Antonio Water System Education Department, this practically free tour lets you see the process water takes—from rain to drain. Included in the field trip is a half-hour presentation at the Convention Center as well as a complimentary lunch. The tour includes three locations: Cascade Caverns, where water floods into caves that go directly into the Edwards Aquifer; Maltsberger Pump Station, where water is stored and treated; and Dos Rios water treatment plant, where wastewater is treated and recycled.

Note: Wear comfortable clothing and rubber-soled walking shoes. The caverns walkway can be slippery.

Mitchell Lake Audubon Center Tour **$45**

F-6 Friday, April 12 8:35 AM–12:25 PM

The Mitchell Lake Audubon Center is one of the gems of the Southside of San Antonio. Located on 1,200 acres, the area has been transformed from a water treatment site to a spectacular wildlife refuge. This unique and beautiful bird haven consists of the 600-acre Mitchell Lake, 215 acres of wetlands and ponds, and 385 acres of upland habitat. More than 300 bird species and 120 plant species have been identified at the site. The area also has a large variety of reptiles, amphibians, insects, and mammals. Bird watchers are encouraged to bring binoculars and cameras, as a variety of birds, including Painted Buntings and Orchard Orioles can be heard and seen off the porch of the beautifully restored 1910 home that is now the Mitchell Lake Audubon Center. The center is nestled among a colorful garden of Xeriscape plants that invites an assortment of birds, butterflies, and the occasional lizard. For more information, go to *www.mitchelllakeaudubon.org*.

Note: Must be in good physical condition for a moderate hike. Wear rubber-soled shoes suitable for hiking and bring a hat, sunscreen, and plenty of water.

San Antonio Zoo: "Mythbusters" Teacher Workshop **$78**

F-7 Friday, April 12 9:00 AM–6:00 PM

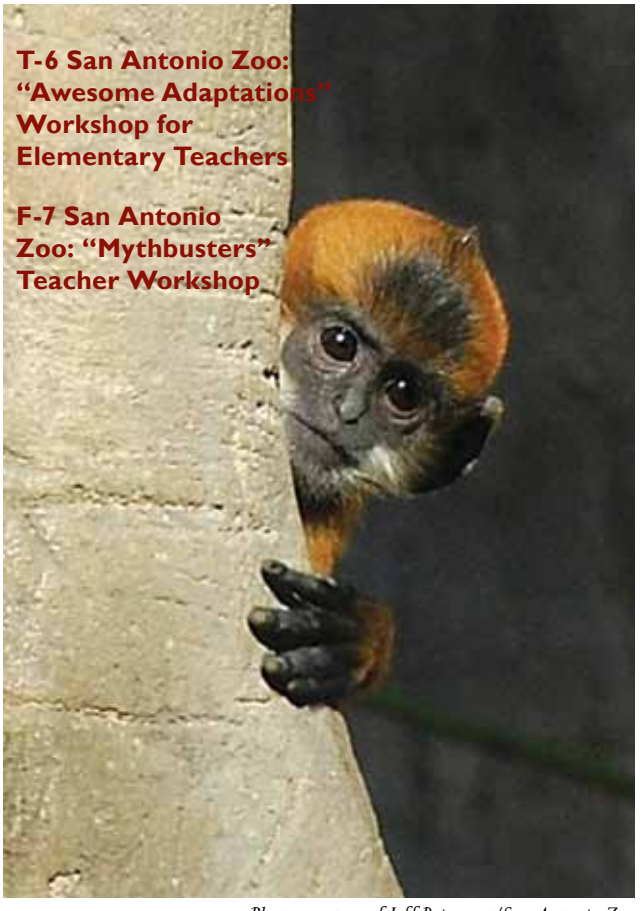
Can owls really spin their heads all the way around? Do elephants really never forget? Are crocodiles really crybabies? Come join the fun in our Mythbusters workshop as we debunk common myths about animals (appropriate for elementary and middle levels). Take home classroom activities and lessons. After the workshop, participants will have the opportunity to visit the San Antonio Zoo, spanning 56 acres and featuring aquariums, animal exhibits, and botanical exhibits with more than 8,500 animals of 775 species and more than 2,500 plant species. With one of the largest bird collections in the country, the zoo is known for its acclaimed breeding programs for endangered and threatened species, including whooping cranes, Attwater's prairie chickens, and white rhinoceros. Meal on own at zoo concessions.

Note: Six hours of Continuing Education (CE) credits are being offered for this excursion. Please note that teachers will be responsible for getting the hours approved through local authority/level on state-by-state basis.

Morgan's Wonderland Tour **$50**

F-8 Friday, April 1[CANCELED] 9:30 AM–2:30 PM

Morgan's Wonderland is the first park of its kind in the world specifically designed for the recreation and enjoyment of individuals with special needs. Join us as we explore, play, and learn at this unique park. Created by Gordon Hartman for special friends, the park has an environment of inclusion and understanding. Gordon quickly learned that millions of children and adults with cognitive and physical challenges generally do not have access to facilities specifically established to assist them in enjoying the fun outdoor activities that able-bodied individuals have access to and often take for granted. This colorful and ultra-accessible 25-acre family fun park serves as a haven not only for those with special needs but also for their families, friends, and the entire able-bodied and disabled community. The park has activities and entertainment that correspond to the TEKS Math, Science, and Language Arts for preK–12 grades, and they will provide you with complete lesson plans. Box lunch included.



—Photo courtesy of Jeff Bricmont/San Antonio Zoo

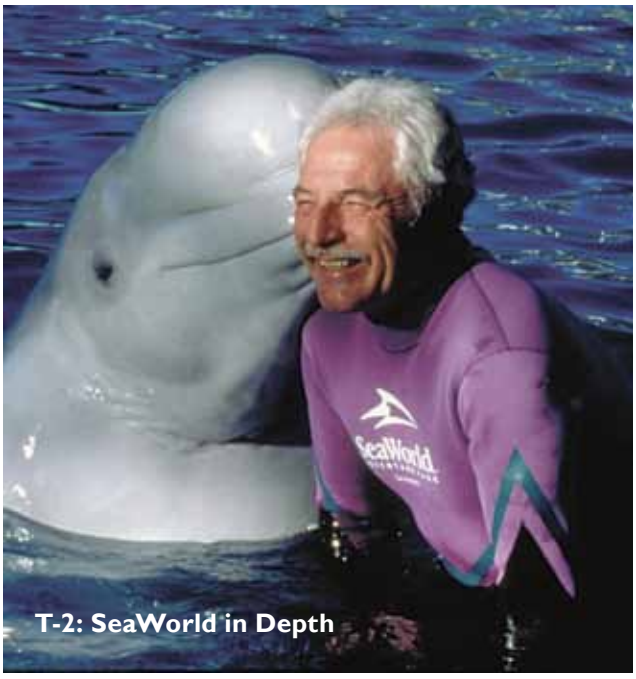
Tour of the Aquarena Center at Texas State University $53

S-1 Saturday, April 13 8:30 AM–3:15 PM

One of the oldest continuously inhabited places in North America, the San Marcos Springs are the headwaters of the San Marcos River. More than 200 springs bubble up from the Edwards Aquifer and discharge an average of 123 million U.S. gallons of water daily. Artifacts discovered in digs conducted from 1979 to 1982 date back 12,000 years.

In 1849, a dam was built just below the San Marcos Springs to power a mill; this dam, which created Spring Lake, still exists today. In 1928, a hotel offered glass-bottom boat tours on the lake. Purchased by Texas State University in 1994, the site has served as a research and educational facility ever since. On this field trip, we will tour Spring Lake via glass-bottom boats as well as view water habitat from the wetlands boardwalk. Plant identification, orienteering, geography, and using a compass will all be covered during our Nature Orienteering Scavenger Hunt. Box lunch included at the Aquarena Center.

Note: Dress comfortably and wear walking shoes. Bring a water bottle.



T-2: SeaWorld in Depth

—*SeaWorld San Antonio/San Antonio Convention and Visitors Bureau*

Tour of the Missions of San Antonio $45

S-2 Saturday, April 13 10:00 AM–3:10 PM SOLD OUT

Don't forget your camera! Nominated for recognition as a World Heritage Site, the missions of San José, Concepción, Espada, and the Alamo are a must-visit. In the 18th century, the Spanish church established five Catholic missions along the San Antonio River, primarily to extend its dominion northward from Mexico but also to convert the native population. What remains of the largest concentration of missions in North America provides an interesting look into Texas' history. We will be visiting four of the five in this order:

- **Mission Espada:** This mission contains the best-preserved segment of the acequia (irrigation system) that was used to bring water to the fields. Today, part of the acequia operates the Espada aqueduct and dam. Also noteworthy are an unusual door and stone archway.
- **Mission San José:** The San José, established in 1720, was a model for other missions—and the most prosperous. Located just south of the Alamo, this "Queen of the Missions" represented a social and cultural center. Its 300 residents sustained themselves by raising livestock and tending to vast fields. The mission had its own gristmill and granary, which have been restored. At the church, look for flying buttresses, carvings, quatrefoil patterns, polychromatic plaster, and the famed "Rose Window," a superb example of Spanish Colonial ornamentation. Explore the stairway that leads to the belfry and choir loft; all 25 risers were hand-hewn from a single log and assembled without the use of nails or pegs. We will eat a box lunch on the grounds of the beautiful San José Mission.
- **Mission Concepción:** Arguably the most beautiful mission church, Concepción looks much like it did in 1731 when it hosted many religious ceremonies. The structure is, in fact, the oldest unrestored church in America. While its exterior paintings have faded, guests can view conserved interior remnants of wall and ceiling paintings.
- Our last stop will be the best known of the missions—**The Alamo**. The first mission established in San Antonio, the Alamo (San Antonio de Valero) served as a way station between east Texas and Mexico. Already 100 years old when it fell in the notorious Battle of the Alamo, you'll find it in the heart of the city. View the often-photographed church façade, as well as relics in the Long Barrack Museum. For more information, go to *www.nps.gov/saan*.

Note: Please dress for the weather and wear shoes appropriate for walking. Bring a water bottle.

Monday, April 8

Council of State Science Supervisors Annual Meeting
By Invitation Only
Lone Star Ballroom E, Grand Hyatt ..... 7:30 AM–4:30 PM

Tuesday, April 9

Council of State Science Supervisors Annual Meeting
By Invitation Only
Lone Star Ballroom E, Grand Hyatt ..... 7:30 AM–4:30 PM

Wednesday, April 10

NSELA Professional Development Institute (Registration Office)
San Jacinto, Grand Hyatt .....6:00 AM–6:00 PM

NSELA Professional Development Institute
By Registration Through NSELA
Texas Ballroom A, Grand Hyatt ..... 6:30 AM–3:00 PM

National Marine Educators Association Mid-Year Board Meeting
By Invitation Only
Lone Star Ballroom D, Grand Hyatt..... 7:00 AM–5:00 PM

CESI Elementary Preconference Presents: Foldables® with Dinah Zike
By Registration Through CESI
Lone Star Ballroom B/C, Grand Hyatt.. 7:30 AM–3:30 PM

Council of State Science Supervisors Annual Meeting
By Invitation Only
Lone Star Ballroom E, Grand Hyatt ..... 7:30 AM–4:30 PM

Enhancing Science Instruction to Meet the Needs of English Learners in Grades 6–12 Meeting
By Registration Through U.S. Dept. of Education
Republic B, Grand Hyatt.....8:30 AM–4:00 PM

SESD Preconference
By Registration Through SESD
Bonham B, Grand Hyatt ..... 9:00 AM–4:00 PM

NSTA District VII/XIII Leadership Retreat
By Invitation Only
Conf. Room 16, Marriott Rivercenter ..... 3:00–8:00 PM

SESD Board Meeting
Crockett A, Grand Hyatt .....4:00–6:00 PM

AMSE Board Meeting
By Invitation Only
Conf. Room 15, Marriott Rivercenter ..... 5:00–7:00 PM

New Science Teacher Academy Reception
By Invitation Only
Salon G, Marriott Rivercenter ..... 5:00–7:00 PM

NSELA Professional Development Institute Reception
By Invitation Only
Lone Star Ballroom E/F, Grand Hyatt ..... 7:00–9:00 PM

Thursday, April 11

NSELA Membership Meeting
Lone Star Ballroom A, Grand Hyatt..... 6:30–9:30 AM

New Science Teacher Academy Breakfast
By Invitation Only
Salon I, Marriott Rivercenter ..... 7:30–9:00 AM

NESTA Board Meeting
Independence, Grand Hyatt ..... 8:00 AM–2:30 PM

NSTA Special Needs Advisory Board Meeting
Goliad, Grand Hyatt .....8:30–10:30 AM

NSTA Urban Science Education Advisory Board Meeting
San Jacinto, Grand Hyatt .....8:30–10:30 AM

NSTA Technology Advisory Board Meeting
Conf. Room 5, Marriott Rivercenter.....8:30–10:30 AM

NSTA Informal Science Committee Meeting
Conf. Room 10, Marriott Rivercenter .....8:30–10:30 AM

NSTA Reports Advisory Board Meeting
Conf. Room 16, Marriott Rivercenter .....8:30–10:30 AM

Science Matters Advisory Board Meeting
Conf. Suite 529, Marriott Rivercenter .....8:30–10:30 AM

NSTA Awards and Recognitions Committee Meeting
Conf. Suite 530, Marriott Rivercenter.....8:30–10:30 AM

NSTA Science Safety Advisory Board Meeting
Conf. Suite 544, Marriott Rivercenter.....8:30–10:30 AM

The Science Teacher Advisory Board Meeting
Bonham, Marriott Riverwalk .....8:30–10:30 AM

Science & Children Advisory Board Meeting
Bowie, Marriott Riverwalk.....8:30–10:30 AM

Science Scope Advisory Board Meeting
Milam, Marriott Riverwalk .....8:30–10:30 AM

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

Global Conversations in Science Education Conference (M-1)
(Tickets Required: No Charge)
By Pregistration Only
Texas Ballroom A/B, Grand Hyatt.....8:30 AM–2:30 PM

NSTA International Lounge
Republic C, Grand Hyatt .....9:00 AM–5:00 PM

NSTA Professional Development in Science Education Committee Meeting
Conf. Suite 514, Marriott Rivercenter... 10:30 AM–12 Noon

NSTA Student Chapter Showcase and Lounge
Executive Assembly, Conv. Center .....11:00 AM–3:00 PM

NSTA Development Advisory Board Meeting
By Invitation Only
Goliad, Grand Hyatt..... 12:45–2:00 PM

NSTA Multicultural/Equity in Science Education Committee Meeting
San Jacinto, Grand Hyatt ..... 1:30–4:00 PM

NSTA Research in Science Teaching Committee Meeting
Conf. Room 5, Marriott Rivercenter..... 1:30–4:00 PM

NSTA Retired Members Advisory Board Meeting
Conf. Room 10, Marriott Rivercenter ..... 1:30–4:00 PM

NSTA Coordination and Supervision of Science Teaching Committee Meeting
Conf. Suite 514, Marriott Rivercenter ..... 1:30–4:00 PM

NSTA Preservice Teacher Preparation Committee Meeting
Conf. Suite 529, Marriott Rivercenter ..... 1:30–4:00 PM

NSTA Nominations Committee Meeting
Conf. Suite 530, Marriott Rivercenter..... 1:30–4:00 PM

NSTA High School Science Teaching Committee Meeting
Bonham, Marriott Riverwalk ..... 1:30–4:00 PM

NSTA Preschool–Elementary Science Teaching Committee Meeting
Bowie, Marriott Riverwalk..... 1:30–4:00 PM

NSTA Middle Level Science Teaching Committee Meeting
Milam, Marriott Riverwalk ..... 1:30–4:00 PM

NSTA College Science Teaching Committee Meeting
Valero, Marriott Riverwalk ..... 1:30–4:00 PM

Dorothy K. Culbert Chapter and Associated Groups Social
Lone Star Ballroom A, Grand Hyatt..... 2:00–3:00 PM

Council for Elementary Science International Board Meeting
Independence, Grand Hyatt ..... 3:00–6:00 PM

Tigtag Science Social
By Invitation Only
Presidio A, Grand Hyatt ..... 4:00–6:00 PM

NSTA Board/Council Meet & Greet
By Invitation Only
Lone Star Ballroom A, Grand Hyatt..... 4:30–6:00 PM

NSTA/CBC Outstanding Science Trade Books Committee Meeting
By Invitation Only
Conf. Room 10, Marriott Rivercenter ..... 4:30–6:00 PM

Dow Reception
By Invitation Only
Salon I, Marriott Rivercenter ..... 5:00–6:30 PM

Teach for America Networking Event
Conf. Room 6, Marriott Rivercenter..... 6:00–8:00 PM

Breaking Down the Silos: Examples of Integration and Collaboration Social
By Invitation Only
Presidio B, Grand Hyatt..... 7:00–8:30 PM

Friday, April 12

AMSE Alice J. Moses Breakfast
By Invitation Only
Salon A, Marriott Rivercenter ..... 6:30–8:30 AM

High School Breakfast (M-2)
(Tickets Required: $45)
Alamo Salon A, Marriott Riverwalk..... 7:30–9:00 AM

Next Steps Networking Forum
Tickets are required; $20 at the door
Salon C, Marriott Rivercenter .....7:30–10:00 AM

NSTA Aerospace Programs Advisory Board Meeting
Conf. Suite 514, Marriott Rivercenter .....8:30–10:30 AM

NSTA International Lounge
Republic C, Grand Hyatt .....9:00 AM–5:00 PM

Next Steps Advisory Board Meeting
By Invitation Only
Conf. Room 10, Marriott Rivercenter ..... 10:30 AM–1:30 PM

NSTA Student Chapter Showcase and Lounge
Executive Assembly, Conv. Center ..... 11:00 AM–3:00 PM

Discovery Education Focus Group on the New Health/Wellness Program *fit 4 the classroom*
(Registration Required)
Valero, Marriott Riverwalk ..... 11:00 AM–12 Noon

Fueling Instructional Transformation with Digital Textbooks: A Luncheon Panel Discussion Hosted by Discovery Education
By Invitation Only
Salon D, Marriott Rivercenter ..... 12 Noon–1:30 PM

SEPA Luncheon
By Invitation Only
Lone Star Ballroom D, Grand Hyatt ..... 12 Noon–2:00 PM

NSELA/ASTE Luncheon (M-3)
(Tickets Required: $60)
Presidio B, Grand Hyatt..... 12 Noon–2:00 PM

NSTA/NMLSTA Middle Level Luncheon (M-4)
(Tickets Required: $60)
Alamo Salon A, Marriott Riverwalk..... 12 Noon–2:00 PM

Lifelines for Climate Change Education Meeting
By Invitation Only
Conference Room 7, Marriott Rivercenter.. 1:00–2:00 PM

Gay, Lesbian, Bisexual, and Transgender Science Teachers Association Annual Meeting
Bonham, Marriott Riverwalk ..... 2:00–3:00 PM

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

NSTA International Advisory Board Meeting
Goliad, Grand Hyatt ..... 3:00–5:00 PM

AMSE Membership Meeting
Conf. Room 10, Marriott Rivercenter ..... 3:00–5:00 PM

GEICO/NSTA Member Orientation Reception
Lone Star Ballroom D, Grand Hyatt..... 3:30–5:00 PM

SCST Business Meeting
Bowie C, Grand Hyatt..... 3:30–5:00 PM

Shell Reception
By Invitation Only
Salon J/K, Marriott Rivercenter ..... 5:00–5:45 PM

NSTA Student Chapter and Student Members Reception
No Ticket Required; Open to All Preservice Teachers and Those Who Work with Them
Travis C/D, Grand Hyatt ..... 5:30–7:00 PM

NSELA/NGSS Reception for High School Teachers
Texas Ballroom F, Grand Hyatt..... 5:30–7:30 PM

NSTA Teacher Awards Gala (M-5)
(Tickets Required: $70)
Salon H/I, Marriott Rivercenter ..... 6:00–8:45 PM

NESTA Friends of Earth Science Reception
Lone Star Ballroom D, Grand Hyatt..... 6:30–8:00 PM

SCST Dessert Social and Poster Session
Texas Ballroom C, Grand Hyatt ..... 7:00–9:00 PM

Saturday, April 13

NSTA/AMSE George Washington Carver Breakfast
By Invitation Only
Salon A, Marriott Rivercenter ..... 7:00–9:00 AM

NSTA Past Presidents' Breakfast
By Invitation Only
Lone Star Ballroom A, Grand Hyatt..... 7:30–8:15 AM

Science in the Community Breakfast (M-6) *(Sponsored in part by DuPont Office of Education)*
(Tickets Required: $15)
Ballroom B, Convention Center ..... 7:30–9:00 AM

NSTA Recommends Reviewer/Publisher Coffee
By Invitation Only
Presidio C, Grand Hyatt ..... 8:00–9:00 AM

Shell Science Teaching Award Judging Panel Meeting
By Invitation Only
Conf. Room 10, Marriott Rivercenter ..... 8:30–10:30 AM

American Modeling Teachers Association Meeting
Bonham, Marriott Riverwalk ..... 9:00 AM–4:00 PM

NSTA International Lounge
Republic C, Grand Hyatt ..... 9:00 AM–5:00 PM

NSTA Student Chapter Showcase and Lounge
Executive Assembly, Conv. Center .....11:00 AM–3:00 PM

NSTA/SCST College Luncheon (M-7)
(Tickets Required: $60)
Bonham E, Grand Hyatt .....12 Noon–1:30 PM

AMSE Past Presidents Meeting
By Invitation Only
Conf. Room 10, Marriott Rivercenter ...12 Noon–1:30 PM

CESI/NSTA Elementary Science Luncheon (M-8)
(Tickets Required: $60)
Lone Star Ballroom A, Grand Hyatt..... 12 Noon–2:00 PM

Aerospace Educators Luncheon (M-9) *(Sponsored in part by Northrop Grumman Foundation)*
(Tickets Required: $60)
Salon E, Marriott Rivercenter ..... 12 Noon–2:00 PM

NSTA Council Roundtable
By Invitation Only
Bowie A, Grand Hyatt..... 2:00–4:00 PM

NSTA Chapter and Associated Groups Roundtable
Presidio C, Grand Hyatt ..... 3:30–4:30 PM

American Modeling Teachers Association Reception
Alamo Salon E, Marriott Riverwalk ..... 4:00–5:30 PM

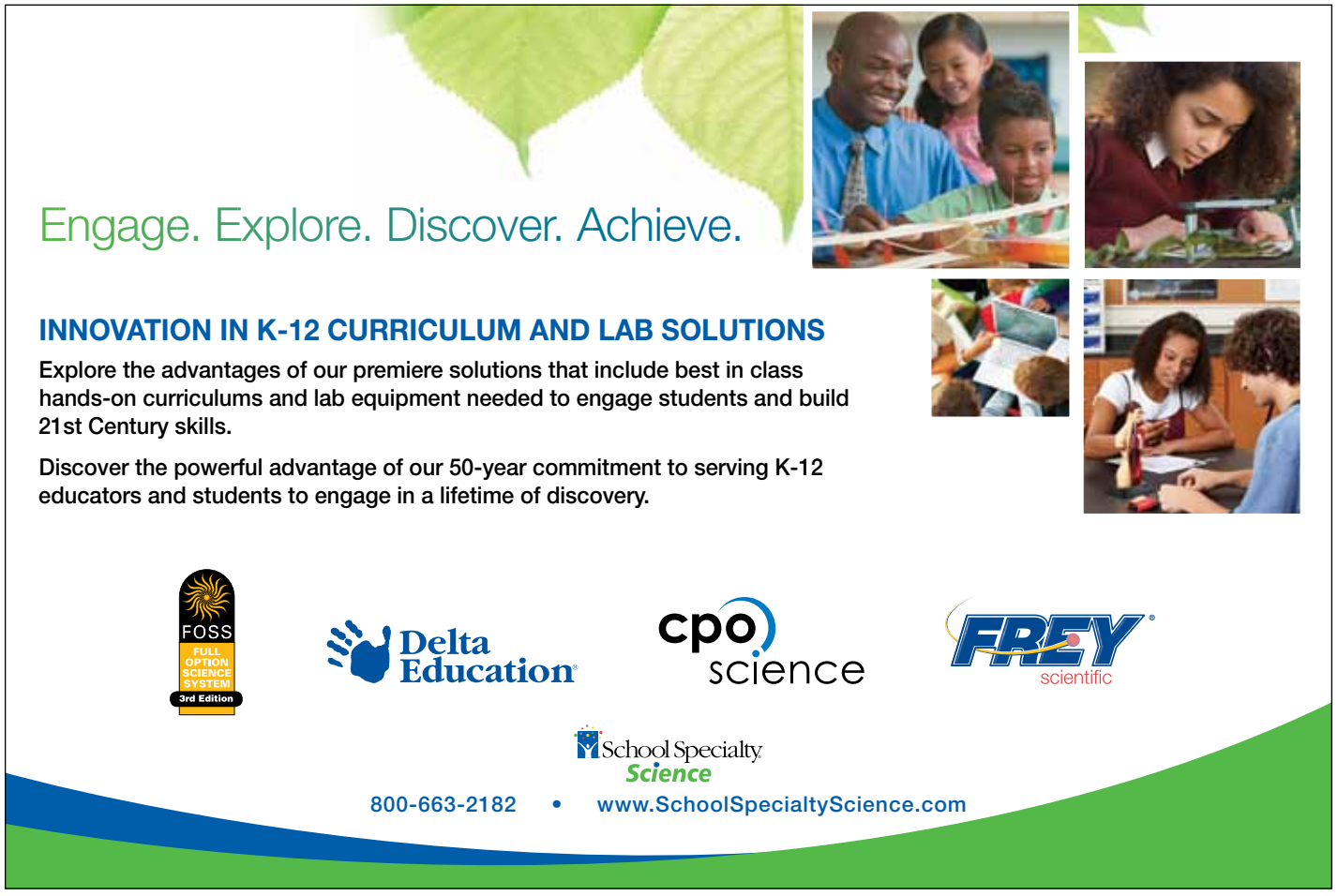
NESTA Annual Meeting
Ballroom A, Convention Center..... 5:00–6:00 PM

President's Reception (M-10)
(Tickets Required: $65)
Salon E, Marriott Rivercenter .....7:00–8:15 PM

President's Mixer
DJ and Cash Bar
Salon E, Marriott Rivercenter ..... 9:45 PM–12 Midnight

Sunday, April 14

NSTA Life Members' Buffet Breakfast (M-11)
(Tickets Required: $50)
Bowie B/C, Grand Hyatt .....7:00–9:00 AM



Alliance of Affiliates (AoA)

Saturday, April 13

2:00–4:00 PM	Walking the Talk—How to Proceed with the Next Generation Science Standards (NGSS @ NSTA)	Bonham D, Grand Hyatt

Association for Multicultural Science Education (AMSE)

President: Eddie A. Chevis

Wednesday, April 10

5:00–7:00 PM	AMSE Board Meeting (By Invitation Only)	Conference Room 15, Marriott Rivercenter

Thursday, April 11

8:00–9:00 AM	Scientific Concepts Made "Ridiculously" Simple Using Case Studies	Conference Room 6, Marriott Rivercenter
9:30–10:30 AM	Creating Project Based Learning (PBL) Experiences	Conference Room 6, Marriott Rivercenter
11:00 AM–12 Noon	RAFTing Through the Standards	Salon C, Marriott Rivercenter
12:30–1:30 PM	Infusing Design Projects into the Early Elementary Classroom	Conference Room 6, Marriott Rivercenter
2:00–3:00 PM	Strategies and Resources That Enhance the Science Learning of Students from Underrepresented Groups in the Sciences	Conference Room 6, Marriott Rivercenter

Friday, April 12

6:30–8:30 AM	AMSE Alice J. Moses Breakfast (By Invitation Only)	Salon A, Marriott Rivercenter
9:30–10:30 AM	The Literacy STEM Connection	Conference Room 6, Marriott Rivercenter
11:00 AM–12 Noon	Enhancing a STEM Culture Through Multidisciplinary Education and Research Teams	Conference Room 6, Marriott Rivercenter
12:30–1:30 PM	Engineering—It Is Elementary	Conference Room 6, Marriott Rivercenter
3:00–5:00 PM	AMSE Membership Meeting	Conference Room 10, Marriott Rivercenter

Saturday, April 13

7:00–9:00 AM	NSTA/AMSE George Washington Carver Breakfast (By Invitation Only)	Salon A, Marriott Rivercenter
9:30–10:30 AM	Science Education Equity Discoveries (SEEDs): Discussions About Social Justice Education Enactment for Next Generation Special Populations	Salon K, Marriott Rivercenter
12 Noon–1:30 PM	AMSE Past Presidents Meeting (By Invitation Only)	Conference Room 10, Marriott Rivercenter

Association for Science Teacher Education (ASTE)

President: John Tillotson

Thursday, April 11

8:00–9:00 AM	Lifelong Learning—The Secret to Teacher Empowerment	Bowie A, Grand Hyatt
9:30–10:30 AM	Teacher Academy in the Natural Sciences (TANS) Professional Development Program: Effective Content and Performance Assessment Instruction for Your Science Classroom	Bonham E, Grand Hyatt
12:30–1:30 PM	Mastering the Science Practices: Using Hands-On Performance Assessment with K–12 Students	Bonham E, Grand Hyatt
2:00–3:00 PM	Publishing Science and Engineering Inquiry Projects with Elementary Students—I Wonder…?	Bowie A, Grand Hyatt
3:30–4:30 PM	Who Wants to Be a Scientist? Elementary Teachers Can Make a Difference	Bonham E, Grand Hyatt

Friday, April 12

12 Noon–2:00 PM	NSELA/ASTE Luncheon (Tickets Required: M-3) Speaker: Heidi Schweingruber	Presidio B, Grand Hyatt
2:00–3:00 PM	Engineering a Solar Panel Sun Tracker	Mission A, Grand Hyatt
3:30–4:30 PM	Inquiry Centers: Nurturing and Assessing Students' Science Process Skills	Mission A, Grand Hyatt

Association of Science-Technology Centers (ASTC)

President: Margaret Glass

Thursday, April 11

8:00–9:00 AM	Science Process Skills Are Tools for Learning	213A, Convention Center
9:30–10:30 AM	The Art of Energizing STEM	213A, Convention Center
12:30–1:30 PM	Formalizing Informal Science Education (ISE)	213A, Convention Center
2:00–3:00 PM	Engage and Excite Girls (and Boys) in STEM	213A, Convention Center

Friday, April 12

8:00–9:00 AM	Online Astronomy Teacher Professional Development—Project Share and *The New York Times* Knowledge Network	213A, Convention Center
9:30–10:30 AM	Excite Kids Through Effective Science, Technology, Engineering, and Math Messaging	213A, Convention Center
11:00 AM–12 Noon	Creating Virtual Fieldwork Experiences (VFEs): Place-based, Technology-rich Professional Development for Formal and Informal Educators	213A, Convention Center
12:30–1:30 PM	Climate Change Action Planning, Green Teams, and Project Based Learning (PBL): Best Practices from Schools	213A, Convention Center
2:00–3:00 PM	Art and Science: Building Community Partnerships for Interdisciplinary Programs	213A, Convention Center
3:30–4:30 PM	The Uniqueness of Community: Exploring Opportunities Through Collaboration in an Elementary Science Program	213A, Convention Center

Council for Elementary Science International (CESI)

President: Barbara Tharp

Wednesday, April 10

7:30 AM–3:30 PM	CESI Elementary Preconference Presents: Foldables® with Dinah Zike (By Registration Through CESI)	Lone Star Ballroom B/C, Grand Hyatt

Thursday, April 11

8:00–9:00 AM	Our Friend the Ladybug!	212A, Convention Center
9:30–10:30 AM	We've Got the Whole World in Our Hands	212A, Convention Center
12:30–1:30 PM	Working with Electricity, Magnetism, and the Multimeter	212A, Convention Center
2:00–3:00 PM	STEMulating Activities	212A, Convention Center
3:00–6:00 PM	Council for Elementary Science International Board Meeting	Independence, Grand Hyatt
3:30–4:30 PM	Developing Inquiry Across Europe	212A, Convention Center
5:00–6:00 PM	Special Ways of Teaching Science to Students with Special Needs	212A, Convention Center

Friday, April 12

11:00 AM–12 Noon	Strong STEMs Need Strong Sprouts!	212A, Convention Center
12:30–1:30 PM	Meaningful and Creative Inquiry	212A, Convention Center
2:00–3:00 PM	Integrating Quality Children's Literature to Promote Science and Digital Literacies	212A, Convention Center
3:30–4:30 PM	Sport and Science Through Practical and Digital Solutions in the Classroom	212A, Convention Center

Saturday, April 13

12 Noon–2:00 PM	CESI/NSTA Elementary Science Luncheon (Tickets Required: M-8) Speaker: Dinah Zike	Lone Star Ballroom A, Grand Hyatt

Council of State Science Supervisors (CSSS)

President: Peter McLaren

Monday, April 8

7:30 AM–4:30 PM	Council of State Science Supervisors Annual Meeting (By Invitation Only)	Lone Star Ballroom E, Grand Hyatt

Tuesday, April 9

7:30 AM–4:30 PM	Council of State Science Supervisors Annual Meeting (By Invitation Only)	Lone Star Ballroom E, Grand Hyatt

Wednesday, April 10

7:30 AM–4:30 PM	Council of State Science Supervisors Annual Meeting (By Invitation Only)	Lone Star Ballroom E, Grand Hyatt

Council of State Science Supervisors (CSSS), cont.

Thursday, April 11

8:00–9:00 AM	Building Capacity for the Next Generation Science Standards (NGSS @ NSTA)	Mission A, Grand Hyatt
11:00 AM–12 Noon	Crosscutting Concepts in the Next Generation Science Standards (NGSS @ NSTA)	Mission A, Grand Hyatt
12:30–1:30 PM	Literacy Strategies That WORK…in the NGSS Classroom	Mission A, Grand Hyatt
2:00–3:00 PM	Disciplinary Core Idea from Kindergarten to High School (NGSS @ NSTA)	Mission A, Grand Hyatt
3:30–4:30 PM	Connecting Standards to Instruction: Using the Cloud to Develop an Online Resource for Teachers	Mission A, Grand Hyatt

Friday, April 12

9:30–10:30 AM	Science Ideas and Practices: Assessing Both Simultaneously	Bonham E, Grand Hyatt

National Association for Research In Science Teaching (NARST)

President: Sharon Lynch

Thursday, April 11

8:00–9:00 AM	Scaffolding and Assessing Students' Engagement with the Science Content Extending from Inside to Outside the Classroom	Bonham E, Grand Hyatt
9:30–10:30 AM	Gendered Expectations for ELL Students' Science Achievement and Participation	Bowie A, Grand Hyatt
12:30–1:30 PM	Thrive with the Next Generation: Keys to Unlocking Student Success	Bowie B, Grand Hyatt
2:00–3:00 PM	Introducing and Assessing Argumentation in Your Science Classroom	Bonham E, Grand Hyatt
3:30–4:30 PM	Argument-Driven Inquiry as a Way to Help Middle School and High School Students Develop Science Proficiency During Labs	Bowie B, Grand Hyatt

Friday, April 12

8:00–9:00 AM	The Interaction of Knowledge About and Teaching of Nature of Science	Presidio C, Grand Hyatt
9:30–10:30 AM	Reaching More Students by Providing Visual Contextualization During Assessments	Presidio C, Grand Hyatt
11:00 AM–12 Noon	Finding Science in the Everyday: Balancing Demonstration and Contextualization in the Chemistry Classroom	Presidio C, Grand Hyatt
12:30–1:30 PM	Students Reflecting on Science Learning—Assignments, Assessments, and Rubrics	Presidio C, Grand Hyatt
2:00–3:00 PM	Developing a Critical Eye for Reading Media Reports of Science: Bridging the Science/English Divide to Advance Scientific Literacy	Bonham E, Grand Hyatt

National Middle Level Science Teachers Association (NMLSTA)

President: Rajeev Swami

Friday, April 12

9:30–11:00 AM	NMLSTA Share-a-Thon	Texas Ballroom A/B, Grand Hyatt
12 Noon–2:00 PM	NSTA/NMLSTA Middle Level Luncheon (Tickets Required: M-4) Speaker: Warren Phillips	Alamo Salon A, Marriott Riverwalk
2:00–3:00 PM	Science for the At-Risk Student	Travis A, Grand Hyatt
3:30–4:30 PM	Classroom Activities to Highlight the Eight Essential Practices of Science and Engineering	Bonham E, Grand Hyatt
5:00–6:00 PM	Finding Money for Special Projects: Grant Proposal Writing Basics	Travis A, Grand Hyatt

Saturday, April 13

8:00–9:00 AM	Win Big! Write a Grant	Mission B, Grand Hyatt
9:30–10:30 AM	Science and Special Education—How to Make It Work	Mission B, Grand Hyatt
11:00 AM–12 Noon	Diverse Students—What Am I Supposed to Do?	Mission B, Grand Hyatt
12:30–1:30 PM	Enhancing Scientific Literacy: A Helping Hand by Using Humor	Mission B, Grand Hyatt
3:30–4:30 PM	Exploring Engineering Applications of Evaporation and Condensation in Middle School Science	Lone Star Ballroom F, Grand Hyatt

National Science Education Leadership Association (NSELA)

President: Elizabeth Allan

Wednesday, April 10

6:00 AM–6:00 PM	NSELA Professional Development Institute (Registration Office)	San Jacinto, Grand Hyatt
6:30 AM–3:00 PM	NSELA Professional Development Institute (By Registration Through NSELA)	Texas Ballroom A, Grand Hyatt
7:00–9:00 PM	NSELA Professional Development Institute Reception (By Invitation Only)	Lone Star Ballroom E/F, Grand Hyatt

Thursday, April 11

6:30–9:30 AM	NSELA Membership Meeting	Lone Star Ballroom A, Grand Hyatt

Friday, April 12

8:00–9:00 AM	Scaffolding Toward Argumentation: *A Framework for K–12 Science Education* and Its Implications for Inquiry	Travis A, Grand Hyatt
9:30–10:30 AM	Tools for Leaders	Travis A, Grand Hyatt
11:00 AM–12 Noon	Take the Lead: Ensure Your Students Can Master the Science Practices	Bonham E, Grand Hyatt
12 Noon–2:00 PM	NSELA/ASTE Luncheon (Tickets Required: M-3) Speaker: Heidi Schweingruber	Presidio B, Grand Hyatt
3:30–5:30 PM	NSTA/NSELA Issues Forum (NGSS @ NSTA)	Lone Star Ballroom A, Grand Hyatt
5:30–7:30 PM	NSELA/NGSS Reception for High School Teachers	Texas Ballroom F, Grand Hyatt

National Science Education Leadership Association (NSELA), cont.

Saturday, April 13

8:00–9:00 AM	CCSS and Interactive Science Note Booking: A Perfect Match (NGSS @ NSTA)	Travis A, Grand Hyatt
9:30–10:30 AM	Knowing What We Don't Know: A Probative Formative Assessment Process	Travis A, Grand Hyatt
11:00 AM–12 Noon	Action Research for Science Teachers: Useful Tools for Starting a Rewarding Professional Learning Community	Travis A, Grand Hyatt
12:30–1:30 PM	Publishing in the *Science Educator*, the Journal of NSELA	Travis A, Grand Hyatt
2:00–3:00 PM	Formative Assessment Strategies for Successful Science Instruction and Learning Starting in Prekindergarten	Travis A, Grand Hyatt
3:30–4:30 PM	No Child Left Behind in the Inclusive Science Classroom: Successful Accommodation and Modification Strategies for Children with Unique Needs	Travis A, Grand Hyatt

Society for College Science Teachers (SCST)

President: Brian R. Shmaefsky

Thursday, April 11

8:00–9:00 AM	Influence of High School Biology and Mathematics Courses on the Introductory College Biology Course Success at Angelo State University	Bowie C, Grand Hyatt
	Using the BiosciEdNet (BEN) Pathway in Your Biology Classes	
	Bloom's Taxonomy, Brain Research, and Introductory College Biology	
9:30–10:30 AM	Collaboration Between Science and Education Faculty to Enhance Preservice Science Teachers' Inquiry Teaching Skills	Bowie C, Grand Hyatt
	Effectiveness of Student-selected Team Strategies in Introductory Biology Courses	
	The Anatomy of Art: A Student Collaboration	
12:30–1:30 PM	Characteristics of Students Retaking Introductory College Biology Courses at Angelo State University	Bowie C, Grand Hyatt
	Quantifying Cellular Structures from Microscopic Images Using Image Analysis Software	
	Transformative Life Sciences Instruction: Integrating Biology and Chemistry in Introductory Courses	
2:00–3:00 PM	Analysis of Salt Formations on Ancient Ceramics	Bowie C, Grand Hyatt
	Using Case Studies as the Organizing Principle in Introductory Biology Courses	
	Grade Distributions—Are They Really Changing and, If So, Does It Really Matter?	

Society for College Science Teachers (SCST), cont.

3:30–4:30 PM	Low-Budget Online and Video Activities Supporting an Inquiry-based Laboratory Course	Bowie C, Grand Hyatt
	Alternative Assessments: Creativity and Critical Thinking	
	Using Active Learning Techniques in A&P—Is Content Really "King"?	
5:00–6:00 PM	Student Attitudes Toward Chemistry	Bowie C, Grand Hyatt
	College Science Student Ethics: Recent High School Graduates *vs.* Delayed College-Entry Students	
	Ethical Considerations in the Implementation of Educational Research	

Friday, April 12

8:00–9:00 AM	Using Bean Beetles to Encourage Inquiry in a Nonmajors Early College High School Course	Bowie C, Grand Hyatt
	Critical Thinking and Case Studies: What's the Connection?	
	Thriving or Just Surviving: Helping Freshmen Science Majors Find Their Game	
9:30–10:30 AM	Tuning Biology in Texas: Aligning Competencies and Expectations for the Biology Degree	Bowie C, Grand Hyatt
	Increasing the Diversity and Quality of Biology Graduates	
12:30–1:30 PM	SCST Marjorie Gardner Lecture: Beyond Assessing Knowledge: Card Sorting, Superheroes, and Moving Toward Measuring Biological Expertise (Speaker: Kimberly D. Tanner)	Bowie C, Grand Hyatt
2:00–3:00 PM	Promoting Students' Understanding and Awareness of Sustainability Issues and the Nature of Science Through Mandatory Online Discussions	Bowie C, Grand Hyatt
	Beginning a Learning Assistant Program in Science Courses as Experienced by Boston University	
	Promoting Environmental Literacy Through the New Core Standards	
3:30–5:00 PM	SCST Business Meeting	Bowie C, Grand Hyatt
7:00–9:00 PM	SCST Dessert Social and Poster Session	Texas Ballroom C, Grand Hyatt

Saturday, April 13

12 Noon–1:30 PM	NSTA/SCST College Luncheon (Tickets Required: M-7) Speaker: Michael W. Klymkowsky	Bonham E, Grand Hyatt

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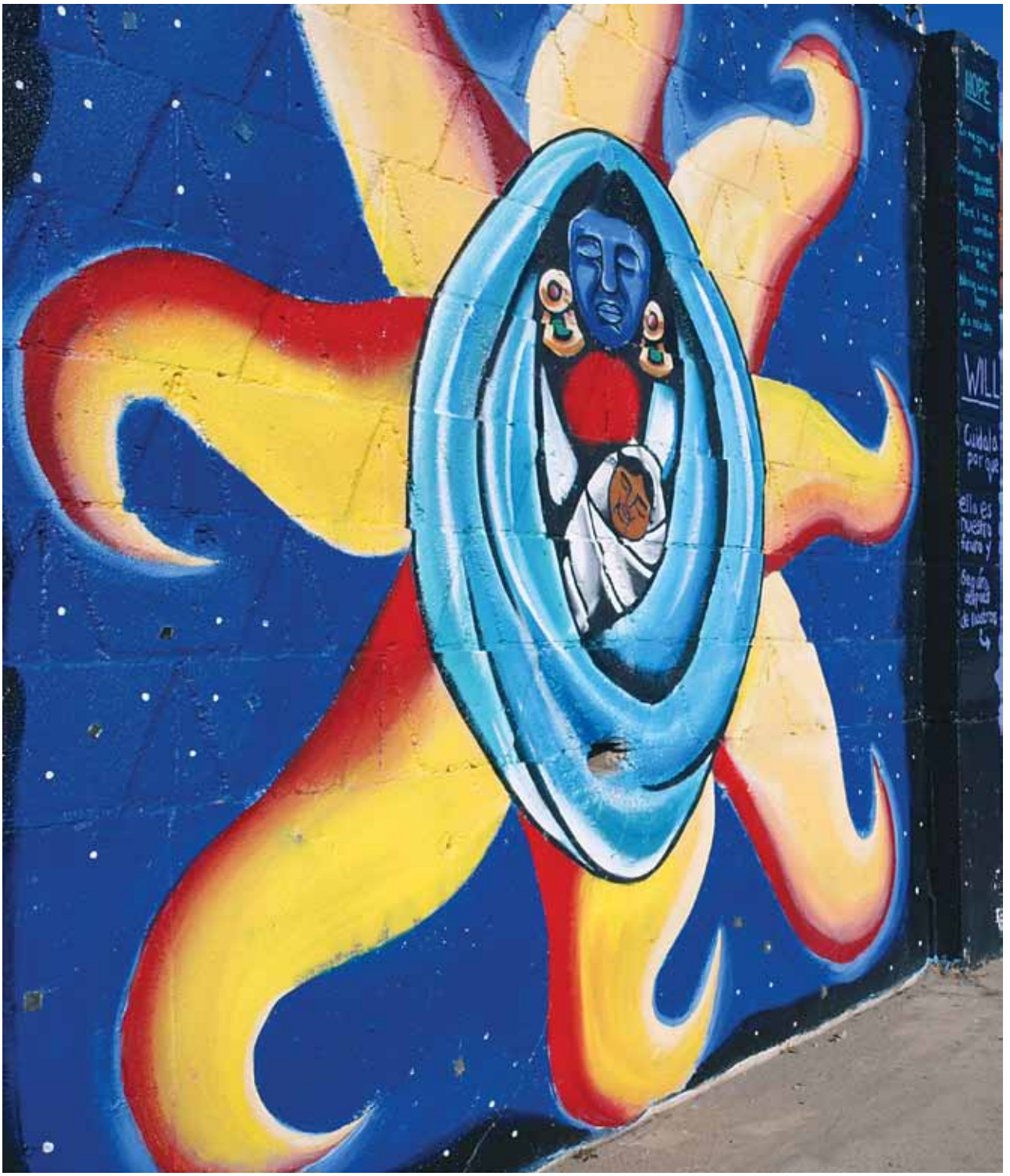

— Gary Cralle / San Antonio Convention and Visitors Bureau

6:00 AM–6:00 PM Meeting

NSELA Professional Development Institute (Registration Office)

San Jacinto, Grand Hyatt

Visit *www.nsela.org* for information.

6:30 AM–3:00 PM Meeting

NSELA Professional Development Institute

(By Registration Through NSELA) Texas Blrm. A, Grand Hyatt

Visit *www.nsela.org* for more information.

7:00 AM–5:00 PM Meeting

National Marine Educators Association Mid-Year Board Meeting

(By Invitation Only) Lone Star Ballroom D, Grand Hyatt

7:30 AM–3:30 PM Meeting

CESI Elementary Preconference Presents: Foldables® with Dinah Zike

(By Registration Through CESI) Lone Star Blrm. B/C, Grand Hyatt

Visit *www.cesiscience.org* for more information.

7:30 AM–4:30 PM Meeting

Council of State Science Supervisors Annual Meeting

(By Invitation Only) Lone Star Ballroom E, Grand Hyatt

8:30 AM–4:00 PM Meeting

Enhancing Science Instruction to Meet the Needs of English Learners in Grades 6–12 Meeting

Republic B, Grand Hyatt

Classroom practitioners will share effective science instructional practices for English language learners at the middle and secondary levels in this one-day workshop facilitated by the Office of English Language Acquisition, U.S. Department of Education. A major challenge for ELLs 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 culturally inclusive lessons for English language learners, as well as College of Education faculty wishing to share this information with their teachers in training. E-mail *crystal.martinez@ed.gov* with any questions prior to the event or visit *www.ncela.gwu.edu/meetings/nsta2013* to register.

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

A science area category is associated with each session. These categories are abbreviated in heavy type at the right immediately following the session title. On page 194, you will find the conference sessions grouped according to their assigned science area category.

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

Glossary

STEM stands for Science, Technology, Engineering, and Mathematics.

Strands

The San Antonio 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 42.

✓ **Next Generation Assessments: Effectively Measuring Student Learning**

Next Generation Elementary Science: Building the Foundation

Next Generation Special Populations: Meeting the Needs of Diverse Learners

Next Generation Technology: Putting the "T" in STEM

The following icons will be used throughout this program.

Global Conversations in Science Education Conference

NGSS @ NSTA Sessions

NSTA Press® Sessions

PDI Professional Development Institutes

9:00 AM–3:30 PM NSTA PDI One-Day Work Session

PDI

One-Day Work Session: Addressing Engineering and Technology in the Next Generation Science Standards (PDI-12)

(Grades K–12) SOLD OUT *Salon G, Marriott Rivercenter*

By Preregistration Only

Provider: Mariel Milano, Next Generation Science Standards Writing Team Member

Mariel Milano, Orange County Public Schools, Orlando, Fla.

For description, see page 55.

9:00 AM–4:00 PM Meeting

SESD Preconference Meeting

(By Registration Through SESD) *Bonham B, Grand Hyatt*

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 and to register, please contact Patricia Davidson *(pdavidson@usi.edu)* and visit *www.sesd.info.*

9:00 AM–4:00 PM NSTA PDIs

PDI **Inquiring into Inquiry: Creating an Inquiry-based Classroom (PDI-8)**

(Grades K–12) *Conference Room 1/2, Marriott Rivercenter*

By Preregistration Only

Provider: BSCS

Paul Numedahl, BSCS, Colorado Springs, Colo.

For description, see page 54.

PDI **STEM Programming 101: Creating Integrated STEM Programs (PDI-5)**

(Grades K–12) *Conference Room 3/4, Marriott Rivercenter*

By Preregistration Only

Provider: International Technology and Engineering Educators Association (ITEEA)

Joey Rider-Bertrand, Lancaster-Lebanon IU13, Lancaster, Pa.

For description, see page 53.

PDI **Bringing Outdoor Science into Your Classroom (PDI-1)**

(Grades K–8) *Conference Room 7, Marriott Rivercenter*

By Preregistration Only

Provider: Steve Rich, Georgia Youth Science and Technology Center, University of West Georgia

Steve Rich, NSTA Director, Professional Development, and West GYSTC, Carrollton, Ga.

For description, see page 52.

PDI **Building a Professional Learning Community Through Shared Leadership (PDI-2)**

(Grades K–12) *Conference Room 8, Marriott Rivercenter*

By Preregistration Only

Provider: Achieving Student Success through Excellence in Teaching (ASSET), Inc. CANCELED

Sharon Beddard-Hess, ASSET STEM Education, Pittsburgh, Pa.

For description, see page 52.

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

(Grades K–12) *Conference Room 12, Marriott Rivercenter*

By Preregistration Only

Provider: WestEd

Kathy DiRanna, WestEd, Santa Ana, Calif.

For description, see page 54.

PDI **Using Science Notebooks (PDI-7)**

(Grades 4–12) *Conference Room 13/14, Marriott Rivercenter*

By Preregistration Only

Provider: BSCS

Betty Stennett, BSCS, Colorado Springs, Colo.

For description, see page 54.

PDI **What Matters Most™: Effective Science Instruction That Promotes a Positive Learning Environment, Scientific Inquiry, and the Next Generation Science Standards (PDI-3)**

(Grades K–12) *Salon K, Marriott Rivercenter*

By Preregistration Only

Provider: McREL

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

For description, see page 53.

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

(Grades K–5) *Salon L, Marriott Rivercenter*

By Preregistration Only

Provider: The Writing in Science Partnership (WISP)

Betsy Rupp Fulwiler, Writing in Science Partnership, Seattle, Wash.

For description, see page 53.

9:00 AM–4:00 PM NSTA PDI One-Day Work Sessions

PDI **One-Day Work Session: Moving the Next Generation Science Standards into the Classroom (PDI-11)**

(Grades K–12) *Salon E, Marriott Rivercenter*

By Preregistration Only

Sponsored by NSTA SOLD OUT

Rodger Bybee, NGSS Writing Team Leader and Chair, Science Forum and Science Expert Group, Golden, Colo.

Kim Bess, San Diego County Office of Education, San Diego, Calif.

For description, see page 55.

PDI **One-Day Work Session: Using Cognitive Science to Improve Science Learning in Earth Science (PDI-10)**

(Grades 6–12) *Salon F, Marriott Rivercenter*

By Preregistration Only

Provider: The 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, Robert Morris University, 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 55.

PDI **One-Day Work Session: It's Not JUST Science: Integration Across the Elementary Curriculum (PDI-9)**

(Grades K–6) *Salon H, Marriott Rivercenter*

By Preregistration Only

Provider: Center for Educational Outreach, Baylor College of Medicine

Nancy Moreno, Baylor College of Medicine, Houston, Tex.

For description, see page 55.

3:00–8:00 PM Meeting

NSTA District VII/XIII Leadership Retreat
(By Invitation Only) *Conference Room 16, Marriott Rivercenter*

4:00–6:00 PM Meeting

SESD Board Meeting

Crockett A, Grand Hyatt

The annual business meeting of Science Education for Students with Disabilities, an associated group with NSTA. Open to everyone—please join us! Visit *www.sesd.info* for more information.

5:00–7:00 PM Meeting

AMSE Board Meeting
(By Invitation Only) *Conference Room 15, Marriott Rivercenter*

5:00–7:00 PM Reception

New Science Teacher Academy Reception
(By Invitation Only) *Salon G, Marriott Rivercenter*

7:00–9:00 PM Reception

NSELA Professional Development Institute Reception
(By Invitation Only) *Lone Star Ballroom E/F, Grand Hyatt*

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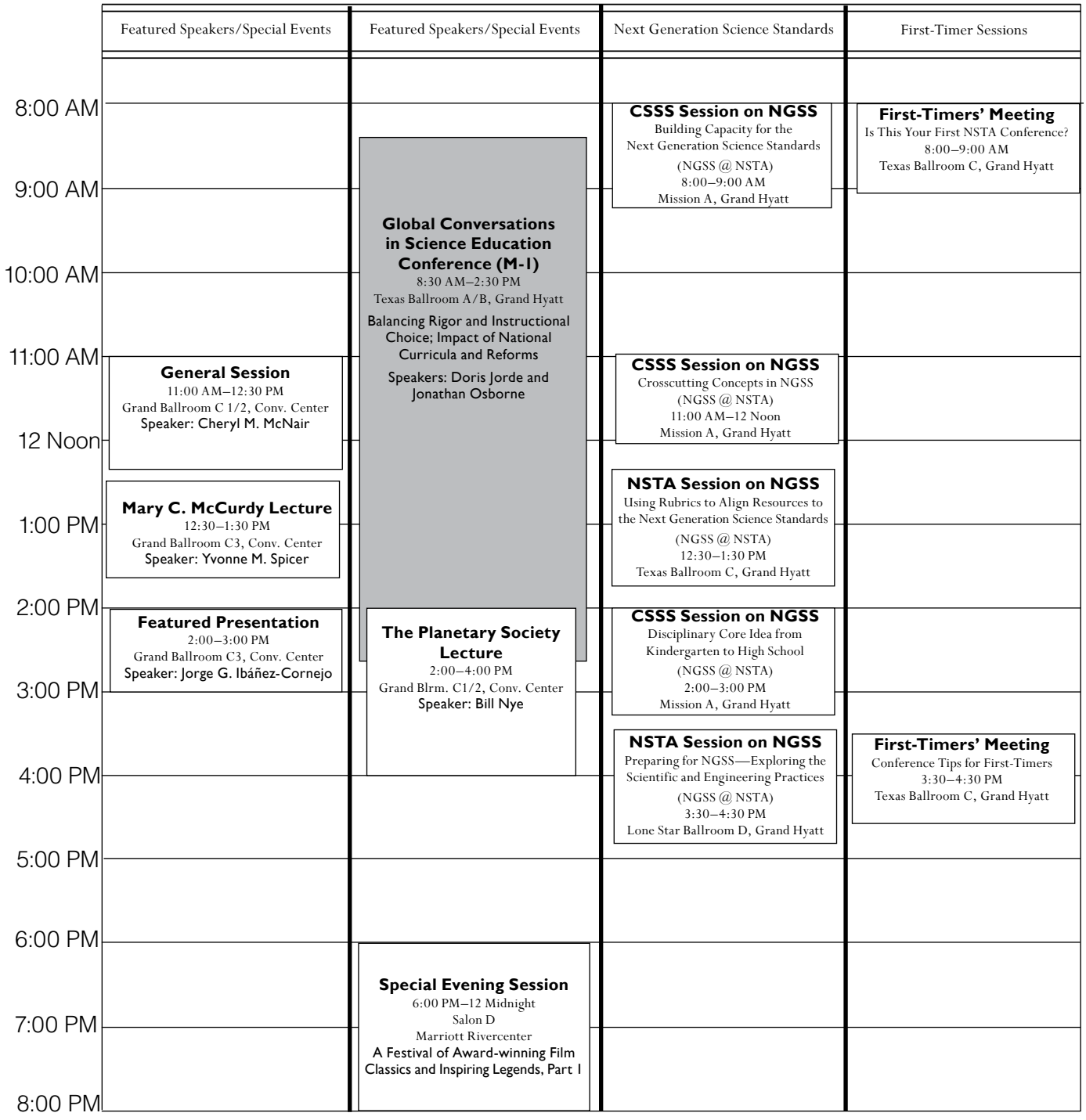
Thursday, April 11



6:30–9:30 AM Meeting

NSELA Membership Meeting

Lone Star Ballroom A, Grand Hyatt

Visit *www.nsela.org* for more information.

7:30–9:00 AM Breakfast

New Science Teacher Academy Breakfast

(By Invitation Only) *Salon I, Marriott Rivercenter*

7:30–9:00 AM Exhibitor Workshops

Going Green: Economical and Environmentally Friendly Inquiry in Chemistry (Chem)

(Grades 9–12) *006A, 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.

Introducing Simple Machines into the Elementary Classroom with LEGO® Bricks (Phys)

(Grades 1–3) *007A, Convention Center*

Sponsor: LEGO Education

Jessica Pope, LEGO Education, Pittsburg, Kans.

Experience firsthand how you can develop your grades 1–3 students' understanding of science, engineering, and mathematics concepts using the Simple Machines set from LEGO Education. Participants will explore gears by building a model out of LEGO bricks and completing the corresponding classroom activity from the Simple Machines Activity Pack.

It's Off to the Races with K'NEX® Education's Forces, Energy, and Motion Set! (Phys)

(Grades 5–9) *102B, Convention Center*

Sponsor: K'NEX Education

Presenter to be announced

Investigate potential and kinetic energy as well as force and motion with K'NEX cars. Gravity, rubber bands, springs, wind, battery motors, and flywheels will power models as we explore complex STEM concepts. Strategies that empower students to design and complete their own experiments from the teacher's guide will be emphasized, and standards-aligned STEM concepts will be stressed. Drawing for a K'NEX Education Forces, Energy, and Motion set!

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Next Generation Elementary Science: Building the Foundation

Next Generation Special Populations: Meeting the Needs of Diverse Learners

Next Generation Technology: Putting the "T" in STEM

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Global Conversations in Science Education Conference

NGSS @ NSTA Sessions

NSTA Press® Sessions

PDI **Professional Development Institutes**

Make Safety a Habit! Flinn Scientific Safety Workshop (Gen)
(Grades 6–College) *103A, Convention Center*
Sponsor: Flinn Scientific, Inc.
Irene Cesa *(icesa@flinnsci.com),* Flinn Scientific, Inc., Batavia, Ill.
Join us for simple, practical, and 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 is for you. 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.

Breeding Critters (Bio)
(Grades 6–8) *203A, Convention Center*
Sponsor: LAB-AIDS, Inc.
Mark Koker, LAB-AIDS, Inc., Ronkonkoma, N.Y.
Here is your opportunity to make the study of genetics more meaningful for students. Join LAB-AIDS for an activity sequence from *Issues and Life Science,* a SEPUP middle school program that lays a framework for dominant/recessive as well as other patterns of inheritance. Pedigrees are introduced as another way to study the behavior of certain genes in humans. In the succeeding activities, you will use what you know to advise a person about whether to be tested for Marfan's Syndrome.

STEM Challenges for the Classroom, Part 1 (Phys)
(Grades 4–8) *204B, 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. Using inexpensive and easy-to-obtain materials, explore the technology of simple machines. Learn about theories of lift as you construct and test the world's best paper airplane designs. Assume the role of NASA engineer as you construct a tetrahedron landing shell. Come join in the engineering fun and leave with new and exciting ideas for the classroom.

The Dirty Job of Teaching Just Got Easier with Discovery High School Science Techbook (Gen)
(Grades 9–12) *209, Convention Center*
Sponsor: Discovery Education
Michael Bryant, Discovery Education, Chicago, Ill.
Maybe you don't have to suit up and do gross stuff, but some days it feels like your job is just as hard. Learn how the new Discovery Education Science Techbook for biology, chemistry, physics, and Earth/space science makes it easier with engaging, interactive digital resources.

New Teacher's Welcome Breakfast (Gen)
(General) *211, Convention Center*
Sponsor: Ward's Science
Holly Ahern, VWR Education, Rochester, N.Y.
Is this your first year in the classroom? Are you an inservice teacher? Have you changed science disciplines? Ward's would like to welcome you into the wonderful world of science education with a free continental breakfast, invaluable resources, and lots of free gifts. First come, first serve! *Note:* This workshop is by preregistration only.

Using Enzyme Linked Immunosorbent Assay (ELISA) to Detect a West Nile Virus Outbreak (Bio)
(Grades 8–College) *212B, Convention Center*
Sponsor: Edvotek Inc.
Danielle Snowflack *(info@edvotek.com),* **Jack Chirikjian** *(info@edvotek.com),* and **Khuyen Mai** *(info@edvotek.com),* Edvotek Inc., Washington, D.C.
The 2012 outbreak of the West Nile virus was the largest ever documented in the U.S.—more than 1,100 cases were reported to the CDC. Join us to discover how ELISA can be used as a diagnostic tool for detecting disease outbreaks. Participants will perform our new, foolproof single-antibody ELISA. This assay can be completed in 40 minutes or less… much faster than a traditional ELISA! Participants receive a free flash drive and enter for a T-shirt drawing at the end of the workshop.

8:00–8:30 AM Presentation

SESSION 1
3Ring: A Next Generation Lesson Planning System (Gen)
(Middle Level–High School) *Salon C, Marriott Rivercenter*
Joel D. Donna *(joeld@3ring.org),* 3Ring, St. Paul, Minn.
3Ring is an online tool that allows teachers to quickly assemble coherent, engaging, and challenging science lessons that build students' knowledge and critical-thinking skills and are aligned with the Next Generation Science Standards.

8:00–9:00 AM Presentations

SESSION 1

Association for Astronomy Education Members Meeting **(Earth)**

(General) *101B, Convention Center*

Jacob Noel-Storr *(jake@cis.rit.edu),* Rochester Institute of Technology, Rochester, N.Y.

This meeting of the Association for Astronomy Education is for existing members or those interested in joining.

SESSION 2

Magical Illusions for K–9 Teachers **(Gen)**

(General) *202A, Convention Center*

Alan J. McCormack *(amccorma@mail.sdsu.edu),* 2010–2011 NSTA President, and San Diego State University, San Diego, Calif.

Hear how storylines, discrepant events, and magic develop concepts in both physical and biological sciences, pique children's interest and imagination, and build creative and logical thinking skills.

SESSION 3

Around the World in Six Days: An Ecosystem Adventure **(Bio)**

(Elementary) *208, Convention Center*

Julie Jackson *(jj32@txstate.edu),* Texas State University–San Marcos

Discover how a third-grade team worked collaboratively to create a dynamic interactive ecosystem adventure that effectively connected core life science concepts. With passports and notebooks in hand, students toured six different classrooms exploring how structures and functions of plants and animals allow them to survive in a particular ecosystem.

SESSION 4

Flip the Switch to Inquiry **(Gen)**

(Elementary–Middle Level) *215, Convention Center*

Tracie F. Cain *(tcain@charter.com),* Academy of the Sacred Heart, St. Charles, Mo.

Make science engaging for your students and for *you*—cover the content and add more inquiry into your classroom. Inquiry starters shared.

There's a first time for everything...

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!

First-Timer Attendee Sessions

Texas Ballroom C, Grand Hyatt

Thursday, April 11

8:00–9:00 AM • 3:30–4:30 PM

NSTA
National Science Teachers Association

SESSION 5

Modeling an Integrated Science and Technology Classroom (Gen)

(Elementary–Middle Level) *216B, Convention Center*

Jennifer Becerra *(jenniferbecerra@nisd.net),* Northside ISD, San Antonio, Tex.

Presider: Julie Blazek, Briscoe Middle School, San Antonio, Tex.

Experience an integrated lesson on the Moon using technology to enhance the learning experience. Complete a make-and-take lunar phases model and take home resources.

SESSION 6

Flipping Classrooms with iPads (Gen)

(General) *Bonham B, Grand Hyatt*

Lara L. Sharp *(lara.sharp@lwcharterschools.com),* Lake Wales High School, Lake Wales, Fla.

Engage in the discussion on flipping classrooms and learn how I did it with iPads and My Big Campus.

SESSION 7

ASTE Session: Lifelong Learning—The Secret to Teacher Empowerment (Gen)

(General) *Bowie A, Grand Hyatt*

Amy Moreland *(amoreland@austin.utexas.edu)* and **Mary E. Hobbs** *(maryhobbs@mail.utexas.edu),* The University of Texas at Austin

Join us as we summarize findings from research identifying pivotal experiences of career science teachers and suggest implications and applications for professional development delivery.

SESSION 8 (three presentations)

(High School–College) *Bowie C, Grand Hyatt*

SCST Session: Influence of High School Biology and Mathematics Courses on the Introductory College Biology Course Success at Angelo State University (Gen)

Amanda P. Smiley *(amandapattersonsmiley@gmail.com)* and **Connie Phillips Russell** *(crussell@angelo.edu),* Angelo State University, San Angelo, Tex.

Receive an overview of a study examining the correlation between the number of mathematics and science courses taken by high school students and success in introductory college biology courses.

SCST Session: Using the BiosciEdNet (BEN) Pathway in Your Biology Classes (Bio)

Lynn M. Diener *(dienerl@mtmary.edu),* Mount Mary College, Milwaukee, Wis.

Emphasis will be placed on finding and using digital resources in the biology classroom and highlighting the professional development opportunities afforded by the BiosciEdNet pathway of the National Science Digital Library (NSDL). Specifically, we'll discuss how to publish your own teaching resources on the site.

SCST Session: Bloom's Taxonomy, Brain Research, and Introductory College Biology (Bio)

Linda W. Crow *(lcrow@lonestar.edu),* Lone Star College–Montgomery, Conroe, Tex.

Join us as we apply both Bloom's Taxonomy and brain research to analyze data collected from students enrolled in an introductory biology course designed for biology majors.

SESSION 9

NGSS@NSTA

CSSS Session: Building Capacity for the Next Generation Science Standards (Gen)

(Middle Level–High School/Supv.) *Mission A, Grand Hyatt*

Samuel D. Shaw *(sam.shaw@state.sd.us),* South Dakota Dept. of Education, Pierre

Come hear about South Dakota's professional development campaign to get grades 6–12 science teachers ready for NGSS.

The Day the Mesozoic Died

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Thursday, April 11, 6:30pm
Grand Hyatt San Antonio, Texas Ballroom A/B

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SESSION 10 (two presentations)
(College) *Mission B, Grand Hyatt*

Transforming Science Learning at a Cambodian University: Bridges and Barriers to Inquiry (Gen)
Gail Dickinson *(dickinson@txstate.edu),* **Maureen Lemke** *(ml43@txstate.edu),* and **Heather Galloway** *(galloway@txstate.edu),* Texas State University–San Marcos
Join us as we examine faculty and student receptiveness and barriers to a pilot of a yearlong inquiry-based general science course for Cambodian university students.

Peer Evaluation and Self-Assessment: Helping Teacher Candidates' Develop and Improve Their Lesson Planning and Professional Dispositions (Gen)
Terri S. Schmidt *(sterri@nova.edu),* Nova Southeastern University, Fort Lauderdale, Fla.
Discover how an alternative assessment was developed and used by teacher candidates to improve their performance in science lesson planning and developing their professional dispositions.

SESSION 11 (two presentations)
(High School–College) *Seguin A, Grand Hyatt*

Ecological Flow Chart as a Traffic Light for an Experimental Chemistry Laboratory with Base to Green Chemistry (Chem)
Yolanda M. Vargas-Rodríguez *(ymvargas@unam.mx)* and **Adolfo Obaya** *(obaya@unam.mx),* National Autonomous University of Mexico, Mexico City
Emphasis will be placed on a set of rules for the elaboration of an ecological flow chart to be used in experiments for teaching the learning of chemistry to college-level students. With colors, this chart allows students to evaluate to what extent the experiment follows the principles of green chemistry.

Integrating Spectroscopy into the Forensics Curriculum (Chem)
Jeromy T. Bentley *(jbentley@naperville203.org),* Naperville Central High School, Naperville, Ill.
Learn how to bring college-level spectroscopic analytical techniques into your high school chemistry/forensics curriculum.

SESSION 12

Getting Them There: Recruitment and Retention of Girls in STEM Programs (Gen)
(General) *Seguin B, Grand Hyatt*
Elaine R. Plybon *(eplybon@gmail.com),* Jack E. Singley Academy, Irving, Tex.
Come find out about the hidden signals society sends girls to discourage them from careers in STEM. With this knowledge, a discussion will be facilitated to develop action plans and ideas for recruiting girls into STEM programs at the high school level and keeping them there through higher education.

SESSION 13

NSTA Press® Session: CCSS for ELA and Literacy + NGSS = Even More Brain-powered Science (Gen)
(Middle Level–High School) *Texas Ballroom D, Grand Hyatt*
Thomas P. O'Brien *(tobrien@binghamton.edu),* Binghamton University, Binghamton, N.Y.
Discrepant event activities and cartoons model how to integrate English language arts and science literacy standards to show "the whole is greater than the sum of the parts."

SESSION 14

AMSE Session: Scientific Concepts Made "Ridiculously" Simple Using Case Studies (Bio)
(High School) *Conference Room 6, Marriott Rivercenter*
Chelia McCoo Dogan *(chelia.mccoo@aliefisd.net),* Elsik High School, Houston, Tex.
Gain an understanding of the relevance and implementation of Next Generation Science Standards with the use of case studies as a powerful tool to enhance scientific instruction.

SESSION 15

Make Your Demonstrations More Effective (Phys)
(Middle Level–College) *Conf. Room 11, Marriott Rivercenter*
Marc "Zeke" D. Kossover *(zkossover@jchsofthebay.org),* The Jewish Community High School of the Bay, San Francisco, Calif.
Review findings on science education research into demonstrations and find out how to make yours more effective. Join the presenter as he models effective techniques while doing a series of demonstrations, including a variant on the Newton's Cradle, a ring launcher, a pin dot, and sound modeling using a large spring.

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SESSION 16

SYM-1 Presession: Demystifying Ocean Acidification (Earth)

(Middle Level–High School) *Conf. Room 17/18, Marriott Rivercenter*

Paulo S. Maurin *(paulo.maurin@noaa.gov),* NOAA, Silver Spring, Md.

Understand ocean acidification, learn how to teach it with data and how to communicate it to students and the public.

SESSION 17

iPad Invasion in the Middle School Science Classroom (Gen)

(Middle Level–High School) *Salon A, Marriott Rivercenter*

Maggie J. Mabery *(mmabery@mbusd.org)* and **James Locke** *(jlocke@mbusd.org),* Manhattan Beach Middle School, Manhattan Beach, Calif.

Presider: James Locke

Come learn how to use iPads in middle school science classrooms. We'll share labs, projects, and apps used with an iPad.

SESSION 18

Teaching the Hard to Teach to the Hard to Reach: Advanced Topics for Struggling Learners (Gen)

(Middle Level–High School) *Salon J, Marriott Rivercenter*

Kevin J. Fleming *(kfleming@oldsaybrook.k12.ct.us),* Old Saybrook Senior High School, Old Saybrook, Conn.

Several lesson and activity ideas will be shared that are designed to facilitate struggling learners in applying higher-order thinking skills that reinforce key concepts.

SESSION 19

Inquiry Learning Requires Inquiry Teaching (Chem)

(Middle Level–High School/Supv.) *Alamo Salon B, Marriott Riverwalk*

Robert H. Poel *(bob.poel@wmich.edu),* Professor Emeritus, Western Michigan University, Kalamazoo

Discussion centers around the role of the teacher in inquiry science classrooms. Join me as I address the unique issues of student learning in an inquiry setting.

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8:00–11:00 AM
Hilton Palacio del Rio
Salon del Rey A

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NSTA National Science Teachers Association

SESSION 20

Common Core + Science Standards = Science Literacy (Bio)

(Middle Level–High School) Alamo Salon E, Marriott Riverwalk

Kerryanne Monahan *(kerryane@bellsouth.net),* Saint Edward's School, Vero Beach, Fla.

Learn to easily implement the Common Core State Standards for scientific literacy and your state/national standards into your classroom with Read, Retrieve, Connect, and Use. Improve your students' content knowledge and literacy skills with this instructional strategy.

SESSION 21

Biomedical Science Elective for the High School Senior (Bio)

(High School) Alamo Salon F, Marriott Riverwalk

Kelly A. Houser *(houser@latinacademy.org),* Boston Latin Academy, Boston, Mass.

Lillian Houser *(lilhouser@aol.com),* Retired Educator, Cleveland Heights, Ohio

Since jobs are widely available in the medical sciences, this senior elective course—including pharmacology, technology, and bioethics—may encourage students to study biomedical science.

8:00–9:00 AM Workshops

NASA Galileo Educator Network: What Would Galileo Do? (Earth)

(General) 001A, Convention Center

Brian Kruse *(bkruse@astrosociety.org)* and **Greg Schultz** *(gschultz@astrosociety.org),* Astronomical Society of the Pacific, San Francisco, Calif.

Experience activities that recreate Galileo's observations to promote the Copernican model of the solar system and learn about the NASA-sponsored Galileo Educator Network.

Getting a Grasp on the Geosphere (Earth)

(Middle Level) 001B, Convention Center

Betty Cordel, Fresno, Calif.

Use hands-on activities to explore the layers and profiles of the geosphere.

WeatherBug and the Elementary Classroom (Earth)

(Elementary) 002, Convention Center

Shannon Hudson *(shudson@cville.k12.in.us),* Tuttle Middle School, Crawfordsville, Ind.

Andy Hausman *(ahousman@earthnetworks.com),* WeatherBug Schools, Germantown, Md.

WeatherBug Stations can be found all over the world. Learn how to incorporate the data and information into all disciplines in the elementary classroom.

Grab-and-Go Geoscience Education: GeoMapApp Learning Activities (Earth)

(Middle Level–College) 101A, Convention Center

Andrew Goodwillie, Lamont-Doherty Earth Observatory, Palisades, N.Y.

Complete, ready-to-use, teacher-friendly GeoMapApp Learning Activities guide students in inquiry-based explorations of Earth science content. Use the tools that real geoscientists use! Bring your laptop.

Making the Most of a Math and Science Night (Gen)

(Elementary) 103B, Convention Center

Tracey K. Graham *(indianspringsl8@yahoo.com),* Westgate Elementary School, Columbus, Ohio

Ever want to hold a Math/Science Night at your school? This workshop will provide you with the organization and materials to pull it off!

How to Present to African-American Men (Gen)

(Elementary–High School) 201, Convention Center

Darryl L. Baynes *(dbaynes@interactivescienceprograms.org),* Interactive Science Programs, Wheeling, W.Va.

This workshop will show you how to enhance your STEM lesson plans and make them more relevant to African-American males.

✓ **Students Steer the Course—Don't Crash and Burn with Meaningless Assessment (Gen)**
(Middle Level) *202B, Convention Center*
Pamela Caffery *(pamela.caffery@sdhc.k12.fl.us),* **Michele Detwiler** *(michele.detwiler@sdhc.k12.fl.us),* **Nicole Jacquay** *(nicole.jacquay@sdhc.k12.fl.us),* and **Mindy Pearson** *(mindy.pearson@sdhc.k12.fl.us),* Hillsborough County Public Schools, Tampa, Fla.
Promote scientific literacy through student-centered learning using formative assessment aligned with *A Framework for K–12 Science Education* and the Common Core Literacy Standards.

CESI Session: Our Friend the Ladybug! (Bio)
(Preschool–Elementary) *212A, Convention Center*
Dee Mock *(mock@bcm.edu),* Baylor College of Medicine, Houston, Tex.
Young children love to explore the world around them! Become a kid again as you investigate an amazing and beautiful living organism—the ladybug!

ASTC Session: Science Process Skills Are Tools for Learning (Gen)
(Elementary) *213A, Convention Center*
Melissa R. Cigarroa *(melissa@wowsciencelaredo.org)* and **Jose R. Perez** *(jose@wowsciencelaredo.org),* Informal Science Learning Associates of Laredo, Tex.
Lisa Chappa, Carlsbad, N.Mex.
Engage in hands-on activities that focus on the science process skills of observing, questioning, predicting, hypothesizing, planning and investigating, interpreting, and communicating.

Forming Foundations for the Future (Gen)
(Elementary) *217D, Convention Center*
Andi Webb *(roliewebb@ccs.k12.nc.us)* and **Lisa Popish** *(lisapopish@ccs.k12.nc.us),* Alderman Road Elementary School, Fayetteville, N.C.
Join us as we share ideas and strategies for elementary teachers to feel more comfortable teaching science through literature, music, and integration of other subject areas.

Blowing in the Wind (Phys)
(Middle Level) *Bonham C, Grand Hyatt*
Andrea Swensrud *(scienceed@kqed.org),* KQED, San Francisco, Calif.
Sarah Carter *(scarter@tpt.org),* Twin Cities Public Television, St. Paul, Minn.
Waft new energy into your science classroom and explore the power of wind through an exploration of multimedia resources. Learn how wind turbines work, and design and build your own with everyday materials!

NARST Session: Scaffolding and Assessing Students' Engagement with the Science Content Extending from Inside to Outside the Classroom (Bio)
(Middle Level–High School) *Bonham E, Grand Hyatt*
Kristin L.K. Koskey *(koskey@uakron.edu),* The University of Akron, Ohio
Toni A. Sondergeld *(tsonder@bgsu.edu),* Bowling Green State University, Bowling Green, Ohio
Emphasis in this workshop will be placed on techniques for using assessments under the affective domain as formative assessments in the science classroom to inform instruction and student learning.

Successful Classroom Inquiry—Going Beyond "Hands On" (Gen)
(Informal Education) *Lone Star Ballroom C, Grand Hyatt*
Lynn Arcuri, Darrell Jones *(djones@naturemuseum.org),* and **Sophie McNeill,** Peggy Notebaert Nature Museum, Chicago, Ill.
Discover the secrets of implementing inquiry-based science teaching in any classroom using a model developed by the Chicago Academy of Sciences' Peggy Notebaert Nature Museum.

DIY Forensics (Gen)
(Middle Level–High School/Inf.) *Lone Star Blrm. D, Grand Hyatt*
April Chancellor *(april.chancellor@msichicago.org)* and **Kevin Conley** *(kevin.conley@msichicago.org),* Museum of Science and Industry, Chicago, Ill.
Explore forensic science by trying simple hands-on activities. You'll solve a short crime and leave with ideas for each forensic specialty. Free lessons and prizes!

Tricks of the Trade (Gen)
(General) *Lone Star Ballroom E, Grand Hyatt*
Sally Creel *(sally.creel@cobbk12.org),* Cobb County Schools, Marietta, Ga.
Explore a variety of research-based strategies necessary to enable students to become scientifically literate! Simple "Tricks of the Trade" will help you teach and formatively assess students in fun, nontraditional methods. Several fun formative assessment strategies will also be shared. Take home a CD of materials, resources, and sample assessments.

Soils: More Than the Dirt Under Your Feet (Gen)
(General) *Presidio B, Grand Hyatt*
Margaret A. Holzer *(mholzer@monmouth.com),* Chatham High School, Chatham, N.J.
Sherry S. Fulk-Bringman *(sherryfb@purdue.edu),* Purdue University, West Lafayette, Ind.
Emily J. Fuger *(efuger@sciencesocieties.org),* Soil Science Society of America, Madison, Wis.
Soil science is the best-kept secret to meeting Earth science, chemistry, and biology standards. In this active workshop, we will reveal this deep secret.

How Do You Decide? ABC, ARB, ACE, CAD, or MI? (Gen)
(Elementary–High School) *Republic B, Grand Hyatt*
Ron McNeel and **Nancy Moreno** *(nmoreno@bcm.edu),* Baylor College of Medicine, Houston, Tex.
Discover the world of scientific decision making as we follow three patients who visit the ER in the midst of a health crisis.

Is This Your First NSTA Conference? (Gen)
(General) *Texas Ballroom C, Grand Hyatt*
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 book. By the end of the session, we guarantee you'll know just how to get the most from your conference participation. Door prizes!

NMEA Session: A Whale of a Tale Share-a-Thon (Earth)
(General) *Texas Ballroom E/F, Grand Hyatt*
Lauren Rader *(lrader@oceanology.org),* SouthEastern New England Marine Educators, Groton, Conn.
Becky J. Cox *(beckyc@utm.edu),* The University of Tennessee at Martin
Johnette Bosarge *(johnette@imms.org),* National Marine Educators Association, Ocean Springs, Miss.
Tami Lunsford, Newark, Del.
Meghan E. Marrero *(megconk@yahoo.com),* Mercy College, Dobbs Ferry, N.Y.
Howard Rutherford *(hrutherford@pieraquarium.org),* Pier Aquarium, St. Petersburg, Fla.
Judith Coats *(jcoats@ucsd.edu),* Birch Aquarium at Scripps, La Jolla, Calif.
Ramona L. Nelson *(rnelson4@utm.edu),* The University of Tennessee at Martin, Jackson
Diana Payne *(diana.payne@uconn.edu),* Connecticut Sea Grant, University of Connecticut, Groton
Marolyn Smith *(marolynsmith@yahoo.com),* Retired Educator, Austin, Tex.
Presider: Craig Strang *(cstrang@berkeley.edu),* The Lawrence Hall of Science, University of California, Berkeley
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.

Teach Photosynthesis Using SUN Project Models (Bio)
(High School–College) *Travis A/B, Grand Hyatt*
Patricia J. Deibert *(deibertp@msoe.edu)* and **Ann Batiza** *(batiza@msoe.edu),* Milwaukee School of Engineering, Milwaukee, Wis.
Experience how to use models to teach the light reactions of photosynthesis. Walk away with access to the models for use in your classroom.

Engineering for Space **(Gen)**
(Middle Level/Informal Education) *Travis C/D, Grand Hyatt*
Mike McGlone *(michael.a.mcglone@nasa.gov),* NASA/The Pennsylvania State University, State College
Wendi Laurence *(wendi.b.laurence@nasa.gov),* The Pennsylvania State University, State College
Explore the engineering design process and common misconceptions, as well as gain hands-on experience with NASA resources you can use in your classroom.

"Bridging" Engineering and Science: Engineering Design Challenges That Inspire Inquiry **(Gen)**
(General) *Salon B, Marriott Rivercenter*
Kristin Sargianis *(ksargianis@mos.org),* Museum of Science, Boston, Mass.
Through hands-on activities and discussions, we'll explore how standards-based engineering and inquiry science can be authentically integrated in the classroom. Leave with a planning tool to use in your classroom!

Hit the Ground Running! An Authentic Approach to Units and Measurement **(Phys)**
(High School) *Salon D, Marriott Rivercenter*
Aaron Osowiecki *(aosowiecki@gmail.com)* and **Jesse Southwick** *(jesse.southwick@gmail.com),* Boston Latin School, Boston, Mass.
Learn about an innovative way to teach units and measurement as a beginning to a physics course.

PDI **McREL Pathway Session: Creating a Classroom Environment Where All Students Can Learn** **(Gen)**
(General) *Salon K, Marriott Rivercenter*
Anne Tweed *(atweed@mcrel.org),* 2004–2005 NSTA President, and McREL, Denver, Colo.
Believing all students can learn is the first step to creating a positive learning environment in the classroom. Along with this key understanding, empowering students to think scientifically and assess their own ideas and progress promotes positive attitudes and motivation. Discover how to develop these strategies in your classroom by providing constructive feedback and teaching students the connection between effort and achievement.

Take My Breath Away! **(Chem)**
(General) *Alamo Salon A, Marriott Riverwalk*
Karen Jo Matsler *(kmatsler@uta.edu),* The University of Texas at Arlington
Cathy Barthelemy, Fort Worth Museum of Science and History, Fort Worth, Tex.
Why don't athletes drink carbonated drinks before an athletic event? Experience a powerful lab that uses technology to help students understand how their body reacts to carbonation.

Using a Project-based Science Unit to Link Next Generation Science Standards, Common Core State Standards, and Student Engagement **(Bio)**
(High School) *Alamo Salon D, Marriott Riverwalk*
Kristen N. Talbot *(ktalbot2@illinois.edu),* **Barbara Hug** *(bhug@illinois.edu),* and **Chandana Jasti,** University of Illinois at Urbana-Champaign
Learn how to engage high school students with activities focusing on how chemicals found in the environment and everyday foods affect the brain, development, and behavior.

8:00–9:00 AM Exhibitor Workshop

Turn Your Science Classroom into a STEM Classroom with Fourier Education Technology **(Gen)**
(Grades 1–12) *205, Convention Center*
Sponsor: It's About Time
David Birchler, IAT Interactive, LLC, Mount Kisco, N.Y.
Preparing students with 21st-century skills to advance scientific discovery and technological innovation has become a major goal. In this hands-on workshop, you'll learn how to seamlessly integrate STEM into your elementary through high school classrooms with Fourier Education data-logging solutions, creating learning environments that inspire and excite students.

8:00–9:15 AM Exhibitor Workshops

A Simple Connection Between STEM and Data Logging (Gen)
(Grades 6–12) *214A, Convention Center*
Sponsor: Frey Scientific/School Specialty Science
Lou Loftin, Consultant, Reno, Nev.
Conduct a STEM-focused activity that links science concepts and a new USB U-Log™ data-logging technology. Integrate technology and hands-on inquiry activities effortlessly in the classroom with a cost-effective, easy-to-use collection analysis system.

Inquiring Minds Provide Spark for Science Lessons (Gen)
(Grades K–6) *214B, Convention Center*
Sponsor: Delta Education/School Specialty Science
Johanna Strange, Consultant, Richmond, Ky.
Tom Graika, Consultant, Lemont, Ill.
Inquiry is at the heart of science teaching. Using topics from the Delta Science Module Program, learn how inquiry strategies can provide a variety of learning opportunities for students. Participants will be involved in guided, challenge, and open inquiries, and a resource packet will be provided.

8:00–9:30 AM Presentation

SESSION 1
Using iPads to Create Innovative Scientists (Gen)
(General) *207A, Convention Center*
Ben Smith *(ben@edtechinnovators.com)* and **Jared Mader** *(jared@edtechinnovators.com),* York, Pa.
Got iPad? We will show you the best apps and how to work with students using this device. Whether you have one device or a classroom set, you will leave with ideas on how to leverage these tools for finding information, collecting and analyzing data, and communicating learning.

8:00–9:30 AM Exhibitor Workshops

Equip Your iPad or Android Tablet for Science with SPARKvue® HD, a Full-featured Science Application (Gen)
(Grades K–12) *006C, Convention Center*
Sponsor: PASCO scientific
Presenter to be announced
Explore PASCO's science application for the iPad and Android Tablet. SPARKvue HD offers a suite of display and analytical tools, all within an integrated learning environment—including reflection prompts, journaling, and more. The app also supports the growing collection of SPARKlabs, integrating rich content with live data collection and analysis.

AP Physics: Impulse and Momentum (Phys)
(Grades 9–12) *006D, Convention Center*
Sponsor: PASCO scientific
Presenter to be announced
In this probeware activity from PASCO's new *Advanced Physics Manual,* you'll explore the physics of collisions, forces, and momentum. Learn how to meet AP lab requirements and build a deeper student understanding of the required content, using PASCO's new Capstone application and 850 Universal Interface.

Enhance Your Teaching of the New AP Biology Curriculum Framework with FREE Resources from HHMI (Bio)
(Grades 9–College) *008A, Convention Center*
Sponsor: Howard Hughes Medical Institute
Ann Brokaw, Rocky River High School, Rocky River, Ohio
Teach ahead of the textbook with Howard Hughes Medical Institute's vast array of free multimedia resources for AP biology—all available at *BioInteractive.org.* The resources are listed in a teacher guide organized according to the four Big Ideas, including the Enduring Understandings and Essential Knowledge pieces of the newly released *AP Biology Curriculum Framework*.

Physics with Vernier **(Phys)**
(Grades 9–College) *210A, Convention Center*
Sponsor: Vernier Software & Technology
David L. Vernier *(info@vernier.com)* and **Verle Walters** *(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 Diffraction Apparatus will be available to try as well. Conduct these experiments using LabQuest 2 and LabQuest Mini.

Human Physiology with Vernier **(Bio)**
(Grades 9–College) *210B, Convention Center*
Sponsor: Vernier Software & Technology
Mike Collins *(info@vernier.com),* Vernier Software & Technology, Beaverton, Ore.
Rick Rutland, Five Star Education Solutions, LLC, San Antonio, Tex.
Physiology courses are greatly enhanced by using sensors to collect real student data. Experiments exploring Grip Strength, EKG, Heart Rate, and others from our *Human Physiology with Vernier* lab book will be conducted in this hands-on workshop using LabQuest 2 and a variety of sensors.

Chemistry and the Atom: Fun with Atom Building Games! **(Phys)**
(Grades 6–12) *214D, Convention Center*
Sponsor: CPO Science/School Specialty Science
Erik Benton, CPO Science/School Specialty Science, Nashua, N.H.
Understanding abstract concepts about atoms can be difficult. Use our model to experience innovative games and activities that present students with opportunities to grasp atomic structure and its connection to the periodic table. Take away STEM activities and an understanding of how to incorporate science and engineering practices in your lessons.

pGLO—STEM It Up! **(Bio)**
(Grades 9–College) *217C, Convention Center*
Sponsor: Bio-Rad Laboratories
Leigh Brown, Bio-Rad Laboratories, Hercules, Calif.
You know how awesome pGLO is for teaching science content, but how do you integrate technology, engineering, and mathematics to expand your students' horizons? Come see how in this hands-on session.

8:00–10:00 AM Workshop

PDI **WISP Pathway Session: They're Not Too Young—Emergent Writers Thinking and Writing Like Scientists** **(Gen)**
(Preschool–Elementary) *Salon L, Marriott Rivercenter*
Kirsten Nesholm *(kanesholm@seattleschools.org),* Seattle (Wash.) Public Schools
Betsy Rupp Fulwiler *(bruppfulwiler@comcast.net),* Writing in Science Partnership, Seattle, Wash.
Experienced practitioners share research-based strategies for supporting vocabulary acquisition as well as developing scientific thinking and writing skills that help all students achieve at higher-than-expected levels.

8:00–10:00 AM Exhibitor Workshop

Science-centered Language Development Using FOSS **(Gen)**
(Grades K–6) *214C, Convention Center*
Sponsor: Delta Education/School Specialty Science–FOSS
Brian Campbell, The 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.

8:00–10:30 AM Short Course

Bioinspiration: An Artistic Expression of the Imagination (SC-1)
(General) *La Corona, Hilton*
Tickets Required: $42
Auburn Buehring *(abuehring@txstateaq.org)* and **Adriana Reza** *(areza@txstateaq.org),* Texas State Aquarium, Corpus Christi
For description, see page 58.

8:00–11:00 AM Workshop

The Outstanding Science Trade Books of 2012 Share-a-Thon! (Gen)
(General) *Salon del Rey A, Hilton*
Betty Crocker *(betty.crocker@unt.edu),* Retired Educator, Denton, Tex.
Steve Rich *(bflywriter@comcast.net),* NSTA Director, Professional Development, and West GYSTC, Carrollton, Ga.
Vana Richards, Retired Educator, Boise, Idaho
Stephanie Selznick *(sselznick@boston.k12.ma.us),* Curley K–8 School, Jamaica Plain, Mass.
Juliana Texley *(jtexley@att.net),* NSTA President-Elect-Elect, Palm Beach State College, Boca Raton, Fla.
Each year, an NSTA committee reviews hundreds of newly published science trade books. Books that are scientifically accurate and have a high interest for teachers and students are recognized as Outstanding Science Trade Books for that publication year. Come experience the Outstanding Science Trade Books that have been selected for 2012!

8:00–11:30 AM Short Course

Nanotechnology in the STEM Curriculum (SC-3)
(Secondary) *Salon del Rey B, Hilton*
Tickets Required: $48
Morton M. Sternheim *(mort@umassk12.net)* and **Rob Snyder** *(snyder@umassk12.net),* STEM Education Institute, UMass Amherst, Massachusetts
For description, see page 58.

8:00 AM–12 Noon Workshops

PDI **BSCS-I Pathway Session: Using Evidence to Construct a Scientific Explanation (Bio)**
(Elementary–Middle Level) *Conf. Room 1/2, Marriott Rivercenter*
Anne Westbrook *(awestbrook@bscs.org)* and **Betty Stennett** *(bstennett@bscs.org),* BSCS, Colorado Springs, Colo.
In this session, participants will delve into the highly anticipated NGSS Practice 5, Constructing Explanations. We'll explore strategies for helping students construct explanations about diabetes, a topic around which there are many misconceptions. Find out how students can use scientific evidence and models to construct explanations that fit with current understandings about the disease and to identify gaps or weaknesses underlying common misconceptions.

PDI **BSCS-N Pathway Session: Uncovering Student Science Ideas as a Springboard to Deeper Understanding (Gen)**
(Elementary–Middle Level) *Conf. Room 13/14, Marriott Rivercenter*
Connie J. Hvidsten *(chvidsten@bscs.org)* and **Paul Numedahl** *(pnumedahl@bscs.org),* BSCS, Colorado Springs, Colo.
What are students really thinking about science concepts in your classroom? In this session, learn to use tools for surfacing students' ideas before, during, and after instruction. Build on students' ideas to create powerful learning opportunities that allow them to make connections, confront misconceptions, and construct deep science understanding.

8:00 AM–2:30 PM Meeting

NESTA Board Meeting
Independence, Grand Hyatt
Members of the NESTA Board will meet to review progress and plan for the coming year. Attendance is open for those interested in listening. Visit *www.nestanet.org* for more information.

8:30–9:00 AM Presentations

SESSION 1
Strategies for Fostering Meaningful Student Discourse in the Elementary Science Classroom (Gen)
(Elementary) *213B, Convention Center*
Kari A. Shutt *(shuttk@uw.edu),* University of Washington, Seattle
Amy Bertram Winstanley *(winstanleya@bsd405.org),* Bellevue (Wash.) School District
An important goal for teachers is to orchestrate discourse among students about scientific ideas. Explore video clips highlighting teacher moves that facilitate discourse.

SESSION 2
Building a Green Home—Is It Worth It? (Env)
(High School) *Bonham D, Grand Hyatt*
Katherine A. Larson, Hoover High School, Des Moines, Iowa
Adam Puderbaugh *(adam.puderbaugh@dmschools.org),* Des Moines (Iowa) Public Schools
Using authentic assessments, environmental science students will demonstrate their ability to create a cost-benefit analysis of green home building decisions.

8:30–10:30 AM Meetings

NSTA Special Needs Advisory Board Meeting
Goliad, Grand Hyatt

NSTA Urban Science Education Advisory Board Meeting
San Jacinto, Grand Hyatt

NSTA Technology Advisory Board Meeting
Conference Room 5, Marriott Rivercenter

NSTA Informal Science Committee Meeting
Conference Room 10, Marriott Rivercenter

***NSTA Reports* Advisory Board Meeting**
Conference Room 16, Marriott Rivercenter

Science Matters Advisory Board Meeting
Conference Suite 529, Marriott Rivercenter

NSTA Awards and Recognitions Committee Meeting
Conference Suite 530, Marriott Rivercenter

NSTA Science Safety Advisory Board Meeting
Conference Suite 544, Marriott Rivercenter

***The Science Teacher* Advisory Board Meeting**
Bonham, Marriott Riverwalk

***Science & Children* Advisory Board Meeting**
Bowie, Marriott Riverwalk

***Science Scope* Advisory Board Meeting**
Milam, Marriott Riverwalk

***Journal of College Science Teaching* Advisory Board Meeting**
Valero, Marriott Riverwalk

8:30 AM–2:30 PM Global Conversations in Science Education Conference

Balancing Rigor and Instructional Choice: Impact of National Curricula and Reforms (M-1)

(General) *Texas Ballroom A/B, Grand Hyatt*

By Preregistration Only

NSTA has planned a day dedicated to science education from an international perspective. The conference commences with a plenary talk by Dr. Doris Jorde, director of Norwegian Centre for Science Education in Oslo, Norway. This plenary session will be followed by concurrent sessions, a poster session, and an afternoon plenary talk by Dr. Jonathan Osborne, The Shriram Family Professorship of Science Education at Stanford University. The day will conclude with short presentations from participants on current trends, issues, and best practices from around the world.

8:30–8:45 AM	Welcome and Introductions Norman Lederman, Conference Chair Judy Lederman, Chair, NSTA International Advisory Board Karen L. Ostlund, NSTA President Paul Nordhaus, Chair, NSTA International Advisory Board
8:45–9:30 AM	Plenary Session (p. 105) *Recent Trends in Science Education in Europe—Converging or Diverging?* Speaker: Doris Jorde, Director, Norwegian Centre for Science Education, Oslo, Norway
9:30–9:40 AM	Break
9:45–10:45 AM	Concurrent Sessions (p. 117)
10:45–11:30 AM	Poster Session (p. 121)
11:30 AM–12 Noon	Lunch (on your own)
12 Noon–12:45 PM	Plenary Session (p. 127) *Do Standards in Science Education Matter?* Speaker: Jonathan Osborne, The Shriram Family Professorship of Science Education, Graduate School of Education, Stanford University, Stanford, Calif.
1:00–2:00 PM	Concurrent Sessions (p. 145)
2:10–2:25 PM	Updates from Around the World (p. 168)
2:25–2:30 PM	Closing Remarks

8:45–9:30 AM Global Conversations in Science Education Conference Plenary Session

Recent Trends in Science Education in Europe—Converging or Diverging?

(General) *Texas Ballroom A/B, Grand Hyatt*

By Preregistration Only

Doris Jorde *(dorisj@naturfagsenteret.no),* Director, Norwegian Centre for Science Education, Oslo, Norway

Doris Jorde has played a key role in several EU initiatives in science education, including the influential report, *Science Education Now: A Renewed Pedagogy for the Future of Europe.* Doris has also been a leader in the development of robust models for teacher professional development in Europe. Using that background, she will discuss the challenges to science teaching in Norway and Europe at large. Compared to the U.S., Europe is a union of individual countries, each with their own culture and language. She will discuss whether the development of the EU has influenced how countries view their educational policies in science education and the prospects for a European educational system.

Doris Jorde is currently serving as director for the Norwegian Centre for Science Education. She holds a PhD in Science Education from the University of California, Berkeley and has been working at the University of Oslo since 1984, where she has helped to build up science education as a research field in Norway. Her research interests have centered on curriculum development and classroom practice in teaching and learning science.

In the area of curriculum development, Doris has had a strong connection to the WISE project at UC Berkeley. She has helped develop a similar web-based curriculum project in Norway, which has more than 16 thematic programs ranging from Gene Technology to Geology. The Viten project has been a success in the Norwegian context and is currently being translated into English, Swedish, and Danish.

Doris is past president of the European Science Education Research Association (ESERA), a sister organization to NARST.

9:00–11:30 AM Exhibitor Workshop

Explore Molecular Evolution Using Protein Electrophoresis (AP Big Idea 1) (Bio)

(Grades 10–College) *217B, Convention Center*

Sponsor: Bio-Rad Laboratories

Damon Tighe and **Sherri Andrews,** Bio-Rad Laboratories, Hercules, Calif.

In this hands-on workshop, you will generate protein profiles from distant and closely related species of fish using protein gel electrophoresis. Test the hypothesis that protein profiles are indicators of evolutionary relatedness and construct cladograms from your own gel results. Learn about proteomics and explore the central mantra of biology: DNA>RNA>Protein>Trait.

9:00 AM–5:00 PM Networking Opportunity

NSTA International Lounge

Republic C, Grand Hyatt

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.

9:30–10:00 AM Presentation

SESSION 1

Bringing the Study of Animal Behavior into the Classroom (Bio)

(General) *Alamo Salon E, Marriott Riverwalk*

Jonathan Akin *(jonathana@nsula.edu),* Northwestern State University, Natchitoches, La.

Observing animal behavior—including human animals—appeals to all students. Discover how to engage students and enhance STEM skills through formal and informal activities related to studying animal behavior.

9:30–10:30 AM Presentations

SESSION 1 (two presentations)
(Preschool–Elementary) *003A, Convention Center*

Exploring Weather (Earth)
Lindsay A. Barton *(lindsayabarton@gmail.com),* Cambridgeport School, Cambridge, Mass.
Come hear the story of a grades 1–2 classroom as they explored weather and made a video to teach others. Walk away with ideas on how to use video and photo documentation to enhance an inquiry-based science unit.

Science Through the Use of Music and Movement (Earth)
Katherine L. Maddox *(kmaddox@rainbowstation.org),* Rainbow Station at Three Chopt, Richmond, Va.
Let's explore our senses through the science of music and movement. Why does your ear hear sounds? What does it take to snap your fingers? Discover the teaching tool of using songs and movement activities to solidify science foundations.

SESSION 2

NASA's Global Precipitation Measurement Mission Has Tremendous Resources for You to Use in Your Classrooms! (Earth)
(Middle Level–High School/Informal) *101A, Convention Center*
Dorian W. Janney *(dorian.w.janney@nasa.gov),* NASA Goddard Space Flight Center, Greenbelt, Md.
Did you realize that NASA studies Earth's water cycle in amazing ways? Come find out how you and your students can participate. Lots of free NASA materials!

SESSION 3

Interactive, Conceptual Word Walls: Transforming Content Vocabulary Instruction One Word at a Time (Gen)
(General) *201, Convention Center*
Julie Jackson *(jj32@txstate.edu),* Texas State University, San Marcos
Interactive conceptual word walls are a viable teaching strategy that positively impacts both unit test means and the total number of students passing science tests.

SESSION 4

✓ **Improving Instruction Through Better Assessments: A Framework for Teacher-Leaders (Gen)**
(Middle Level–High School/Supv.) *202B, Convention Center*
Eric Hall *(eric.hall@dmschools.org)* and **Maureen Griffin** *(maureen.griffin@dmschools.org),* Hoover High School, Des Moines, Iowa
As classroom accountability continues to increase, so can the stress on a department leader. We will discuss concrete strategies to support teachers in effectively assessing student understanding.

SESSION 5 (two presentations)
(Preschool–Elementary) *208, Convention Center*

Which Beak Fits the Bill? (Bio)
Randi (Ruth) Darling, Westfield State University, Westfield, Mass.
After discussing some adaptations that organisms have, participants will take part in an activity examining adaptations that birds have for capturing various types of prey.

From Incubator to Brooder Box—Explorations with Chicks (Bio)
Sandi Castro, Del Valle (Tex.) ISD
Lisa Adams, Round Rock ISD, Austin, Tex.
Walk away with engaging and tangible inquiry-based activity and lesson ideas for teachers of any age group.

SESSION 6

The 3Rs of Science Notebooks: Record, Reflect, and Reach Out (Gen)
(Preschool–Elementary) *213B, Convention Center*
Lisa Rish *(lisa.rish@trussvillecityschools.com),* **Sabrina Johnson** *(sabrina.johnson@trussvillecityschools.com),* and **Jennifer V. Bruno** *(jennifer.bruno@trussvillecityschools.com),* Trussville (Ala.) City Schools
Improve problem solving and critical thinking. Explore science notebooks in a variety of paper and digital formats and find the "just right" notebook components and styles for your class!

SESSION 7

Get Moving! The Physics Edition (Phys)

(Elementary–Middle Level) 216A, Convention Center

Brian J. Ciuffreda *(bciuffreda@princetoncharter.org)* and **Mark F. Schlawin** *(mschlawin@princetoncharter.org),* Princeton Charter School, Princeton, N.J.

Propel new learning in your science classroom. Find out how to use some of the physics-related, standards-based physical activities and "kinesthetic clue" mnemonic devices used at one of New Jersey's top-performing middle schools.

SESSION 8

Presenting at NSTA Boston 2014! (Gen)

(General) 216B, Convention Center

Joyce D. Croce, Chairperson, NSTA Boston National Conference, and Retired Educator, Tyngsborough, Mass.

Pam Pelletier, Local Arrangements Coordinator, NSTA Boston National Conference, and Boston (Mass.) Public Schools

Joyce Gleason *(joycegle@earthlink.net),* Program Representative, NSTA Boston National Conference, and Retired Educator, Punta Gordea, Fla.

Marilyn Decker, Program Representative, NSTA Boston National Conference, and Milton (Mass.) Public Schools

Want to present at NSTA Boston 2014? You are not too late! There is still time to submit a proposal. Join members of the NSTA Boston 2014 Local Planning Committee as they help you:

- understand the differences between strand and general proposals;
- learn about the proposal submission process;
- gain pointers on submitting a successful proposal;
- receive answers to your questions; and
- begin writing a proposal for 2014.

SESSION 9

iPads and Beyond—Taking the Tablet to the Next Level (Gen)

(Elementary–High School) Bonham B, Grand Hyatt

Martin Horejsi *(martin.horejsi@umontana.edu),* The University of Montana, Missoula

Use the iPad to blend the learning environment, including digital dissections, flight simulators, real-time wireless data collection with probes, data analysis from captured video, and iPad digital microscopy.

SESSION 10

ICCARS: Investigating Climate Change and Remote Sensing (Env)

(Middle Level–High School) Bonham D, Grand Hyatt

David F. Bydlowski *(davidbydlowski@me.com),* Wayne RESA, Wayne, Mich.

Come learn how teachers in metropolitan Detroit used a NASA grant to develop instructional units and use technological resources. Through The ICCARS Project, students and teachers develop a working understanding of the science behind global climate change and its relationship to human activity, in particular its relationship to land-use and land-cover changes on multiple scales through NASA data products and models.

SESSION 11

NARST Session: Gendered Expectations for ELL Students' Science Achievement and Participation (Gen)

(Middle Level) Bowie A, Grand Hyatt

Kathryn Scantlebury *(kscantle@udel.edu),* NSTA Director, Research in Science Education, and University of Delaware, Newark

Sonya N. Martin *(sonya.n.martin@gmail.com),* Seoul National University, Seoul, Republic of Korea

Discussion centers on gender differences in middle school students' attitudes toward science and science careers and teachers' gendered perspectives on English language learners' science ability.

SESSION 12

How I Turned a Great Science Lesson into a Presidential Award and $10,000 (Gen)

(General) Bowie B, Grand Hyatt

Marilyn Suiter *(msuiter@nsf.gov)* and **Martha James** *(mjames@nsf.gov),* National Science Foundation, Arlington, Va.

Sandra S. Trevino, Einstein Fellow, National Science Foundation, Arlington, Va.

Presidential Awardees (PAEMST) share how they each took a quality science lesson and turned it into a meeting with the President, leadership opportunities, and $10,000.

SESSION 13 (three presentations)
(College/Informal Education) *Bowie C, Grand Hyatt*

SCST Session: Collaboration Between Science and Education Faculty to Enhance Preservice Science Teachers' Inquiry Teaching Skills (Bio)

Julie M. Angle *(julie.angle@okstate.edu)* and **Donald P. French** *(dfrench@okstate.edu),* Oklahoma State University, Stillwater

Discussion centers on a collaboration between science and education faculty to provide preservice teachers with extended opportunities to practice inquiry teaching skills in model classrooms.

SCST Session: Effectiveness of Student-selected Team Strategies in Introductory Biology Courses (Bio)

Joseph L. Trackey *(joseph.l.trackey@lonestar.edu),* Lone Star College–Montgomery, Conroe, Tex.

What strategies are the most successful for a team approach to biology experiments and projects? Join us as we identify and assess successful teamwork strategies in an introductory biology course.

SCST Session: The Anatomy of Art: A Student Collaboration (Bio)

Lynn M. Diener *(dienerl@mtmary.edu)* and **Jordan Acker Anderson** *(andersoj@mtmary.edu),* Mount Mary College, Milwaukee, Wis.

Join us as we highlight a cross-disciplinary collaboration between the art and science departments at Mount Mary College in Milwaukee, Wisconsin. Attention will be paid to the collaboration itself, how it came about, and how it is progressing, as well as their latest collaboration—bringing together art and anatomy students.

SESSION 14

CSI2: A Multi-State, Technology-enhanced Whodunit? (Gen)

(Elementary–High School) *Lone Star Ballroom D, Grand Hyatt*

Melissa Hess *(melissa_hess@cvsd.k12.pa.us),* Conestoga Valley Middle School, Lancaster, Pa.

Roby Johnson *(roby.johnson@k12.sd.us),* Holgate Middle School, Aberdeen, S.Dak.

Jeffrey Birchler *(jbirchler@spsmail.org),* Hickory Hills Middle School, Springfield, Mo.

Learn how collaborating science instructors from six states integrate technology to immerse their students in a multidisciplinary role-playing CSI mystery unit.

SESSION 15

Teaching Essential Science Concepts and Skills: Doing Science, Reading Science, Writing Science, and Talking Science (Gen)

(General) *Lone Star Ballroom E, Grand Hyatt*

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

Emphasis will be placed on the importance of teaching science that mirrors real-world science—accessing information, observing, investigating, drawing conclusions, solving problems, and communicating results.

SESSION 16

Flight Fidelity: Building and Analyzing Model Rockets (Phys)

(High School–College) *Mission B, Grand Hyatt*

Lisa M. Damian-Marvin *(ldamian@mac.com),* Camden Hills Regional High School, Rockport, Maine

Bring excitement to your classroom with this innovative project in which students use spreadsheet-based Euler Integration to analyze the motion of student-built model rockets.

SESSION 17

Using Earthquakes to Teach Plate Tectonics (Earth)

(High School–College) *Seguin A, Grand Hyatt*

Randal Mandock *(rmandock@cau.edu)* and **Jessica Allen,** Clark Atlanta University, Atlanta, Ga.

Discover how to use recent earthquakes to teach the fundamentals of plate tectonics and earthquake hazards.

SESSION 18

Beyond Career Day: Integrating STEM Professionals into the Science Classroom (Gen)

(General) *Seguin B, Grand Hyatt*

Brian Levine *(blevine@amnh.org),* American Museum of Natural History, New York, N.Y.

Darlene Cavalier *(darlene@sciencecheerleader.com),* Science Cheerleader, Philadelphia, Pa.

Kristian Breton *(kbreton@nyas.org)* and **Stephanie Wortel** *(swortel@nyas.org),* The New York Academy of Sciences, New York, N.Y.

Almost all communities have STEM professionals who could help improve STEM education for students. Join us to learn about innovative ways to recruit, train, and retain professionals in your classroom.

SESSION 19 (two presentations)

(General) *Texas Ballroom C, Grand Hyatt*

Is This Your First Conference? A Student Teacher's Perspective (Gen)

Daniel O. Sand III *(sandd@mymail.shawnee.edu),* **Sarah M. Bell** *(bells@mymail.shawnee.edu),* and **Justin Malone** *(malonej4@mymail.shawnee.edu),* Shawnee State University, Portsmouth, Ohio

Thoughts and tips for new attendees from a student teacher's perspective. This is a must-attend session for anyone attending NSTA for the first time.

The NSTA New Science Teachers Academy and Its Impact on Teacher Retention and Student Success (Gen)

Catherine R. Stierman *(catherine.stierman@gmail.com),* Clarke University, Dubuque, Iowa

Join me as I highlight the findings of an in-depth analysis of the influence of the NSTA New Science Teacher Academy on the rate of retention within the educational profession as well as its impact on teaching praxis and student outcomes.

SESSION 20

NSTA Press® Session: CCSS for Mathematics + NGSS = More Brain-powered Science (Gen)

(Middle Level–High School) *Texas Ballroom D, Grand Hyatt*

Thomas P. O'Brien *(tobrien@binghamton.edu),* Binghamton University, Binghamton, N.Y.

Discrepant event activities and cartoons model how to integrate mathematics and science literacy standards to show "the whole is greater than the sum of the parts."

You're invited...

to the NSTA 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. An exceptional opportunity to meet your colleagues, make new friends, and enjoy refreshments!

Friday, April 12 • 3:30–5:00 PM
Grand Hyatt San Antonio • Lone Star Ballroom D
Compliments of GEICO Insurance.

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SESSION 21

PDI **ITEEA Pathway Session: STEM Building for the Elementary Grades (Gen)**

(Elementary) *Conference Room 3/4, Marriott Rivercenter*

Barry N. Burke *(bburke@iteea.org),* ITEEA, Gaithersburg, Md.

Joey Rider-Bertrand *(joey_bertrand@iu13.org),* Lancaster-Lebanon IU13, Lancaster, Pa.

Using nine defining features to sustain STEM in grades K–5, participants will analyze their current school or district's status to determine an implementable action plan for an integrative approach to STEM—that includes technology and engineering!

SESSION 22

AMSE Session: Creating Project Based Learning (PBL) Experiences (Gen)

(High School) *Conference Room 6, Marriott Rivercenter*

Robert L. Ferguson *(r.l.ferguson1@csuohio.edu),* Cleveland State University, Cleveland, Ohio

Come learn more about PBL—a special case of inquiry used to invigorate any curriculum. Attention will be paid to examples from urban high schools.

SESSION 23

PDI **ASSET Pathway Session: Building a Collaborative Culture Within Your Professional Learning Community (Gen)**

CANCELED

(General) *Conference Room 8, Marriott Rivercenter*

Sharon Beddard-Hess *(sbhess@assetinc.org),* **Diane DeMario** *(ddemario@assetinc.org),* **Barbara Williams** *(bwilliams@assetinc.org),* and **Stephanie Rakowski** *(srakowski@assetinc.org),* ASSET STEM Education, Pittsburgh, Pa.

Participants will examine the components of an effective Professional Learning Community and develop skills and norms to develop a collaborative culture.

SESSION 24

Monitoring the Invasion of Radio Frequency Interference (Phys)

(General) *Conference Room 11, Marriott Rivercenter*

Steve Rapp, A. Linwood Holton Governor's School, Abingdon, Va.

Hear about findings from a study in which students from approximately 30 high schools collected data about radio frequency interference (RFI) in their communities.

SESSION 25 (two presentations)

(Middle Level–High School) *Conf. Room 15, Marriott Rivercenter*

Differentiation Through Project Based Learning and Inquiry (Gen)

Alan S. Nakagawa *(alannakagawa@me.com),* Hawaii State Dept. of Education, Kamuela

Join me for a demonstration on how scientific practices such as inquiry and Project Based Learning encourage differentiated learning.

"You Did WHAT?!" Experiential Learning for Teachers and Its Impact on Student Learning (Gen)

Kelly Green *(kelly.green@nccvt.k12.de.us),* Howard High School of Technology, Wilmington, Del.

Sherry Geesaman *(sgeesaman@msd.k12.de.us),* Milford Middle School, Milford, Del.

See how teacher research and other adventures can be used to spark student learning and curiosity in the classroom.

SESSION 26

SYM-1 Presession: Warming Oceans and Marine Organisms (Env)

(Middle Level–High School) *Conf. Room 17/18, Marriott Rivercenter*

Paulo S. Maurin *(paulo.maurin@noaa.gov),* NOAA, Silver Spring, Md.

Discover how we study thermal ocean energy, learn about recent monitoring results, and explore how it impacts marine life, particularly coral reef ecosystems.

SESSION 27

Integrated STEM Projects: Teaching Technology and Engineering Concepts to Address the Next Generation Science Standards (Gen)

(Middle Level–High School) *Salon C, Marriott Rivercenter*

Kevin Mason, University of Wisconsin–Stout, Menomonie

Join us for an overview of the technology and engineering components of the Next Generation Science Standards and clear examples of integrated STEM projects to address them.

SESSION 28

First Steps in Meeting the Needs of Emotionally Impaired Students (Gen)

(Middle Level–High School/Supv.) *Salon J, Marriott Rivercenter*

Carol L. Jones *(caroljones8710@yahoo.com),* Lawrence Technological University, Southfield, Mich.

Debra Stephan *(dstephans@misd.net)* and **DeeAnn Schluessler** *(dschluessler@misd.net),* Rockwell Middle School, Warren, Mich.

Diane Krzyaniak *(momkrzy@mi.rr.com),* Marshall Upper Elementary School, Westland, Mich.

Presider: Anthony Sky *(asky@ltu.edu),* Lawrence Technological University, Southfield, Mich.

Too often special education teachers are trained only in addressing students' disabilities and not in teaching science content. Come hear how this problem was addressed.

SESSION 29 (two presentations)

(High School) *Alamo Salon B, Marriott Riverwalk*

Assessing Scientific Explanations in High School Chemistry (Chem)

Thomas W. Shiland *(tshi@nycap.rr.com),* Saratoga Springs High School, Saratoga Springs, N.Y.

This presentation describes my classroom experience with having my grade 11 chemistry students write scientific explanations that are aligned with *A Framework for K–12 Science Education.*

Differentiation in High School Chemistry (Chem)

Sarah Eales *(sarah_eales@gwinnett.k12.ga.us),* Peachtree Ridge High School, Suwanee, Ga.

Differentiation can be difficult to accomplish within a single classroom. Hear how a collaborative team of chemistry teachers developed sliding classrooms to reach every student.

9:30–10:30 AM Workshops

Make Your Own Virtual Fieldwork Experience (VFE)! (Earth)

(Informal Education) *001A, Convention Center*

Don Duggan-Haas *(dad55@cornell.edu),* **Robert M. Ross** *(rmr16@cornell.edu),* and **Richard A. Kissel** *(rak256@cornell.edu),* Museum of the Earth, Paleontological Research Institution, Ithaca, N.Y.

Bring your laptop with digital photos of an interesting site you want your students to explore. Using an electronic template, you'll create your own VFE.

"Astro"nishing Astronomy: The Electromagnetic Spectrum (Earth)

(Middle Level–High School) *001B, Convention Center*

Pamela Whiffen *(pwpwr@aol.com),* NASA Educator Ambassador, Phoenix, Ariz.

Facilitated by a NASA Educator Ambassador and teacher, explore the hidden universe with a new set of eyes. Take home a NASA CD-ROM and posters.

What's Up? Classroom Activities from the Association of Astronomy Educators, Session II: Beyond the Solar System (Earth)

(General) *101B, Convention Center*

Jacob Noel-Storr *(jake@cis.rit.edu),* Rochester Institute of Technology, Rochester, N.Y.

Wendy M. Van Norden *(wendy.m.vannorden@nasa.gov),* NASA Goddard Space Flight Center, Greenbelt, Md.

Led by master astronomy teachers from the Association of Astronomy Educators (AAE), join us for classroom-ready hands-on astronomy activities that really work.

Science Fair: "Hey, What's the Big Idea?" (Gen)

(Elementary) *103B, Convention Center*

Judy L. Redd *(jlredd@garlandisd.net)* and **Karen M. Bellinger** *(kmbellin@garlandisd.net),* Garland (Tex.) ISD

Encounter techniques for generating fun individualized science project ideas as well as grade-specific formats for conveying the science fair process—from problem to conclusion.

MORE Science on the Cheap (Gen)

(Preschool–Elementary) *202A, Convention Center*

Steven C. Smith *(mrsmith@purdue.edu),* Purdue University, West Lafayette, Ind.

Amy J. Smith *(smitha@frankfort.k12.in.us),* Blue Ridge Primary School, Frankfort, Ind.

Kristen Poindexter *(kpoindexter@msdwt.k12.in.us),* Spring Mill Elementary School, Indianapolis, Ind.

Budget cuts gotcha down? In this hands-on workshop, we will demonstrate cheap and easy science activities that you can take back to school on Monday!

CESI Session: We've Got the Whole World in Our Hands (Gen)
(Elementary) 212A, Convention Center
Michael Vu *(mv12@bcm.edu),* Baylor College of Medicine, Houston, Tex.
Explore the connection between human activities and the changing global climate by using hands-on activities, web-based presentations, and resource materials that emphasize an integrated approach.

ASTC Session: The Art of Energizing STEM (Gen)
(Elementary–Middle Level/Informal) 213A, Convention Center
Lucinda Presley *(lucinda.presley@gmail.com),* ICEE Success Foundation, Palestine, Tex.
Dara Williams-Rossi *(drossi@smu.edu),* Southern Methodist University, Dallas, Tex.
Presider: Lucinda Presley
Hands-on experiences integrate the arts and the highly anticipated Next Generation Science Standards using partnerships between higher education, school districts, state networks, and informal partners to energize STEM.

Protecting Against the Sun's Ultraviolet Light (Gen)
(Elementary–Middle Level) 215, Convention Center
Catherine Connolly and **David Crowther,** University of Nevada, Reno
Focus on the Sun's energy through an inquiry STEM lesson involving ultraviolet light and its biological effects.

Teaching Tornado Technology Through the Trauma (Gen)
(Elementary–Middle Level) 217A, Convention Center
Susan Elizabeth Thomas *(twothom@bellsouth.net),* Kingwood Christian School, Alabaster, Ala.
This workshop addresses weather technology available to educators and provides a variety of teaching strategies and activities to use in the classroom.

Food Chains: Using Field Surveys That Give Real Numbers (Bio)
(Middle Level) Bonham C, Grand Hyatt
Frederick E. Maier *(fmaier@itasca.com),* Village of Itasca, Ill.
Roy F. Tison *(globes@comcast.net),* Wheaton (Ill.) Park District
Discover three hands-on survey techniques that allow students to calculate actual numbers of plants, herbivores, and carnivores in creating a food chain.

ASTE Session: Teacher Academy in the Natural Sciences (TANS) Professional Development Program: Effective Content and Performance Assessment Instruction for Your Science Classroom (Gen)
(Middle Level–High School) Bonham E, Grand Hyatt
Renee M. Clary *(rclary@geosci.msstate.edu),* Mississippi State University, Mississippi State, Miss.
Deborah Tucker *(deborahlt@aol.com),* Science Education Consultant, Napa, Calif.
Are you looking for authentic measures of student learning? TANS provides instruction in performance assessment in addition to science content! Join us for a demonstration.

After-School Science PLUS (Gen)
(Informal Education) Lone Star Ballroom C, Grand Hyatt
Maryann Stimmer *(mstimmer@fhi360.org),* Educational Equity Center at FHI 360, New York, N.Y.
Strategies for reaching groups traditionally underrepresented in science through fun, equity-based, hands-on/minds-on science activities are demonstrated using After-School Science PLUS, an informal science curriculum.

The Little Things That Run the World: Soil Ecology in the Classroom (Env)
(Middle Level–High School/Informal) Presidio B, Grand Hyatt
David L. Brock *(brockda@rpcs.org),* Roland Park Country School, Baltimore, Md.
Come discover the realm of the amoeba! Learn how to engage your students in field studies exploring the ecology of the microscopic world.

GUESS What? This Experiment Is "Sick"! (Gen)
(General) Travis A/B, Grand Hyatt
Carrie Leopold *(carrie.leopold@ndscs.edu)* and **Lee Larson** *(lee.a.larson@ndscs.edu),* North Dakota State College of Science, Fargo
Find out why girls participating in GUESS programs (Girls Understanding and Exploring STEM Stuff) are calling their experiments "sick" and why that's a good thing!

Promoting Disciplinary Literacy in the Science Classroom: Active Reading of Science Text with Digital Supports (Gen)
(Middle Level) Travis C/D, Grand Hyatt
Megan Goss, Jacqueline Barber, Suzanna J. Loper, Jonathan Curley, and **Carissa Romano,** The Lawrence Hall of Science, University of California, Berkeley
Discover how a collaborative "active reading" approach—combined with digital supports—can give your science students powerful tools to engage deeply with science text.

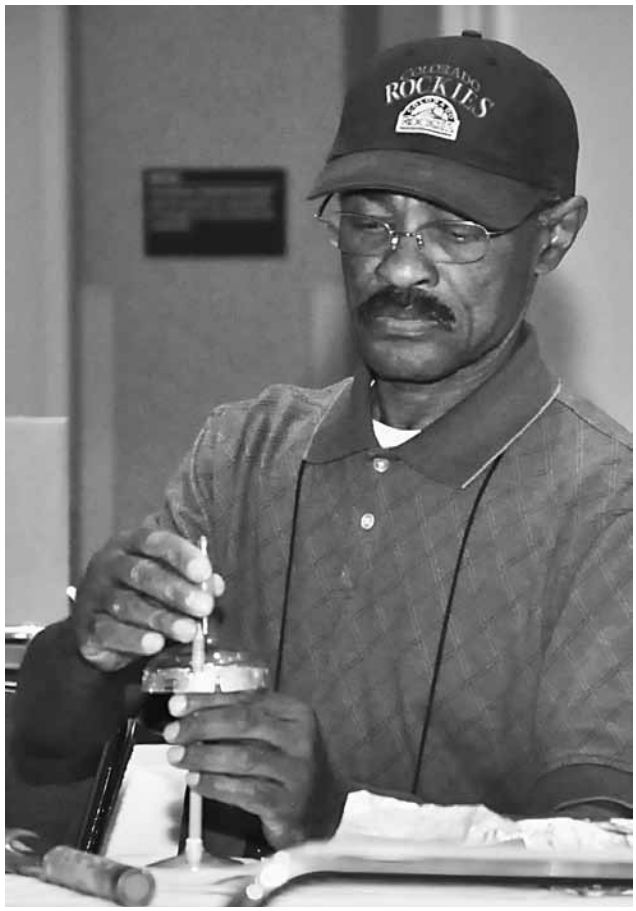
PDI **WestEd Pathway Session: Understanding the Conceptual Flow (Gen)**
(General) *Conference Room 12, Marriott Rivercenter*
Jo Topps *(jtopps@wested.org),* WestEd, Santa Ana, Calif.
In this workshop, you will learn a collaborative process to identify the flow of conceptual understanding in instructional materials and how to augment flows that are less than robust for student understanding.

Using LEGO® Robotics to Introduce Technology to Primary Students (Gen)
(General) *Salon B, Marriott Rivercenter*
Nancy J. Magnani *(nmagnani@eastconn.org),* EASTCONN, Hampton, Conn.
Engage your primary students by using LEGO bricks in the classroom. By incorporating the WeDo™ program, technology can be integrated into a cross-curricular study.

Literacy in High School Science? How We Made It Work (Phys)
(Middle Level–High School) *Salon D, Marriott Rivercenter*
Shannon Mittleman, Decatur (Ill.) Public Schools
Kevin Aten, MacArthur High School, Decatur, Ill.
After being challenged by our district to incorporate reading and writing into every content area, our high school embarked on a teacher-led literacy initiative. Come find out how we incorporated literacy into our inquiry-driven classrooms.

PDI **McREL Pathway Session: Using a Formative Assessment Process to Provide Effective Feedback (Gen)**
(General) *Salon K, Marriott Rivercenter*
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, which 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!

STEM in My Chemistry Classroom (Chem)
(High School) *Alamo Salon A, Marriott Riverwalk*
Jacklyn Bonneau *(bonneau@wpi.edu),* Massachusetts Academy of Math & Science at WPI, Worcester
It's easy to put STEM into my physics classroom, but can I put in chemistry? Join me and find out!



Engaging ELLs in a High School Project-based Science Unit (Bio)
(High School) *Alamo Salon C, Marriott Riverwalk*
Kristen N. Talbot *(ktalbot2@illinois.edu)* and **Barbara Hug** *(bhug@illinois.edu),* University of Illinois at Urbana-Champaign
Katie Hutchison *(khutchison@usd116.org),* Urbana High School, Urbana, Ill.
Encounter strategies and techniques to support English language learners in a high school project-based science unit that focuses on developing content knowledge and language proficiency.

Best Practices: Modeling Scientific Phenomena in AP and General Biology (Bio)
(High School) *Alamo Salon D, Marriott Riverwalk*
Kristen R. Dotti *(kristen_dotti@yahoo.com),* Christ School, Arden, N.C.
Make science an active experience with props, narration, and moving simulations. Add modeling to your bag of tricks to gain scientific understanding using AP-level content.

9:30–10:30 AM Exhibitor Workshop

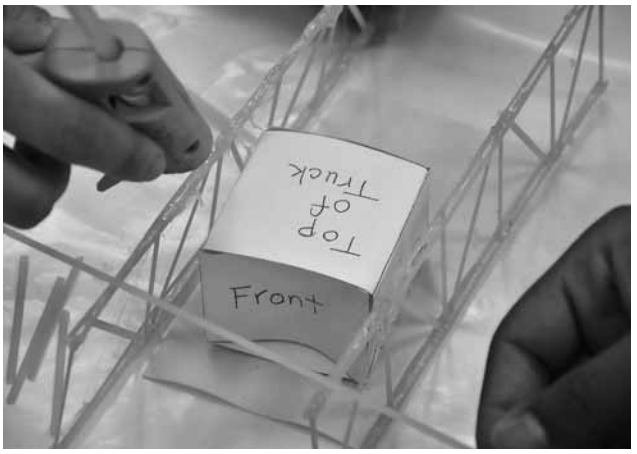
Merging the Three Dimensions of the Next Generation Science Standards (Gen)

(Grades 6–8) *205, Convention Center*

Sponsor: It's About Time

Cary I. Sneider, Portland State University, Portland, Ore.

One way the highly anticipated Next Generation Science Standards differ from previous documents is by merging core ideas in science with practices and crosscutting concepts. This workshop will illustrate how *Project-Based Inquiry Science: PBIS*™ combines all three dimensions as students design, build, and test "whirligigs" and other aerodynamic structures.



9:30–11:00 AM Exhibitor Workshops

Inquiry and Scientific Practices: Keys to Getting Students to Think (Gen)

(Grades K–12) *006A, Convention Center*

Sponsor: Pearson

Michael Padilla, 2005–2006 NSTA President, and Clemson University, Clemson, S.C.

Inquiry and scientific practices continue to be a central element of science teaching. With the emergence of the Next Generation Science Standards, it is even more critical that teachers develop an understanding of inquiry, evidence, and scientific practices. This workshop details how the new standards will focus on inquiry and practices and will outline teaching strategies you can use to develop these important ideas.

From Science to Engineering (Gen)

(Grades K–12) *006B, 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.

Enhancing the Elementary Classroom Through Robotics (Gen)

(Grades 2–5) *007A, Convention Center*

Sponsor: LEGO Education

Jessica Pope, LEGO Education, Pittsburg, Kans.

Learn how your students can explore science and math concepts with LEGO Education WeDo Robotics by building moving models out of LEGO® bricks and programming the models using a graphical programming platform developed specifically for elementary students. Attendees will discover key science, math, engineering, and literacy concepts by completing an actual classroom activity from the LEGO Education WeDo Robotics Set and Activity Pack.

Hurricanes and Earthquakes (Earth)

(Grades 5–12) *007B, Convention Center*

Sponsor: Simulation Curriculum Corp.

Herb Koller *(hkoller@simcur.com),* Simulation Curriculum Corp., Minnetonka, Minn.

What are hurricanes and how are they formed? Why are earthquakes common in certain parts of the world? We will use *The Layered Earth* on the big screen to learn about these amazing natural phenomena and examine special lessons on Hurricane Sandy and the Honshu earthquake.

"Whale Done" in the Classroom (Gen)

(General) *007C, Convention Center*

Sponsor: SeaWorld Parks and Entertainment

Steve Aibel and **Chuck Cureau,** SeaWorld San Antonio, Tex.

What do your students have in common with a five-ton killer whale? Probably more than you think! Join us and learn the techniques SeaWorld Animal Trainers use that can supercharge your effectiveness in the classroom.

Getting the Most Out of Molecular-Level Visualization and Simulation Tools (Chem)
(Grades 9–College) *007D, Convention Center*
Sponsor: Wavefunction, Inc.
Paul Price *(sales@wavefun.com),* Trinity Valley School, Fort Worth, Tex.
Making connections between macroscopic and molecular phenomena is at the core of learning chemistry. Bring your laptop (Windows or Mac OS X) to this hands-on workshop and learn how to investigate at the molecular level with the powerful recent releases of *Odyssey High School Chemistry* and *Odyssey AP Chemistry.*

Share My Lesson: Free K–12 Resources Developed by Teachers for Teachers (Gen)
(Grades K–12) *008B, Convention Center*
Sponsor: American Federation of Teachers
Heidi Glidden *(hglidden@aft.org),* American Federation of Teachers, Washington, D.C.
Share My Lesson *(www.sharemylesson.com)* is a place where educators can come together to create and share their very best teaching resources. Developed by teachers for teachers, this free platform gives access to more than 250,000 high-quality teaching resources and provides an online community in which teachers can collaborate with, encourage, and inspire each other.

Integrate! A Better Way to Teach and Learn (Gen)
(Grades K–5) *102A, Convention Center*
Sponsor: Amplify
Traci Wierman *(twierman@berkeley.edu)* and **Rebecca Abbott** *(reabbott@berkeley.edu),* The Lawrence Hall of Science, University of California, Berkeley
Explore pedagogical approaches to integration focusing on the synergies between science and literacy from the Seeds of Science/Roots of Reading® program. Developed at The Lawrence Hall of Science, this program is designed to reflect the practices of real scientists and meet the needs of all students.

Bring the Excitement of Hands-On Learning to Your Middle School Classroom! (Phys)
(Grades 5–9) *102B, Convention Center*
Sponsor: K'NEX Education
Presenter to be announced
Build and investigate simple machine models, take measurements, and gather data to determine work input, work output, mechanical advantage, gear ratios, effort forces, resistance forces, and more. The exercises and explorations illustrate engineering and scientifically rich content through the use of models. Applying understandings of these models to real-world examples of machines leads to a better understanding of design and systems of machines in practical use. Standards-aligned STEM concepts will be emphasized. Drawing for a K'NEX® Education Exploring Machines Set!

New Advanced Inquiry Labs for AP Biology from Flinn Scientific (Bio)
(Grades 10–12) *103A, Convention Center*
Sponsor: Flinn Scientific, Inc.
Maureen Hunt *(mhunt@flinnsci.com)* and **Jennifer Sternberg** *(jsternberg@flinnsci.com),* 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.

Investigating Stem Cell Differentiation (Bio)
(Grades 9–12) *203A, Convention Center*
Sponsor: LAB-AIDS, Inc.
Mark Koker, LAB-AIDS, Inc., Ronkonkoma, N.Y.
The human body is made of more than 200 types of cells, yet they all arise from a single fertilized egg cell. In this hands-on high school biology activity from *Science and Global Issues: Biology* program, you will experience how your students could investigate the development of specialized stems cells and consider bioethical issues in stem cell research.

Build It! Increase Student Engagement with the Anatomy in Clay® Learning System (Bio)
(Grades 6–College) *204A, Convention Center*
Sponsor: Anatomy in Clay Learning System
Teri Fleming, Houston, Tex.
Join us for a hands-on workshop to promote project-based learning and success in your classroom. Join an award-winning educator and pick up tips to help your students truly understand how their bodies work. This curriculum can allow students to explore many different aspects of the human body.

Connecting to Chemistry: Igniting Student Motivation with STEM Examples and Ideas (Chem)
(Grades 9–12) *204B, Convention Center*
Sponsor: Houghton Mifflin Harcourt
Michael DiSpezio, Science Writer and Educational Consultant, North Falmouth, Mass.
Join Michael DiSpezio as he presents an entertaining and enlightening minds-on/hands-on overview of inspiring examples that you can use to integrate STEM into your current chemistry curriculum. Learn new ways to teach gas laws based upon air bags, the bends, and the building of the Brooklyn Bridge! Construct an understanding of contemporary electrochemistry as you build a simple fuel cell car. Extract DNA from ordinary wheat germ using a simple and easy-to-repeat method. Learn about these and other engaging STEM examples that can hook your students on the STEM/Chem connection!

Autopsy: Forensic Dissection Featuring Carolina's Perfect Solution® Pigs (Bio)
(Grades 9–12) *206A, Convention Center*
Sponsor: Carolina Biological Supply
Carolina Teaching Partner
Are you ready for a cutting-edge forensic dissection activity? Engage students and revitalize your instruction of mammalian structure and function with a "real" classroom autopsy! Participants dissect a Carolina's Perfect Solution pig by modeling the protocols of a forensic pathologist. Free materials and door prizes!

An Invitation: Moving Forward with the Next Generation Science Standards (Gen)
(Grades K–8) *206B, Convention Center*
Sponsor: Carolina Biological Supply
Carolina Teaching Partner
From crosscutting concepts to scientific and engineering practices, take away strategies and approaches that will bring the Next Generation Science Standards to life in your district.

Introduction to Wisconsin Fast Plants® (Bio)
(Grades K–12) *207B, Convention Center*
Sponsor: Carolina Biological Supply
Carolina Teaching Partner
Experience the versatility of using Wisconsin Fast Plants. These small, quick-growing plants are ideal classroom tools for all learning levels to explore topics such as plant growth and development, environmental effects, genetic variation, evolution, life cycle, and nutrient cycling. Door prizes!

Common Practices That Get to the CORE of Great Instruction Using Discovery Education Science Techbook (Gen)
(Grades K–12) *209, Convention Center*
Sponsor: Discovery Education
Brad Fountain, Discovery Education, Silver Spring, Md.
Join us as we provide concrete examples and activities that meet the Common Core State Standards through science instruction. We will explore how the resources available in the Discovery Education Science Techbook are easily utilized to enhance science instruction and address literacy skills through science journals and digital media.

Iron Teacher—Next Generation Science Standards Edition (Bio)
(Grades 7–12) *211, Convention Center*
Sponsor: Ward's Science
Tim Montondo, Ward's Science, Rochester, N.Y.
Address scientific and engineering practices of planning and carrying out investigations with inquiry-based activities. Using a variety of Ward's specimens and supplies, you'll compete against your peers to complete this challenge while also learning how to repeat this hands-on activity with your students. Prizes for the winning team!

Solving the Case of the Missing Archive Using DNA Fingerprinting (Bio)
(Grades 8–College) *212B, Convention Center*
Sponsor: Edvotek Inc.
Danielle Snowflack *(info@edvotek.com),* **Jack Chirikjian** *(info@edvotek.com),* and **Khuyen Mai** *(info@edvotek.com),* Edvotek Inc., Washington, D.C.
Are you ready to perform a cutting-edge classroom forensic experiment? Participants will complete a DNA fingerprinting exercise to determine who stole priceless documents from the Historical Society. We will identify the thief by comparing a DNA sample collected by forensic scientists at the crime scene to DNA from different suspects. Your students can solve a crime! Participants receive a free flash drive and enter for a T-shirt drawing at the end of the workshop.

9:45–10:45 AM Global Conversations in Science Education Conference Concurrent Sessions

By Preregistration Only

Concurrent Session #1: Professional Development

Crockett A, Grand Hyatt

Presider: Gary Holliday, Illinois Institute of Technology, Chicago

These presentations will focus on projects/programs involving the professional development of elementary and secondary teachers.

Peer Coaching for New Science Curriculum Implementation

Hiya Almazroa, Princess Nora bint Abdulrahman University, Riyadh, Saudi Arabia

The Need for Training and Retraining of Teachers in Order to Implement the Nigerian Senior School Physics Curriculum

Esther O. Omosewo, University of Ilorin, Nigeria

Involving Girls in Physics Through Action Research

Vincent Kizza, Gayaza High School, Kampala, Uganda

Concurrent Session #2: STEM

Crockett B, Grand Hyatt

Presider: Selina L. Bartels, Illinois Institute of Technology, Chicago

These presentations will cover curricula and instruction focusing on one or more areas of Science, Technology, Engineering, and Mathematics (STEM).

Council for Elementary Science International—How Does STEM Fit into the Equation?

Barbara Z. Tharp, CESI President, Baylor College of Medicine, Houston, Tex.

Julie Thomas, Oklahoma State University, Stillwater

Science, Technology, and Entrepreneurship in Elementary School

Louise A.M. Hockman, Älvkarleby kommun, Skutskär, Sweden

Jaana Kiiskinen, Gävle Kommun, Gävle, Sweden

Situations of and Approaches for Science and STEM Education in Japan

Yasushi Ogura, Saitama University, Saitama City, Saitama, Japan

Concurrent Session #3: Language and Literacy

Texas Ballroom A/B, Grand Hyatt

Presider: Dionysius Knanakkan, Illinois Institute of Technology, Chicago

These presentations will focus on the integration of language and/or literacy into science instruction or curricula.

Diagnostic Assessment: A Development Strategy for Students' Understanding of Science Concepts

Bernadette Ezeliora and **Margaret N. Anugwo,** Ebonyi State University, Ebonyi, Nigeria

Developing Data Literacy Through Improving Our Students' Graphing and Graph Interpretation Practices

Anthony W. Bartley, Lakehead University, Thunder Bay, Ont., Canada

G. Michael Bowen, Mount Saint Vincent University, Halifax, N.S., Canada

Identifying Language Objectives of Science Lessons Through the "Analysis Framework for Language Functions"

Tanja Tajmel, Humboldt-Universität zu Berlin, Germany

10:00–10:10 AM Exhibits Opening/Ribbon-Cutting Ceremony

Exhibit Hall B, Convention Center

Presider: Karen L. Ostlund, NSTA President, and Retired Professor, The University of Texas at Austin

Welcoming Remarks: Vanessa Westbrook, Chairperson, NSTA San Antonio National Conference, and Consultant, Westbrook Consulting, Austin, Tex.

Special Guests: Karen L. Ostlund; Vanessa Westbrook; Patricia Simmons, NSTA Retiring President, and North Carolina State University, Raleigh; Bill Badders, NSTA President-Elect, and Cleveland Metropolitan School District, Cleveland Heights, Ohio; Juliana Texley, NSTA President-Elect-Elect, Palm Beach State College, Boca Raton, Fla.; Sharon Kamas, President, Science Teachers Association of Texas, Austin; Martha Griffin, NSTA Director, District XIII, Program Committee, NSTA San Antonio National Conference, and Pasadena ISD, Sugar Land, Tex.; David L. Evans, NSTA Executive Director, Arlington, Va.; Susana Ramirez, Program Coordinator, NSTA San Antonio National Conference, and Pharr-San Juan-Alamo ISD, Pharr, Tex.; Mary Poarch, Local Arrangements Coordinator, NSTA San Antonio National Conference, and North East ISD, San Antonio, Tex.; Rick Smith, NSTA Managing Director, Advertising, Exhibits, and Workshops, Arlington, Va.

Musical Entertainment provided by Antonian College Preparatory High School Jazz Band under the direction of Joe Rodriguez.

10:00–10:30 AM Presentation

SESSION 1

Biotechnology from Bench to Bedside (Bio)

(High School) *Alamo Salon F, Marriott Riverwalk*

Julie R. Bokor *(julie@cpet.ufl.edu)* and **Houda Darwiche** *(houdad@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 our young patient with Pompe disease.

10:00–11:00 AM Presentation

SESSION 1

The World of Google in Science (Gen)

(General) *207A, Convention Center*

Ben Smith *(ben@edtechinnovators.com)* and **Jared Mader** *(jared@edtechinnovators.com),* York, Pa.

Just when you thought you knew everything about Google! Come learn the hidden gems that are found using Google to improve science education.

10:00–11:15 AM Exhibitor Workshops

Solving the Mystery of STEM Using Forensic Science (Bio)

(Grades 7–12) *214A, Convention Center*

Sponsor: Frey Scientific/School Specialty Science

Lou Loftin, Consultant, Reno, Nev.

Conduct a number of STEM-focused forensic activities that link the scientific method with analysis and investigative skills to solve multifaceted "cases" involving fingerprint, trace, DNA, and document evidence. See how the program software allows the integration of virtual labs, investigative activities, the preparation of web-based content, and individualized assessment.

DSM and STEM: Challenges for the Elementary Student (Gen)

(Grades K–3) *214B, Convention Center*

Sponsor: Delta Education/School Specialty Science

Johanna Strange, Consultant, Richmond, Ky.

Tom Graika, Consultant, Lemont, Ill.

Activities from the Delta Science Modules (DSM) program provide ample opportunity for younger students to engage in STEM-based challenges. Discover a process that fosters the STEM initiative and receive a workshop packet and related Delta materials.

10:00–11:30 AM Exhibitor Workshops

Next Generation Science Standards: Advancing the Vision of the NRC *Framework* with Probeware (Gen)
(Grades K–12) *006C, Convention Center*
Sponsor: PASCO scientific
Presenter to be announced
Experience how to effectively meet NGSS performance expectations by using PASCO's probeware solution, SPARKscience. Using PASCO technology, you'll engage in activities that integrate Scientific and Engineering Practices, Disciplinary Core Ideas, and Crosscutting Concepts. Leave the workshop with an instructional model that has practical applications for your science classroom.

Chemistry: Achievable Inquiry with SPARKvue® HD (Chem)
(Grades 9–12) *006D, Convention Center*
Sponsor: PASCO scientific
Presenter to be announced
Experience PASCO's sensor-based science app, SPARKvue® HD for the iPad. Explore standards-based, guided inquiry digital labs as a platform to teach your students key chemistry concepts. Using the MultiMeasure Chemistry Sensors and the intuitive SPARKvue HD software, data collection and analysis in your chemistry class has never been easier or more meaningful.

HHMI's Free Classroom Resources for Teaching Evolution **(Bio)**

(Grades 7–College) *008A, Convention Center*

Sponsor: Howard Hughes Medical Institute

Mary Page Colvard, Deposit, N.Y.

Discover classroom-ready lessons, hands-on activities, animations, a virtual lab, short films, and video clips to help you teach key concepts in evolution, such as natural selection, phylogenetic trees, drug resistance, and biodiversity. These free, engaging multimedia resources bring science to life with inquiry-based investigations, including data collection, analysis, and computation.

Chemistry with Vernier **(Chem)**

(Grades 9–College) *210A, Convention Center*

Sponsor: Vernier Software & Technology

Jack Randall *(info@vernier.com),* Vernier Software & Technology, Beaverton, Ore.

Rick Rutland, Five Star Education Solutions, LLC, San Antonio, Tex.

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 2 and LabQuest Mini. See our Mini GC Plus gas chromatograph and SpectroVis Plus spectrophotometer in action!

Using iPad and Vernier Technology to Enhance Inquiry-based Learning **(Gen)**

(Grades 3–College) *210B, Convention Center*

Sponsor: Vernier Software & Technology

Matt Anthes-Washburn *(info@vernier.com)* and **Robyn Johnson** *(info@vernier.com),* Vernier Software & Technology, Beaverton, Ore.

Research shows that using data collection technology builds deeper student understanding of critical concepts in science and increases test scores. Come see how sensors and probeware support iPad in science inquiry. In iPad classrooms, lab groups can use Vernier Graphical Analysis™ for iPad to work individually or collaborate to analyze and annotate data.

Genetics: Crazy Traits and Adaptation Survivor **(Bio)**

(Grades 6–12) *214D, Convention Center*

Sponsor: CPO Science/School Specialty Science

Scott W. Eddleman and **Nathan Olsson,** CPO Science/School Specialty Science, Nashua, N.H.

Students learn new vocabulary when they experience genetics. Concepts like traits, alleles, phenotypes, genotypes, and heredity will come alive as you create crazy creatures with a unique kit and study the resulting population. Take away STEM activities and an understanding of how to incorporate science and engineering practices in lessons.

Engineer the Tools for Inquiry of Candy Food Dyes **(Bio)**

(Grades 9–College) *217C, Convention Center*

Sponsor: Bio-Rad Laboratories

Leigh Brown, Bio-Rad Laboratories, Hercules, Calif.

What's in your candy? In this hands-on workshop, extract colorful food dyes from candy…and separate and identify them using a STEM-integrated, do-it-yourself electrophoresis box. This inquiry-based activity is a great way to introduce pipetting, electrophoresis, and solution-making skills in addition to chemistry, physics, and engineering concepts.

10:05–10:30 AM Special Session

Meet the Presidents and Board/Council **(Gen)**

(General) *Hall B/Bridge Hall, Convention Center*

Be sure to stop by for this special session. Come "meet and greet" with your elected NSTA officers on your way to the exhibits. The President, President-Elect, and Retiring President along with your Board and Council members are looking forward to talking with you at the conference.

10:10 AM–6:00 PM Exhibits

Exhibit Hall B, Convention Center

The NSTA Exhibit Hall is a must-see! NSTA brings you the leading science education companies and organizations to showcase products, services, curricula, and much more. You'll discover something new and exciting in the world of science teaching. Some exhibitors will offer materials for sale.

10:30–11:30 AM Exhibitor Workshop

Asteroid! Will Earth Be Hit Again? Planetary Science for Middle School (Earth)

(Grades 5–8) *214C, Convention Center*

Sponsor: Delta Education/School Specialty Science–FOSS

Jessica Penchos, Larry Malone, and **Virginia Reid,** The Lawrence Hall of Science, University of California, Berkeley

Earth has been hit in the past, but what lies ahead? Using data from the Moon, we will calculate frequency of impacts and consider implications for Earth. We'll discuss how these questions guide students' scientific exploration and provide an overview of the new features, strategies, content, and materials in the revised FOSS Planetary Science Course.

10:30 AM–12 Noon Meeting

NSTA Professional Development in Science Education Committee Meeting

Conference Suite 514, Marriott Rivercenter

10:45–11:30 AM Global Conversations in Science Education Conference Poster Session

(General) *Texas Ballroom A/B, Grand Hyatt*

By Preregistration Only

Presider: Norman Lederman, Illinois Institute of Technology, Chicago

Join us for 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.

Alternative Learning Approaches
Anna Lindblom, Kvarnbäcksskolan, Jordbro, Sweden
Elisabeth Hagman, Breddalsvägen, Ösmo, Sweden

High School Particle Physics in CERN: A Finnish Project
Anna-Maija Polkki, Seppa High School, Jyväskylä, Finland
Leena Hyttinen, Hollola High School, Hollola, Finland

The GLOBE Center
Jack Fellows, The GLOBE Center, Boulder, Colo.
Teresa J. Kennedy, The GLOBE Center, University of Texas at Tyler
Linda Tasker, The GLOBE Center, United Kingdom

Critical Perspectives on Learning Science from the News Media
G. Michael Bowen and **Richard Zurawski,** Mount Saint Vincent University, Halifax N.S., Canada
Anthony W. Bartley, Lakehead University, Thunder Bay, Ont., Canada

Nature of Science: The Foundation of the Science Curriculum
Gerald A. Rau, National Chung Cheng University, Minxiong, Chiayi County, Taiwan

Instructional Choices in Preservice Teacher Education Courses: What Do "Reformed" Secondary Science Methods Courses Look Like?
Anthony W. Bartley and **Wayne Melville,** Lakehead University, Thunder Bay, Ont., Canada

Talent Development in STEM from the Early Childhood Years
Manabu Sumida, Ehime University, Matsuyama, Japan

Together We're Better
Judy Tucker Sweeney, Shanghai American School, Shanghai, China

11:00 AM–12 Noon Presentations

SESSION 1

CSSS Session: Crosscutting Concepts in the Next Generation Science Standards (Gen)

(General) *Mission A, Grand Hyatt*

Brett Moulding *(mouldingb@ogdensd.org),* PESTL, Ogden, Utah

Juan-Carlos Aguilar *(jaguilar@doe.k12.ga.us),* Georgia Dept. of Education, Atlanta

The performance expectations in the highly anticipated Next Generation Science Standards provide a clear and meaningful use of crosscutting concepts to develop meaning across all science disciplines. Understanding the progression of these concepts is an important tool for effective science instruction. Learn how to modify your science instruction to use the crosscutting concepts consistent with NGSS.

SESSION 2

NMEA Session: Real-Time and Near Real-Time Ocean Exploration in the Classroom (Gen)

(General) *Texas Ballroom E/F, Grand Hyatt*

Susan E. Haynes *(susan.haynes@noaa.gov),* NOAA Office of Ocean Exploration and Research, Barrington, R.I.

Delve into online resources from NOAA's Office of Ocean Exploration and Research that share real-time and near real-time ocean explorations in the classroom.

11:00 AM–12 Noon Workshops

NSTA Press® Session: *Next Time You See…* (Gen)

(Elementary) *Texas Ballroom D, Grand Hyatt*

Emily Morgan *(emily@pictureperfectscience.com),* Picture-Perfect Science, LLC, West Chester, Ohio

The author of NSTA's new *Next Time You See…* picture book series will demonstrate some before and after reading activities that can inspire a sense of wonder in your students!

AMSE Session: RAFTing Through the Standards (Gen)

(Elementary–Middle Level) *Salon C, Marriott Rivercenter*

Melissa Sleeper *(onewhosleeps3@aol.com),* Sebastian River Middle School, Sebastian, Fla.

RAFT stands for "Role, Audience, Format, and Task." RAFTs allow students to creatively demonstrate understanding of science content. These activities provide students with choices that appeal to their interests and learning profiles.

11:00 AM–12 Noon Exhibitor Workshop

Engineering in the Next Generation Science Standards (Gen)

(Grades 9–12) *205, Convention Center*

Sponsor: It's About Time

Cary I. Sneider, Portland State University, Portland, Ore.

The NGSS will break from previous documents by merging science and engineering. This workshop will illustrate how a new high school curriculum—*Engineering the Future: Science, Engineering, and the Design Process*—can help students learn core ideas about energy by designing, building, and testing various structures.

11:00 AM–12:30 PM General Session

D.R.E.M.E. Foundation Makes Science for All Learners a Reality

(General) *Grand Ballroom C 1/2, Convention Center*

Cheryl M. McNair *(cherylmmcnair1@gmail.com),* Founder and Chairperson, Dr. Ronald E. McNair Educational Science Literacy Foundation, Houston, Tex.

Presider and Introduction of Speaker: Karen L. Ostlund, NSTA President, and Retired Professor, The University of Texas at Austin

Platform Guests: Cheryl M. McNair; Karen L. Ostlund; Patricia Simmons, NSTA Retiring President, and North Carolina State University, Raleigh; Bill Badders, NSTA President-Elect, and Cleveland Metropolitan School District, Cleveland Heights, Ohio; Juliana Texley, NSTA President-Elect-Elect, Palm Beach State College, Boca Raton, Fla.; Sharon Kamas, President, Science Teachers Association of Texas, Austin; Martha Griffin, NSTA Director, District XIII, Program Committee, NSTA San Antonio National Conference, and Pasadena ISD, Sugar Land, Tex.; LeRoy Lee, NSTA Treasurer, and Wisconsin Science Network, DeForest; David L. Evans, NSTA Executive Director, Arlington, Va.; Vanessa Westbrook, Chairperson, NSTA San Antonio National Conference, and Westbrook Consulting, Austin, Tex.; Susana Ramirez, Program Coordinator, NSTA San Antonio National Conference, and Pharr-San Juan-Alamo ISD, Pharr, Tex.; Mary Poarch, Local Arrangements Coordinator, NSTA San Antonio National Conference, and North East ISD, San Antonio, Tex.

Join Cheryl McNair as she shares the vision and goals of the Dr. Ronald E. McNair Educational (D.R.E.M.E.) Science Literacy Foundation, honoring the life and legacy of the late Dr. Ronald E. McNair. Encouraging underserved minorities and female participation, in particular, in STEM is a key objective—through science activities, competitions, field experts, and exposure to STEM careers.

In 1995, Cheryl M. McNair founded the Dr. Ronald E. McNair Educational (D.R.E.M.E.) Science Literacy Foundation, named after her late husband, an astronaut-physicist who perished in the Challenger *explosion. Currently serving as the chairperson of the foundation's board, she has developed educational programs designed to strengthen and support teaching and learning of science, technology, engineering, and mathematics at all levels—elementary, middle school, high school, and college.*

11:00 AM–3:00 PM Networking Opportunity

NSTA Student Chapter Showcase and Lounge

Executive Assembly, Convention Center

A three-day showcase featuring 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.

11:30 AM–1:00 PM Exhibitor Workshops

Stem Cell Research: What's Really Happening and How Do We Teach It? (Bio)

(Grades 9–12) *006A, Convention Center*

Sponsor: Pearson

Kenneth R. Miller, Brown University, Providence, R.I.

The flurry of news reports on embryonic and adult stem cell research indicates a very exciting time for science—but a controversial time for educators. Although stem cells are not a traditional topic for high school biology, they provide a unique opportunity to illustrate some of the most basic principles in cellular and developmental biology. Classroom-ready ideas and updates on these developments will be presented.

Marine Science: A New STEM-integrated High School Course (Bio)

(Grades 9–12) *006B, Convention Center*

Sponsor: Pearson

Meghan E. Marrero, Mercy College, Dobbs Ferry, N.Y.
Glen Schuster, NASA Endeavor/U.S. Satellite Laboratory, Inc., Rye, N.Y.

Meet the authors to learn how this course meets a full year's science requirement and gets students to use tons of authentic scientific data. "Marine Science: The Dynamic Ocean" integrates life, Earth, and physical science and includes engineering. Discover course content with more than 1,000 interactive and digital assets—all in the context of the ocean—while tracking marine animals and addressing socio-scientific issues.

LEGO MINDSTORMS® Education EV_3: Robotics in the Middle School Classroom—Getting Started (Gen)

(Grades 6–8) *007A, Convention Center*

Sponsor: LEGO Education

Jessica Pope, LEGO Education, Pittsburg, Kans.

Robotics is a proven and effective way to capture students' attention and keep them engaged in hands-on science, technology, engineering, and math lessons. This session is for educators just getting started with new LEGO MINDSTORMS Education EV_3 or considering how to incorporate MINDSTORMS into the classroom. Learn firsthand how LEGO MINDSTORMS Education EV_3 can get your students excited as 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.

Student Collaboration in the Science Classroom (Gen)

(Grades 6–9) *007B, Convention Center*

Sponsor: eCYBERMISSION

Sue Whitsett *(swhitsett@nsta.org),* eCYBERMISSION Outreach Coordinator, NSTA, Arlington, Va.

Students in grades 6–9 will either jump (literally) at the idea of working in a group or loathe the idea. Many teachers want their students to work in groups, but how can this be done efficiently and successfully? How can problems with group work be resolved? How can group work enhance the learning for ALL students and be a benefit to the teacher? This session will work to answer these questions and share how a new NSTA competition, eCYBERMISSION, sets up and uses groups to solve a scientific or engineering problem.

FDA Food Science Workshop for High School (Bio)

(Grades 9–12) *007C, Convention Center*

Sponsor: FDA Center for Food Safety and Applied Nutrition

Laurie A. Hayes *(lauriehayes@cart.org),* Center for Advanced Research and Technology, Clovis, Calif.

Susan E. Hartley *(susan.mumford.hartley@hotmail.com),* Hinkley High School, Aurora, Colo.

Come learn about FDA's free food safety curriculum and related materials you can use in your classroom. Engage in hands-on activities about food science and nutrition that you can take back to your students. Learn from experienced teachers who have worked extensively with FDA's Center for Food Safety and Applied Nutrition.

Using Molecular-Level Visualization to Engage Middle School and High School Science Students (Chem)

(Grades 6–College) *007D, Convention Center*

Sponsor: Wavefunction, Inc.

Paul Price *(sales@wavefun.com),* Trinity Valley School, Fort Worth, Tex.

Would you like to teach chemistry more effectively with the help of molecular models and 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 recent release of *Odyssey High School Chemistry.*

BIOZONE Showcases Its Biology Workbooks and Presentation Media (Bio)

(Grades 9–12) *008B, Convention Center*

Sponsor: BIOZONE International

Richard Allan *(richard@biozone.co.nz),* BIOZONE International, Hamilton, New Zealand, New Zealand

BIOZONE's critically acclaimed student workbooks for AP, IB, and general biology have cutting-edge content that can assist your students to achieve success. Clear learning objectives, concept-based design, and engaging graphics encourage critical thinking and active interaction between student and the information. Attendees receive free books.

Integrate! A Better Way to Teach and Learn (Gen)

(Grades K–5) *102A, Convention Center*

Sponsor: Amplify

Traci Wierman *(twierman@berkeley.edu)* and **Rebecca Abbott** *(reabbott@berkeley.edu),* The Lawrence Hall of Science, University of California, Berkeley

Explore pedagogical approaches to integration focusing on the synergies between science and literacy from the Seeds of Science/Roots of Reading® program. Developed at The Lawrence Hall of Science, this program is designed to reflect the practices of real scientists and meet the needs of all students.

Bring Simple Machine Concepts to Life with Real-World Models! (Phys)

(Grades 3–6) *102B, Convention Center*

Sponsor: K'NEX Education

Presenter to be announced

Explore that common expression "simple machines make work easier" and investigate hands-on strategies to help students understand simple machine technologies. Build and use K'NEX® simple machine models and discover that simple machines make work easier by multiplying force and distance as well as changing the direction of force. Standards-aligned STEM concepts related to simple machines will be emphasized. Drawing for a K'NEX Education Simple Machine Set!

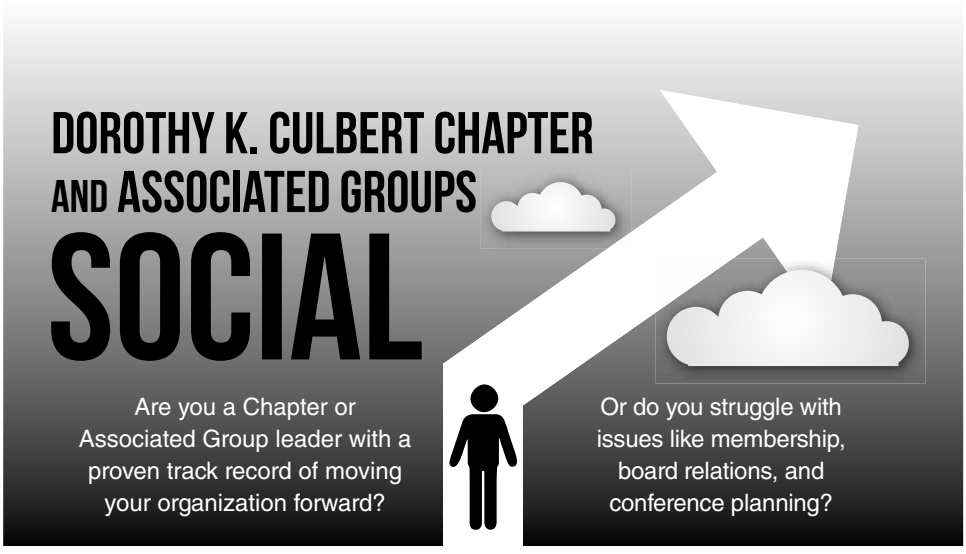
Best Practices for Teaching Chemistry Experiments and Demonstrations from Flinn (Chem)

(Grades 9–12) *103A, Convention Center*

Sponsor: Flinn Scientific, Inc.

Joan Berry *(jberry@flinnsci.com),* Flinn Scientific, Inc., Batavia, Ill.

Join us as we present exciting and interactive demonstrations, show video clips, and demonstrate the features and benefits of our comprehensive Teaching Chemistry professional development program. Imagine the opportunity to learn best practices from 20 award-winning master teachers as they carry out their favorite experiments, demonstrations, and chemistry lab activities.



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.

Refreshments provided.

Thursday, April 11
2:00–3:00 PM
Grand Hyatt San Antonio
Lone Star Ballroom A

NSTA National Science Teachers Association

Gene Expression and Cellular Differentiation (Bio)
(Grades 9–12) *203A, Convention Center*
Sponsor: LAB-AIDS, Inc.
Mark Koker, LAB-AIDS, Inc., Ronkonkoma, N.Y.
Students often have trouble conceptualizing how selective gene expression works. In this hands-on workshop from SEPUP's *Science and Global Issues: Biology* program, you will learn to teach this concept and explain how it connects to genetic engineering. The activities focus on ways to integrate selective gene expression as a relevant and engaging sustainability issue.

Fun, Fabulous Foldables® (Gen)
(Grades K–8) *204A, Convention Center*
Sponsor: McGraw-Hill Education
Dinah Zike, Dinah-Might Adventures, LP, San Antonio, Tex.
Experience how these 3-D graphic organizers can transform your science lesson into an engaging, interactive learning experience. These interactive tools offer endless possibilities for collecting data, building understanding, and assessing student comprehension.

That's Amazing! Explore the Bizarre, Cool, and Exciting World of Project-based Biology (Bio)
(General) *204B, Convention Center*
Sponsor: Houghton Mifflin Harcourt
Mike Heithaus, Florida International University, North Miami
Drawing on 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! Leave with one of the projects to do with your students.

Hands-On Activities to Explore Environmental Change (Env)
(Grades 9–12) *206A, Convention Center*
Sponsor: Carolina Biological Supply
Carolina Teaching Partner
Simulate how human influence affects habitat degradation in a terrestrial ecosystem. Model how global warming and ocean acidification affect marine habitats and investigate the advantages and disadvantages of four different population sampling methods. Come see how these real-world scenarios can challenge and engage students. Door prizes!

Integrating Common Core Writing, Speaking, and Listening Strategies into Science Instruction (Gen)
(Grades K–5) *206B, Convention Center*
Sponsor: Carolina Biological Supply
Carolina Teaching Partner
Explore ways to provide students with Common Core writing, speaking, and listening strategies through inquiry-based instruction. These skills lead to better understanding in writing, speaking, and reading science.

Exploring Gene Function in *C. elegans* Mutations and RNA Interference (Bio)
(Grades 9–College) *207B, Convention Center*
Sponsor: Carolina Biological Supply
Carolina Teaching Partner
Want to introduce your students to a unique model organism? Join us and discover the exciting things you can do with the roundworm *C. elegans.* Learn how to grow the worms, explore mutant phenotypes, and easily turn off specific genes with RNA interference.

Spelunking for STEM Resources: Free Tools from Discovery Education (Gen)
(Grades K–12) *209, Convention Center*
Sponsor: Discovery Education
Kyle Schutt, Discovery Education, Silver Spring, Md.
When was the last time you paused before logging into Discovery Education (DE)? If you have, you've probably noticed that the homepage itself is a gateway to a slew of free content, contests, and tools for parents, students, and educators. Join us as we browse through some of the most sought-after gems. From online professional development resources to Web 2.0 tools, there's sure to be something here for you (and your colleagues)!

Ward's Forensics: Crosscutting Concepts of Crime Scene Investigation (Gen)
(Grades 8–12) *211, Convention Center*
Sponsor: Ward's Science
Tim Montondo, Ward's Science, Rochester, N.Y.
Discover how forensics addresses the highly anticipated Next Generation Science Standards with a hands-on activity involving blood spatter and fingerprint evidence. Learn how to lead your students through inquiry-based crime solving while addressing math and technology in the context of using math and computational thinking.

Detection of Mad Cow Disease Using a Two-Step PCR Process **(Bio)**

(Grades 9–College) *212B, Convention Center*

Sponsor: Edvotek Inc.

Danielle Snowflack *(info@edvotek.com),* **Jack Chirikjian** *(info@edvotek.com),* and **Khuyen Mai** *(info@edvotek.com),* Edvotek Inc., Washington, D.C.

Bovine Spongiform Encephalopathy (aka Mad Cow disease) is a fatal neurological condition characterized by the sponge-like appearance of degenerated brain tissue. To prevent domestic cattle infection, the FDA prohibits the use of cow parts in cattle feed. Participants will use the PCR and agarose gel electrophoresis to identify bovine-specific DNA present in cattle feed. This quick and easy experiment can be completed in one lab session using Edvotek's user-friendly EdvoCycler™! Participants receive a free flash drive and enter for a T-shirt drawing at the end of the workshop.

12 Noon–12:45 PM Global Conversations in Science Education Conference Plenary Session

Do Standards in Science Education Matter? (Gen)

(General) *Texas Ballroom A/B, Grand Hyatt*

By Preregistration Only

Jonathan Osborne *(osbornej@stanford.edu),* The Shriram Family Professorship of Science Education, Stanford University, Stanford, Calif.

Standards for the teaching of science have been an increasingly dominant feature in determining school science, in particular the highly anticipated Next Generation Science Standards. In addition, both national (NAEP) and international frameworks for assessment (PISA and TIMSS) increasingly specify what school science should achieve. In this presentation, Jonathan will explore whether these documents share a common vision of what science should be taught and if there is any evidence that they lead to better student or economic performance.

Jonathan Osborne's research interests are in the role of argumentation in science and improving the teaching of literacy in science. He currently holds The Shriram Family Professorship of Science Education endowed chair at Stanford University. He is also chair of the expert group responsible for producing the framework for 2015 science assessments for the OECD Programme for International Student Assessment (PISA) and a member of the expert group for designing the accompanying questionnaires.

Prior to his Stanford professorship, Jonathan was chair of Science Education at King's College London and head of the Department of Education and Professional Studies from 2005 to 2008. In 2002, he was an advisor to the House of Commons Science and Technology Committee for their report on science education. In 2006–2007, he served as president of the National Association for Research in Science Teaching.

Jonathan holds a PhD in science education from King's College London.

12 Noon–1:00 PM Exhibitor Workshop

NASA's Kepler Mission and the Hunt for Exoplanets: Planetary Science for Middle School (Earth)

(Grades 5–8) *214C, Convention Center*

Sponsor: Delta Education/School Specialty Science–FOSS

Jessica Penchos, Larry Malone, and **Virginia Reid,** The Lawrence Hall of Science, University of California, Berkeley

Recent headlines have announced exciting findings of exoplanets. Learn about the NASA Kepler Mission and how to use classroom models to help your students understand this rapidly developing field of planetary science. Find out about the new features, strategies, content, and materials of the revised FOSS Planetary Science Course.

12 Noon–1:15 PM Exhibitor Workshop

What's the "Big Idea" in AP Biology? (Bio)

(Grades 9–12) *214A, Convention Center*

Sponsor: Frey Scientific/School Specialty Science

Doug Welles, Frey Scientific/School Specialty Science, Nashua, N.H.

Explore a series of innovative, hands-on, inquiry-based lab kits designed to cover the revised AP Biology laboratory framework. Participants will be exposed to various laboratory experiences and inquiry ideas to assist students through a new set of standards for AP Biology.

12 Noon–1:30 PM Exhibitor Workshops

Equip Your iPad for Science with SPARKvue® HD, a Full-featured Science Application for the iPad Featuring Sally Ride Science Key Concepts in Physical Science (Chem)

(Grades 6–8) *006C, Convention Center*

Sponsor: PASCO scientific

Presenter to be announced

Explore PASCO's new science application for the iPad. SPARKvue HD offers a full suite of display and analytical tools, all within an integrated learning environment—including reflection prompts, journaling, and more. The app will also support the growing collection of SPARKlabs, integrating rich content with live data collection and analysis.

Investigating Motion: Understanding and Interpreting Graphs (Phys)

(Grades 6–12) *006D, Convention Center*

Sponsor: PASCO scientific

Presenter to be announced

Gain a deeper understanding of motion by graphing and interpreting real-time data. Explore the differences between speed and velocity in this hands-on, probeware-based workshop featuring PASCO carts and the new PAStrack. Your hands-on experience includes using a PASCO standards-based SPARKlab to improve student understanding of motion.

How to Build Phylogenetic Trees from DNA Sequences (Bio)

(Grades 9–College) *008A, Convention Center*

Sponsor: Howard Hughes Medical Institute

David Knuffke, Deer Park High School, Deer Park, N.Y.

Laura Helft, Howard Hughes Medical Institute, Chevy Chase, Md.

Today, scientists build phylogenetic trees using computational methods to analyze the vast amounts of DNA sequence data available. Learn how you can bring these cutting-edge tools and methods to the classroom using HHMI's free classroom resources. These resources can help you introduce students to basic bioinformatics concepts, explore sequence alignment and tree-building tools, and guide the interpretation of alignments and phylogenetic trees. Take home free DVDs and other resources.

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Provides a forum for ideas and resources middle and high school teachers need to support science, technology, engineering, and math disciplines.

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Each issue highlights selected topics in science education, new NSTA Press books, sample chapters and lessons.

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NSTA Scientific Principals
Offers elementary school principals new ideas, and practical applications for science curricula.

Encouraging Young Scientists
Provides resources and ideas for making science fun and relevant for young children in the classroom.

Science Class
With separate editions for elementary, middle, and high school teachers, this newsletter provides theme-based content along with pertinent resource.

*Delivered weekly. All others are sent monthly.

NSTA National Science Teachers Association

Biology with Vernier **(Bio)**

(Grades 9–College) *210A, Convention Center*

Sponsor: Vernier Software & Technology

Mike Collins *(info@vernier.com),* Vernier Software & Technology, Beaverton, Ore.

Rick Rutland, Five Star Education Solutions, LLC, San Antonio, Tex.

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 2 and LabQuest Mini. Our *Investigating Biology through Inquiry* lab book will also be on display.

Inquiry-based Chemistry with Vernier **(Chem)**

(Grades 9–College) *210B, Convention Center*

Sponsor: Vernier Software & Technology

Elaine Nam *(info@vernier.com)* and **Robyn Johnson** *(info@vernier.com),* Vernier Software & Technology, Beaverton, Ore.

Do you need to add inquiry labs to your chemistry course? Vernier has done the work for you with our lab book *Investigating Chemistry through Inquiry.* In this hands-on workshop, you will learn how to conduct a chemistry inquiry investigation using sensors with our LabQuest 2.

A STEM Approach to Teaching Electricity and Magnetism **(Phys)**

(Grades 6–12) *214D, Convention Center*

Sponsor: CPO Science/School Specialty Science

Scott W. Eddleman and **Erik Benton,** CPO Science/School Specialty Science, Nashua, N.H.

Explore how electricity and magnetism are related through hands-on experiences. Apply your knowledge to engineering a wind turbine…and build, test, and revise your model so that it generates as much power as possible. Take away STEM activities and an understanding of how to apply the engineering cycle in science classes.

12:30–1:30 PM Mary C. McCurdy Lecture

Beyond the Three Rs: Inspiring Curious Minds **(Gen)**

(Elementary) *Grand Ballroom C3, Convention Center*

Yvonne M. Spicer *(yspicer@mos.org),* Vice President for Advocacy and Educational Partnerships, National Center for Technological Literacy, Museum of Science, Boston, Mass.

Presider: Patsy Magee, Strand Leader, NSTA San Antonio National Conference, and Beaumont (Tex.) ISD

The preparation and the focus of elementary education has traditionally been on reading, writing, and arithmetic—better known as the three Rs. This presentation will address the need and the strategies to expand this paradigm in education to include science literacy. The primary grades are an ideal time to build on a child's natural curiosity about the world he or she experiences daily. By engaging students in authentic scientific study, teachers can create excitement and interest about the world in which they live and inspire the next generation of learners.

Yvonne Spicer is a national and international speaker and advocate for precollege STEM education.

In her role at the Museum of Science, she advocates for the museum's K–12 curricula—Engineering is Elementary®, Building Math, and Engineering the Future®, and she directs the Gateway Project, which originated in Massachusetts and is being replicated across the U.S. as a model to build leadership capacity for technological literacy.

With expertise in technology and engineering education standards development, assessment, and strategic school leadership, Yvonne served on the technology and engineering steering committee for the frontrunner of the first national assessment for technology and engineering in the 2014 National Assessment of Educational Progress (NAEP). She is also an advisor to the National Governors Association and served on the technology and engineering design team for the NRC Framework. In January 2010, she was appointed to the Massachusetts Governor's STEM Advisory Council as cochair of the council's teacher development committee.

A Brooklyn, New York, native, Yvonne earned her Education PhD at the University of Massachusetts Boston in 2004, focusing her dissertation on how nine African-American female public school principals transformed their schools and thrived as educational leaders.

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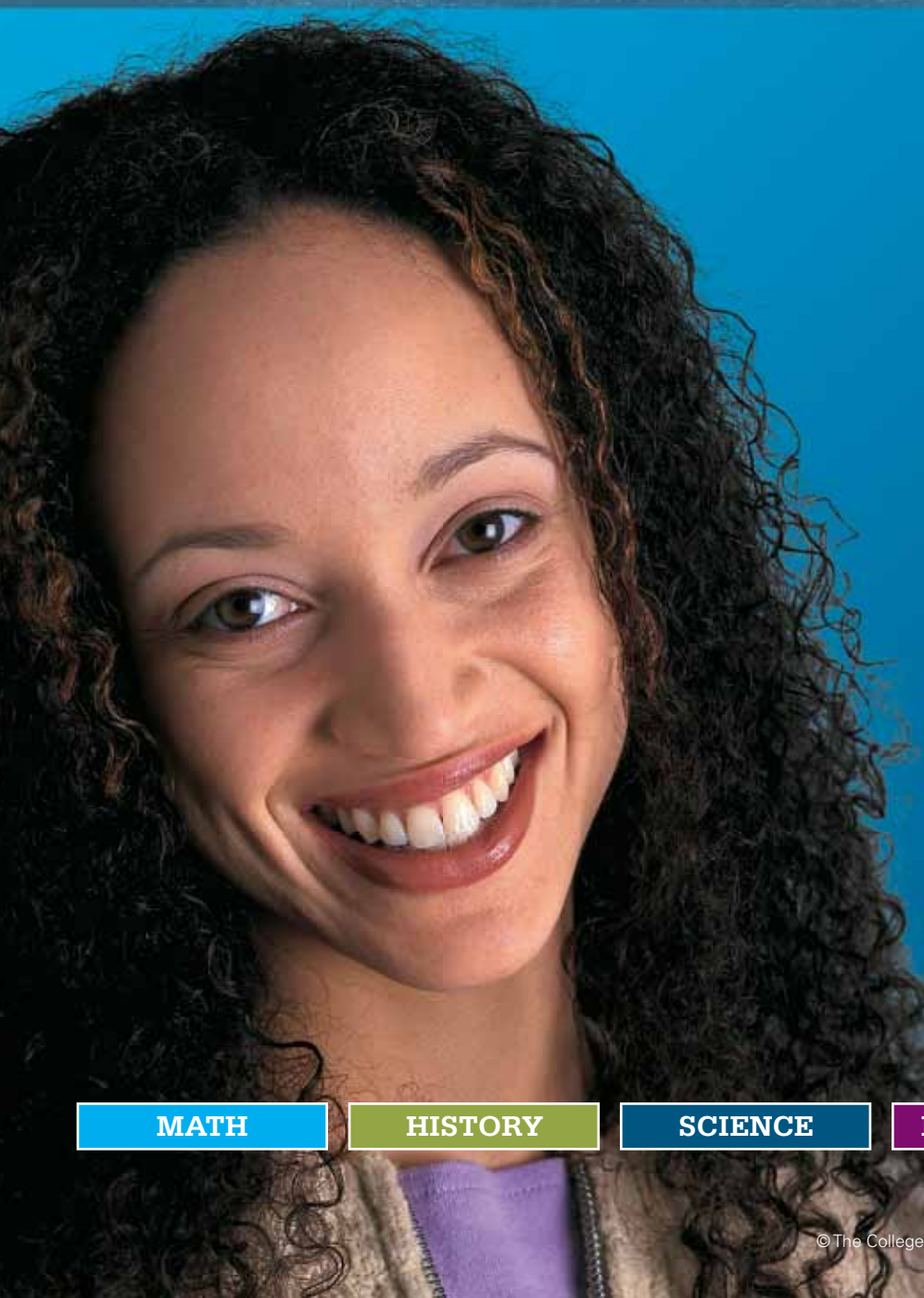

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12:30–1:30 PM Presentations

SESSION 1

Citizen Science—From Space to Deep Earth (Earth)
(Middle Level) *003A, Convention Center*
Louise McMinn *(lmcminn@ci.stamford.ct.us),* Stamford (Conn.) Public Schools
Brian Butera *(bbutera@ci.stamford.ct.us),* Turn of River Middle School, Stamford, Conn.
Have students use technology and authentic data from NASA and the International Ocean Drilling Project (IODP) to improve solar system, climate, and STEM best practices.

SESSION 2

See Yourself as a Scientist! (Earth)
(General) *101A, Convention Center*
Nicole Gugliucci *(ngugliu@siue.edu),* Southern Illinois University, Edwardsville
Use NASA planetary data to teach STEM standards. Activities bring real satellite data into your classroom so you and your students can engage in authentic science research!

SESSION 3 (two presentations)
(General) *201, Convention Center*

Strategies and Tools to Facilitate Science Instruction for ELLs and SIFE Students (Bio)
Athena Theodoris, International High School at Lafayette, Brooklyn, N.Y.
Emphasis will be placed on strategies and tools for designing daily science instruction, specifically labs and projects that are well scaffolded to provide the appropriate support for teaching science content yet simultaneously promoting English language development for English language learners and SIFE students (Students with Interrupted Formal Education).

Severe Science: Using Science Instruction for Students with Severe Disabilities (Gen)
Jonté (JT) Taylor *(jct215@psu.edu),* The Pennsylvania State University, University Park
Jenna Carlson, Greenwich High School, Greenwich, Conn.
Join us as we focus on how teachers can use science instruction for students who have severe disabilities. We'll share some descriptive examples of application.

SESSION 4

✓ **How Do You Explain the Explanation? Incorporating Claim Evidence Reasoning (CER) into Your Classroom (Gen)**
(Middle Level–High School) *202B, Convention Center*
Tracy Schloemer *(tracy.schloemer@gmail.com),* Denver School of Science and Technology, Denver, Colo.
Stephen Traphagen *(stephen@mrtraphagen.com),* Rolling Meadows High School, Rolling Meadows, Ill.
Kirstin J. Milks *(kmilks@mccsc.edu),* Bloomington High School South, Bloomington, Ind.
We'll help you train students to draw conclusions from scientific evidence using a formative assessment framework to organize their thinking.

SESSION 5 (two presentations)
(Preschool–Elementary) *213B, Convention Center*

Soaking Up New Ways to Integrate Science and Literacy (Gen)
Bela D. Luis and **Richard P. Hechter** *(hechter@cc.umanitoba.ca),* University of Manitoba, Winnipeg, Canada
Classroom flow is sure to take place when you realize how easy it is to integrate literacy into your science lessons.

"Catch Me If You Can!" Says the Gingerbread Bear: Kindergartners "Run, Run, Run" to Collect Evidence While Writing the "Recipe" for Science Talks (Gen)
Alicia M. McDyre *(amcdyre@gmail.com),* The Pennsylvania State University, University Park
Shari Ann Dillon *(sad13@scasd.org),* Gray's Woods Elementary School, Port Matilda, Pa.
Laying the groundwork for science talks, kindergarten teachers will share samples of student notebooks and video clips from their Gingerbread Bear investigations.

SESSION 6

Everybody Loves the A.L.A.M.O. (Amazing Labs All Must Observe)! (Gen)
(Elementary–Middle Level) *215, Convention Center*
Sharon R. Anibal, Saul Mirowitz Jewish Community School, St. Louis, Mo.
Are you feeling surrounded by the same old boring labs? Break free and take the lead with these proven and easy inquiry-based lessons.

SESSION 7

Using Museums to Facilitate Partnerships Between Schools and Communities as a Way to Foster Elementary-aged Science Learning (Gen)

(Preschool–Middle Level) *216B, Convention Center*

Ilana April *(iapril@amnh.org)* and **Jane Kloecker** *(jkloecker@amnh.org),* American Museum of Natural History, New York, N.Y.

Presider: Jane Kloecker

Join us and learn how to create and foster a sustainable museum/school partnership to enhance classroom science experiences for young children.

SESSION 8

iPad Photography for the Science Classroom (Gen)

(General) *Bonham B, Grand Hyatt*

Martin Horejsi *(martin.horejsi@umontana.edu),* The University of Montana, Missoula

iPad cameras are powerful tools in the science classroom. Learn about iPad photography, including specific uses, apps, hardware, clouds, documents, printing, accessories, and especially creativity!

SESSION 9

Assessing Inquiry-based Labs in AP Environmental Science (Env)

(High School) *Bonham D, Grand Hyatt*

Mark Ewoldsen *(mewoldsen@gmail.com),* La Canada High School, La Canada, Calif.

Walk away with numerous examples of inquiry-based labs used in AP Environmental Science along with effective strategies for assessing students' depth of conceptual understanding. Gain insight into effectively using socio-scientific issues to help uncover students' beliefs about the nature of scientific practice.

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- You can also evaluate sessions on your smartphone via the new NSTA Conference app.

ward's science

NSTA National Science Teachers Association

SESSION 10

NARST Session: Thrive with the Next Generation: Keys to Unlocking Student Success (Gen)

(General) *Bowie B, Grand Hyatt*

Jeff C. Marshall *(marsha9@clemson.edu),* Clemson University, Clemson, S.C.

Replace confusion and fear with knowledge and intentionality. Transform your teaching and maximize student learning by realigning your instruction with the Next Generation Science Standards.

SESSION 11 (three presentations)

(High School–College) *Bowie C, Grand Hyatt*

SCST Session: Characteristics of Students Retaking Introductory College Biology Courses at Angelo State University (Bio)

Amanda P. Smiley *(amandapattersonsmiley@gmail.com)* and **Connie Phillips Russell** *(crussell@angelo.edu),* Angelo State University, San Angelo, Tex.

Receive an overview of a study presenting a comparison of the behaviors and characteristics of students who retake introductory college biology courses essential for success in STEM majors.

SCST Session: Quantifying Cellular Structures from Microscopic Images Using Image Analysis Software (Bio)

Sandhya N. Baviskar *(sandhya.baviskar@uafs.edu),* University of Arkansas–Fort Smith

ImageJ is an image analysis software available at NIH. Discover how to process and analyze microscopic images using ImageJ and implement the lab activity into your classroom.

SCST Session: Transformative Life Sciences Instruction: Integrating Biology and Chemistry in Introductory Courses (Bio)

Donald P. French *(dfrench@okstate.edu),* **Julie M. Angle** *(julie.angle@okstate.edu),* and **Anna Hiatt** *(anna.hiatt@okstate.edu),* Oklahoma State University, Stillwater

In our attempts to develop a program to integrate biology and chemistry into introductory courses, we have identified the concepts and challenges students face when taking these courses.

SESSION 12

Sixteen Years of Bringing Informal Science Educators Together in Texas (Gen)

(Informal Education) *Lone Star Ballroom C, Grand Hyatt*

Amy Moreland *(amoreland@austin.utexas.edu),* The University of Texas at Austin

Janice Sturrock, Austin Nature and Science Center, Austin, Tex.

Cappy Smith *(cappy.smith@tpwd.state.tx.us),* Texas Parks and Wildlife, Austin

Our session presents the history of the unique Informal Science Education Association of Texas, which supports a professional community of Texas informal science educators.

SESSION 13

Differentiating K–6 Science Instruction to Enable All Students to Inquire, Explore, Participate, and Achieve Success (Gen)

(General) *Lone Star Ballroom D, Grand Hyatt*

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

Join me for an overview of the components of differentiation in the K–6 science classroom and encounter ways to differentiate effectively to maximize student participation and learning. Handouts!

SESSION 14

CSSS Session: Literacy Strategies That WORK…in the NGSS Classroom (Gen)

(Middle Level–High School) *Mission A, Grand Hyatt*

Gail G. Hall *(gail.hall@state.vt.us),* Vermont Dept. of Education, Montpelier

How can we help *all* students deeply understand and apply Next Generation Science Standards (NGSS) concepts? Let's integrate literacy principles to support and enhance science instruction. Join the discussion!

SESSION 15

NSTA Teacher and Principal Awards and Recognition (Gen)

(General) *Mission B, Grand Hyatt*

Peggy Carlisle *(peggy.carlisle1@gmail.com),* NSTA Director, Preschool/Elementary, and Pecan Park Elementary School, Jackson, Miss.

NSTA recognizes exemplary teachers and principals with cash prizes of up to $10,000, trips, science materials, and more. Learn how to apply.

SESSION 16

Sixty Labs You Can Do with Little or No Budget (Chem)

(High School–College) *Seguin A, Grand Hyatt*

Ted Koehn *(tedkoehn66@yahoo.com),* Metropolitan Community College, Omaha, Neb.

I will share at least 30 chemistry labs and 30 physics labs that you can do with a small budget.

SESSION 17

Developing E-portfolios for Core Concept Building for Nonscience Majors and Nonanalytic Learners (Gen)

(General) *Seguin B, Grand Hyatt*

Roberta L. Hayes *(hayesr@stjohns.edu),* St John's University, Staten Island, N.Y.

E-portfolios were introduced into core scientific inquiry courses for presentations to improve student understanding of key concepts and the scientific method, and to decrease conceptual misunderstandings.

SESSION 18

Using Rubrics to Align Resources to the Next Generation Science Standards (Gen)

(General) *Texas Ballroom C, Grand Hyatt*

Ted Willard *(twillard@nsta.org),* Program Director, COMPASS, NSTA, Arlington, Va.

When the Next Generation Science Standards (NGSS) are completed in early 2013, educators everywhere will begin searching for curriculum materials and other resources that are aligned to the new standards. NSTA has been working with NGSS writers, lead states, science organizations, and science educators across the country to develop a rubric for evaluating materials to determine if and how they address the letter and spirit of NGSS. In this session, I will share this rubric with participants and provide examples of how it can be used to support the implementation of NGSS.

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If you want the TEKS in their minds, put FOSS Texas in their hands

Visit us at Booth #213

Join FOSS developers to get a sneak preview of the upcoming FOSS edition designed just for Texas educators and students. Each FOSS investigation is designed to provide multiple exposures to TEKS using seamlessly integrated strategies that center on active investigation and include notebooks, formative assessment, and digital technology.

THURSDAY, April 11, 2013
3:30pm–5:00pm
Workshop Room: 214C

FRIDAY, April 12, 2013
1:00pm–2:30pm
Workshop Room: 214B

Get hands-on with FOSS Texas and speak to a FOSS Representative!

School Specialty Science

SESSION 19

NSTA Press® Session: Uncovering K–12 Students' (and Teachers') Ideas on the Earth and Space Sciences (Earth)

(General) *Texas Ballroom D, Grand Hyatt*

Page Keeley *(pagekeeley@gmail.com),* 2008–2009 NSTA President, Jefferson, Maine

Let's examine and discuss a variety of formative assessment techniques to uncover common misconceptions and learning difficulties related to core ideas and scientific practices in the K–12 Earth and space sciences.

SESSION 20

PDI **ITEEA Pathway Session: STEM Building for the Middle School (Gen)**

(Middle Level) *Conference Room 3/4, Marriott Rivercenter*

Barry N. Burke *(bburke@iteea.org),* ITEEA, Gaithersburg, Md.

Joey Rider-Bertrand *(joey_bertrand@iu13.org),* Lancaster-Lebanon IU13, Lancaster, Pa.

Using nine defining features to sustain STEM in grades 6–8, participants will analyze their current school or district's status to determine an implementable action plan for an integrative approach to STEM—that includes technology and engineering!

SESSION 21

AMSE Session: Infusing Design Projects into the Early Elementary Classroom (Gen)

(Elementary) *Conference Room 6, Marriott Rivercenter*

Robert L. Ferguson *(r.l.ferguson1@csuohio.edu),* Cleveland State University, Cleveland, Ohio

Come experience different ways to infuse design projects (engineering-like tasks) in the elementary classroom. This presentation provides activities, handouts, and assessment ideas.

SESSION 22

Inspiring Girls with Physics—From Empirical Research to Applications in the Classroom (Phys)

(General) *Conference Room 11, Marriott Rivercenter*

Kevin Grobman *(grobmank@sjabr.org),* St. Joseph's Academy, Baton Rouge, La.

Emphasis will be placed on developmental psychology and education research on gender and science as well as applications for teaching physics with history, learning styles, and problem topics designed to engage girls. Leave with problem sets, demonstrations, and lecture material to enhance classes.

SESSION 23

Positively Gay! (Gen)

(General) *Conference Room 15, Marriott Rivercenter*

Jo Williams *(joeyw@flash.net),* Gay, Lesbian, Bisexual, and Transgender Science Teachers Association, Round Rock, Tex.

Join me as I present scientific research on the topic of sexual orientation, which creates an opportunity for discussion in biology and science classrooms.

SESSION 24

Building Energy Monitoring: Using Real Data to Link Science, Math, and Solutions (Gen)

(General) *Salon B, Marriott Rivercenter*

Laurel L. Kohl *(kohll@easternct.edu),* Eastern Connecticut State University, Willimantic

Many schools are using energy dashboards and building data. You can integrate these into K–12 lessons, including how weather affects energy use and creating student-driven conservation challenges.

SESSION 25

PDI **Outdoor Science Pathway Session: How Does Your Garden Grow? (Gen)**

(Elementary) *Salon F, Marriott Rivercenter*

Juliana Texley *(jtexley@att.net),* NSTA President-Elect-Elect, and Palm Beach State College, Boca Raton, Fla.

A school garden isn't just a way to teach science; it links the entire faculty and the community. Come for tips, tricks, and sample activities.

SESSION 26 (two presentations)
(Middle Level–High School) *Salon J, Marriott Rivercenter*

Edible Labs **(Gen)**
Lee Ann Richardson *(richardsonl@rcschools.net)* and **John D. Vaden** *(vadenj@rcschools.net),* Riverdale High School, Murfreesboro, Tenn.
Edible labs allow teachers an innovative means of presenting science concepts such as DNA and freezing point depression to a diverse group using food.

Inquiry-based Analysis of a Small Local River Drainage Basin **(Gen)**
Joshua Roberts *(joshua.roberts@dpsnc.net),* **Samuel Fuerst** *(samuel.fuerst@dpsnc.net),* and **James Hamm** *(james.hamm@dpsnc.net),* Northern High School, Durham, N.C.
Mika Hunter *(mika.hunter@dpsnc.net)* and **Emma Refvem** *(emma.refvem@dpsnc.net),* Riverside High School, Durham, N.C.
Teachers from two high schools in Durham, North Carolina, pair with a group of struggling students to look at the geology and water chemistry of a local river from its headwaters to mouth.

SESSION 27

Enlightening Portable Demos **(Chem)**
(Informal Education) *Alamo Salon B, Marriott Riverwalk*
Bette A. Bridges *(babridges@comcast.net)* and **Harvey Gendreau** *(hgendreau@labsafety.org),* Laboratory Safety Institute, Natick, Mass.
Learn easy and quick one-concept demos using household materials. These demos are cheap, fast to set up or take down, and are safely and easily transported.

SESSION 28

Effective Access to Advanced Placement Curricula: Challenges and Strategies **(Bio)**
(General) *Alamo Salon E, Marriott Riverwalk*
Ulpiano Frederick Pontillas *(upontillas@boston.k12.ma.us),* John D. O'Bryant School of Mathematics and Science, Boston, Mass.
Join me for a discussion centering on the challenges and strategies to promote student success in an advanced placement biology class in an urban high school.

Come Get Online Access and Answers to NGSS

NGSS@NSTA
STEM STARTS HERE

Where can I access the Next Generation Science Standards online? What does a performance expectation look like? These questions and more will be answered at NSTA's first-ever face-to-face tutorials on NGSS.

NGSS writers and other experts will give 20-minute tutorials on NGSS at the top of each hour and then answer questions and lead informal discussions. You'll get a chance to access and view the standards online, become oriented to and familiar with the NGSS architecture, and have an opportunity to discuss NGSS in an informal environment.

Come for 20 minutes or the entire hour. No need to register, just drop in to these FREE events hosted by NSTA.

NGSS Classroom

Tutorials Given at the Top of the Hour

Between 9:00 AM and 5:00 PM Thursday, Friday, Saturday

Located next to Exhibitor Registration, Street Level of Convention Center. Look for signs.

NEXT GENERATION SCIENCE STANDARDS
National Science Teachers Association NSTA

SESSION 29

Dynamic DNA: A $50,000 Lesson Plan (Bio)

(Middle Level–High School) Alamo Salon F, Marriott Riverwalk

Deborah B. Wasylik *(deborah.wasylik@ocps.net),* Dr. Phillips High School, Orlando, Fla.

Colleen J. Wasylik, Independence High School, Charlotte, N.C.

Teach the structure/function of DNA to Exceptional Students Education (ESE) students using everything from funoodles to socks with these award-winning ideas. Bring laughter and a downloadable flash drive!

SESSION 30

Teaching Chemistry with Mining (Chem)

(Middle Level–High School) Travis, Marriott Riverwalk

Kenneth R. Owens, St. Mark's School of Texas, Dallas

Mining history, industry, and geology have been useful in teaching chemistry at the high school level. Slides, samples, and labs will be demonstrated.

12:30–1:30 PM Workshops

NASA's WISE (Wide-Field Infrared Survey Explorer) Mission Presents: Size and Scale of the Universe (Earth)

(Middle Level–High School) 001A, Convention Center

Kyle W. Fricke, University of California, Berkeley

Explore standards-based hands-on activities that can help your students grasp the immense size and scale of the different realms of the universe.

Teaching and Assessing Scientific Inquiry, Practices, and Nature of Science (Gen)

(General) 001B, Convention Center

Norman G. Lederman *(ledermann@iit.edu),* **Judith S. Lederman** *(ledermanj@iit.edu),* and **Selina L. Bartels** *(sbartels@hawk.iit.edu),* Illinois Institute of Technology, Chicago

Experience classroom-tested activities and assessments that can be used to teach and assess scientific inquiry, practices, and nature of science. FREE materials!

Rock and Roll Through Earth Science as You Connect Science and Mathematics in Your Classroom (Earth)

(Elementary–Middle Level) 002, Convention Center

Reeda Hart *(hartr@nku.edu)* and **Thomas B. Brackman** *(brackmant1@nku.edu),* Northern Kentucky University, Highland Heights

Experience qualitative and quantitative observations coming together as you use inquiry to identify four different rocks in this active workshop. Free CD of lesson plans.

Use Seismic Data from a Recent Earthquake to Discover and Measure the Size of Earth's Layered Interior (Earth)

(Middle Level–College) 101B, Convention Center

Michael Gallagher *(mike.gallagher@oakland.k12.mi.us),* Oakland Schools, Waterford, Mich.

Michael Hubenthal *(hubenth@iris.edu),* IRIS, Washington, D.C.

Students construct a simple theoretical model of Earth's interior, compare this to seismic data (free online) from recent newsworthy earthquakes, and discover its layered interior!

An Engineering Strategy for Young Children: Invention (Gen)

(Preschool–Elementary) 103B, Convention Center

Carol Ann Brennan *(carolb@hawaii.edu)* and **Brooke R. Davis** *(bdavis@hawaii.edu),* University of Hawaii, Honolulu

Use invention in inquiry-based STEM activities to help young students develop their understanding of engineering and to practice the role of engineers in science.

Putting a New "Spin" on Moon Phases (Earth)

(Elementary) 202A, Convention Center

Marsha Bednarski *(bednarskim@ccsu.edu),* Central Connecticut State University, New Britain

Use the tried-and-true "ball on a stick" to teach moon phases with a new spin! The concept of motion will be stressed using observations, inferences, and websites to discover the why of moon phases. The names of the phases are discovered after a series of activities focusing on the concepts of position and motion are understood.

- Teacher workshops & curriculum
- Hands-on clean energy exploration kits
- Student wind turbine design competitions

Booth #1826

EXPLORE

KIDWIND WORKSHOPS

Friday, April 12

8:00am–9:00am	Hands-on Hydropower
9:30am–11:30am	Wind Energized Classroom
12:30pm–2:00pm	WindWise Science Curriculum
2:30pm–3:30pm	Renewable Power, Vernier & KidWind Gear
4:00pm–5:30pm	Exploring Circuits by Hacking Toys

Saturday, April 13

8:00am–9:30am	Wind Energy for K–4
10:00am–11:30am	Solar Energy: Hands-on!
12:00pm–2:00pm	Wind Energized Classroom
2:30pm–4:00pm	WindWise Science Curriculum
4:30pm–5:30pm	Renewable Power, Vernier & KidWind Gear

Join KidWind as we explore solar power, wind energy science curriculum, Vernier data collection equipment, circuits, hydropower, and more! Our workshops will give you great ideas and activities to bring back to your classroom.

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Slimy Integration: It's Elementary! (Bio)
(Elementary–Middle Level) 208, Convention Center
Tracey K. Graham *(indianspringsl8@yahoo.com),* Westgate Elementary School, Columbus, Ohio
Learn how to use slime in the classroom across the curriculum as a way to teach concepts and increase student achievement and engagement.

CESI Session: Working with Electricity, Magnetism, and the Multimeter (Phys)
(Elementary–High School) 212A, Convention Center
James A. Roberts *(roberts@unt.edu),* University of North Texas, Denton
Oersted's discovery of current in a wire producing "action at a distance" will be explored to see how a motor, generator, TV, and internet developed. We'll make a simple DC motor.

ASTC Session: Formalizing Informal Science Education (ISE) (Gen)
(Preschool–Middle Level/Informal) 213A, Convention Center
Jamie Alonzo *(jalonzo@maritimeaquarium.org),* The Maritime Aquarium at Norwalk, Conn.
ISE/school partnerships are ubiquitous, though vary widely. Through presentation and roundtable discussions, we'll explore a "whole school partnership" model proven to close the achievement gap!

Microrobotic Racers for Elementary Engineers (Phys)
(Elementary) 216A, Convention Center
Mark W. Barnett *(mark.barnett@esc20.net),* Education Service Center, Region 20, San Antonio, Tex.
Presider: Joules Webb, SASTEMIC, San Antonio, Tex
Design, build, and race your own microrobotic racers using the engineering design process while learning about energy and simple circuits.

Nanotechnology—Nanodream or Nanonightmare? (Gen)
(Elementary–Middle Level) 217A, Convention Center
Susan E. Disch, ETHOS, Inc., Elkhart, Ind.
Nanotechnology holds great promise, but with that can come great concern. Engage students in classroom practice and dialogue to focus on personal and societal impact.

Wonderful World of Colors! (Gen)
(Preschool–Elementary) 217D, Convention Center
Eva M. Ogens, Ramapo College of New Jersey, Mahwah
Come learn how to connect children's books with science activities by making watercolors and creating chromatography flowers. *Note:* Hands-on activities available to the first 25–30 participants.

Using Simulations to Engage Students in Inquiry on Tough Concepts (Chem)
(Middle Level) Bonham C, Grand Hyatt
Laurie Briseno *(uteach.outreach@austin.utexas.edu)* and **Candy Ellard,** The University of Texas at Austin
Lauryn Atwood, New Braunfels High School, New Braunfels, Tex.
PhET stands for the Physics Education Technology project. Engage in an inquiry lesson that has a PhET simulation and discuss the effectiveness of inquiry-based teaching with simulations in the classroom. Take home lesson plans.

ASTE Session: Mastering the Science Practices: Using Hands-On Performance Assessment with K–12 Students (Gen)
(Supervision/Administration) Bonham E, Grand Hyatt
Deborah Tucker *(deborahlt@aol.com),* Science Education Consultant, Napa, Calif.
Grant M. Gardner *(grantmgardner@msn.com),* Assessment Services, Inc., Pepperell, Mass.
Assessing mastery of practices of science is essential. Engage in a hands-on performance task and explore the uses and advantages of this form of assessment.

Building Academic Vocabulary One Fold at a Time (Gen)
(General) Lone Star Ballroom E, Grand Hyatt
Glyna Gay Miller *(glmiller@dallasisd.org),* Emmett J. Conrad High School, Dallas, Tex.
Time flies in this hands-on/minds-on workshop as you learn how 3-D graphic organizers can help your instruction of, and student retention of, academic vocabulary.

CALM, Effective Discipline for a Less EXPLOSIVE Classroom! (Gen)
(General) *Republic B, Grand Hyatt*
Chelsea Moore, Nashville, Tenn.
Learn strategies for managing minor classroom misbehaviors, including techniques that eliminate gimmicks, reduce teacher stress, and work for students. Regain 5–9 hours of your instruction time!

NMEA Session: Rafts to ROVs (Phys)
(General) *Texas Ballroom E/F, Grand Hyatt*
Jenny Cook *(jcook@disl.org),* Dauphin Island Sea Lab, Dauphin Island, Ala.
Are you positive, negative, or neutral when it comes to buoyancy matters? Build a miniature raft and learn how these principles also apply to remotely operated vehicles (ROVs).

Building Roller Coasters in K–12 Classrooms (Gen)
(General) *Travis A/B, Grand Hyatt*
Borislaw Bilash *(bbilash@pascack.k12.nj.us),* Pascack Valley High School, Hillsdale, N.J.
Elise B. Burns *(eburns@pascack.k12.nj.us),* Pascack Hills High School, Montvale, N.J.
Come build a roller coaster and discuss the different ways to incorporate this versatile project into your classroom—no matter what grade or level you are teaching!

STEM Lesson Essentials (Gen)
(Elementary–Middle Level) *Travis C/D, Grand Hyatt*
Jo Anne Vasquez *(jvasquez@helios.org),* 1996–1997 NSTA President, and Helios Education Foundation, Phoenix, Ariz.
This hands-on session shows how the four strands of STEM mesh together into cohesive learning experiences for students.

Play Click ! A Photo Scavenger Hunt at NSTA

Sponsored by Ward's Science

Download the NSTA App to Play and Win up to $600 in STEM Products!

All it takes is a smart phone or tablet, and a desire to explore the NSTA conference, and you could win the latest STEM products from Ward's Science.

Here's how it works:

- Download the NSTA App in your app store
- Complete challenges by snapping photos of yourself at the show, at Ward's Science booth and workshops, and having fun in San Antonio!
- Earn points for each challenge, or for being the first to earn badges.

1st Prize A Ward's DataHub unit of your choice. A $600 value.

2nd Prize Ward's Digital Slides: High School Life Science Set. A $250 value.

3rd Prize TeacherGeek Advanced Rubber Band Racer, Classroom 10-Pack. A $150 value.

PDI **WestEd Pathway Session: The TLC Is a PLC (Gen)**
(General) Conference Room 12, Marriott Rivercenter
Karen Cerwin *(kcerwin@wested.org),* 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.

The Real iPad Experience (Gen)
(Middle Level–High School/Supv.) Salon A, Marriott Rivercenter
Keith G. Palz, Distinctive Schools, Chicago, Ill.
Presider: Terrance Green.
Come join us for this BYOD (Bring Your Own Device) session for iPad/iPod users. It offers a hands-on experience showcasing how to put this technology in students' hands.

Fitting the Puzzle Pieces Together: Integrating Common Core State Standards in STEM-based Courses (Gen)
(Middle Level–High School) Salon C, Marriott Rivercenter
Kimberly Mulligan *(kimberly.x.mulligan@vanderbilt.edu)* and **Sean R. Carmody** *(sean.r.carmody@vanderbilt.edu),* Vanderbilt University, Nashville, Tenn.
Presider: Kimberly Mulligan
Hear how the interdisciplinary science and research program in Metro Nashville Public Schools incorporates Common Core State Standards into its curricula.

PDI **McREL Pathway Session: Nanoscience and Technology—Teaching Emerging Science Content (Gen)**
(General) Salon K, Marriott Rivercenter
Anne Tweed *(atweed@mcrel.org),* 2004–2005 NSTA President, and McREL, Denver, Colo.
Cyndi Long *(clong@mcrel.org),* McREL, Denver, Colo.
Learn about nanoscience and technology and how you can integrate this emerging content into your curriculum to help students develop understandings of these hard-to-teach concepts. Discover strategies developed by Designing Effective Science Instruction (DESI) and the NanoTeach project, which aim to help high school science teachers integrate emergent STEM content into classrooms to ensure public literacy and workplace readiness.

Making Radiation Visible: Why Your Cloud Chamber Kit Doesn't Work Half the Time and How to Fix It So It Works Every Time (Chem)
(Middle Level–College) Alamo Salon A, Marriott Riverwalk
Ronald C. Metzner *(ronald.metzner@k12northstar.org),* Lathrop High School, Fairbanks, Alaska
Cloud chambers work differently than diffusion chambers. "Cloud chambers" on the American market are improperly made diffusion chambers (which the manufacturers don't seem to realize). Come learn how to fix your cloud chamber kit so it works every time.

Using Simulations in Inquiry-based Science (Bio)
(Informal Education) Alamo Salon C, Marriott Riverwalk
Carole J. Johnson *(carole.johnson@vai.org)* and **Randy Schregardus** *(randy.schregardus@vai.org),* Van Andel Institute, Grand Rapids, Mich.
Engage in a pollination simulation, generate a rich database, and then analyze and interpret the collected data. Take home simulation directions.

Molecules, Energy Transfer, and Microbes to Promote Inquiry (Bio)
(Middle Level–High School) Alamo Salon D, Marriott Riverwalk
John W. Fedors *(jfedors@wavecable.com),* Science Activities, Lincoln, Calif.
Take away readily available materials to stimulate inquiry. Learn how to encourage sharing with your students and develop your unique comfortable presentation.

12:30–1:30 PM Exhibitor Workshop

***Project-Based Inquiry Science: PBIS*™—Time to Move Beyond "What Is Science?" and Implement the Next Generation Science Standards (Gen)**

(Grades 6–12) *205, Convention Center*

Sponsor: It's About Time

Mary Starr, Starr and Associates, Plymouth, Mich.

PBIS Launcher units introduce, develop, and blend the science and engineering practices of the highly anticipated Next Generation Science Standards. Your classroom will be the one where students are scientists. Investigate three PBIS units, review the supporting research, and see for yourself why these units can change your students' ideas of learning science.

12:30–3:30 PM Workshop

PDI **WISP Pathway Session: Scientific Inquiry Blended with the Writing in Science Approach (Gen)**

(Elementary–Middle Level) *Salon L, Marriott Rivercenter*

Betsy Rupp Fulwiler *(bruppfulwiler@comcast.net),* Writing in Science Partnership, Seattle, Wash.

Lezlie deWater, Seattle Pacific University, Seattle, Wash.

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.

12:30–4:30 PM Workshops

PDI **BSCS-I Pathway Session: Beyond the Cookbook—Student-driven Investigations (Gen)**
(Elementary–High School) Conf. Room 1/2, Marriott Rivercenter
Susan Kowalski *(skowalski@bscs.org)* and **Paul Numedahl** *(pnumedahl@bscs.org),* BSCS, Colorado Springs, Colo.
In this session, you will learn some techniques to guide and support students as they plan and carry out investigations (NGSS practice 3). We will focus on examples from a physics class (Investigating Newton's 3rd Law) and a biology class (Investigating Photosynthesis and Respiration). In addition, the session will showcase a free online course for teachers entitled *Across the Sciences*.

PDI **BSCS-N Pathway Session: Making Sense of Sensemaking: Strategies to Use in Your Classroom (Gen)**
(Elementary–Middle Level) Conf. Room 13/14, Marriott Rivercenter
Brooke Bourdélat-Parks *(bbparks@bscs.org)* and **Betty Stennett** *(bstennett@bscs.org),* BSCS, Colorado Springs, Colo.
Students often have trouble knowing the important information to focus on when faced with figures, graphs, and readings. This session will introduce you to several sensemaking strategies and give you experience matching a strategy to an activity in order to increase student understanding.

12:45–2:00 PM Meeting

NSTA Development Advisory Board Meeting
(By Invitation Only) Goliad, Grand Hyatt

ELEMENTARY EXTRAVAGANZA

Friday, April 12, 2013
8:00–10:00 AM · Convention Center · Ballroom B

- Hands-on activities
- Preview science trade books
- Learn about award and grant programs
- Walk away full of ideas and arms filled with materials
- Door prizes and refreshments—Win an iPad!
- 100+ presenters

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Organizations participating in the Elementary Extravaganza include the Association of Presidential Awardees in Science Teaching, the Council for Elementary Science International, the NSTA Committee on Preschool–Elementary Science Teaching, *Science & Children* authors and reviewers, and the Society of Elementary Presidential Awardees.

NSTA National Science Teachers Association

1:00–2:00 PM Global Conversations in Science Education Conference Concurrent Sessions

By Preregistration Only

Concurrent Session #1: Professional Development
Crockett A, Grand Hyatt
Presider: Gary Holliday, Illinois Institute of Technology, Chicago
These presentations will focus on projects/programs involving the professional development of elementary and secondary teachers.

Teachers' Professional Development Through the European Festival "Science on Stage"
Tanja Tajmel and **Ingo Salzmann,** Humboldt-Universitat zu Berlin, Germany

Reforming or Developing Science Education? Saudi Experience of Adopting American Science Textbooks
Saleh A.M. Alabdulkareem, King Saud University, Riyadh, Saudi Arabia

Concurrent Session #2: National Curriculum
Crockett B, Grand Hyatt
Presider: Selina L. Bartels, Illinois Institute of Technology, Chicago
These presentations will discuss the nature, quality, and impact of national curricula or standards.

Impact of National Curricula and Reforms
Renata Holubova, Palacky Universitý, Olomouc, Czech Republic

Embedding GLOBE into the National Curricula
Mark Bretteny, GLOBE in Africa, South Africa
Desh Bandhu, GLOBE in India, Indian Environmental Society, Delhi
Rafat Jambi, GLOBE in Saudi Arabia, Ministry of Education, Saudi Arabia
Michael Odell and **Teresa J. Kennedy,** GLOBE in Texas, University of Texas at Tyler

Maintaining High Academic Achievement Without National Standards
Jacqueline Egli, ETH Zürich, Switzerland

Concurrent Session #3: Environmental
Texas Ballroom A/B, Grand Hyatt
Presider: 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*
Presider: Dionysius Knanakkan, Illinois Institute of Technology, Chicago
These presentations will focus on environmental education/studies that are integrated into or supplement the science curriculum.

Designing an Argumentative Environment in the Science Classroom
Ricardo L. de la Garza, South Garland High School, Garland, Tex.

On the Rocky Trail to Excellence in Rigor National Curricular Reforms—From Teaching to "Know" to Learning to "Think"
Uri Zoller, Haifa University–Oranim, Kiryat Tivon, Israel

Teaching Environmental Science in Business Classes
Anthony J. Husemann and **Raymond Hayes,** International College of the Cayman Islands, Newlands, Grand Cayman

1:00–2:00 PM Exhibitor Workshop

Bring Inquiry into Your Classroom: The 20-Question Approach (Bio)
(Grades 10–College) *217C, Convention Center*
Sponsor: Bio-Rad Laboratories
Damon Tighe, Bio-Rad Laboratories, Hercules, Calif.
Using pGLO as an example, learn how to ask simple questions about labs you already do to make them inquiry based instead of cookbook based.

1:00–2:15 PM Exhibitor Workshop

Technological Design Standards Meet the STEM Initiative (Gen)
(Grades K–6) *214B, Convention Center*
Sponsor: Delta Education/School Specialty Science
Tom Graika, Consultant, Lemont, Ill.
Johanna Strange, Consultant, Richmond, Ky.
Learn how a problem-based approach to science lessons can provide an opportunity for students to be engaged in activities that incorporate Science, Technology, Engineering, and Math (STEM) and meet Technological Design Standards. Problem activities from Delta Science Modules will be emphasized. Make and take a variety of prototypes.

1:00–2:30 PM Presentation

SESSION 1
Science 2.0: Putting Web 2.0 into the Science Classroom (Gen)
(General) *207A, Convention Center*
Ben Smith *(ben@edtechinnovators.com)* and **Jared Mader** *(jared@edtechinnovators.com),* York, Pa.
Web 2.0 tools allow students to create products online, all while focusing upon collaboration and creativity. Grouping and associating these products through "tagging" allows students to join the conversation with students of similar interests and ideas. Come learn how to use the best free tools on the web.

1:00–3:30 PM Exhibitor Workshop

Generate a DNA Barcode and Identify Species (Bio)
(Grades 10–College) *217B, Convention Center*
Sponsor: Bio-Rad Laboratories
Leigh Brown, Bio-Rad Laboratories, Hercules, Calif.
Extract genomic DNA, amplify it with PCR, and classify species using sequencing and bioinformatics to determine if that fish you just bought is really what the label says it is. Also learn about the International Barcode of Life initiative, which uses this technology, and find out how you can contribute to this global genetic repository for barcodes of all species.

1:00–4:00 PM Short Courses

And the Thunder Rolls: Energy Transformations in Mid-Latitude Thunderstorms (SC-4)
(Middle Level–High School) *La Reina, Hilton*
Tickets Required: $28
April Chancellor *(april.chancellor@msichicago.org)* and **Laura Rico-Beck** *(laura.rico-beck@msichicago.org),* Museum of Science and Industry, Chicago, Ill.
For description, see page 58.

Oceans Plastic Pollution: Issues and Solutions (SC-5)
(Middle Level–High School) *Salon del Rey B, Hilton*
Tickets Required: $43
Mary Whaley *(mwhaley@mbayaq.org),* Monterey Bay Aquarium, Monterey, Calif.
For description, see page 59.

1:30–3:00 PM Exhibitor Workshops

It's Time to Review for the 2013 AP Chemistry Exam (Chem)
(Grades 9–12) *006A, Convention Center*
Sponsor: Pearson
Ed Waterman, Retired Educator, Fort Collins, Colo.
Acquire step-by-step review materials to help students score well on the AP Chemistry exam. With three weeks to go, everything you need is here.

Innovation in Education—Is This Possible? (Gen)
(General) *006B, Convention Center*
Sponsor: Pearson
Don Buckley, The School at Columbia University, New York, N.Y.
What is innovation? How do you bring innovation into education? What is design thinking? How can design thinking foster innovation in schools? Learn about the design thinking process and how this methodology can be used to rethink education in an entirely new light.

LEGO MINDSTORMS® Education EV_3: Robotics in the Middle School Classroom—Advancing Your Program (Gen)
(Grades 6–8) *007A, Convention Center*
Sponsor: LEGO Education
Jessica Pope, LEGO Education, Pittsburg, Kans.
Are you already using LEGO Education NXT MINDSTORMS in your classroom and looking for ways to expand its use to further engage students and cover even more curriculum concepts? If so, this hands-on session is designed for you. Participants will experience the new LEGO MINDSTORMS Education EV_3 platform through an interactive sample lesson from the enhanced curriculum. See firsthand the robust capabilities and the cross-curricular applications that the third generation of LEGO MINDSTORMS Education has to offer.

Climate Change...
Education Is Part of the Solution

Symposium: NOAA Climate Data in the Classroom, Thursday, April 11, Marriott River Center, Room 17/18

Find out how NOAA collects, manages, and analyzes data about climate and how educators can access and use this data.

Thursday, April 11, Marriott River Center, Room 17/18

8:00 am NOAA Data in the Classroom: Ocean Acidification and Coral Bleaching
9:30 am Coral Reefs and Climate Change

Friday, April 12, Marriott River Center, Room 3/4

8:00 am Get Real! Use real-time NOAA data to understand our changing world
9:30 am Get Muddy! Get excited about data and adopt one of our nation's estuaries
11:00 am Teaching about Climate Change: Here and Now
12:30 pm A Changing Climate Here and Now

NOAA/U.S. Forest Service Exhibitor Workshop Series: Saturday, April 13, Convention Center, 214A

8:00 am Climate Education and the Next Generation Science Standards
9:00 am Lessons from Antarctica: Polar Ice Cores and Climate Research
10:30 am U.S. Forest Service Climate Change Education Resources
11:30 am Lunch with Climate Scientists and Education Specialists - Bring your own lunch!
12:30 pm ClimateChangeLIVE!: Webcasts and Education Resources
1:30 pm NOAA's Climate Stewards Education Project: Affecting Change
3:00 pm NOAA's Climate Stewards Education Project: What Works, What Doesn't
4:30 pm New Hands-on Climate Activities! Discover Your Changing World With NOAA

The Secret Lives of Stars (Earth)
(Grades 5–12) *007B, Convention Center*
Sponsor: Simulation Curriculum Corp.
Herb Koller *(hkoller@simcur.com),* Simulation Curriculum Corp., Minnetonka, Minn.
On a clear night, stars appear eternal. Join us as we explore the turbulent birth and death throes of stars using the award-winning *Starry Night* on the big screen. Learn how ready-to-use lessons and special materials from this workshop can help you teach this exciting topic.

Adventures into the Digital Biology Classroom: How Technology Can Revolutionize Teaching (Bio)
(Grades 5–College) *007C, Convention Center*
Sponsor: Animalearn
Nicole Green *(ngreen@animalearn.org),* Animalearn, Jenkintown, Pa.
Patty McGinnis, NSTA Director, Middle Level Science Teaching, and Arcola Intermediate School, Eagleville, Pa.
Celia Clark *(marketing@digitalfrog.com),* Digital Frog International, Inc., Puslinch, Ont., Canada
Tour The Science Bank, Animalearn's lending program of innovative science teaching tools. Examine the use of animals to teach anatomy and physiology and learn from a trusted NSTA leader how to use technology to make your classroom more humane, green, dynamic, and cost effective. Get hands-on experience with Digital Frog, one of The Science Bank's most popular products. At the end of the workshop, a participant will receive a free copy of Digital Frog, a $170 value!

Modeling Protein Structure/Function and Photosynthesis/Respiration (Bio)
(Grades 6–12) *007D, Convention Center*
Sponsor: Science Take-Out
Susan Holt *(contact@sciencetakeout.com),* Science Take-Out, Pittsford, N.Y.
Join us for two simple hands-on modeling activities. In *From DNA to Protein,* we'll model how the coded information in genes results in proteins with specific shapes that perform specific functions. In *Photosynthesis and Respiration,* we'll use simple snap bead models to illustrate the reactants, products, and flow of energy for photosynthesis and respiration.

BIOZONE Showcases Its Biology Workbooks and Presentation Media (Bio)
(Grades 9–12) *008B, Convention Center*
Sponsor: BIOZONE International
Richard Allan *(richard@biozone.co.nz),* BIOZONE International, Hamilton, New Zealand
BIOZONE's critically acclaimed student workbooks for AP, IB, and general biology have cutting-edge content that can assist your students to achieve success. Clear learning objectives, concept-based design, and engaging graphics encourage critical thinking and active interaction between the student and the information. Attendees receive free books.

33 Strategies for Integrating Disciplinary Literacy (Gen)
(Grades 1–6) *102A, Convention Center*
Sponsor: Amplify
Traci Wierman *(twierman@berkeley.edu)* and **Rebecca Abbott** *(reabbott@berkeley.edu),* The Lawrence Hall of Science, University of California, Berkeley
Discover how to increase reading comprehension, disciplinary literacy skills, 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!

DNA Replication and Transcription—No More Gumdrops and Toothpicks! (Bio)
(Grades 5–12) *102B, Convention Center*
Sponsor: K'NEX Education
Presenter to be announced
Join us as we use K'NEX® to build and explore functional DNA models that actually stay together. Twist DNA ladders to make a helix, replicate it, and transcribe the model to form mRNA. Color-coded nucleotides enable quick changes of the C, G, A, T, and U bases to produce new sequences. Standards-aligned STEM concepts will be emphasized. Aligned to science education standards for grades 5–12, it is also an excellent elementary demonstration tool. Drawing for a K'NEX Education DNA Replication and Transcription Set!

New Science Teacher Academy Presents
SCIENTIST TALK

Thursday, April 11 3:30–4:30 PM • Marriott Rivercenter, Salon F

FORMAT: Special Session | **SUBJECT:** General Science | **GRADE LEVEL:** General

Building on Collaborative Efforts Between Government Agencies, Corporate Entities, and Education in Order to Impact STEM Teaching and Learning

Please join us as representatives from the Astellas Pharma US, Bayer USA Foundation, The Dow Chemical Company, and Lockheed Martin Corporation participate in a discussion focusing on ways science educators can effectively collaborate and build relationships with government agencies and corporate entities to impact STEM teaching and learning.

Dr. David Evans, NSTA Executive Director, will serve as moderator for this panel. He will ask questions that will stimulate discussion and foster thought regarding the role corporate scientists/engineers play in the teaching and learning of K–16 STEM content.

Rui Vogt Alves da Cruz, Ph.D. — Associate R&D Director at The Dow Chemical Company

Rui Cruz is currently an Associate R&D Director at the Dow Chemical Company, responsible for the Epoxy Process Research, Civil Engineering, Amines and Chelants and Plastics Additives global R&D groups. He joined Dow in Brazil in 2001, having worked in Human Resources, Customer Services, Technical Services and Research and Development for several different products and technologies. In 2010 he moved to Freeport, Texas, serving as the group leader for Polyglycols and Surfactants R&D until he transitioned to his current role in January 2011. Rui studied Chemical Engineering at the Polytechnic School of the University of São Paulo and the Karlsruhe University in Germany and also holds a Ph.D. in Chemical Engineering by the University of São Paulo.

Amy L. Gowder — Vice President & General Manager, Kelly Aviation Center, for Lockheed Martin Corporation

Amy L. Gowder is Vice President & General Manager, Kelly Aviation Center, for Lockheed Martin Corporation. In this capacity she is responsible for leading the Corporation's only jet engine shop, which provides military and commercial maintenance, repair, and overhaul (MRO) services and test operations for engines that power the C-5, C-2, C-130, P-3, U-2, KC-10, KC-135R, RC-135, DC-10, 747, 737, A300, and A320 family as well as MRO, test, and new engine production assembly for the F-16 and F-15. Amy graduated from the Massachusetts Institute of Technology Sloan Fellows Program with a Masters of Business Administration and from Arizona State University with a Bachelor of Science degree in bioengineering. She serves on San Antonio College's Challenger Learning Center Advisory Council and is a member of the Association of Manufacturing Excellence.

Jenny M. Kite — Associate Manager, Corporate Communications at Astellas Pharma US

Jenny M. Kite joined Astellas in April 2008. In her current position of Associate Manager in Corporate Communications she is responsible for all external communications as well as the company's corporate social responsibility programs. As part of her work in corporate social responsibility, Jenny oversees the company's Science WoRx program, a mentoring and online resource for science teachers, and the company's relationship with NSTA through the New Science Teacher Academy. Prior to joining Astellas, she worked at Fleishman-Hillard in the healthcare practice. Jenny graduated from Iowa State University's Greenlee School.

Mark Land, Ph.D. — Unit Head Technology Development for Bayer Technology Services in the Americas Region

Mark Land received his Bachelor of Science in Biochemistry and Ph.D. in Applied Chemistry degrees from the University of Texas of Arlington. Mark started work in 1999 as a Chemist in the Production Support Laboratory at Bayer's Baytown, Texas, production facility. In 2001 he moved into the production area managing various operational units. In 2008, he moved to Shanghai, China, as a Start-up Manager where he led the operational team during engineering, construction, start-up, and operation of the world's largest and most technically advanced Toluene Diisocyanate production unit. Mark moved back to Baytown, Texas, in 2012 and assumed his current role as Head of Technology Development for Bayer Technology Services.

Larry Sernyk, Ph.D. — Project Success Leader for Biotechnology (Cotton and Oilseeds) at Dow AgroScience

Dr. Larry Sernyk is currently the Project Success Leader for Biotechnology (Cotton and Oilseeds) at Dow AgroSciences in Indianapolis, Indiana. He has dedicated most of his career to supporting education-related organizations. He currently serves on the Board of Directors of the Science Education Foundation of Indiana and is the co-Leader of Dow AgroSciences R&D Outreach Team of "Science Ambassadors."

Hands-On Integrated Science Activities for Middle School from Flinn (Gen)

(Grades 5–8) *103A, Convention Center*

Sponsor: Flinn Scientific, Inc.

Janet Hoekenga *(jhoekenga@flinnsci.com),* 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. Workshop participants perform and observe experiments designed to capture the curiosity and engage the energy of adolescent students. Handouts for all activities.

Mastering the Chemical Formula: An Effective Way to Teach Subscripts and Coefficients (Chem)

(Grades 9–12) *203A, Convention Center*

Sponsor: LAB-AIDS, Inc.

Mark Koker, LAB-AIDS, Inc., Ronkonkoma, N.Y.

What is the difference between subscripts and coefficients? What does "balancing" a chemical equation mean? Many students have trouble with these fundamental chemistry concepts. If a student does not fully understand the chemical formula, then moles, reactions, and stoichiometry are hopelessly confusing. Join us for some elegant, intuitive, and well-differentiated lessons from the new high school program, *A Natural Approach to Chemistry,* that enables students of all levels to master the chemical formula and thereby move confidently into a deeper understanding of chemistry.

Properties of Light—See Your Students Shine (Phys)

(Grades K–9) *204A, Convention Center*

Sponsor: Artec Educational

Paul Pooler, Torrance, Calif.

Explore the properties of light in a workshop full of hands-on make-and-take activities and engaging demos from Artec Educational! Use affordable, easy-to-use materials to help your students master difficult concepts using LEDs, mirrors, visual effects, and more to peak their curiosity in activities linked to the highly anticipated Next Generation Science Standards. Handouts and take-home activities provided.

Applying Common Core ELA Standards Through Active Science Instruction in the K–8 Classroom: Making Learning Relevant (Gen)

(Grades K–8) *204B, Convention Center*

Sponsor: Sangari Active Science

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

Common Core ELA Standards require students to read using informational text and write using skills that science instruction encourages. Using a hands-on/minds-on activity, we will investigate and use the data we collect to write a claims and evidence response. Reading strategies will be used to tie our investigation to informational text.

Comparative Mammalian Organ Dissection with Carolina's Perfect Solution® Specimens (Bio)

(Grades 6–12) *206A, Convention Center*

Sponsor: Carolina Biological Supply

Carolina Teaching Partner

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, observing major internal and external structures to gain a better understanding of these mammalian organs. An excellent comparative dissection with Carolina's best specimens!

Vroom, Vroom, Beep, Beep…Connecting Common Core English Language Arts Standards and STEM (Gen)

(Grades K–5) *206B, Convention Center*

Sponsor: Carolina Biological Supply

Carolina Teaching Partner

Learn how to foster elementary students' literacy growth through practical strategies for implementing the Common Core and strengthening students' mathematical knowledge. This workshop will focus on ELA Common Core State Standards in reading informational text and writing centered around STEM education.

Hands-On Science with Classroom Critters (Bio)

(Grades K–12) *207B, Convention Center*

Sponsor: Carolina Biological Supply

Carolina Teaching Partner

Add excitement to your science class with live organisms! Animals broaden students' inquiry-based explorations and increase their interest in science. Discover fun, simple hands-on activities that you can use in your classes. Organism care and handling information will be presented. Receive free product samples and literature.

T Is for Tinkering! Hands-On STEM Activities Using Free Web-based Tools (Gen)

(Grades K–12) *209, Convention Center*

Sponsor: Discovery Education

Steve Dembo, Discovery Education, Silver Spring, Md.

Everybody loves web tools, but these tools don't transform learning when the teacher is the only one using them. Come explore some of the best online apps for STEM activities and learn how your students can get their hands messy with them! From science-based storytelling to leveraging interactive white boards, we'll explore creative ways to make digital resources come alive in the classroom. This workshop will feature the Epson Brightlink, so be prepared to play!

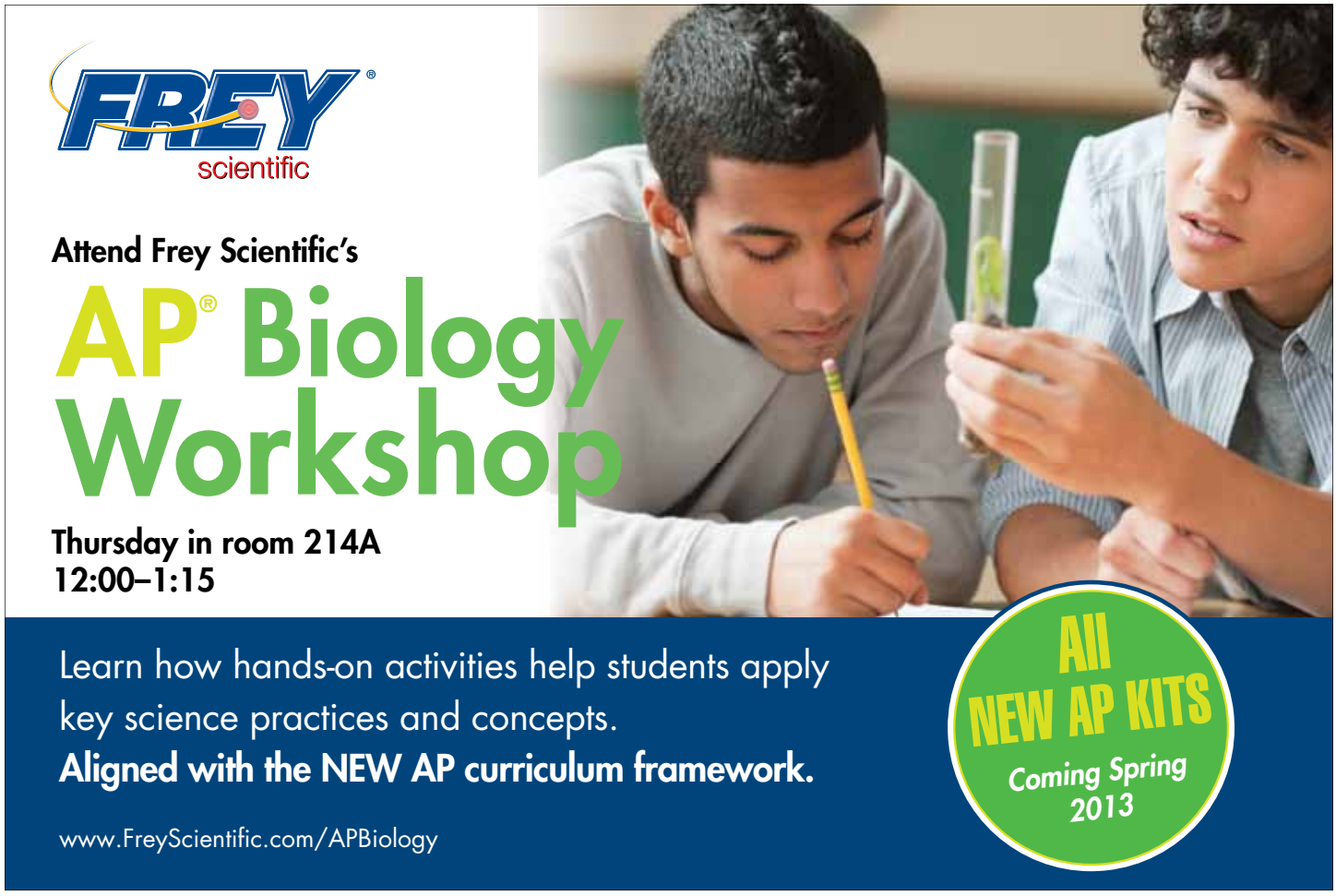
Life Science Standards for the iPad Generation (Bio)

(Grades 5–12) *211, Convention Center*

Sponsor: Ward's Science

Andrew Fulton *(andrew.fulton@vwreducation.com),* VWR Education, Rochester, N.Y.

Capture and keep your students' attention with an engaging life science activity that addresses science practice standards (like analyzing and interpreting data) using a free iPad app and digital data collection equipment. You'll leave the workshop fluent in disciplinary core ideas, practices, and crosscutting concepts in life science.



Wait! Were the Chips I Ate Genetically Modified? (Bio)

(Grades 9–College) *212B, Convention Center*

Sponsor: Edvotek Inc.

Danielle Snowflack *(info@edvotek.com),* **Jack Chirikjian** *(info@edvotek.com),* and **Khuyen Mai** *(info@edvotek.com),* Edvotek Inc., Washington, D.C.

It is difficult to determine which products in your grocery store contain genetically modified ingredients because the FDA does not require foods to be labeled as such. In this workshop, participants will extract DNA from common snack foods like Fritos™ and soy chips. Using the Polymerase Chain Reaction (PCR) and agarose gel electrophoresis, we will determine which snacks contain genetically modified ingredients. Participants receive a free flash drive and enter for a T-shirt drawing at the end of the workshop.

Engage Students with Active Learning Through FOSS, 3rd Edition (Gen)

(Grades K–6) *214C, Convention Center*

Sponsor: Delta Education/School Specialty Science–FOSS

Brian Campbell, Kathy Long, and **Linda De Lucchi,** The Lawrence Hall of Science, University of California, Berkeley

Join FOSS developers to learn about the conceptual framework behind the new FOSS elementary program. We'll introduce the instructional design and illustrate how the system incorporates science-centered language development, notebooks, digital resources, formative assessments, and outdoor excursions into a coherent learning experience.

1:30–4:00 PM Meetings

NSTA Multicultural/Equity in Science Education Committee Meeting

San Jacinto, Grand Hyatt

NSTA Research in Science Teaching Committee Meeting

Conference Room 5, Marriott Rivercenter

NSTA Retired Members Advisory Board Meeting

Conference Room 10, Marriott Rivercenter

NSTA Coordination and Supervision of Science Teaching Committee Meeting

Conference Suite 514, Marriott Rivercenter

NSTA Preservice Teacher Preparation Committee Meeting

Conference Suite 529, Marriott Rivercenter

NSTA Nominations Committee Meeting

Conference Suite 530, Marriott Rivercenter

NSTA High School Science Teaching Committee Meeting

Bonham, Marriott Riverwalk

NSTA Preschool–Elementary Science Teaching Committee Meeting

Bowie, Marriott Riverwalk

NSTA Middle Level Science Teaching Committee Meeting

Milam, Marriott Riverwalk

NSTA College Science Teaching Committee Meeting

Valero, Marriott Riverwalk

Find Your Way to the NSTA Avenue #1114

Pick up your "NSTA Passport" to guide you through member benefits, products, services, programs, and partners—free gifts, too!

Share with Others

- ***NSTA Membership.*** Learn about NSTA member benefits, pick up sample journals, and ask about our student chapters and other ways we support young professionals. Take charge of your professional development to become the best teacher you can be.

Enhance Your Skills

- ***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. Examples include:
  - **Web Seminars.** Update your content knowledge with 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 ***New Science Teacher Academy*** supports second- through fifth-year science teachers during the often challenging initial years by enhancing confidence and teacher content knowledge.

Expand Your Mind

- ***NSTA Press***® publishes 20–25 new titles each year. Browse at the Science Store and connect with authors to have your new book signed. Submit your new book idea to *www.nsta.org/publications/press/authors.aspx.*
- **NGSS @ NSTA.** Find out what's new, connect and collaborate with colleagues on NGSS, and get the resources you need to help prepare for the Next Generation Science Standards.

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.*** NSTA has embarked on a $43 million national campaign to make excellence in science teaching and learning a reality for all. The funding will support 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

- Learn about NSTA's 17 awards programs for science teachers, K–College, such as the **Shell Science Lab Challenge,** which provides science laboratory equipment and professional development support to winning teachers from middle schools and high schools with limited resources. Learn how to win a $20,000 lab makeover support package.

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 for grades 7–12 students awards cash prizes and an expenses-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 is awarded.
- **eCYBERMISSION** is an online, STEM-related (Science, Technology, Engineering, and Mathematics) competition for students in grades 6–9.

NSTA National Science Teachers Association

1:30–6:00 PM NSTA Symposium

NOAA Climate Data in the Classroom (SYM-1)

(Middle Level–High School) Conf. Room 17/18, Marriott Rivercenter

Tickets Required: $54

Deke Arndt, NOAA National Climatic Data Center, Asheville, N.C.

LuAnn Dahlman *(luann.dahlman@noaa.gov),* NOAA Climate Program Office, Silver Spring, Md.

Carolyn Rose *(carolyn.rose@utexas.edu),* Mission-Aransas National Estuarine Research Reserve, Port Aransas, Tex.

Bree Murphy, NOAA National Estuarine Research Reserve System, Silver Spring, Md.

Paulo S. Maurin *(paulo.maurin@noaa.gov),* NOAA Coral Reef Conservation Program, Silver Spring, Md.

For description, see page 56.

2:00–3:00 PM Social

Dorothy K. Culbert Chapter and Associated Groups Social

Lone Star Ballroom A, Grand Hyatt

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.

2:00–3:00 PM Featured Presentation

Laboratory Teaching: Macro Success Using Microscale (Chem)

(High School–College) Grand Ballroom C3, Convention Center

Jorge G. Ibáñez-Cornejo *(jorge.ibanez@ibero.mx),* Director, Dept. of Chemical and Engineering Sciences, Ibero-American University, Mexico City, Mexico

Presider: Elizabeth Allan, NSELA President, and University of Central Oklahoma, Edmond

As one of the world's most respected authorities on microscale chemistry, Dr. Jorge Ibáñez-Cornejo will share his over 20 years of experience using small-scale techniques for the teaching of chemistry laboratories and workshops in more than 20 countries. Sample environmental chemistry experiments will be discussed as well as new developments for this analytical and teaching method.

Combining his teaching and research interests, Dr. Jorge Ibáñez-Cornejo is widely regarded as one of the world's foremost developers and teachers of methodologies and techniques focusing on environmental chemistry and on microscale materials for high school and university chemistry laboratories.

A professor and director of the Department of Chemical Engineering and Sciences of the Universidad Iberoamericana in Mexico City, Dr. Ibáñez-Cornejo founded in 1990 the Mexican Green and Microscale Chemistry Center at the university. He has also held a variety of visiting professorships, including Loyola University of Chicago (as a Fulbright Visiting Scholar), Institut Quimic de Sarria (Barcelona, Spain), Merrimack College (North Andover, Massachusetts, U.S.), the University of Texas at Austin. He received his PhD in physical chemistry at the University of Houston, Texas.

A renowned authority on microscale chemistry, he has published several books in both Spanish and English on the method, including Environmental Chemistry: Fundamentals, *along with co-authors Margarita Hernandez-Esparza, Carmen Doria-Serrano, and Arturo Fregoso-Infante; and* Environmental Electrochemistry: Fundamentals *and* Applications in Pollution Sensors and Abatement, *along with co-author Krishnan Rajeshwar.*

In 2010, the American Chemical Society's Committee on Environmental Improvement honored Dr. Ibáñez-Cornejo for his efforts to incorporate green chemistry and sustainability into his curriculum.

2:00–3:00 PM Presentations

SESSION 1

Investigating Tectonics with Web GIS (Earth)
(Middle Level) *003A, Convention Center*
Lori Cirucci *(lcirucci@beth.k12.pa.us),* Broughal Middle School, Bethlehem, Pa.
Alec M. Bodzin *(amb4@lehigh.edu),* Lehigh University, Bethlehem, Pa.
Learn about inquiry-based activities that incorporate Web GIS to investigate tectonics.

SESSION 2

Lunar Phases, Multicultural Awareness, and the Simple Pleasure of Knowing One's Place in the World (Earth)
(General) *101A, Convention Center*
Raymond Tekverk *(rtekverk@cdaschools.org)* and **Jan E. Fay** *(jfayidaho@gmail.com),* Lake City High School, Coeur d'Alene, Idaho
Anne L. Kern, University of Idaho, Coeur d'Alene
Promoting student knowledge of traditional full moon names increases appreciation of climate change, multicultural awareness, natural resource utilization, and the relevance of science education.

SESSION 3

Learning (and Teaching) Life Science Vocabulary for K–8 (Bio)
(Elementary–Middle Level) *208, Convention Center*
Carolyn J. Lowe *(drclowe@gmail.com),* Northern Michigan University, Marquette
Memorizing definitions is not the same as truly understanding concepts. Let's discuss the meanings of difficult concepts and how to teach them.

SESSION 4

Join Us! Citizen Science on the International Space Station with the Science Cheerleaders! (Gen)
(General) *215, Convention Center*
Darlene Cavalier *(darlene@scistarter.com),* Science Cheerleader and SciStarter, Philadelphia, Pa.
David Coil *(coil.david@gmail.com),* University of California, Davis
Learn how to join a new citizen science project and collect microbes at stadiums and classrooms for comparison to those on the International Space Station!

SESSION 5

Shine Some Light on Science **(Phys)**

(Elementary–Middle Level) *216A, Convention Center*

Patricia Lucido *(plucido4405@gmail.com),* SySTEMic Innovations, Excelsior Springs, Mo.

Cheryl Malm *(cgmalm@nwmissouri.edu),* Northwest Missouri State University, Maryville

Foster science reading, writing, speaking, and listening with activities that focus on light—reflection, refraction, lenses, chemical and electrical light production, and more.

Don't miss these Wednesday/Thursday NGSS-related sessions

PDI-11: One-Day Work Session: Moving the Next Generation Science Standards into the Classroom **preregistration only* (page 55)

PDI-12: One-Day Work Session: Addressing Engineering and Technology in the Next Generation Science Standards **preregistration only* (page 55)

CSSS Session: Building Capacity for the Next Generation Science Standards (page 92)

CSSS Session: Crosscutting Concepts in the Next Generation Science Standards (page 122)

Using Rubrics to Align Resources to the Next Generation Science Standards (page 135)

CSSS Session: Disciplinary Core Idea from Kindergarten to High School (page 158)

Preparing for NGSS—Exploring the Scientific and Engineering Practices (page 174)

NGSS@NSTA
STEM STARTS HERE

SESSION 6

Assessing Science Understanding with the Youngest Learners **(Gen)**

(Preschool–Middle Level) *216B, Convention Center*

Ilana April *(iapril@amnh.org),* **Jane Kloecker** *(jkloecker@amnh.org),* and **Caitlin Van Ness,** American Museum of Natural History, New York, N.Y.

Presider: Jane Kloecker

Learn about assessment activities designed to explore the youngest learners' knowledge about science and nature.

SESSION 7

(General) *Bonham B, Grand Hyatt*

Bring the World of Science to Your Classroom via Video Conferencing **(Gen)**

Gail Bush, Blue Springs (Mo.) School District

Discover how easy it can be to bring scientific experts from around the world into your classroom using video conferencing.

SESSION 8

Synthesis of AP Environmental Science and AP English Composition **(Env)**

(High School) *Bonham D, Grand Hyatt*

Mary Shane *(shanem@interact.ccsd.net)* and **Kellie Guild** *(kguild@interact.ccsd.net),* Advanced Technologies Academy, Las Vegas, Nev.

Hear about a collaboration between AP Environmental Science and AP Composition teachers in promoting argumentation. Science topics were used to research and create AP synthesis prompts.

SESSION 9

ASTE Session: Publishing Science and Engineering Inquiry Projects with Elementary Students—I Wonder…? **(Gen)**

(Informal Education) *Bowie A, Grand Hyatt*

Michael E. Beeth *(beeth@uwosh.edu),* University of Wisconsin, Oshkosh

Join me for this interactive session and find out what elementary teachers learned from publishing science and engineering projects with their students annually since 1992.

Houghton Mifflin Harcourt

What Works Workshops for 21st-Century Classrooms

Houghton Mifflin Harcourt Workshop Schedule

Henry B. Gonzales Convention Center, Room 204B

Thursday, April 11

7:30–9:00 am: Session 2234
STEM Challenges for the Classroom, Part 1.
Author—*Michael DiSpezio*

9:30–11:00 am: Session 2233
Connecting to Chemistry: Igniting Student Motivation with STEM Examples and Ideas.
Author—*Michael DiSpezio*

11:30–1:00 pm: Session 2240
That's Amazing! Explore the Bizarre, Cool, and Exciting World of Project-Based Biology.
Author—*Mike Heithaus*

Friday, April 12

12:00–1:30 pm: Session 2241
Ecology Adventures: Motivating Students through Project-Based Learning.
Author—*Mike Heithaus*

2:00–3:30 pm: Session 2231
Extra, Extra! Read All About It! Taking Biology from the News to the Classroom.
Author—*Stephen Nowicki*

4:00–5:30 pm: Session 2235
More STEM Challenges for the Classroom, Part 2.
Author—*Michael DiSpezio*

Saturday, April 13

8:00–9:30 am: Session 2236
Misconception Mania: Exciting and Engaging Ways to Address Common Misunderstandings in K-8 Science.
Author—*Michael DiSpezio*

10:00–11:30 am: Session 2230
Extra, Extra! Read All About It! Taking Biology from the News to the Classroom.
Author—*Stephen Nowicki*

12:00–1:30 pm: Session 2237
Meeting the Needs of Today's Physics Students.
National Consultant—*Dave Kowal*

2:00–3:30 pm: Session 2238
From Big Bird to Bird Brains—How Fun with Our Feathered Friends Helps Students Learn Science.
Author—*Steve Nowicki*

4:00–5:30 pm: Session 2232
Differentiating Instruction in Today's Chemistry Classroom.
National Consultant—*Dave Kowal*

Win a Mini Tablet!

Guests that attend any of our workshops or in-booth activities can enter to **win** one of two **mini tablets*** that will be raffled off during the conference.

Meet Our Authors and Get a Signed Copy of Their Books.

Elizabeth Rusch

Elizabeth Rusch is an award-winning children's author and has written two books for HMH's highly-acclaimed ***Scientists in the Field*** series. Elizabeth will be signing copies of her book *The Mighty Mars Rovers: The Incredible Adventures of Spirit and Opportunity*.

Booth Signing: Friday, April 12
Time: 3:15 PM

Stephen Nowicki

Dr. Stephen Nowicki is the author of ***Holt McDougal Biology***. Dr. Nowicki is a Professor in the Departments of Biology, Psychology, and Neurobiology at Duke University and is currently the Dean and Vice Provost for Undergraduate Education. Dr. Nowicki will be signing copies of ***Holt McDougal Biology***.

Booth Signing: Saturday, April 13
Time: 12:00 PM

Visit Houghton Mifflin Harcourt at Booth #1526

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SESSION 10

Using Hydroponics to Build and Sustain Inquiry-based Science Partnerships (Gen)

(Elementary–Middle Level/College) *Bowie B, Grand Hyatt*

Deborah J. Black and **Sally M. Jean** *(sjean@keene.edu),* Keene State College, Keene, N.H.

Tour a science learning community project and see how classroom teachers, grades 5–8 students, professors, and preservice teachers become active learners to co-investigate hydroponics. Take home a detailed project guidebook.

SESSION 11 (three presentations)

(General) *Bowie C, Grand Hyatt*

SCST Session: Analysis of Salt Formations on Ancient Ceramics (Chem)

Elizabeth T. Wise *(ewise@lourdes.edu),* Lourdes University, Sylvania, Ohio

Hear about an educator collaboration with conservators at the Toledo Museum of Art to develop course materials for a chemistry course for nonscience majors. Specifically, how conservators use Fourier Transform Infrared Radiation (FTIR) and basic chemical reactions to determine salt composition on ancient ceramics.

SCST Session: Using Case Studies as the Organizing Principle in Introductory Biology Courses (Gen)

Linda L. Tichenor *(linda.tichenor@uafs.edu),* University of Arkansas–Fort Smith

Receive an overview on student learning outcomes in an introductory biology course that was organized around case studies rather than chapters in the textbook. The structure of the course will be discussed as well as how to set up content embedded in case studies.

SCST Session: Grade Distributions—Are They Really Changing and, If So, Does It Really Matter? (Bio)

Thayne L. Sweeten *(thayne.sweeten@usu.edu),* Utah State University, Brigham City

Explore various questions surrounding the issue of grade inflation. Is it really occurring? What factors may be contributing to it, and if it is occurring does it really matter? The most current and relevant literature will be discussed to answer these and other pertinent questions.

SESSION 12

Equip Your iPad for Teaching Hurricane Science (Gen)

(Informal Education) *Lone Star Ballroom C, Grand Hyatt*

Christopher Knowlton *(cknowlton@gso.uri.edu),* **Gail A. Scowcroft** *(gailscow@gso.uri.edu),* and **Holly Morin** *(hmorin@gso.uri.edu),* University of Rhode Island, Narragansett

Preview an interactive iBook on the science, impacts, and history of hurricanes. Explore how to integrate this innovative digital resource into your standards-based science curriculum.

SESSION 13

3x5 Card Learning (Gen)

(General) *Lone Star Ballroom D, Grand Hyatt*

Colin Killmer *(ckillmer@portageps.org),* Portage Northern High School, Portage, Mich.

Presider: Jessica Clark, Portage Northern High School, Portage, Mich.

Join us for a series of reading, vocabulary, physics, chemistry, and biology activities that are built around a simple 3x5 card.

SESSION 14

NGSS NSTA

CSSS Session: Disciplinary Core Idea from Kindergarten to High School (Chem)

(Elementary–High School) *Mission A, Grand Hyatt*

Juan-Carlos Aguilar *(jaguilar@doe.k12.ga.us),* Georgia Dept. of Education, Atlanta

Brett Moulding *(mouldingb@ogdensd.org),* PESTL, Ogden, Utah

This session will illustrate the integration of several Science and Engineering Practices (SEPs), Crosscutting Concepts (CCCs), and a Disciplinary Core Idea (DCI) as it is taught from kindergarten to high school.

SESSION 15

DuPont Presents: "Linking Science Writing and Research Through the DuPont Challenge" (Gen)

(General) *Mission B, Grand Hyatt*

Brian P. Short, Director, Science Education Competitions, NSTA, Arlington, Va.

Barbara R. Pietrucha, Point Pleasant, N.J.

Come learn a natural way of integrating research and writing into your curriculum that encourages developmental skills necessary for success in STEM and meets local, state, and national standards.

SESSION 16

Forestry Field Studies for High School Students (Env)

(High School–College) *Seguin A, Grand Hyatt*

David Glenn, Las Cruces, N.Mex.

Here's something for Advanced Placement Environmental Science (APES) teachers. Want to put your students in the field collecting data on an ecosystem so they can construct a sustainable resource management plan? Learn how!

SESSION 17

Science Bound: A Precollege Program That Encourages Students to Explore STEM Careers (Gen)

(Middle Level–College) *Seguin B, Grand Hyatt*

Steve M. Benson *(steven.benson@dmschools.org),* North High School, Des Moines, Iowa

Connie Hargrave *(cph@iastate.edu)* and **David Romero** *(romeroda@iastate.edu),* Iowa State University, Ames

Join us and hear about Iowa State University's premier precollege program, which was created to increase the number of ethnically diverse Iowa students who pursue STEM degrees.

SESSION 18

NSTA Press® Session: Uncovering K–2 Student Ideas About Science (Gen)

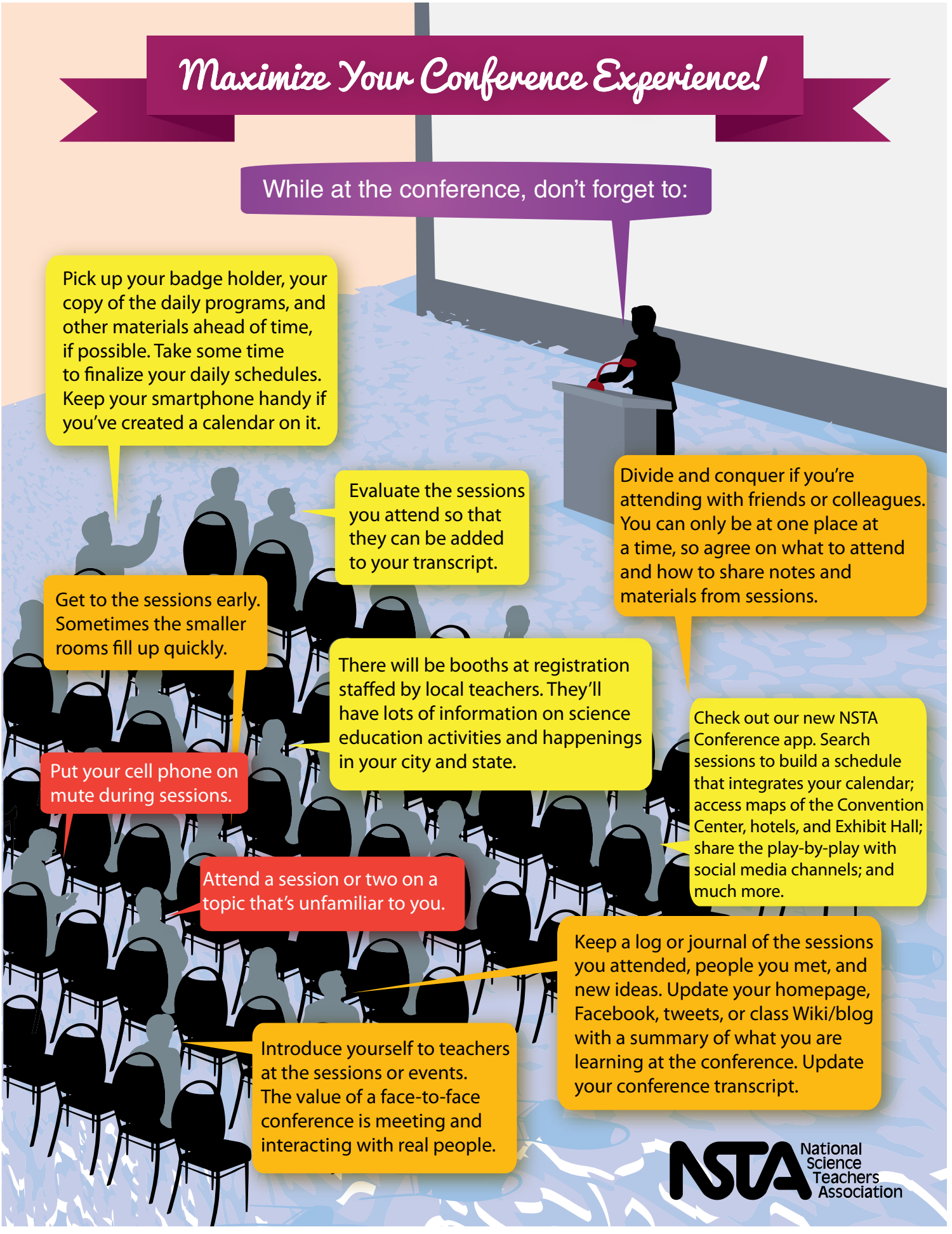
(Elementary) *Texas Ballroom D, Grand Hyatt*

Page Keeley *(pagekeeley@gmail.com),* 2008–2009 NSTA President, Jefferson, Maine

Examine a variety of K–2 formative assessment probes that reveal primary students' misconceptions about core ideas in science while engaging them in using the highly anticipated Next Generation Science Standards.

Maximize Your Conference Experience!

While at the conference, don't forget to:



Pick up your badge holder, your copy of the daily programs, and other materials ahead of time, if possible. Take some time to finalize your daily schedules. Keep your smartphone handy if you've created a calendar on it.

Evaluate the sessions you attend so that they can be added to your transcript.

Divide and conquer if you're attending with friends or colleagues. You can only be at one place at a time, so agree on what to attend and how to share notes and materials from sessions.

Get to the sessions early. Sometimes the smaller rooms fill up quickly.

There will be booths at registration staffed by local teachers. They'll have lots of information on science education activities and happenings in your city and state.

Check out our new NSTA Conference app. Search sessions to build a schedule that integrates your calendar; access maps of the Convention Center, hotels, and Exhibit Hall; share the play-by-play with social media channels; and much more.

Put your cell phone on mute during sessions.

Attend a session or two on a topic that's unfamiliar to you.

Keep a log or journal of the sessions you attended, people you met, and new ideas. Update your homepage, Facebook, tweets, or class Wiki/blog with a summary of what you are learning at the conference. Update your conference transcript.

Introduce yourself to teachers at the sessions or events. The value of a face-to-face conference is meeting and interacting with real people.

NSTA National Science Teachers Association

PDI **SESSION 19**

ITEEA Pathway Session: STEM Building for the High School (Gen)

(High School) *Conference Room 3/4, Marriott Rivercenter*

Barry N. Burke *(bburke@iteea.org),* ITEEA, Gaithersburg, Md.

Joey Rider-Bertrand *(joey_bertrand@iu13.org),* Lancaster-Lebanon IU13, Lancaster, Pa.

Using nine defining features to sustain STEM in grades 9–12, participants will analyze their current school or district's status to determine an implementable action plan for an integrative approach to STEM—that includes technology and engineering!

SESSION 20

AMSE Session: Strategies and Resources That Enhance the Science Learning of Students from Underrepresented Groups in the Sciences (Gen)

(General) *Conference Room 6, Marriott Rivercenter*

Cherry C. Brewton *(cbrewton@georgiasouthern.edu),* AMSE Affiliate Representative, Statesboro, Ga.

The Association for Multicultural Science Education will share standards-based strategies and resources that promote the success of students from underrepresented groups in the sciences.

SESSION 21

Powerful and Free Simulations for Physics and Physical Science Teaching (Phys)

(Middle Level–College) *Conf. Room 11, Marriott Rivercenter*

Chad W. Dorsey *(cdorsey@concord.org),* The Concord Consortium, Concord, Mass.

Come discover how free NSF-funded molecular and energy flow simulations and curricula from The Concord Consortium can add a new dimension to your physics or physical science teaching. Take home a free software CD and resources. Bring laptops, if you have them.

SESSION 22 (two presentations)

(General) *Salon B, Marriott Rivercenter*

Take ME (Mechanical Engineering) to School: Building Successful Partnerships Between Local Schools and Universities (Gen)

Michelle Cotterman *(michelle.e.cotterman@vanderbilt.edu)* and **Heather J. Johnson** *(heather.j.johnson@vanderbilt.edu),* Vanderbilt University, Nashville, Tenn.

Come explore how local schools can partner with university science and education departments to create full-day, large-scale, immersive STEM experiences that benefit all stakeholder groups.

Inquiry Teaching and Learning—Problems and Solutions (Gen)

Susan J. Cooper *(scoopy280@hotmail.com),* LaBelle, Fla.

Come explore possible solutions to help all science teachers, especially elementary teachers, implement inquiry teaching and learning in their classrooms.

PDI **SESSION 23**

Outdoor Science Pathway Session: *Bringing Outdoor Science In* (Gen)

(Elementary–Middle Level) *Salon F, Marriott Rivercenter*

Steve Rich *(bflywriter@comcast.net),* NSTA Director, Professional Development, and West GYSTC, Carrollton, Ga.

Use natural materials from the school yard to bring science lessons to life and integrate reading, writing, and mathematics. Explore funding resources and get free seeds.

SESSION 24

Assessing Student Preparedness to Be Successful on the Revised AP Chemistry Exam (Chem)

(High School) *Alamo Salon B, Marriott Riverwalk*

Michelle J. Barthlow *(michelle.barthlow@cherokee.k12.ga.us),* Etowah High School, Woodstock, Ga.

Discover strategies to navigate the AP chemistry changes and assessment of students' preparedness using "clicker" technology, including the use of guided inquiry to achieve the new learning objectives.

SESSION 25

From Enquiry to Inquiry: Promoting Higher-Order Thinking Skills in Advanced Placement Curricula (Bio)

(General) *Alamo Salon E, Marriott Riverwalk*

Ulpiano Frederick Pontillas *(upontillas@boston.k12.ma.us),* John D. O'Bryant School of Mathematics and Science, Boston, Mass.

A science teacher from an urban high school describes the strategies he used to promote higher-order thinking skills in his AP biology and environmental science classes.

SESSION 26 (two presentations)

(High School) *Alamo Salon F, Marriott Riverwalk*

Using Purposeful Differentiated Instruction to Meet the Needs of Diverse Learners (Bio)

Kristy N. Conkel *(kconkel@tvsd.us)* and **Sheila R. Clements** *(sclements@tvsd.us),* Teays Valley High School, Ashville, Ohio

Join us as we outline the initial integration of regular, intentional differentiation of the general biology curriculum to meet the needs of a diverse population, including special education students and gifted students.

Engage All Students with Biotech (Bio)

Christine Brown *(cvbrown@edc.org),* Education Development Center, Inc., Waltham, Mass.

Discover how teachers across the country are incorporating biotechnology into their classrooms in order to successfully engage a range of learners.

2:00–3:00 PM Workshops

Some Like It Hot! (Earth)

(Middle Level–High School) *001A, Convention Center*

Coral Clark *(cclark@usra.edu),* SOFIA Airborne Observatory, Mountain View, Calif.

Explore the light that we all shine—infrared! Workshop participants will investigate the "light of heat" through activities that bring the invisible into the light.

The Magic and Mystery of Our Very Own Star—the Sun (Earth)

(Elementary) *001B, Convention Center*

Lynne H. Hehr *(lhehr@uark.edu)* and **John G. Hehr** *(jghehr@uark.edu),* University of Arkansas, Fayetteville

Investigate the magic of the Sun while taking the mystery out of the electromagnetic spectrum. Explore the Sun through resources for both in and out of the classroom.

Using *The Cloud Book* to Teach an Integrated Weather Unit (Earth)

(Elementary–Middle Level) *002, Convention Center*

Joan Estapa *(jestapa@bwsd.org),* Bay Saint Louis Waveland Middle School, Bay Saint Louis, Miss.

Come take part in a hands-on integrated unit that can be used in any K–8 classroom to teach the varied components of weather. Handouts!

Mercury…Emerging Through a Veil of Mystery (Earth)

(Elementary–High School) *101B, Convention Center*

Julie E. Taylor *(julie_taylor@eee.org),* Adelanto (Calif.) School District

Mercury is currently being investigated by the *MESSENGER* spacecraft. Come learn about exciting discoveries being made and find out how to bring them into your classroom.

The Brain-friendly Way (Gen)

(Elementary) *103B, Convention Center*

Aimee K. Ayers *(aayers@lubbockisd.org),* O.L. Slaton Middle School, Lubbock, Tex.

Ashley Brimeyer, Texas Tech University, Lubbock

Receive brain-friendly tools to enhance a classroom environment for student success using research-based techniques that capitalize on the way the human brain works—naturally.

Inquiring Minds Want to Know (Phys)

(Elementary) *202A, Convention Center*

Heather Domjan, University of Houston, Tex.

Teresa Phillips *(tphillip@houstonisd.org),* Houston (Tex.) ISD

Presider: Benita Tennard, Houston (Tex.) ISD

Experience engaging scientific investigations focused on teaching science as inquiry for grades 3–5. Take home lessons and materials to use immediately in the classroom.

✓ **Interactive Science Notebooks (Middle School) (Gen)**

(Middle Level) *202B, Convention Center*

Katina N. Coneway, T.J. Elder Middle School, Sandersville, Ga.

Discover how to utilize interactive notebooks as a continuing assessment and feedback instrument. Interactive notebooks assist students in increasing their higher-order thinking and reasoning skills. During the session, you'll see sample student science journals and even create a few entries in your own journal.

CESI Session: STEMulating Activities (Gen)

(Elementary–Middle Level) *212A, Convention Center*

Melissa Sleeper *(onewhosleeps3@aol.com),* Sebastian River Middle School, Sebastian, Fla.

Looking for ways to incorporate STEM activities into your classroom? Get activities and design briefs that will add enthusiasm and motivation to your classroom lessons.

ASTC Session: Engage and Excite Girls (and Boys) in STEM (Gen)

(Informal Education) *213A, Convention Center*

Didey Muniz *(dideymuniz@mail.utexas.edu),* The University of Texas at Austin

Sarah Carter *(scarter@tpt.org),* Twin Cities Public Television, St. Paul, Minn.

Discover seven strategies that you can integrate into your program or classroom activities to engage girls (and boys) in STEM.

Alternative Ways to Teach Science Standards (Gen)

(Elementary–Middle Level) *217A, Convention Center*

Michele L. Minto *(luvtooteach@comcast.net),* Indian Creek Middle School, Wintersville, Ohio

Discover different strategies to reach ALL students in a diverse classroom. Many of the activities are hands on.

English Language Arts Common Core State Standards and Science Literacy (Gen)

(Elementary) *217D, Convention Center*

Glenda S. Pepin *(gpepin@clemson.edu)* and **Donna Gunderson** *(donnag@clemson.edu),* Clemson University, Greenville, S.C.

Examine ways to use the four communications skills of reading, writing, speaking, and listening to integrate, develop, and reinforce both English language arts (ELA) and science content standards.

We Have the Technology But Low Funds…Now What? (Gen)

(Elementary–High School) *Bonham C, Grand Hyatt*

Beth S. Guzzetta *(tangent_one@yahoo.com)* and **Anthony J. Tepedino** *(ttepedino@allendalecolumbia.org),* Allendale Columbia School, Rochester, N.Y.

Learn about many free/low-cost technology tools that engage students and make learning fun. Computers, iPads, cell phones, iPods…bring your device and explore.

NARST Session: Introducing and Assessing Argumentation in Your Science Classroom (Earth)

(Middle Level) *Bonham E, Grand Hyatt*

Megan Goss, The Lawrence Hall of Science, University of California, Berkeley

Learn several effective approaches for integrating scientific argumentation into your classroom through reading, writing, and speaking activities, as well as gain an introduction to a formative assessment system designed to promote progressively deeper argumentation skills and opportunities for students in the middle school classroom.

Cache In Trash Out—Teaching Environmental Awareness Through Geocaching (Env)

(General) *Presidio B, Grand Hyatt*

Kathleen A. O'Brien *(kobrien@usd260.com),* Derby High School, Derby, Kans.

Geocaching integrates technology and the great outdoors. Learn to engage students in a high-tech scavenger hunt while educating them about the importance of the environment.

The Multilevel Classroom: Differentiation Strategies for Science (Gen)

(Elementary–High School) *Republic B, Grand Hyatt*

DJ West *(djwest78@gmail.com),* Schoolcraft College, Livonia, Mich.

Let's examine a variety of strategies that you can effectively use to impact students that are below level, on level, and above level.

NMEA Session: Bridge Data Activity: Sea Level Trends (Earth)

(Middle Level–College) *Texas Ballroom E/F, Grand Hyatt*

Lisa A. Lawrence *(ayers@vims.edu),* Virginia Institute of Marine Science, Gloucester Point

Let us introduce you to a classroom activity that explores climate change and sea level rise. Access ocean-observing data to investigate changes in sea level from locations around the U.S.

Professional Development: Capturing the Trends, Practices, and Research to Strengthen Teaching and Learning (Gen)

(General) *Travis A/B, Grand Hyatt*

LaMoine L. Motz *(llmotz@comcast.net),* 1988–1989 NSTA President, and Science Education and Facilities Specialist, White Lake, Mich.

Jack Rhoton *(rhotonj@mail.etsu.edu),* East Tennessee State University, Johnson City

Gerry M. Madrazo, 1993–1994 NSTA President, and Multicultural Science Education, Gibsonville, N.C.

Presider: LaMoine L. Motz

Join our group of science education leaders as we share current research, teaching and learning models, projects, and collaborative initiatives toward improving science teaching and learning through professional development and leadership. A materials packet will be distributed.

Cyber-enabled Learning in Unity: Scientific Inquiry and Gaming Supported by Assessment (Gen)

(Middle Level) *Travis C/D, Grand Hyatt*

Angela Stewart, Centennial Junior High School, Kaysville, Utah

Jana Barrow, Woods Cross High School, Woods Cross, Utah

Gayle Dowdle, Fort Herriman Middle School, Herriman, Utah

Todd Campbell *(dtcampbe@gmail.com),* UMass Dartmouth, Fairhaven, Mass.

Max Longhurst *(max.longhurst@usu.edu),* **Brett E. Shelton, Aaron M. Duffy,** and **Paul G. Wolf,** Utah State University, Logan

Engage in scientific investigations and gaming within open-ended virtual 3-D spaces in browser-compatible platforms.

PDI **WestEd Pathway Session: Designing Rubrics and Feedback (Gen)**

(General) *Conference Room 12, Marriott Rivercenter*

Kathy DiRanna *(kdirann@wested.org),* WestEd, Santa Ana, Calif.

Demystify student success! Join me and learn about a collaborative process that includes developing rubrics for student work, planning instructional interventions, and providing feedback for students.

3-D Interactive Notebooks for Secondary Science (Gen)

(Middle Level–High School) *Salon A, Marriott Rivercenter*

LaVonda C. Popp, Science Consultant, Gatesville, Tex.

See how to turn on the motivation factor with 3-D graphic organizers and discover how to morph student notebooks into dimensional, individualized, and brain-smart tools.

Not in My Backyard! (Gen)

(Middle Level–High School) *Salon C, Marriott Rivercenter*

Nancy E. Adgate *(nadgate@henry.k12.ga.us),* Dutchtown High School, Hampton, Ga.

Terri G. George *(terrigeorge1@gmail.com),* Metro RESA, Smyrna, Ga.

Terry Belflower, Ola Middle School, McDonough, Ga.

Presider: Nancy E. Adgate

This activity-based workshop involves government, economics, math, Earth and environmental science, chemistry, and ecology. No one wants factory pollution in their water system!

From Traditional to Inquiry-based Learning (Gen)

(Middle Level–High School) *Salon D, Marriott Rivercenter*

Georgia L. Everett *(geverett@tccs.k12.in.us),* Tri-Central Community Schools, Sharpsville, Ind.

Kathy Daniels *(kathy_daniels@olemiss.k12.in.us),* Mississinewa High School, Gas City, Ind.

Kari L. Clase *(kclase@purdue.edu),* Purdue University, West Lafayette, Ind.

Come learn one way of turning your traditional classroom into one based on student-driven learning with inquiry-based instruction.

PDI **McREL Pathway Session: Using Computer-based Experiences Effectively in Science Instruction (Gen)**

(General) *Salon K, Marriott Rivercenter*

Cyndi Long *(clong@mcrel.org),* McREL, Denver, Colo.

Find out how to incorporate computer-based inquiry learning tools such as virtual manipulatives, animations, and simulations along with technology-based tools to collect and report data into high-quality science instruction. Implemented correctly, these tools intellectually engage students and model real science to support students' understanding of science concepts. Join us as we model tools and discuss favorites.

Molecular Phylogeny Simulation: A Demonstration (Bio)
(High School) *Alamo Salon D, Marriott Riverwalk*
Gerald A. Rau *(gerryrau@hotmail.com),* National Chung Cheng University, Minhsiung Township, Chiayi, Taiwan
Simulate a diversifying evolutionary lineage, construct possible molecular phylogenies, and argue which is most parsimonious based on the evidence. This activity was published in *The Science Teacher.*

2:00–3:00 PM Exhibitor Workshop

Come Experience an Active Physics/Active Chemistry Workshop by a High School Teacher! (Gen)
(Grades 9–12) *205, Convention Center*
Sponsor: It's About Time
Gary Curts, Dublin Jerome High School, Dublin, Ohio
Experience an inquiry project-based approach with our active science curricula—join a teacher who successfully uses the programs to make chemistry and physics engaging and accessible for all his students. Review student work and see the evidence of the students' successes. Take away an activity to try with your students next week.

2:00–3:15 PM Exhibitor Workshop

STEM: The Game Changer in Science Lab Design (Gen)
(Grades 5–12) *214A, Convention Center*
Sponsor: Frey Scientific/School Specialty Science
Gordon Strohminger, Frey Scientific/School Specialty Science, Nashua, N.H.
Explore how STEM impacts the environments in which we teach. Participants will explore how STEM influences lab environment design to strengthen the 21st-Century Skills of collaboration and communication. See how technology integration can push traditional boundaries to facilitate access to essential concepts. Discussions include lab design creation and future trends.

2:00–3:30 PM Exhibitor Workshops

General Biology with Probeware (Bio)
(Grades 9–12) *006C, Convention Center*
Sponsor: PASCO scientific
Presenter to be announced
Experience PASCO's intuitive SPARKvue® software and easy-to-use sensors. With our reliable technology and intuitive software, you can make inquiry labs possible by reducing data collection time and material requirements. Come see for yourself and gain hands-on experience with two of our free biology SPARKlabs.

AP Chemistry: Guided Inquiry Labs Using Probeware (Chem)
(Grades 9–12) *006D, Convention Center*
Sponsor: PASCO scientific
Presenter to be announced
Use the Process-Oriented Guided Inquiry Learning (POGIL) approach to turn a traditional activity into a guided inquiry laboratory experiment. With PASCO's SPARKvue® data acquisition and analysis software, explore a guided inquiry lab using the new Framework for AP Chemistry. Discover how students can meet AP lab requirements while gaining a deeper understanding of the required content.

HHMI's *The Making of the Fittest: Evolving Switches, Evolving Bodies* FREE Classroom Resources (Bio)
(Grades 7–College) *008A, Convention Center*
Sponsor: Howard Hughes Medical Institute
Ann Brokaw, Rocky River High School, Rocky River, Ohio
Don't miss the screening of a stunning short film about the evolution of stickleback populations as they adapted to life in freshwater lakes. Learn how researchers identify key genes and genetic switches involved in the evolution of body structures and document evolutionary change in the fossil record. Take home free classroom-ready resources to support and expand on key concepts presented in the film, including an exciting new virtual laboratory in which students collect, graph, and analyze their own data.

Video Analysis with Vernier (Gen)
(Grades 7–College) *210A, Convention Center*
Sponsor: Vernier Software & Technology
Verle Walters *(info@vernier.com)* and **David L. Vernier** *(info@vernier.com),* Vernier Software & Technology, Beaverton, Ore.
Interested in creating and analyzing your own videos in your science classroom? Come learn how you can use Vernier Logger *Pro* and Video Physics for iOS to enhance your data-collection experiments using video. Topics will include video-synchronized data collection, video data analysis, and still digital photo analysis.

Water Quality with Vernier **(Env)**
(Grades 7–College) *210B, Convention Center*
Sponsor: Vernier Software & Technology
Robyn Johnson *(info@vernier.com),* Vernier Software & Technology, Beaverton, Ore.
Rick Rutland, Five Star Education Solutions, LLC, San Antonio, Tex.
Learn how to use sensors and LabQuest 2 with its built-in GPS to study water quality in the field. Try the Data Matrix mode, designed to make field data management easy. Learn how to map your sampling sites and data on Google Maps using Logger *Pro* software.

Light and Optics: A Series of EnLIGHTening Experiments! **(Phys)**
(Grades 6–12) *214D, 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 with LED flashlights, a laser, lenses, a mirror, and more. Try color mixing, relate it to human vision, and examine different spectra. We make studying light exciting! Take away STEM activities and an understanding of how to apply the engineering cycle in science classes.

2:00–4:00 PM The Planetary Society Lecture

Space Science Is Physics, Chemistry, Biology—and Politics **(Gen)**
(General) *Grand Ballroom C 1/2, Convention Center*

Bill Nye, Executive Director, The Planetary Society, Pasadena, Calif.

Scientist, engineer, comedian, author, and inventor, Bill Nye is a man with a mission: to help foster a scientifically literate society and to help people everywhere understand and appreciate the science that makes our world work. Making science entertaining and accessible is something Bill has been doing most of his life.

Bill is currently executive director of the The Planetary Society. He recently spoke on behalf of the Society at the International Astronautical Federation Congress in Glasgow, Scotland.

As part of the sundial design team, Bill takes great pride in the photometric calibration MarsDials. Placed on the Spirit and Opportunity rovers on Mars, they are inscribed with the words "To those who visit here, we wish a safe journey and the joy of discovery." Bill says, "This is the essence of the scientific enterprise, the Joy of Discovery. That's what the process of science is all about."

Best known for this Emmy Award-winning show Bill Nye the Science Guy®, *he is also host of the series,* The 100 Greatest Discoveries *and his latest project* Stuff Happens, *which is about environmentally responsible choices that consumers can make as they go about their day and their shopping.*

In between creating shows, he has written five children's books about science, including his latest title, Bill Nye's Great Big Book of Tiny Germs.

Bill's next project is "Solving for X," where he'll show us how to do algebra along with the P, B, &J—the Passion, Beauty, and Joy—of math.

2:00–5:00 PM Workshop

PDI **ASSET Pathway Session: Examining Student Work in Your Professional Learning Community** **(Gen)**
(General) CANCELED *Conference Room 8, Marriott Rivercenter*
Sharon Beddard-Hess *(sbhess@assetinc.org),* **Diane DeMario** *(ddemario@assetinc.org),* **Barbara Williams** *(bwilliams@assetinc.org),* and **Stephanie Rakowski** *(srakowski@assetinc.org),* ASSET STEM Education, Pittsburgh, Pa.
Engage in a hands-on activity, examine student work, and develop a protocol for assessing student work in a Professional Learning Community.

2:10–2:25 PM Global Conversations in Science Education Conference Update

Updates from Around the World

(By Preregistration Only) *Texas Ballroom A/B, Grand Hyatt*

During this session, participants will be given the opportunity to briefly share (approximately five minutes) current events, concerns, etc. 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.

2:30–4:30 PM Exhibitor Workshop

Worm and Squirm Your Way into Behavior Labs (Bio)

(Grades 9–College) *217C, Convention Center*

Sponsor: Bio-Rad Laboratories

Sherri Andrews, Bio-Rad Laboratories, Hercules, Calif.

How do genes influence behavior? Use the model organism *C. elegans* (a nematode) to answer this question in an engaging activity that compares normal and mutant worm behavior. We will explore worm taste preferences in a simple and fast chemotaxis assay, and examine the connection of our worm mutant to human diseases. Come see this great alternative AP fruit fly behavior lab!

3:00–4:30 PM Presentation

SESSION 1

sTem—You've Never Seen Student Technology Work Like This! (Gen)

(General) *207A, Convention Center*

Ben Smith *(ben@edtechinnovators.com)* and **Jared Mader** *(jared@edtechinnovators.com),* York, Pa.

Come learn how to tap into your students' creative side. We will share student examples and demonstrate how to enhance your classroom using technology.

3:00–4:30 PM Exhibitor Workshop

If You Want TEKS in Their Minds, Put CPO in Their Hands (Gen)

(Grades 5–12) *214B, Convention Center*

Sponsor: CPO Science/School Specialty Science

Nathan Olsson, CPO Science/School Specialty Science, Nashua, N.H.

Achieving in-depth STAAR-level understanding of TEKS is easy when students are solving real-world problems! You will design, test, and refine a working wind turbine while addressing important skills and content TEKS. Topics include hands-on equipment to build student motivation, a 5E lesson plan, and teaching and assessing TEKS.

3:00–6:00 PM Meeting

Council for Elementary Science International Board Meeting

Independence, Grand Hyatt

Visit *www.cesiscience.org* for more information.

3:30–4:30 PM Special Session

Building on Collaborative Efforts Between Government Agencies, Corporate Entities, and Education in Order to Impact STEM Teaching and Learning (Gen)

(General) *Salon F, Marriott Rivercenter*

Larry Sernyk *(jlsernyk@dow.com),* Dow AgroSciences LLC, Indianapolis, Ind.

Rui Cruz, The Dow Chemical Co., Freeport, Tex.

Presider: David L. Evans, NSTA Executive Director, Arlington, Va.

Please join us as representatives from Astellas Pharma US, Bayer USA Foundation, The Dow Chemical Company, and Lockheed Martin Corporation participate in a discussion focusing on ways science educators can effectively collaborate and build relationships with government agencies and corporate entities in order to impact STEM teaching and learning. David Evans, NSTA Executive Director, will serve as moderator for this panel. He will ask questions that will stimulate discussion and foster thought around the role corporate scientists/engineers play in the teaching and learning of K–16 STEM content.

3:30–4:30 PM Presentations

SESSION 1

✓ **Using the 5E Model to Impact Student Learning: Align Instruction and Assessment to Make Student Thinking Visible (Phys)**

(Elementary/College/Supervision) *202B, Convention Center*

Terry Jimarez *(tjimarez@gmail.com),* The University of Texas–Pan American, Edinburg

Promote in elementary preservice teachers the integration and alignment of teaching and assessment strategies through the use of the 5E model (Engage, Explore, Explain, Elaborate, and Evaluate).

SESSION 2

Effectively Integrate E-books into Inquiry Science Instruction (Gen)

(Elementary) *213B, Convention Center*

Jessica Fries-Gaither *(jfriesgaither@gmail.com),* Columbus School for Girls, Columbus, Ohio

Come see examples of free e-books, learn how to build your own, and discover strategies for integrating them into inquiry-based instruction.

SESSION 3 (two presentations)

(General) *216B, Convention Center*

Get Walled In! Interactive Science Word Walls (Gen)

Annette H. Peacock *(annettep@springisd.org),* Thompson Elementary School, Houston, Tex.

Let's build student vocabulary with interactive word walls that can follow any classroom theme in any grade! Get great ideas to use right away!

Inquiry and Literacy in Science and Across the Curriculum (Gen)

Linda J. Morris *(linda_morris@dpsk12.org),* Denver (Colo.) Public Schools

Keith Miller, Nancy L. Sasaki, and **Leigh Alvarado Benson,** University of Denver, Colo.

Hear about a highly successful Math Science Partnership (MSP) project in which elementary students from Denver Public Schools explain their understanding of an inquiry science investigation, activity, and/or reading by talking and writing their claims, evidence, reasoning (CER), resulting in increased writing and science scores on state tests.

SESSION 4 (two presentations)

(General) *Bonham B, Grand Hyatt*

An Interactive Inquiry Activity (Gen)

Tahsin Khalid *(tahsinkhalid@hotmail.com),* Southeast Missouri State University, Cape Girardeau

Using National Science Education Standards guidelines, engage in an inquiry activity about matter developed for elementary students. Students work in groups and test a solid and a liquid followed by a class discussion and explanation by the teacher. Using an interactive website, students then apply the concepts. This activity uses both inquiry teaching and technology tools to foster student learning.

Possibilities, Big Ideas, and Flow with Inquiry (Gen)

Teresa LeSage Clements *(lesaget@uhv.edu),* University of Houston–Victoria, Tex.

Find out how you can promote big ideas, possibilities, and cognitive flow using inquiry and virtual information technology and media.

SESSION 5

Exploring the National Science Digital Library: Finding and Using Digital Resources in Your Class (Gen)

(High School–College) *Bowie A, Grand Hyatt*

Lynn M. Diener *(dienerl@mtmary.edu),* Mount Mary College, Milwaukee, Wis.

Find out about the free digital STEM resources available from the National Science Digital Library.

SESSION 6

NARST Session: Argument-Driven Inquiry as a Way to Help Middle School and High School Students Develop Science Proficiency During Labs (Bio)

(Middle Level–High School) *Bowie B, Grand Hyatt*

Victor Sampson *(vsampson@fsu.edu)* and **Jonathon Grooms** *(jgrooms@fsu.edu),* Florida State University, Tallahassee

Let us introduce you to a method of lab instruction called Argument-Driven Inquiry. We'll share some research that suggests that it helps students develop science proficiency.

SESSION 7 (three presentations)
(General) *Bowie C, Grand Hyatt*

SCST Session: Low-Budget Online and Video Activities Supporting an Inquiry-based Laboratory Course (Bio)

Carol S. Lin *(csl27@columbia.edu),* Columbia University, New York, N.Y.

Attention will be paid to the design, execution, and assessment of online activities complementing an inquiry-based molecular biology wet laboratory course, including finance, feasibility, learning outcomes, and open access.

SCST Session: Alternative Assessments: Creativity and Critical Thinking (Bio)

Sandra M. Latourelle *(latours@plattsburgh.edu)* and **Nancy L. Elwess** *(nancy.elwess@plattsburgh.edu),* SUNY Plattsburgh, N.Y.

Join us for two approaches that have been very successful in our Bio 101 General Biology course. One is titled *Cells R Us* and the other, *Biology in the News.*

SCST Session: Using Active Learning Techniques in A&P—Is Content Really "King"? (Bio)

Nicholas Roster *(nroster@nmc.edu),* Northwestern Michigan College, Traverse City

I am using active learning in A&P to help students gain a deeper understanding. See how I get students to uncover material, rather than just cover it.

SESSION 8

Siemens We Can Change the World Challenge: Using Challenge-based Learning to Boost Achievement… and Help Change the World (Phys)

(Elementary–High School) *Crockett A, Grand Hyatt*

Brad Fountain *(wecanchange@discovery.com),* Discovery Education, Silver Spring, Md.

Project-based learning enables students to explore and develop solutions to real-world problems and challenges. Empower your students to learn about science and conservation while making a difference in their schools, communities, and around the world through the Siemens We Can Change the World Challenge *(wecanchange.com),* the premier national K–12 sustainability competition. You'll leave with a wide variety of free digital resources and gifts that can help you and your class make an impact.

SESSION 9

CSSS Session: Connecting Standards to Instruction: Using the Cloud to Develop an Online Resource for Teachers (Gen)

(General) *Mission A, Grand Hyatt*

Doug Paulson *(doug.paulson@state.mn.us)* and **John Olson** *(john.c.olson@state.mn.us),* Minnesota Dept. of Education, Roseville

Do you need help turning standards into instruction and learning? Minnesota has developed a web-based and highly searchable set of resources for translating standards into curriculum and instruction.

SESSION 10

The DuPont Challenge: Winning with Science Writing and Research (Gen)

(General) *Mission B, Grand Hyatt*

Barbara Pietrucha, Point Pleasant, N.J.

Come meet the teacher winners and judges and discuss how to incorporate writing into your science curriculum and have your students create winning entries for the competition.

SESSION 11

Developing Conceptual Understanding in Stoichiometry for All Students (Chem)

(High School–College) *Seguin A, Grand Hyatt*

Wai S. Chan *(waisum.chan@yahoo.com),* William P. Clements High School, Sugar Land, Tex.

Join me as I share my approach on scaffolding students' conceptual learning experience from dimensional analysis to stoichiometry.

SESSION 12 (two presentations)
(General) *Seguin B, Grand Hyatt*

A House for Kermit: Hands-On Activities for Elementary School Physical Science and Green Building (Gen)

Sarah R. Young, Einstein Fellow, National Science Foundation, Arlington, Va.

Come learn how to use engineering and the environment to teach circuits, energy transfer, heat, and green building.

Brain Acrobatics Applies to Everyone (Gen)

Barry R. Thompson *(bthompson@aug.edu),* Augusta State University, Augusta, Ga.

Combining science content, music, and movement makes for a fun learning atmosphere for all learners. Best of all, original research indicates it works.

SESSION 13

NSTA Press® Session: STEM Activities—Are You Addressing Safety? (Gen)

(Elementary–High School) *Texas Ballroom D, Grand Hyatt*

Ken R. Roy *(safesci@sbcglobal.net),* Glastonbury (Conn.) Public Schools

Trading in test tubes for hand and power tools for STEM activities? Learn how to address these hazards and safety precautions before they become liability issues!

SESSION 14 (two presentations)

(General) *Conference Room 15, Marriott Rivercenter*

Student Engagement: Using Scientists to Teach Science (Gen)

Elliot Macdonald *(elliotmacdonald@gmail.com)* and **Richard P. Hechter** *(hechter@cc.umanitoba.ca),* University of Manitoba, Winnipeg, Canada

Student engagement is directly related to creating a stronger commitment to learning. Using field experts to present current scientific research and methodology can create an environment in which students are active in their learning process.

Using Personal Response Systems Effectively (Gen)

Gordon L. Wells *(gordon.wells@ovu.edu),* Ohio Valley University, Vienna, W.Va.

Learn how to use personal response systems effectively in your classroom for both anonymous responses as well as graded responses.

Come to FLINN SCIENTIFIC's

Morning of Chemistry

The Teaching of Chemistry

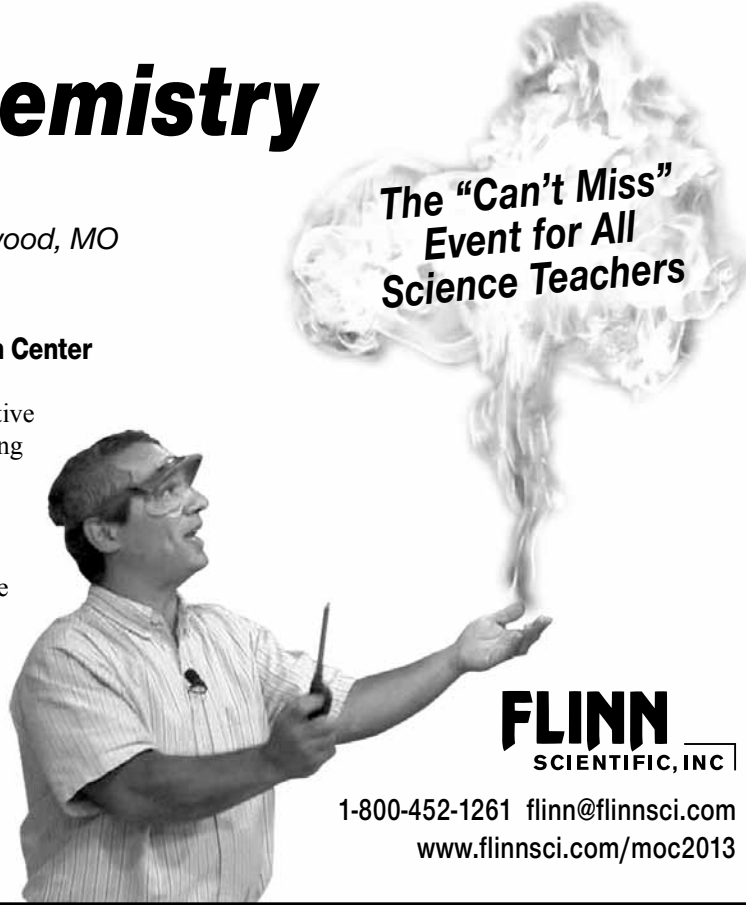
By Bob Becker, Kirkwood High School, Kirkwood, MO

Friday, April 12, 2013 • 10:00 a.m. – 11:45 a.m.

Grand Ballroom C1, Henry B. Gonzalez Convention Center

Demonstrations are the chemistry teacher's most effective tool in bringing abstract concepts to life. Award-winning teacher Bob Becker has discovered that many of his favorite demonstrations also help illustrate his philosophy of teaching.

The core beliefs Bob holds about his students, about the art of communication, and about respect and empathy are reflected quite effectively in the color changes, flames, and KABOOMS of his demos. Come and see 21 of Bob's favorite demonstrations, and how they illustrate *The Teaching of Chemistry.* All science teachers—not just chemistry teachers—will enjoy this one-of-a-kind presentation. Handouts will be provided.



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www.flinnsci.com/moc2013

SESSION 15

Let's Talk About Science: Using Formative and Summative Oral Assessments (Gen)

(Middle Level–High School) *Salon A, Marriott Rivercenter*

Natalie J. Berger *(nberger2@vlacs.org),* Virtual Learning Academy Charter School, Exeter, N.H.

Individual student-teacher conversations can be a powerful assessment tool in any science classroom. Join me as we sample assessment questions, rubrics, and ideas for implementation.

SESSION 16

Camping in the Curriculum (Gen)

(Middle Level–High School) *Salon J, Marriott Rivercenter*

Elijah Bonde *(ebonde@nativityprep.org),* Nativity Prep Academy, San Diego, Calif.

Find out how to incorporate camping skills and nature appreciation into a school science program that aligns with classroom content.

SESSION 17

Cool Things About DNA (Bio)

(Middle Level–College) *Alamo Salon E, Marriott Riverwalk*

Michael F. Zeller *(mzeller@iastate.edu),* Iowa State University, Ames

Come enjoy a light-hearted session on what research has discovered about DNA. Developed as an introductory presentation to a genetic unit for high school biology class, "Cool Things About DNA" has been used in grades 7–14. You are invited to bring your own "cool" facts about DNA.

SESSION 18 (two presentations)

(Middle Level–High School) *Alamo Salon F, Marriott Riverwalk*

Formative Queries for the High School Biology Classroom (Bio)

Rachel A. Beattie *(rbcreative8@gmail.com),* Lincoln-Way East High School, Frankfort, Ill.

Walk away with standards-based valid and reliable formative assessments designed to confront student preconceptions about biology concepts at the high school level.

From Apps to Lessons: Using the iPad in the Science Classroom (Bio)

Christine J. Pfaffinger *(cpfaffinger@d125.org),* **Christina H. Wood** *(cwood@d125.org),* and **Amerigo E. Carnazzola** *(acarnazzola@d125.org),* Adlai E. Stevenson High School, Lincolnshire, Ill.

The iPad provides experiences not possible with textbooks and microscopes. See how three teachers are using iPads to enhance collaborative learning and during formative assessments.

3:30–4:30 PM Workshops

Stellar Evolution—From Formation to Destruction (Earth)

(General) *001A, Convention Center*

Donna L. Young *(donna@aavso.org),* NASA/SAO/CXC, Bullhead City, Ariz.

Use beautiful multiwavelength images of stellar nurseries, protostars, supernova remnants, planetary nebulae, neutron stars, pulsars, and black holes to investigate the stages of stellar evolution.

Looking at Clouds from Both Sides! (Earth)

(Middle Level–High School) *001B, Convention Center*

Lynne H. Hehr *(lhehr@uark.edu)* and **John G. Hehr** *(jghehr@uark.edu),* University of Arkansas, Fayetteville

Dissect a cumulonimbus cloud through updrafts and downdrafts and discuss tornado development, straight-line winds, and hurricanes. Learn how to turn this content into inquiry-based lessons for field and classroom use.

Solar System Activities for Elementary/Middle School (Earth)

(Elementary–Middle Level) *002, Convention Center*

Brian Levine *(blevine@amnh.org),* American Museum of Natural History, New York, N.Y.

Discover how to use Google Earth to build a scale model of the solar system, and how to model and recreate retrograde motion and more!

Beyond the Worksheet: Deepening Engineering Knowledge and Skills Through STEM Notebooking (Gen)

(Elementary) *101B, Convention Center*

Michelle DiIeso *(mdiieso@mos.org),* Museum of Science, Boston, Mass.

Join me and engage in a hands-on inquiry experience, create your own mini-STEM notebooks, and discuss the use of STEM notebooks in classrooms.

New Mexico's Land Before Time: An Early Childhood Dinosaur Curriculum (Gen)

(Preschool–Elementary) *103B, Convention Center*

Cirrelda C. Snider-Bryan *(cirrelda.snider@state.nm.us),* New Mexico Museum of Natural History and Science, Albuquerque

Designed for preK–2, explore this curriculum and distinguish between dinosaur and prehistoric reptiles, role-play actions of paleontologists, and learn names and characteristics of animals from three Mesozoic eras.

The Science Magic Show **(Gen)**
(General) *202A, Convention Center*
Arthur W. Bowman *(awbowman@nsu.edu),* Norfolk State University, Norfolk, Va.
Experience an exciting show built on the skillful use of everyday fundamental science principles and phenomena to create an illusion of performing magic.

CESI Session: Developing Inquiry Across Europe **(Gen)**
(Preschool–Elementary) *212A, Convention Center*
Sue Dale Tunnicliffe *(lady.tunnicliffe@mac.com),* Institute of Education, University of London, U.K.
This internationally focused workshop will introduce the Pri-Sci-Net, a European network of primary science educators, and consider how inquiry develops in the elementary school from ages 3 to 11 through hands-on activities that develop progression in the science process. Come engage in several of the activities selected from contributions of the 12 partner countries.

Astronomical Café: Exploring Celestial Ideas for Your Classroom **(Earth)**
(General) *213A, Convention Center*
Kathy Costello *(kacoste@siue.edu)* and **E.J. Reilly** *(ejreilly@charter.net),* Southern Illinois University, Edwardsville
Join a café discussion with astronomers and teachers to explore the "T" in STEM. Exchange ideas and get inquiry activities to use in your classroom on Monday!

Engineering for ALL! **(Phys)**
(Preschool–Elementary) *216A, Convention Center*
Kristin Sargianis *(ksargianis@mos.org),* Museum of Science, Boston, Mass.
Learn how hands-on engineering activities—provided in conjunction with examples of successful STEM role models that are diverse in culture and ability—afford ALL students access to science and engineering content.

Put the "E" in STEM Using Lessons You May Already Have! Real-World Applications to Science Are Everywhere! **(Gen)**
(Elementary–Middle Level) *217A, Convention Center*
Reeda Hart *(hartr@nku.edu)* and **Thomas B. Brackman** *(brackmant1@nku.edu),* Northern Kentucky University, Highland Heights
Experience "E"lectrical "E"ngineering in the physical sciences, "E"arthquake "E"ngineering in the Earth sciences, and "E"nvironmental "E"ngineering in the life sciences through this active workshop. Free CD of lesson plans.

Connecting Science and Math Through Story Problems **(Gen)**
(Preschool–Elementary) *217D, Convention Center*
Pamela P. King *(pamelak@clemson.edu),* Clemson University, Greenville, S.C.
Develop connections between science and mathematics in early childhood through inquiry-based science investigations that facilitate constructing story problems proposed in the Common Core State Standards for mathematics.

Challenge-based Learning: An Innovative Twist on the Marble Roller Coaster Project **(Phys)**
(Middle Level) *Bonham C, Grand Hyatt*
Andrew Lammers *(alammers@carolinaday.org),* Carolina Day School, Asheville, N.C.
Spark science learning in your classroom with a design and engineering challenge! Using the AirCoaster app and household materials, we will design and build amazing roller coasters. *Note:* Participants may benefit from downloading AirCoaster to their iOS device prior to the workshop.

ASTE Session: Who Wants to Be a Scientist? Elementary Teachers Can Make a Difference **(Gen)**
(Elementary–Middle Level) *Bonham E, Grand Hyatt*
Julie Thomas *(julie.thomas@okstate.edu)* and **Melissa Hulings** *(melissa.hulings@okstate.edu),* Oklahoma State University, Stillwater
Join us as we review research pointing to children's early STEM career expectations and engage in activities that help expand children's understanding and future thinking about science.

Top Tips and Tools for Retention, Review, and Results **(Gen)**
(Informal Education) *Lone Star Ballroom C, Grand Hyatt*
Cindi Smith-Walters *(cindi.smith-walters@mtsu.edu)* and **Heather L. Barker** *(hlb3g@mtmail.mtsu.edu),* Middle Tennessee State University, Murfreesboro
Students who frequently review material increase retention and raise scores. Learn a variety of techniques that can be easily used in your classroom.

Preparing for NGSS—Exploring the Scientific and Engineering Practices (Gen)

(General) *Lone Star Ballroom D, Grand Hyatt*

Ted Willard *(twillard@nsta.org),* Program Director, COMPASS, NSTA, Arlington, Va.

The highly anticipated Next Generation Science Standards (NGSS) will include an important new element—scientific and engineering practices—as established in the NRC *Framework.* What are these practices? How are they different or similar to inquiry? How do they work together to form performance expectations in the upcoming NGSS? Come join me and explore these important practices and what it means for science educators.

Vocabulary Magic—Making Words Real: Powerful Strategies That Can Accelerate the Acquisition of Science Vocabulary (Gen)

(Elementary–High School) *Lone Star Ballroom E, Grand Hyatt*

Joanne M. Billingsley *(jbillingsley@satx.rr.com),* Educational Consultant, San Antonio, Tex.

Presider: Cynthia Renouf Gonzales *(cgonza4@neisd.net),* Eisenhower Middle School, San Antonio, Tex.

Discover neuroscience-based strategies that incorporate card sorts, vocabulary trailers, and sentence puzzlers. Tap into the power of music, imagery, and movement to enhance science literacy.

We're All in This Together—Watersheds and You! (Env)

(Elementary–Middle Level/Informal) *Presidio B, Grand Hyatt*

Carl J. Carranza *(carl.carranza@lacity.org),* Cabrillo Marine Aquarium, San Pedro, Calif.

Come learn some easy and fun activities that you can use to help your students understand and care about how their choices can affect the environment.

Misconceptions: How to Identify Them and What to Do with Them (Gen)

(General) *Republic B, Grand Hyatt*

Sharon Schleigh *(sharon.schleigh@purduecal.edu),* Purdue University Calumet, Hammond, Ind.

Engage in a hands-on activity to learn how to identify misconceptions and how to challenge and change students' misconceptions. Join me for discussions, journaling, and discrepant events.

Conference Tips for First-Timers (Gen)

(General) *Texas Ballroom C, Grand Hyatt*

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.

NMEA Session: Shared Goals in the New Science and Language Arts Standards for Grades 3–6 (Gen)

(Elementary) *Texas Ballroom E/F, Grand Hyatt*

Laura Tucker *(ltucker@berkeley.edu),* Port Townsend Marine Science Center, Port Townsend, Wash.

Explore how students can effectively achieve these common goals during science instruction. Experience an exemplary ocean science curriculum that involves supporting ideas with evidence.

Using the National Facilities Standards to Plan and Design Your School Science Classroom/Laboratory (Gen)

(General) *Travis A/B, Grand Hyatt*

LaMoine L. Motz *(llmotz@comcast.net),* 1988–1989 NSTA President, and Science Education and Facilities Specialist, White Lake, Mich.

Juliana Texley *(jtexley@att.net),* NSTA President-Elect-Elect, and Palm Beach State College, Boca Raton, Fla.

Sandra West Moody *(sw04@txstate.edu),* Texas State University, San Marcos

Presider: LaMoine L. Motz

Join the NSTA Team on Planning and Designing School Science Facilities for an interactive, hands-on session on planning and designing your new/renovated science facilities. Learn how the latest research on effective teaching and safe practices provides you with a guide to what makes effective, flexible, modular, and safe teaching spaces, and how your input can make a difference in the planning.

EarthKAM: Taking Pictures of Earth from Space (Gen)

(Middle Level) *Travis C/D, Grand Hyatt*

Leesa Hubbard *(leesa@sallyridescience.com),* Teacher in Residence, Sally Ride Science, San Diego, Calif.

Your students can take pictures of Earth from space with NASA/EarthKAM (Earth Knowledge Acquired by Middle school students)! Discover how to get your students involved while participating in engaging hands-on activities.

Fruit Power! Let's Build a Lemon Battery! (Gen)
(General) Conference Room 12, Marriott Rivercenter
Tom Lough *(tom.lough@gmail.com),* Schlumberger Excellence in Educational Development, Inc., Murray, Ky.
Cindy Birkner *(birknerc@rlc.edu),* Rend Lake College, Ina, Ill.
Juice up your science class! Build and test your own lemon batteries in this hands-on workshop using the Fruit Power SEEDKIT from SEED.

Designing Design Challenges: Engineering Experiences for Informal and Formal Learning Environments (Gen)
(Elementary–Middle Level/Inf.) Salon B, Marriott Rivercenter
Sharlene Yang *(syang@mos.org)* and **Lydia Beall** *(lbeall@mos.org),* Museum of Science, Boston, Mass.
Experience engineering activities for both formal classroom and museum environments. Discuss how exposure to engineering in different contexts can engage students in STEM learning.

A World of Difference (Gen)
(Middle Level–High School) Salon C, Marriott Rivercenter
Kathleen Dwyer, Maplewood Richmond Heights High School, Maplewood, Mo.
Hear about opportunities to teach and learn abroad; then participate in science activities that incorporate global issues.

Inquiring Minds Want to Know! (Gen)
(Middle Level–High School) Salon D, Marriott Rivercenter
Selina L. Bartels *(sbartels@hawk.iit.edu),* **Norman G. Lederman** *(ledermann@iit.edu),* and **Judith S. Lederman** *(ledermanj@iit.edu),* Illinois Institute of Technology, Chicago
Joseph Michaelis, Perspectives/IIT Math & Science Academy, Chicago, Ill.
Take any science lab and upgrade it to an authentic inquiry investigation! Take home rubrics, guides, culminating projects, timelines, and other ideas.

PDI **McREL Pathway Session: Using the Core Ideas in the Projected Next Generation Science Standards (Gen)**
(General) Salon K, Marriott Rivercenter
Cyndi Long *(clong@mcrel.org),* McREL, Denver, Colo.
Learn how to identify important content from the core ideas in the projected Next Generation Science Standards (NGSS) and sequence learning goals into a progression that focuses instruction on building conceptual understanding. Students must achieve proficiency not by discipline-based facts but by understanding the connections in science. Join us as we dive into the NGSS core ideas and explore a framework for integrating intentional strategies into lessons that get at the heart of developing student understanding.

Radiation and Humans (Chem)
(High School) Alamo Salon A, Marriott Riverwalk
Arthur Beauchamp *(acbeauchamp@ucdavis.edu),* University of California, Davis
Radiation is all around us from cell phones to the Fukushima disaster. We will develop a model of radiation to help us understand the interaction between radiation and humans.

Spreading Disease—It's Contagious! (Bio)
(Middle Level–High School) Alamo Salon C, Marriott Riverwalk
Eva M. Ogens *(eogens@ramapo.edu),* Ramapo College of New Jersey, Mahwah
Explore both a hands-on and an online simulation about the effects of antibiotics on a disease-causing bacterial population during an infection. *Note:* Activities available to the first 25–30 participants.

Deep Blue Chemistry: Using Aquariums as Models of Natural Aquatic Ecosystems (Bio)
(Middle Level–High School) Alamo Salon D, Marriott Riverwalk
Demetrius M. Lutz *(dlutz@nysci.org),* New York Hall of Science, Corona
Using chemical test kits, measure and identify the chemical parameters of aquarium water to assess the water's ability to foster health in aquarium inhabitants. Activities include measuring salinity, pH, ammonia, nitrite, and nitrate levels. You'll also have a chance to reflect upon the significance of the data and how this data could be applied to understanding natural aquatic ecosystems.

3:30–4:30 PM Exhibitor Workshop

NEW! An Astronomy Textbook Written Specifically for High School Students (Gen)

(Grades 9–12) *205, Convention Center*

Sponsor: It's About Time

Gary Curts, Dublin Jerome High School, Dublin, Ohio

Developed by the education experts at TERC, *Investigating Astronomy* is the first comprehensive, yearlong astronomy curriculum designed specifically for high school students. 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 while conducting hands-on/minds-on investigations.

3:30–5:00 PM Exhibitor Workshops

Prepare Your Students to Be Tomorrow's Innovators with STEM Education (Gen)

(Grades K–12) *006A, Convention Center*

Sponsor: Pearson

Anne Rice, Zion, Ill.

Robyn Matzke, Pearson, Boston, Mass.

STEM education (Science, Technology, Engineering, and Math) strives to encourage and interest students in STEM fields, develop a competitive workforce, and increase science literacy. Learn how to integrate the four areas of STEM around a central question in your science classroom using multiple delivery mechanisms, including project-based activities that help prepare students for 21st-century careers.

Ecology and Evolution of Infectious Disease: How Dangerous Pathogens Emerge, Spread, and Evade Our Defenses (Bio)

(Grades 9–12) *006B, Convention Center*

Sponsor: Pearson

Joseph Levine, Author, Concord, Mass.

From influenza to West Nile, diseases threaten us and grab headlines. Teach about them with relevance and rigor (and meet standards) using hot digital technology.

Machines and Mechanisms in the Classroom and Beyond (Phys)

(Grades 3–5) *007A, Convention Center*

Sponsor: LEGO Education

Jessica Pope, LEGO Education, Pittsburg, Kans.

Learn how the LEGO Education Simple and Motorized Mechanisms set engages students to build and explore machines and mechanisms, investigate motorized machines, calibrate and capture wind, and study gearing mechanisms. In this workshop, participants will build a hammer model using LEGO® bricks, complete a Bricks in Space activity, and discuss curriculum connections for the classroom.

Master of Science in Geosciences via Distance Learning from Mississippi State University (Earth)

(Grades K–12) *007B, 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 graduate program includes courses in meteorology, geology, astronomy, oceanography, hydrology, and environmental geoscience. All students pay in-state tuition rates.

Hands-On Nanotechnology for Your Classroom (Phys)

(Grades 9–College) *007C, Convention Center*

Sponsor: Nano-Link

Deb Newberry *(dmnewberry2001@yahoo.com)* and **Billie Copley** *(billie.slb@gmail.com),* Dakota Country Technical College, Rosemount, Minn.

Nano-Link has created more than 15 hands-on classroom activities designed to convey nano concepts. We will demonstrate six of these as well as showcase online resources. This is your opportunity to sign up for free materials that will be sent to your classroom.

Toxin and Energy Flow in an Ecosystem (Bio)
(Grades 6–12) *007D, Convention Center*
Sponsor: Science Take-Out
Susan Holt *(contact@sciencetakeout.com),* Science Take-Out, Pittsford, N.Y.
Join us for this simple hands-on activity. Model the flow of toxins and energy through an ecosystem's food chains and food webs. Develop the concept of biological magnification for environmental toxins.

Space Camp and 21st-Century Learning: The Crossroads of Formal and Informal Education (Gen)
(Grades K–12) *008B, Convention Center*
Sponsor: Space Camp®
Marcia Lindstrom, Space Camp, Huntsville, Ala.
Specialty camps—especially those dedicated to encouraging the study of science, technology, engineering, and math—are uniquely positioned to provide 21st-century learning skills to young people in the areas of learning/innovation and life/career skills. This workshop explains how Space Camp is bridging the gap between formal and informal education.

Learn Chemistry: Enhancing Learning and Teaching with Resources and Tools from the RSC (Chem)
(General) *102A, Convention Center*
Sponsor: The Royal Society of Chemistry
Duncan McMillan, The Royal Society of Chemistry, Milton Road, Cambridge, U.K.
Participants will be shown how to get the most out of our large suite of resources and tools for chemistry teachers and students—from interactive simulations, downloadable resources, and subject microsites, to career videos and teacher support information. Those with laptops or tablet computers will be able to follow the presentation. Those without, or attending casually, will receive general guidance and advice on making the most of the Royal Society of Chemistry's Learn Chemistry site *(www.rsc.org/learn-chemistry)*, a 2013 BETT Award finalist.

Go Green and Bring STEM Concepts to Life with the K'NEX® Education Renewable Energy Set! (Phys)
(Grades 5–9) *102B, Convention Center*
Sponsor: K'NEX Education
Presenter to be announced
Address critical STEM concepts in the middle school classroom and gain instructional models that can enhance your students' understanding of these concepts. K'NEX and the lessons provided in the teacher's guide use hands-on exploration in conjunction with an engaging inquiry-based approach to learning. Students work together as they build, investigate, discuss, and evaluate concepts, ideas, and designs. Drawing for a K'NEX Education Renewable Energy Set!

New Guided Inquiry Labs for AP Chemistry from Flinn Scientific (Chem)
(Grades 10–12) *103A, Convention Center*
Sponsor: Flinn Scientific, Inc.
Irene Cesa *(icesa@flinnsci.com)* and **Scott Stahler** *(sstahler@flinnsci.com),* Flinn Scientific, Inc., Batavia, Ill.
This interactive, hands-on workshop can help you implement the revised laboratory investigations and curriculum framework for AP Chemistry! Join Flinn Scientific as we present two new guided inquiry chemistry experiments that support the integrated learning objectives and applied science practice skills your students need for success. Pre-lab preparation and preliminary activities for each investigation have been optimized so teachers can effectively guide students and provide maximum opportunities for inquiry. Handouts provided for all activities!

Waves, Energy, and Color (Phys)
(Grades 6–8) *203A, Convention Center*
Sponsor: LAB-AIDS, Inc.
Mark Koker, LAB-AIDS, Inc., Ronkonkoma, N.Y.
Although we live an EM waves–enabled lifestyle, most of us, including our middle school students, have no idea how they actually work. The Next Generation Science Standards specifically call for students to understand Waves and Their Applications in Technologies for Information Transfer. Join LAB-AIDS for an activity from the waves unit of SEPUP's *Issues and Physical Science* program. Explore properties of light by investigating colors of the visible spectrum and investigate the energy levels of the different colors of white light through the use of a phosphorescent material. Activities show how SEPUP embeds research-based practices and real issues to deliver powerful content learning.

What's Soil Got to Do with It? (Bio)
(Grades K–6) *204A, Convention Center*
Sponsor: Nutrients for Life Foundation
Nancy Bridge *(info@nutrientsforlife.org),* Olympia High School, Orlando, Fla.
How do plants grow? Plant seeds of success and teach biological concepts through hands-on activities by growing plants in your classroom. The standards and inquiry-based Nutrients for Life elementary curriculum and supplemental materials will be provided as we explore properties of soil and how plant growth affects soil.

REAL School Gardens: STEM in the School Yard (Gen)

(Grades K–5) *204B, Convention Center*

Sponsor: REAL School Gardens

Scott Feille *(sfeille@realschoolgardens.org)* and **Ellen Robinson** *(erobinson@realschoolgardens.org),* REAL School Gardens, Fort Worth, Tex.

Experience engaging ways to authentically integrate STEM subject areas in an outdoor classroom for K–5. Take home STEM-based lesson plans and learn about opportunities to partner with REAL School Gardens.

Carolina's Young Scientist™ Dissection Series (Bio)

(Grades 5–8) *206A, Convention Center*

Sponsor: Carolina Biological Supply

Carolina Teaching Partner

Join us for a hands-on, introductory-level dissection of the crayfish, cow eye, frog, and squid. Step-by-step instructions and color images allow participants to easily locate and identify external and internal features, and gain a better understanding of structure and function. Your young scientists will love it!

Carolina Beyond the Tape™: Forensic Science for Every Discipline (Bio)

(Grades 9–12) *207B, Convention Center*

Sponsor: Carolina Biological Supply

Carolina Teaching Partner

Trying to find a new way to increase student engagement in your classroom? Whether you teach physics, chemistry, or biology, come join the Carolina Crime Lab and go hands on as we attempt to piece together the evidence and work cooperatively to find the culprit.

Science of Everyday Life (Env)

(Grades K–12) *209, Convention Center*

Sponsor: Discovery Education

Kyle Schutt, 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, *ScienceofEverydayLife.com* offers teachers and families tools to facilitate learning and promote innovative thinking using hands-on lesson plans and interactive features designed to motivate and inspire students of all ages! Join us for a chance to win an innovation kit filled with 3M supplies.

Physical Science for the iPad Generation (Phys)

(Grades 5–12) *211, Convention Center*

Sponsor: Ward's Science

Andrew Fulton *(andrew.fulton@vwreducation.com),* VWR Education, Rochester, N.Y.

Capture and keep your students' attention with an engaging physical science activity that addresses crosscutting concept cause and effect using today's technology. Learn how to use a free iPad app and digital data collection to measure and analyze changes in pH. You'll leave the workshop feeling even more tech-savvy than your students!

The Drunken Worms: Exploring Gene Function with *C. elegans* (Bio)

(Grades 10–College) *212B, Convention Center*

Sponsor: Edvotek Inc.

Danielle Snowflack *(info@edvotek.com),* **Jack Chirikjian** *(info@edvotek.com),* and **Khuyen Mai** *(info@edvotek.com),* Edvotek Inc., Washington, D.C.

Model organisms allow us to study fundamental questions in developmental, cellular, and neurobiology that may be difficult to study in humans. Join us for a hands-on experience exploring alcohol metabolism using the nematode *C. elegans* as a model organism. Participants will learn how to grow and feed *C. elegans* and how to test the effects of alcohol on the locomotion and health of normal and mutant worms. Participants receive a free flash drive and enter for a T-shirt drawing at the end of the workshop.

If You Want the TEKS in Their Minds, Put FOSS in Their Hands (Texas Edition) (Gen)

(Grades K–8) *214C, Convention Center*

Sponsor: Delta Education/School Specialty Science–FOSS

Brian Campbell, Diana Velez, Kathy Long, and **Linda De Lucchi,** The Lawrence Hall of Science, University of California, Berkeley

Join FOSS developers to get a sneak preview of the upcoming FOSS edition designed just for Texas educators and students. Each FOSS investigation is designed to provide multiple exposures to Texas Essential Knowledge and Skills (TEKS) using seamlessly integrated strategies that center on active investigation and include notebooks, formative assessment, and digital technology.

4:00–4:30 PM Presentations

SESSION 1

Oil Spill: Solving a Real-World Problem (Env)

(Elementary) *208, Convention Center*

Leila Campbell *(leila_a_campbell@mcpsmd.org),* Piney Branch Elementary School, Silver Spring, Md.

Barbara A. Schwartz *(barbara_a_schwartz@mcpsmd.org),* Kemp Mill Elementary School, Silver Spring, Md.

Elementary students practice engineering skills to create a device to clean up an oil spill.

SESSION 2

Watershed Dynamics: Curriculum to Teach the Human Impacts on Your Watershed Using Web-GIS (Env)

(High School) *Bonham D, Grand Hyatt*

Colleen K. Buzby *(cbuzby@sequoits.com)* and **Tony A. Losinger** *(tlosinger@sequoits.com),* Antioch Community High School, Antioch, Ill.

Experience how to use FieldScope web-GIS and curriculum design tools to teach data analysis and human impact on the environment.

4:00–5:30 PM Exhibitor Workshops

Equip Your iPad or Android Tablet for Science with SPARKvue® HD, a Full-featured Science Application (Gen)

(Grades K–12) *006C, Convention Center*

Sponsor: PASCO scientific

Presenter to be announced

Explore PASCO's science application for the iPad and Android Tablet. SPARKvue HD offers a suite of display and analytical tools, all within an integrated learning environment—including reflection prompts, journaling, and more. The app also supports the growing collection of SPARKlabs, integrating rich content with live data collection and analysis.

Environmental Science: Modeling Ecosystems with Probeware (Env)

(Grades 9–12) *006D, Convention Center*

Sponsor: PASCO scientific

Presenter to be announced

Design an experiment that explores the interrelationships of abiotic and biotic factors in a terrestrial ecosystem. Working from PASCO's new *Advanced Environmental Science Teacher Guide,* learn how this standards-based SPARKscience activity can enhance your teaching practice and improve student understanding while exploring a challenging AP environmental science investigation.

Deep Time, Evolution, and the Nature of Scientific Consensus in HHMI's New DVD *Changing Planet: Past, Present, Future* (Earth)

(Grades 9–College) *008A, Convention Center*

Sponsor: Howard Hughes Medical Institute

Keri Shingleton, Holland Hall, Tulsa, Okla.

Satoshi Amagai, Howard Hughes Medical Institute, Chevy Chase, Md.

HHMI's new holiday lectures—*Changing Planet: Past, Present, Future*—bring together biology and Earth science to delve into the deep history of life on Earth, going back almost 4.6 billion years. Throughout this time, organisms and the environment have changed dramatically, and often in concert. The acceptance by the scientific community of the theory of plate tectonics offers a compelling case study of how scientific consensus is reached. Participants will be among the first to receive HHMI's latest *Holiday Lectures on Science* DVD.

Car and Ramp: Using a Graph to Predict Speed with the CPO Science Data Collector (Phys)
(Grades 6–12) *214D, Convention Center*
Sponsor: CPO Science/School Specialty Science
Erik Benton and **Nathan Olsson,** CPO Science/School Specialty Science, Nashua, N.H.
Combine a unique data collector and photogate system with a car and ramp experiment for a series of inquiry-based investigations. Speed, acceleration, and Newton's laws are uncovered while developing a theory based on your own graph used to predict the speed of the car at any point on the ramp.

4:00–6:00 PM Social

Tigtag Science Social
(By Invitation Only) *Presidio A, Grand Hyatt*
Join us for a preview of Tigtag, a new visual learning tool for K–5 inquiry-based science classrooms. We'll address questions, academic vocabulary, key ideas, and more!

4:30–6:00 PM Networking Opportunity

NSTA Board/Council Meet & Greet
(By Invitation Only) *Lone Star Ballroom A, Grand Hyatt*

4:30–6:00 PM Meeting

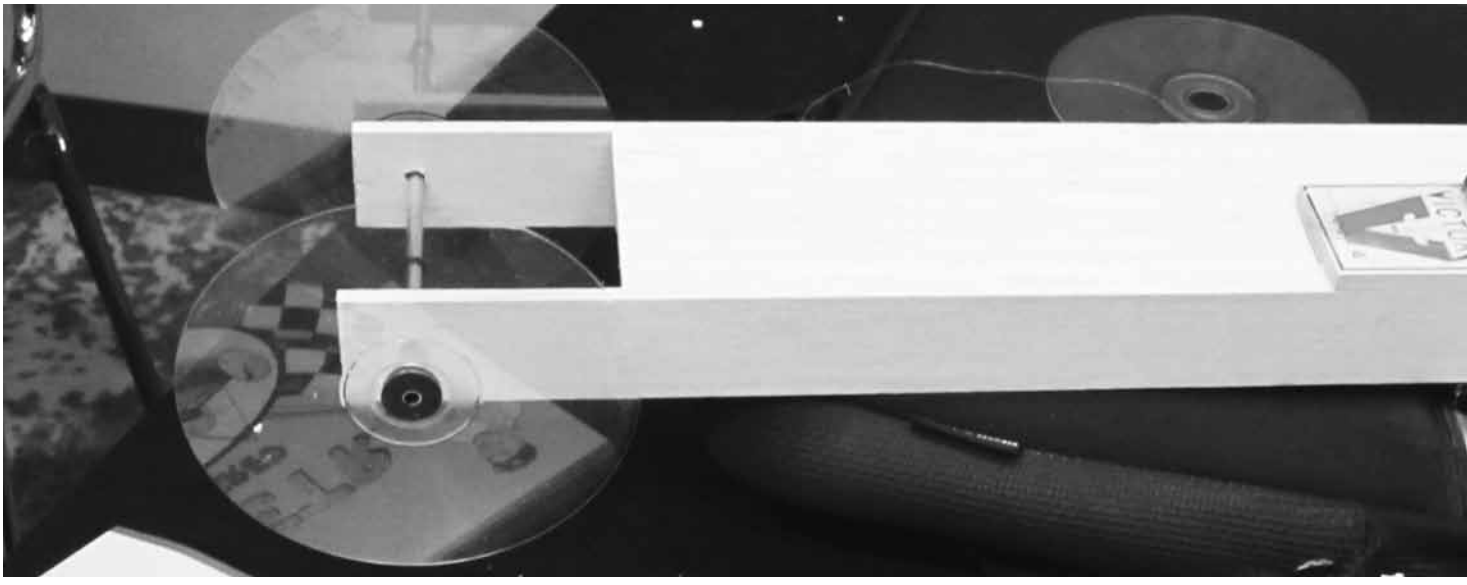
NSTA/CBC Outstanding Science Trade Books Committee Meeting
(By Invitation Only) *Conference Room 10, Marriott Rivercenter*

5:00–6:00 PM Presentations

SESSION 1
✓ **Ranking Tasks as a Next Generation Physics Assessment (Phys)**
(High School–College) *202B, Convention Center*
Ann Hammersly *(ahammersly@susd.org),* Chaparral High School, Scottsdale, Ariz.
Ranking tasks requires students to argue from evidence as they articulate their understanding. I will share samples and you will create your own.

SESSION 2
CESI Session: Special Ways of Teaching Science to Students with Special Needs (Gen)
(Elementary–High School) *212A, Convention Center*
Mary Beth Katz *(mbkatz@bellsouth.net),* Alabama Science Teachers Association, Birmingham
Come learn about technology that's currently available to address science education for students with special needs. We'll discuss new methods and materials to enhance the level of "science literacy" among all K–12 students.

SESSION 3
Give Science a Voice! Digital Storytelling in the Science Classroom (Gen)
(Elementary–High School) *Bonham B, Grand Hyatt*
Roger D. Pence *(rogpence@yahoo.com),* Benicia Middle School, Benicia, Calif.
Engage students in science by having them write, compile, produce, and share digital stories. Digital storytelling encourages research, creativity, visual literacy, and concise writing.

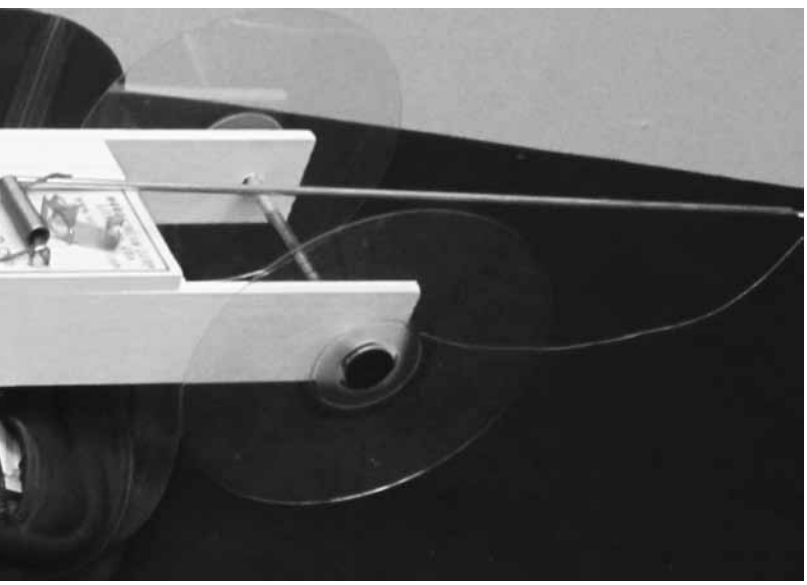


SESSION 4 (three presentations)
(College) *Bowie C, Grand Hyatt*

SCST Session: Student Attitudes Toward Chemistry (Gen)
Lynda P. Nelson *(lynda.nelson@uafs.edu),* University of Arkansas–Fort Smith
Let's review findings from a study of student attitudes toward the intellectual accessibility and the emotional satisfaction of general chemistry and organic chemistry.

SCST Session: College Science Student Ethics: Recent High School Graduates *vs.* Delayed College-Entry Students (Gen)
Rodney K. Nelson *(rod.nelson@uafs.edu)* and **Lynda P. Nelson** *(lynda.nelson@uafs.edu),* University of Arkansas–Fort Smith
Students in entry-level science courses were surveyed concerning their perceptions of occurrence and their participation in academically dishonest activities. Results from the survey comparing recent high school graduates versus those who delayed college enrollment will be discussed.

SCST Session: Ethical Considerations in the Implementation of Educational Research (Gen)
Rachel L. Robson *(robson@morningside.edu),* Morningside College, Sioux City, Iowa
Vaughn E. Huckfeldt *(vaughn.huckfeldt@usd.edu),* University of South Dakota, Vermillion
Join us as we discuss ethical concerns unique to teachers who are also educational researchers, and provide practical advice for doing educational research ethically.



5:00–6:00 PM Workshops

Hands-On Approaches to Developing Visual Literacy by Understanding Imaging Technology (Gen)
(Elementary–Middle Level) *001B, Convention Center*
Carolyn DeCristofano *(carolyn@bhstemed.us),* Blue Heron STEM Education, Plympton, Mass.
Much of science knowledge is advanced through imaging technologies. Hands-on, classroom-tested ideas can help you and your students "see" the important ideas that will make them wiser interpreters of scientific knowledge.

Time: Developing This Integrated Concept with Young Learners (Gen)
(Preschool–Elementary) *103B, Convention Center*
Carol Ann Brennan *(carolb@hawaii.edu)* and **Brooke R. Davis** *(bdavis@hawaii.edu),* University of Hawaii, Honolulu
Learn about and engage in a sequence of integrated inquiry activities shown to help preK–3 students construct their understanding of time.

Terrific Science Games for Elementary Schools (Gen)
(Elementary) *201, Convention Center*
Rodelio Abuan *(odie@scienterrificgames.com),* Sam Houston High School, Houston, Tex.
Ma Corazon Abuan *(ma.corazonabuan@yahoo.com),* Spring, Tex.
Learn to make your own science games and puzzles that are fun and engaging, enhance science lessons, promote deeper understanding of concepts, and increase learning retention. The games and puzzles can be used for individual or group tutorials and use cheap, durable, and very affordable materials.

NSTA Press® Session: Everyday Engineering (Gen)
(Middle Level) *Lone Star Ballroom C, Grand Hyatt*
Richard H. Moyer and **Susan A. Everett** *(everetts@umd.umich.edu),* University of Michigan–Dearborn
Engage in STEM activities related to everyday engineering (such as ballpoint pens or paper clips) and learn how to create your own lessons accordingly.

Seeing the Invisible: Making the Electromagnetic Spectrum Concrete (Phys)
(Middle Level) *Lone Star Ballroom E, Grand Hyatt*
Christine A. Royce *(caroyce@aol.com),* Shippensburg University, Shippensburg, Pa.
How do we "see" something that exists but is not visible? In this workshop, you'll engage in activities that make the electromagnetic spectrum a bit more concrete.

Preparing Your Students for the Quantum Leap into the Scientific Thinking Practices Needed for *A Framework for K–12 Science Education* (Gen)
(General) *Republic B, Grand Hyatt*
Roberta J. Cramer *(robby.cramer@vai.org),* Van Andel Education Institute, Grand Rapids, Mich.
Cheryl Hach *(cheryhach@hotmail.com),* Kalamazoo Area Math and Science Center, Kalamazoo, Mich.
Experience brain-based instructional strategies—model making, graphic organizers, podcasting, and more—that support active participation and mastery learning of scientific thinking and discourse.

NMEA Session: Ocean Literacy in a Song (Gen)
(Elementary) *Texas Ballroom E/F, Grand Hyatt*
Pamela R. Stryker, Barton Creek Elementary School, Austin, Tex.
Marolyn Smith *(marolynsmith@yahoo.com),* Retired Educator, Austin, Tex.
Dive into ocean literacy with hands-on and integrated content activities inspired by the Banana Slug String Band's *Only One Ocean* CD.

Engaging Students in Authentic Science Research (Bio)
(High School–College) *Travis A/B, Grand Hyatt*
Chuck McWilliams *(chuck.mcwilliams@mrhschools.net),* Maplewood Richmond Heights High School, Maplewood, Mo.
Find out how your students can participate in authentic science research involving the cyanogenesis of clover plants growing in their own backyards. Free hands-on materials!

Go Digital and High Tech with FlexCams and Laptops (Gen)
(Middle Level–High School) *Travis C/D, Grand Hyatt*
David P. Beier *(david.beier@barstowschool.org)* and **Sarah Holmes** *(sarah.holmes@barstowschool.org),* The Barstow School, Kansas City, Mo.
Classroom teachers will demonstrate how they use school technology resources to improve student understanding and encourage creativity. Innovative ways to use Ken-A-Vision® FlexCams and laptop computers will be demonstrated. Sample lesson and assessment ideas free to teachers.

5:00–6:30 PM Reception

Dow Reception
(By Invitation Only) *Salon I, Marriott Rivercenter*

6:00–8:00 PM Reception

Teach for America Networking Event
Conference Room 6, Marriott Rivercenter

6:30–8:00 PM Exhibitor Workshop

Special Event: The Day the Mesozoic Died—ON THE BIG SCREEN! (Gen)
(General) *Texas Ballroom A/B, Grand Hyatt*
Sponsor: Howard Hughes Medical Institute
Dennis WC. Liu, Howard Hughes Medical Institute, Chevy Chase, Md.
The disappearance of dinosaurs at the end of the Cretaceous period posed one of the greatest, long-standing scientific mysteries. Crafted for the classroom, this short film follows the trail of scientific evidence leading to the stunning discovery that an asteroid struck Earth 66 million years ago, triggering a mass extinction. The story artfully illustrates the nature and power of the scientific method, and is intended for all science students. Join us for the film, popcorn, and a drink, and receive a free copy of the film on DVD, compliments of the Howard Hughes Medical Institute.

7:00–8:30 PM Social

Breaking Down the Silos: Examples of Integration and Collaboration Social
(By Invitation Only) *Presidio B, Grand Hyatt*
This expert panel discussion will include links between Next Generation Science Standards and Common Core for ELA.

A Festival of Award-winning Film Classics and Inspiring Legends, Part I

6:00 PM–12 Midnight • Salon D, Marriott Rivercenter

Mitchell E. Batoff *(mbatoff@aol.com),* Professor Emeritus, New Jersey City University, Jersey City
Gordon D. Clark, Retired Educator, Manalapan, N.J.
Linda M. Frederick *(adnil@ptd.net),* East Hills Middle School, Bethlehem, Pa.

This three-part program features cinematic jewels and the creative use of video technology to inform, inspire, motivate, entertain, and provoke thought.

The screenings will be interspersed with commentary, discussion, and some live demonstrations. There will be humor, wonder, and perplexity mixed with a lot 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 this extensive and enticing menu of course excerpts:

Twin Views of the Tacoma Narrows Bridge Collapse • *Take the World from Another Point of View* with **Richard Feynman** • Evidence from *The Search for Solutions* • seven short films by **Charles** and **Ray Eames**—*Powers of Ten, Tops, Exponents—A Study in Generalization, Kepler's Laws, Copernicus, Polyorchis Haplus,* and *An Introduction to Feedback* • *Conceptual Physics Alive! The San Francisco Years with* ***Paul G. Hewitt*** • Cartesian Diversions and other demonstrations in chemistry with **Bob Becker** • *The Bolero* (Academy Award, 1973)

Dozens of door prizes directly related to this session will be raffled off throughout the entire evening right up to 12 Midnight. Come and go, stay as long as you wish. Bring your dinner.

• The Science of Sound and Music with **Robert Greenler** • *Arabesque, Matrix, Permutations,* and the seminal work of **John Whitney** • *Loon Dreaming* • *Glass* (Academy Award, 1959) • *Notes on a Triangle* • Overture/Nitany • a *Cosmos* excerpt with **Carl Sagan** • *A Private Universe* • *The World of Enrico Fermi,* Part I • *Good Morning Miss Toliver* • One in a Million with **Verne Rockcastle** • Arithmetic, Population, and Energy with **Albert A. Bartlett** • *The Way Things Go:* A Rube Goldberg Drawing Comes to Life • *World Population: A Graphic Simulation of the History of Human Population Growth* • *Watching Warblers* and other environmental films by **Michael Male** and **Judy Fieth** • *Paddle to the Sea* • *Fire Mountain* by **Bert van Bork** • The Mouse and the Candle • **Steve Spangler** Presents • *Tornado Video Classics* • *Hemo the Magnificent* and other films in the Bell Science Series • a dozen choice internet sites for great science videos

National Earth Science Teachers Association Events at 2013 San Antonio NSTA Conference

All NESTA sessions are in the Henry B. Gonzalez Convention Center, Ballroom A unless otherwise indicated

Friday, April 12

- 9:30 – 10:30 am **NESTA Geology Share-a-Thon**
- 11:00 am – noon **NESTA Oceans and Atmospheres Share-a-Thon**
- 12:30 – 1:30 pm **NESTA Earth System Science Share-a-Thon**
- 2:00 – 3:00 pm **American Geophysical Union Lecture, *"The climate science debate: What does the science tell us and why people on both sides are so angry about it", Prof. Andrew Dessler,*** Texas A&M University (Grand Ballroom C1)
- 2:00 – 3:00 pm **Climate Change Classroom Toolkit**
- 3:30 – 4:30 pm **Let's Get Well Grounded!**
- 6:30 – 8:00 pm **Friends of Earth Science Reception** (Grand Hyatt Hotel, Lone Star D)

Saturday, April 13

- 8:00 – 9:00 am **Activities Across the Earth System**
- 9:30 – 10:30 am **Exploring Planetary Science and Astronomy – What Would Galileo Do?**
- 11:00 – noon **NESTA Space Science Share-a-Thon**
- 12:30 – 1:30 pm **NOAA-Sponsored NESTA Advances in Earth and Space Science Lunchtime Lecture, Mark Neilsen, Howard Hughes Medical Institute – *"If these rocks could talk: Earth's climate in the deep past"***
- 2:00 – 3:00 pm **Our Changing Planet**
- 3:30 – 4:30 pm **NESTA Rock and Mineral Raffle**
- 5:00 – 6:00 pm **NESTA Annual Membership Meeting**

NESTA gratefully acknowledges co-sponsorship of our events by the following organizations:

American Federation of Teachers (Booth #2039)

Thursday, April 11	9:30–11:00 AM	008B, Conv. Center	Share My Lesson: Free K–12 Resources Developed by Teachers for Teachers (p. 115)

Amplify (Booth #1226)

Thursday, April 11	9:30–11:00 AM	102A, Conv. Center	Integrate! A Better Way to Teach and Learn (p. 115)
Thursday, April 11	11:30 AM–1:00 PM	102A, Conv. Center	Integrate! A Better Way to Teach and Learn (p. 124)
Thursday, April 11	1:30–3:00 PM	102A, Conv. Center	33 Strategies for Integrating Disciplinary Literacy (p. 148)

Anatomy in Clay® Learning System (Booth #829)

Thursday, April 11	9:30–11:00 AM	204A, Conv. Center	Build It! Increase Student Engagement with the Anatomy in Clay® Learning System (p. 115)

Animalearn (Booth #1529)

Thursday, April 11	1:30–3:00 PM	007C, Conv. Center	Adventures into the Digital Biology Classroom: How Technology Can Revolutionize Teaching (p. 148)

Artec Educational (Booth #1726)

Thursday, April 11	1:30–3:00 PM	204A, Conv. Center	Properties of Light—See Your Students Shine (p. 150)

Bio-Rad Laboratories (Booth #825)

Thursday, April 11	8:00–9:30 AM	217C, Conv. Center	pGLO—STEM It Up! (p. 102)
Thursday, April 11	9:00–11:30 AM	217B, Conv. Center	Explore Molecular Evolution Using Protein Electrophoresis (AP Big Idea 1) (p. 105)
Thursday, April 11	10:00–11:30 AM	217C, Conv. Center	Engineer the Tools for Inquiry of Candy Food Dyes (p. 120)
Thursday, April 11	1:00–2:00 PM	217C, Conv. Center	Bring Inquiry into Your Classroom: The 20-Question Approach (p. 146)
Thursday, April 11	1:00–3:30 PM	217B, Conv. Center	Generate a DNA Barcode and Identify Species (p. 146)
Thursday, April 11	2:30–4:30 PM	217C, Conv. Center	Worm and Squirm Your Way into Behavior Labs (p. 168)

BIOZONE International (Booth #1634)

Thursday, April 11	11:30 AM–1:00 PM	008B, Conv. Center	BIOZONE Showcases Its Biology Workbooks and Presentation Media (p. 124)
Thursday, April 11	1:30–3:00 PM	008B, Conv. Center	BIOZONE Showcases Its Biology Workbooks and Presentation Media (p. 148)

Carolina Biological Supply (Booth #404)

Thursday, April 11	9:30–11:00 AM	206A, Conv. Center	Autopsy: Forensic Dissection Featuring Carolina's Perfect Solution® Pigs (p. 116)
Thursday, April 11	9:30–11:00 AM	206B, Conv. Center	An Invitation: Moving Forward with the Next Generation Science Standards (p. 116)
Thursday, April 11	9:30–11:00 AM	207B, Conv. Center	Introduction to Wisconsin Fast Plants® (p. 116)
Thursday, April 11	11:30 AM–1:00 PM	206A, Conv. Center	Hands-On Activities to Explore Environmental Change (p. 126)
Thursday, April 11	11:30 AM–1:00 PM	206B, Conv. Center	Integrating Common Core Writing, Speaking, and Listening Strategies into Science Instruction (p. 126)
Thursday, April 11	11:30 AM–1:00 PM	207B, Conv. Center	Exploring Gene Function in *C. elegans:* Mutations and RNA Interference (p. 126)
Thursday, April 11	1:30–3:00 PM	206A, Conv. Center	Comparative Mammalian Organ Dissection with Carolina's Perfect Solution® Specimens (p. 150)
Thursday, April 11	1:30–3:00 PM	206B, Conv. Center	Vroom, Vroom, Beep, Beep…Connecting Common Core English Language Arts Standards and STEM (p. 150)

Carolina Biological Supply, cont.

Thursday, April 11	1:30–3:00 PM	207B, Conv. Center	Hands-On Science with Classroom Critters (p. 150)
Thursday, April 11	3:30–5:00 PM	206A, Conv. Center	Carolina's Young Scientist™ Dissection Series (p. 178)
Thursday, April 11	3:30–5:00 PM	207B, Conv. Center	Carolina Beyond the Tape™: Forensic Science for Every Discipline (p. 178)

CPO Science/School Specialty Science (Booth #215)

Thursday, April 11	8:00–9:30 AM	214D, Conv. Center	Chemistry and the Atom: Fun with Atom Building Games! (p. 102)
Thursday, April 11	10:00–11:30 AM	214D, Conv. Center	Genetics: Crazy Traits and Adaptation Survivor (p. 120)
Thursday, April 11	12 Noon–1:30 PM	214D, Conv. Center	A STEM Approach to Teaching Electricity and Magnetism (p. 130)
Thursday, April 11	2:00–3:30 PM	214D, Conv. Center	Light and Optics: A Series of EnLIGHTening Experiments! (p. 167)
Thursday, April 11	3:00–4:30 PM	214B, Conv. Center	If You Want TEKS in Their Minds, Put CPO in Their Hands (p. 168)
Thursday, April 11	4:00–5:30 PM	214D, Conv. Center	Car and Ramp: Using a Graph to Predict Speed with the CPO Science Data Collector (p. 180)

Delta Education/School Specialty Science (Booth #213)

Thursday, April 11	8:00–9:15 AM	214B, Conv. Center	Inquiring Minds Provide Spark for Science Lessons (p. 101)
Thursday, April 11	10:00–11:15 AM	214B, Conv. Center	DSM and STEM: Challenges for the Elementary Student (p. 118)
Thursday, April 11	1:00–2:15 PM	214B, Conv. Center	Technological Design Standards Meet the STEM Initiative (p. 146)

Delta Education/School Specialty Science–FOSS (Booth #213)

Thursday, April 11	8:00–10:00 AM	214C, Conv. Center	Science-centered Language Development Using FOSS (p. 102)
Thursday, April 11	10:30–11:30 AM	214C, Conv. Center	Asteroid! Will Earth Be Hit Again? Planetary Science for Middle School (p. 121)
Thursday, April 11	12 Noon–1:00 PM	214C, Conv. Center	NASA's Kepler Mission and the Hunt for Exoplanets: Planetary Science for Middle School (p. 128)
Thursday, April 11	1:30–3:00 PM	214C, Conv. Center	Engage Students with Active Learning Through FOSS, 3rd Edition (p. 152)
Thursday, April 11	3:30–5:00 PM	214C, Conv. Center	If You Want the TEKS in Their Minds, Put FOSS in Their Hands (Texas Edition) (p. 178)

Discovery Education (Booth #1135)

Thursday, April 11	7:30–9:00 AM	209, Conv. Center	The Dirty Job of Teaching Just Got Easier with Discovery High School Science Techbook (p. 90)
Thursday, April 11	9:30–11:00 AM	209, Conv. Center	Common Practices That Get to the CORE of Great Instruction Using Discovery Education Science Techbook (p. 116)
Thursday, April 11	11:30 AM–1:00 PM	209, Conv. Center	Spelunking for STEM Resources: Free Tools from Discovery Education (p. 126)
Thursday, April 11	1:30–3:00 PM	209, Conv. Center	T Is for Tinkering! Hands-On STEM Activities Using Free Web-based Tools (p. 151)
Thursday, April 11	3:30–5:00 PM	209, Conv. Center	Science of Everyday Life (p. 178)

eCYBERMISSION (Booth #1128)

Thursday, April 11	11:30 AM–1:00 PM	007B, Conv. Center	Student Collaboration in the Science Classroom (p. 124)

Edvotek Inc. (Booth #1207)

Thursday, April 11	7:30–9:00 AM	212B, Conv. Center	Using Enzyme Linked Immunosorbent Assay (ELISA) to Detect a West Nile Virus Outbreak (p. 90)
Thursday, April 11	9:30–11:00 AM	212B, Conv. Center	Solving the Case of the Missing Archive Using DNA Fingerprinting (p. 116)

Edvotek Inc., cont.

Thursday, April 11	11:30 AM–1:00 PM	212B, Conv. Center	Detection of Mad Cow Disease Using a Two-Step PCR Process (p. 127)
Thursday, April 11	1:30–3:00 PM	212B, Conv. Center	Wait! Were the Chips I Ate Genetically Modified? (p. 152)
Thursday, April 11	3:30–5:00 PM	212B, Conv. Center	The Drunken Worms: Exploring Gene Function with *C. elegans* (p. 178)

FDA Center for Food Safety and Applied Nutrition (Booth #1036)

Thursday, April 11	11:30 AM–1:00 PM	007C, Conv. Center	FDA Food Science Workshop for High School (p. 124)

Flinn Scientific, Inc. (Booth #726)

Thursday, April 11	7:30–9:00 AM	103A, Conv. Center	Make Safety a Habit! Flinn Scientific Safety Workshop (p. 90)
Thursday, April 11	9:30–11:00 AM	103A, Conv. Center	New Advanced Inquiry Labs for AP Biology from Flinn Scientific (p. 115)
Thursday, April 11	11:30 AM–1:00 PM	103A, Conv. Center	Best Practices for Teaching Chemistry Experiments and Demonstrations from Flinn (p. 125)
Thursday, April 11	1:30–3:00 PM	103A, Conv. Center	Hands-On Integrated Science Activities for Middle School from Flinn (p. 150)
Thursday, April 11	3:30–5:00 PM	103A, Conv. Center	New Guided Inquiry Labs for AP Chemistry from Flinn Scientific (p. 177)

Frey Scientific/School Specialty Science (Booth #219)

Thursday, April 11	8:00–9:15 AM	214A, Conv. Center	A Simple Connection Between STEM and Data Logging (p. 101)
Thursday, April 11	10:00–11:15 AM	214A, Conv. Center	Solving the Mystery of STEM Using Forensic Science (p. 118)
Thursday, April 11	12 Noon–1:15 PM	214A, Conv. Center	What's the "Big Idea" in AP Biology? (p. 128)
Thursday, April 11	2:00–3:15 PM	214A, Conv. Center	STEM: The Game Changer in Science Lab Design (p. 165)

Houghton Mifflin Harcourt (Booth #1526)

Thursday, April 11	7:30–9:00 AM	204B, Conv. Center	STEM Challenges for the Classroom, Part 1 (p. 90)
Thursday, April 11	9:30–11:00 AM	204B, Conv. Center	Connecting to Chemistry: Igniting Student Motivation with STEM Examples and Ideas (p. 116)
Thursday, April 11	11:30 AM–1:00 PM	204B, Conv. Center	That's Amazing! Explore the Bizarre, Cool, and Exciting World of Project-based Biology (p. 126)

Howard Hughes Medical Institute (Booth #347)

Thursday, April 11	8:00–9:30 AM	008A, Conv. Center	Enhance Your Teaching of the New AP Biology Curriculum Framework with FREE Resources from HHMI (p. 101)
Thursday, April 11	10:00–11:30 AM	008A, Conv. Center	HHMI's Free Classroom Resources for Teaching Evolution (p. 120)
Thursday, April 11	12 Noon–1:30 PM	008A, Conv. Center	How to Build Phylogenetic Trees from DNA Sequences (p. 128)
Thursday, April 11	2:00–3:30 PM	008A, Conv. Center	HHMI's *The Making of the Fittest: Evolving Switches, Evolving Bodies* FREE Classroom Resources (p. 166)
Thursday, April 11	4:00–5:30 PM	008A, Conv. Center	Deep Time, Evolution, and the Nature of Scientific Consensus in HHMI's New DVD *Changing Planet: Past, Present, Future* (p. 179)
Thursday, April 11	6:30–8:00 PM	Texas A/B, Grand Hyatt	Special Event: *The Day the Mesozoic Died*—ON THE BIG SCREEN! (p. 183)

It's About Time (Booth #715)

Thursday, April 11	8:00–9:00 AM	205, Conv. Center	Turn Your Science Classroom into a STEM Classroom with Fourier Education Technology (p. 100)
Thursday, April 11	9:30–10:30 AM	205, Conv. Center	Merging the Three Dimensions of the Next Generation Science Standards (p. 114)
Thursday, April 11	11:00 AM–12 Noon	205, Conv. Center	Engineering in the Next Generation Science Standards (p. 122)

It's About Time, cont.

Thursday, April 11	12:30–1:30 PM	205, Conv. Center	*Project-Based Inquiry Science: PBIS*™—Time to Move Beyond "What Is Science?" and Implement the Next Generation Science Standards (p. 143)
Thursday, April 11	2:00–3:00 PM	205, Conv. Center	Come Experience an Active Physics/Active Chemistry Workshop by a High School Teacher! (p. 165)
Thursday, April 11	3:30–4:30 PM	205, Conv. Center	NEW! An Astronomy Textbook Written Specifically for High School Students (p. 176)

K'NEX Education (Booth #1102)

Thursday, April 11	7:30–9:00 AM	102B, Conv. Center	It's Off to the Races with K'NEX® Education's Forces, Energy, and Motion Set! (p. 89)
Thursday, April 11	9:30–11:00 AM	102B, Conv. Center	Bring the Excitement of Hands-On Learning to Your Middle School Classroom! (p. 115)
Thursday, April 11	11:30 AM–1:00 PM	102B, Conv. Center	Bring Simple Machine Concepts to Life with Real-World Models! (p. 125)
Thursday, April 11	1:30–3:00 PM	102B, Conv. Center	DNA Replication and Transcription—No More Gumdrops and Toothpicks! (p. 148)
Thursday, April 11	3:30–5:00 PM	102B, Conv. Center	Go Green and Bring STEM Concepts to Life with the K'NEX® Education Renewable Energy Set! (p. 177)

LAB-AIDS, Inc. (Booth #1216)

Thursday, April 11	7:30–9:00 AM	203A, Conv. Center	Breeding Critters (p. 90)
Thursday, April 11	9:30–11:00 AM	203A, Conv. Center	Investigating Stem Cell Differentiation (p. 115)
Thursday, April 11	11:30 AM–1:00 PM	203A, Conv. Center	Gene Expression and Cellular Differentiation (p. 126)
Thursday, April 11	1:30–3:00 PM	203A, Conv. Center	Mastering the Chemical Formula: An Effective Way to Teach Subscripts and Coefficients (p. 150)
Thursday, April 11	3:30–5:00 PM	203A, Conv. Center	Waves, Energy, and Color (p. 177)

LEGO Education (Booth #805)

Thursday, April 11	7:30–9:00 AM	007A, Conv. Center	Introducing Simple Machines into the Elementary Classroom with LEGO® Bricks (p. 89)
Thursday, April 11	9:30–11:00 AM	007A, Conv. Center	Enhancing the Elementary Classroom Through Robotics (p. 114)
Thursday, April 11	11:30 AM–1:00 PM	007A, Conv. Center	LEGO MINDSTORMS® Education EV_3: Robotics in the Middle School Classroom—Getting Started (p. 124)
Thursday, April 11	1:30–3:00 PM	007A, Conv. Center	LEGO MINDSTORMS® Education EV_3: Robotics in the Middle School Classroom—Advancing Your Program (p. 147)
Thursday, April 11	3:30–5:00 PM	007A, Conv. Center	Machines and Mechanisms in the Classroom and Beyond (p. 176)

McGraw-Hill Education (Booth #705)

Thursday, April 11	11:30 AM–1:00 PM	204A, Conv. Center	Fun, Fabulous Foldables® (p. 126)

Mississippi State University (Booth #1609)

Thursday, April 11	3:30–5:00 PM	007B, Conv. Center	Master of Science in Geosciences via Distance Learning from Mississippi State University (p. 176)

Nano-Link (Booth #642)

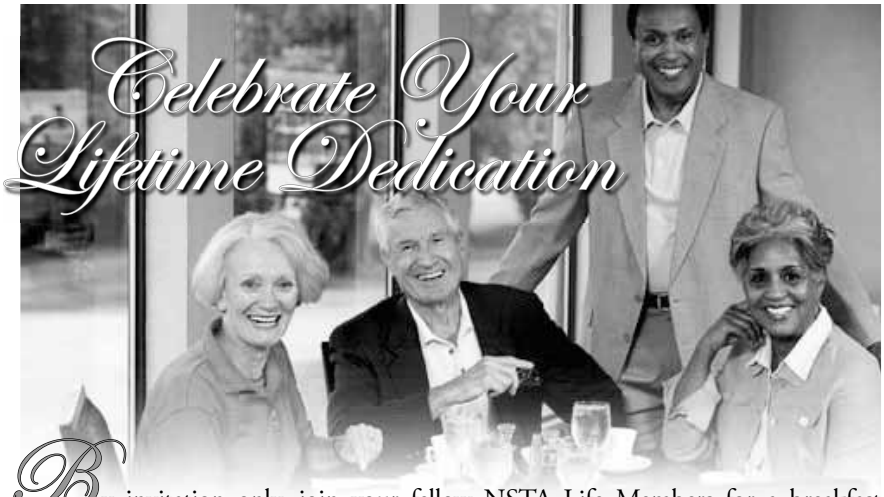
Thursday, April 11	3:30–5:00 PM	007C, Conv. Center	Hands-On Nanotechnology for Your Classroom (p. 176)

Nutrients for Life Foundation (Booth #1413)

Thursday, April 11	3:30–5:00 PM	204A, Conv. Center	What's Soil Got to Do with It? (p. 177)

PASCO scientific (Booths #129 and #132)

Thursday, April 11	8:00–9:30 AM	006C, Conv. Center	Equip Your iPad or Android Tablet for Science with SPARKvue® HD, a Full-featured Science Application (p. 101)
Thursday, April 11	8:00–9:30 AM	006D, Conv. Center	AP Physics: Impulse and Momentum (p. 101)
Thursday, April 11	10:00–11:30 AM	006C, Conv. Center	Next Generation Science Standards: Advancing the Vision of the NRC *Framework* with Probeware (p. 119)
Thursday, April 11	10:00–11:30 AM	006D, Conv. Center	Chemistry: Achievable Inquiry with SPARKvue® HD (p. 119)
Thursday, April 11	12 Noon–1:30 PM	006C, Conv. Center	Equip Your iPad for Science with SPARKvue® HD, a Full-featured Science Application for the iPad Featuring Sally Ride Science Key Concepts in Physical Science (p. 128)
Thursday, April 11	12 Noon–1:30 PM	006D, Conv. Center	Investigating Motion: Understanding and Interpreting Graphs (p. 128)
Thursday, April 11	2:00–3:30 PM	006C, Conv. Center	General Biology with Probeware (p. 165)
Thursday, April 11	2:00–3:30 PM	006D, Conv. Center	AP Chemistry: Guided Inquiry Labs Using Probeware (p. 165)
Thursday, April 11	4:00–5:30 PM	006C, Conv. Center	Equip Your iPad or Android Tablet for Science with SPARKvue® HD, a Full-featured Science Application (p. 179)
Thursday, April 11	4:00–5:30 PM	006D, Conv. Center	Environmental Science: Modeling Ecosystems with Probeware (p. 179)



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 14
7:00–9:00 AM
Grand Hyatt San Antonio, Bowie B/C

Tickets are required (M-11: $50 on-site) and, if still available, must be purchased at the NSTA Registration Area by 3:00 PM on **Saturday, April 13**.

Participation is limited to NSTA life members only.

Index of Exhibitor Workshops

Pearson (Booth #200)

Thursday, April 11	7:30–9:00 AM	006A, Conv. Center	Going Green: Economical and Environmentally Friendly Inquiry in Chemistry (p. 89)
Thursday, April 11	9:30–11:00 AM	006A, Conv. Center	Inquiry and Scientific Practices: Keys to Getting Students to Think (p. 114)
Thursday, April 11	9:30–11:00 AM	006B, Conv. Center	From Science to Engineering (p. 114)
Thursday, April 11	11:30 AM–1:00 PM	006A, Conv. Center	Stem Cell Research: What's Really Happening and How Do We Teach It? (p. 123)
Thursday, April 11	11:30 AM–1:00 PM	006B, Conv. Center	Marine Science: A New STEM-integrated High School Course (p. 123)
Thursday, April 11	1:30–3:00 PM	006A, Conv. Center	It's Time to Review for the 2013 AP Chemistry Exam (p. 147)
Thursday, April 11	1:30–3:00 PM	006B, Conv. Center	Innovation in Education—Is This Possible? (p. 147)
Thursday, April 11	3:30–5:00 PM	006A, Conv. Center	Prepare Your Students to Be Tomorrow's Innovators with STEM Education (p. 176)
Thursday, April 11	3:30–5:00 PM	006B, Conv. Center	Ecology and Evolution of Infectious Disease: How Dangerous Pathogens Emerge, Spread, and Evade Our Defenses (p. 176)

REAL School Gardens (Booth #1535)

Thursday, April 11	3:30–5:00 PM	204B, Conv. Center	REAL School Gardens: STEM in the School Yard (p. 178)

The Royal Society of Chemistry (Booth #1840)

Thursday, April 11	3:30–5:00 PM	102A, Conv. Center	Learn Chemistry: Enhancing Learning and Teaching with Resources and Tools from the RSC (p. 177)

Sangari Active Science (Booth #534)

Thursday, April 11	1:30–3:00 PM	204B, Conv. Center	Applying Common Core ELA Standards Through Active Science Instruction in the K–8 Classroom: Making Learning Relevant (p. 150)

Science Take-Out (Booth #1531)

Thursday, April 11	1:30–3:00 PM	007D, Conv. Center	Modeling Protein Structure/Function and Photosynthesis/Respiration (p. 148)
Thursday, April 11	3:30–5:00 PM	007D, Conv. Center	Toxin and Energy Flow in an Ecosystem (p. 177)

SeaWorld Parks and Entertainment (Booth #1606)

Thursday, April 11	9:30–11:00 AM	007C, Conv. Center	"Whale Done" in the Classroom (p. 114)

Simulation Curriculum Corp. (Booth #814)

Thursday, April 11	9:30–11:00 AM	007B, Conv. Center	Hurricanes and Earthquakes (p. 114)
Thursday, April 11	1:30–3:00 PM	007B, Conv. Center	The Secret Lives of Stars (p. 148)

Space Camp® (Booth #1916)

Thursday, April 11	3:30–5:00 PM	008B, Conv. Center	Space Camp and 21st-Century Learning: The Crossroads of Formal and Informal Education (p. 177)

Vernier Software & Technology (Booth #100)

Thursday, April 11	8:00–9:30 AM	210A, Conv. Center	*Physics with Vernier* (p. 102)
Thursday, April 11	8:00–9:30 AM	210B, Conv. Center	*Human Physiology with Vernier* (p. 102)
Thursday, April 11	10:00–11:30 AM	210A, Conv. Center	Chemistry with Vernier (p. 120)
Thursday, April 11	10:00–11:30 AM	210B, Conv. Center	Using iPad and Vernier Technology to Enhance Inquiry-based Learning (p. 120)
Thursday, April 11	12 Noon–1:30 PM	210A, Conv. Center	Biology with Vernier (p. 130)

Vernier Software & Technology, cont.

Thursday, April 11	12 Noon–1:30 PM	210B, Conv. Center	Inquiry-based Chemistry with Vernier (p. 130)
Thursday, April 11	2:00–3:30 PM	210A, Conv. Center	Video Analysis with Vernier (p. 166)
Thursday, April 11	2:00–3:30 PM	210B, Conv. Center	Water Quality with Vernier (p. 167)

Ward's Science (Booth #1316)

Thursday, April 11	7:30–9:00 AM	211, Conv. Center	New Teacher's Welcome Breakfast (p. 90)
Thursday, April 11	9:30–11:00 AM	211, Conv. Center	Iron Teacher—Next Generation Science Standards Edition (p. 116)
Thursday, April 11	11:30 AM–1:00 PM	211, Conv. Center	Ward's Forensics: Crosscutting Concepts of Crime Scene Investigation (p. 126)
Thursday, April 11	1:30–3:00 PM	211, Conv. Center	Life Science Standards for the iPad Generation (p. 151)
Thursday, April 11	3:30–5:00 PM	211, Conv. Center	Physical Science for the iPad Generation (p. 178)

Wavefunction, Inc. (Booth #1725)

Thursday, April 11	9:30–11:00 AM	007D, Conv. Center	Getting the Most Out of Molecular-Level Visualization and Simulation Tools (p. 115)
Thursday, April 11	11:30 AM–1:00 PM	007D, Conv. Center	Using Molecular-Level Visualization to Engage Middle School and High School Science Students (p. 124)

Schedule at a Glance

G = General
P = Preschool
E = Elementary
M = Middle School
H = High School
C = College
S = Supervision/Administration
I = Informal Education
R = Research
T = Teacher Preparation

Biology/Life Science

7:30–9:00 AM	6–8	203A, Conv. Center	Breeding Critters (p. 90)
7:30–9:00 AM	8–C	212B, Conv. Center	Using Enzyme Linked Immunosorbent Assay (ELISA) to Detect a West Nile Virus Outbreak (p. 90)
8:00–9:00 AM	E	208, Conv. Center	Around the World in Six Days: An Ecosystem Adventure (p. 91)
8:00–9:00 AM	P–E	212A, Conv. Center	CESI Session: Our Friend the Ladybug! (p. 98)
8:00–9:00 AM	M–H	Bonham E, Grand Hyatt	NARST Session: Scaffolding and Assessing Students' Engagement with the Science Content Extending from Inside to Outside the Classroom (p. 98)
8:00–9:00 AM	H–C	Travis A/B, Grand Hyatt	Teach Photosynthesis Using SUN Project Models (p. 99)
8:00–9:00 AM	H	Alamo Salon D, Marr. Riverwalk	Using a Project-based Science Unit to Link Next Generation Science Standards, Common Core State Standards, and Student Engagement (p. 100)
8:00–9:00 AM	M–H	Alamo Salon E, Marr. Riverwalk	Common Core + Science Standards = Science Literacy (p. 97)
8:00–9:00 AM	H	Alamo Salon F, Marr. Riverwalk	Biomedical Science Elective for the High School Senior (p. 97)
8:00–9:00 AM	H	Conf. Room 6, Marr. Rivercenter	AMSE Session: Scientific Concepts Made "Ridiculously" Simple Using Case Studies (p. 94)
8:00–9:30 AM	9–C	008A, Conv. Center	Enhance Your Teaching of the New AP Biology Curriculum Framework with FREE Resources from HHMI (p. 101)
8:00–9:30 AM	9–C	210B, Conv. Center	*Human Physiology with Vernier* (p. 102)
8:00–9:30 AM	9–C	217C, Conv. Center	pGLO—STEM It Up! (p. 102)
8:00 AM–12 Noon	E–M	Conf. Room 1/2, Marr. Rivercenter	BSCS-I Pathway Session: Using Evidence to Construct a Scientific Explanation (p. 103)
8:20–8:40 AM	C	Bowie C, Grand Hyatt	SCST Session: Using the BiosciEdNet (BEN) Pathway in Your Biology Classes (p. 92)
8:40–9:00 AM	C	Bowie C, Grand Hyatt	SCST Session: Bloom's Taxonomy, Brain Research, and Introductory College Biology (p. 92)
9:00–11:30 AM	10–C	217B, Conv. Center	Explore Molecular Evolution Using Protein Electrophoresis (AP Big Idea 1) (p. 105)
9:30–9:50 AM	C	Bowie C, Grand Hyatt	SCST Session: Collaboration Between Science and Education Faculty to Enhance Preservice Science Teachers' Inquiry Teaching Skills (p. 108)
9:30–10:00 AM	E	208, Conv. Center	Which Beak Fits the Bill? (p. 106)
9:30–10:00 AM	G	Alamo Salon E, Marr. Riverwalk	Bringing the Study of Animal Behavior into the Classroom (p. 105)
9:30–10:30 AM	M	Bonham C, Grand Hyatt	Food Chains: Using Field Surveys That Give Real Numbers (p. 112)
9:30–10:30 AM	H	Alamo Salon C, Marr. Riverwalk	Engaging ELLs in a High School Project-based Science Unit (p. 113)
9:30–10:30 AM	H	Alamo Salon D, Marr. Riverwalk	Best Practices: Modeling Scientific Phenomena in AP and General Biology (p. 113)
9:30–11:00 AM	10–12	103A, Conv. Center	New Advanced Inquiry Labs for AP Biology from Flinn Scientific (p. 115)
9:30–11:00 AM	9–12	203A, Conv. Center	Investigating Stem Cell Differentiation (p. 115)
9:30–11:00 AM	6–C	204A, Conv. Center	Build It! Increase Student Engagement with the Anatomy in Clay® Learning System (p. 115)
9:30–11:00 AM	9–12	206A, Conv. Center	Autopsy: Forensic Dissection Featuring Carolina's Perfect Solution® Pigs (p. 116)
9:30–11:00 AM	K–12	207B, Conv. Center	Introduction to Wisconsin Fast Plants® (p. 116)
9:30–11:00 AM	7–12	211, Conv. Center	Iron Teacher—Next Generation Science Standards Edition (p. 116)
9:30–11:00 AM	8–C	212B, Conv. Center	Solving the Case of the Missing Archive Using DNA Fingerprinting (p. 116)
9:50–10:10 AM	C	Bowie C, Grand Hyatt	SCST Session: Effectiveness of Student-selected Team Strategies in Introductory Biology Courses (p. 108)

10:00–10:30 AM	P–E	208, Conv. Center	From Incubator to Brooder Box—Explorations with Chicks (p. 106)
10:00–10:30 AM	H	Alamo Salon F, Marr. Riverwalk	Biotechnology from Bench to Bedside (p. 118)
10:00–11:15 AM	7–12	214A, Conv. Center	Solving the Mystery of STEM Using Forensic Science (p. 118)
10:00–11:30 AM	7–C	008A, Conv. Center	HHMI's Free Classroom Resources for Teaching Evolution (p. 120)
10:00–11:30 AM	6–12	214D, Conv. Center	Genetics: Crazy Traits and Adaptation Survivor (p. 120)
10:00–11:30 AM	9–C	217C, Conv. Center	Engineer the Tools for Inquiry of Candy Food Dyes (p. 120)
10:10–10:30 AM	C/I	Bowie C, Grand Hyatt	SCST Session: The Anatomy of Art: A Student Collaboration (p. 108)
11:30 AM–1:00 PM	9–12	006A, Conv. Center	Stem Cell Research: What's Really Happening and How Do We Teach It? (p. 123)
11:30 AM–1:00 PM	9–12	006B, Conv. Center	Marine Science: A New STEM-integrated High School Course (p. 123)
11:30 AM–1:00 PM	9–12	007C, Conv. Center	FDA Food Science Workshop for High School (p. 124)
11:30 AM–1:00 PM	9–12	008B, Conv. Center	BIOZONE Showcases Its Biology Workbooks and Presentation Media (p. 124)
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11:30 AM–1:00 PM	G	204B, Conv. Center	That's Amazing! Explore the Bizarre, Cool, and Exciting World of Project-based Biology (p. 126)
11:30 AM–1:00 PM	9–C	207B, Conv. Center	Exploring Gene Function in *C. elegans:* Mutations and RNA Interference (p. 126)
11:30 AM–1:00 PM	9–C	212B, Conv. Center	Detection of Mad Cow Disease Using a Two-Step PCR Process (p. 126)
12 Noon–1:15 PM	9–12	214A, Conv. Center	What's the "Big Idea" in AP Biology? (p. 128)
12 Noon–1:30 PM	9–C	008A, Conv. Center	How to Build Phylogenetic Trees from DNA Sequences (p. 128)
12 Noon–1:30 PM	9–C	210A, Conv. Center	Biology with Vernier (p. 130)
12:30–1:00 PM	M–H	201, Conv. Center	Strategies and Tools to Facilitate Science Instruction for ELLs and SIFE Students (p. 132)
12:30–12:50 PM	C	Bowie C, Grand Hyatt	SCST Session: Characteristics of Students Retaking Introductory College Biology Courses at Angelo State University (p. 134)
12:30–1:30 PM	E–M	208, Conv. Center	Slimy Integration: It's Elementary! (p. 140)
12:30–1:30 PM	I	Alamo Salon C, Marr. Riverwalk	Using Simulations in Inquiry-based Science (p. 142)
12:30–1:30 PM	M–H	Alamo Salon D, Marr. Riverwalk	Molecules, Energy Transfer, and Microbes to Promote Inquiry (p. 142)
12:30–1:30 PM	G	Alamo Salon E, Marr. Riverwalk	Effective Access to Advanced Placement Curricula: Challenges and Strategies (p. 137)
12:30–1:30 PM	M–H	Alamo Salon F, Marr. Riverwalk	Dynamic DNA: A $50,000 Lesson Plan (p. 138)
12:50–1:10 PM	H–C	Bowie C, Grand Hyatt	SCST Session: Quantifying Cellular Structures from Microscopic Images Using Image Analysis Software (p. 134)
1:00–2:00 PM	10–C	217C, Conv. Center	Bring Inquiry into Your Classroom: The 20-Question Approach (p. 146)
1:00–3:30 PM	10–C	217B, Conv. Center	Generate a DNA Barcode and Identify Species (p. 146)
1:10–1:30 PM	H–C	Bowie C, Grand Hyatt	SCST Session: Transformative Life Sciences Instruction: Integrating Biology and Chemistry in Introductory Courses (p. 134)
1:30–3:00 PM	5–C	007C, Conv. Center	Adventures into the Digital Biology Classroom: How Technology Can Revolutionize Teaching (p. 148)
1:30–3:00 PM	6–12	007D, Conv. Center	Modeling Protein Structure/Function and Photosynthesis/Respiration (p. 148)
1:30–3:00 PM	9–12	008B, Conv. Center	BIOZONE Showcases Its Biology Workbooks and Presentation Media (p. 148)
1:30–3:00 PM	5–12	102B, Conv. Center	DNA Replication and Transcription—No More Gumdrops and Toothpicks! (p. 148)
1:30–3:00 PM	6–12	206A, Conv. Center	Comparative Mammalian Organ Dissection with Carolina's Perfect Solution® Specimens (p. 150)
1:30–3:00 PM	K–12	207B, Conv. Center	Hands-On Science with Classroom Critters (p. 150)
1:30–3:00 PM	5–12	211, Conv. Center	Life Science Standards for the iPad Generation (p. 151)
1:30–3:00 PM	9–C	212B, Conv. Center	Wait! Were the Chips I Ate Genetically Modified? (p. 152)
2:00–2:30 PM	H	Alamo Salon F, Marr. Riverwalk	Using Purposeful Differentiated Instruction to Meet the Needs of Diverse Learners (p. 162)
2:00–3:00 PM	E–M	208, Conv. Center	Learning (and Teaching) Life Science Vocabulary for K–8 (p. 155)
2:00–3:00 PM	H	Alamo Salon D, Marr. Riverwalk	Molecular Phylogeny Simulation: A Demonstration (p. 165)

2:00–3:00 PM	G	Alamo Salon E, Marr. Riverwalk	From Enquiry to Inquiry: Promoting Higher-Order Thinking Skills in Advanced Placement Curricula (p. 162)
2:00–3:30 PM	9–12	006C, Conv. Center	General Biology with Probeware (p. 165)
2:00–3:30 PM	7–C	008A, Conv. Center	HHMI's *The Making of the Fittest: Evolving Switches, Evolving Bodies* FREE Classroom Resources (p. 166)
2:30–3:00 PM	H	Alamo Salon F, Marr. Riverwalk	Engage All Students with Biotech (p. 162)
2:30–4:30 PM	9–C	217C, Conv. Center	Worm and Squirm Your Way into Behavior Labs (p. 168)
2:40–3:00 PM	H–C/S	Bowie C, Grand Hyatt	SCST Session: Grade Distributions—Are They Really Changing and, If So, Does It Really Matter? (p. 158)
3:30–3:50 PM	H–C/I	Bowie C, Grand Hyatt	SCST Session: Low-Budget Online and Video Activities Supporting an Inquiry-based Laboratory Course (p. 170)
3:30–4:00 PM	H	Alamo Salon F, Marr. Riverwalk	Formative Queries for the High School Biology Classroom (p. 172)
3:30–4:30 PM	M–H	Bowie B, Grand Hyatt	NARST Session: Argument-Driven Inquiry as a Way to Help Middle School and High School Students Develop Science Proficiency During Labs (p. 169)
3:30–4:30 PM	M–H	Alamo Salon C, Marr. Riverwalk	Spreading Disease—It's Contagious! (p. 175)
3:30–4:30 PM	M–H	Alamo Salon D, Marr. Riverwalk	Deep Blue Chemistry: Using Aquariums as Models of Natural Aquatic Ecosystems (p. 175)
3:30–4:30 PM	M–C	Alamo Salon E, Marr. Riverwalk	Cool Things About DNA (p. 172)
3:30–5:00 PM	9–12	006B, Conv. Center	Ecology and Evolution of Infectious Disease: How Dangerous Pathogens Emerge, Spread, and Evade Our Defenses (p. 176)
3:30–5:00 PM	6–12	007D, Conv. Center	Toxin and Energy Flow in an Ecosystem (p. 177)
3:30–5:00 PM	K–6	204A, Conv. Center	What's Soil Got to Do with It? (p. 177)
3:30–5:00 PM	5–8	206A, Conv. Center	Carolina's Young Scientist™ Dissection Series (p. 178)
3:30–5:00 PM	9–12	207B, Conv. Center	Carolina Beyond the Tape™: Forensic Science for Every Discipline (p. 178)
3:30–5:00 PM	10–C	212B, Conv. Center	The Drunken Worms: Exploring Gene Function with *C. elegans* (p. 178)
3:50–4:10 PM	G	Bowie C, Grand Hyatt	SCST Session: Alternative Assessments: Creativity and Critical Thinking (p. 170)
4:00–4:30 PM	M–H	Alamo Salon F, Marr. Riverwalk	From Apps to Lessons: Using the iPad in the Science Classroom (p. 172)
4:10–4:30 PM	C	Bowie C, Grand Hyatt	SCST Session: Using Active Learning Techniques in A&P—Is Content Really "King"? (p. 170)
5:00–6:00 PM	H–C	Travis A/B, Grand Hyatt	Engaging Students in Authentic Science Research (p. 182)

Chemistry/Physical Science

7:30–9:00 AM	9–12	006A, Conv. Center	Going Green: Economical and Environmentally Friendly Inquiry in Chemistry (p. 89)
8:00–8:30 AM	H–C	Seguin A, Grand Hyatt	Ecological Flow Chart as a Traffic Light for an Experimental Chemistry Laboratory with Base to Green Chemistry (p. 94)
8:00–9:00 AM	G	Alamo Salon A, Marr. Riverwalk	Take My Breath Away! (p. 100)
8:00–9:00 AM	M–H/S	Alamo Salon B, Marr. Riverwalk	Inquiry Learning Requires Inquiry Teaching (p. 96)
8:30–9:00 AM	H–C	Seguin A, Grand Hyatt	Integrating Spectroscopy into the Forensics Curriculum (p. 94)
9:30–10:00 AM	H	Alamo Salon B, Marr. Riverwalk	Assessing Scientific Explanations in High School Chemistry (p. 111)
9:30–10:30 AM	H	Alamo Salon A, Marr. Riverwalk	STEM in My Chemistry Classroom (p. 113)
9:30–11:00 AM	9–C	007D, Conv. Center	Getting the Most Out of Molecular-Level Visualization and Simulation Tools (p. 115)
9:30–11:00 AM	9–12	204B, Conv. Center	Connecting to Chemistry: Igniting Student Motivation with STEM Examples and Ideas (p. 116)
10:00–10:30 AM	H	Alamo Salon B, Marr. Riverwalk	Differentiation in High School Chemistry (p. 111)
10:00–11:30 AM	9–12	006D, Conv. Center	Chemistry: Achievable Inquiry with SPARKvue® HD (p. 119)
10:00–11:30 AM	9–C	210A, Conv. Center	Chemistry with Vernier (p. 120)
11:30 AM–1:00 PM	6–C	007D, Conv. Center	Using Molecular-Level Visualization to Engage Middle School and High School Science Students (p. 124)

11:30 AM–1:00 PM	9–12	103A, Conv. Center	Best Practices for Teaching Chemistry Experiments and Demonstrations from Flinn (p. 125)
12 Noon–1:30 PM	6–8	006C, Conv. Center	Equip Your iPad for Science with SPARKvue® HD, a Full-featured Science Application for the iPad Featuring Sally Ride Science Key Concepts in Physical Science (p. 128)
12 Noon–1:30 PM	9–C	210B, Conv. Center	Inquiry-based Chemistry with Vernier (p. 130)
12:30–1:30 PM	M	Bonham C, Grand Hyatt	Using Simulations to Engage Students in Inquiry on Tough Concepts (p. 140)
12:30–1:30 PM	H–C	Seguin A, Grand Hyatt	Sixty Labs You Can Do with Little or No Budget (p. 135)
12:30–1:30 PM	M–C	Alamo Salon A, Marr. Riverwalk	Making Radiation Visible: Why Your Cloud Chamber Kit Doesn't Work Half the Time and How to Fix It So It Works Every Time (p. 142)
12:30–1:30 PM	I	Alamo Salon B, Marr. Riverwalk	Enlightening Portable Demos (p. 137)
12:30–1:30 PM	M–H	Travis, Marr. Riverwalk	Teaching Chemistry with Mining (p. 138)
1:30–3:00 PM	9–12	006A, Conv. Center	It's Time to Review for the 2013 AP Chemistry Exam (p. 147)
1:30–3:00 PM	9–12	203A, Conv. Center	Mastering the Chemical Formula: An Effective Way to Teach Subscripts and Coefficients (p. 150)
2:00–2:30 PM	G	Bowie C, Grand Hyatt	SCST Session: Analysis of Salt Formations on Ancient Ceramics (p. 158)
2:00–3:00 PM	H–C	Grand Blrm. C3, Conv. Center	Featured Presentation: Laboratory Teaching: Macro Success Using Microscale (Speaker: Jorge G. Ibáñez-Cornejo) (p. 154)
2:00–3:00 PM	E–H	Mission A, Grand Hyatt	CSSS Session: Disciplinary Core Idea from Kindergarten to High School (NGSS @ NSTA) (p. 158)
2:00–3:00 PM	H	Alamo Salon B, Marr. Riverwalk	Assessing Student Preparedness to Be Successful on the Revised AP Chemistry Exam (p. 161)
2:00–3:30 PM	9–12	006D, Conv. Center	AP Chemistry: Guided Inquiry Labs Using Probeware (p. 165)
3:30–4:30 PM	H–C	Seguin A, Grand Hyatt	Developing Conceptual Understanding in Stoichiometry for All Students (p. 170)
3:30–4:30 PM	H	Alamo Salon A, Marr. Riverwalk	Radiation and Humans (p. 175)
3:30–5:00 PM	G	102A, Conv. Center	Learn Chemistry: Enhancing Learning and Teaching with Resources and Tools from the RSC (p. 177)
3:30–5:00 PM	10–12	103A, Conv. Center	New Guided Inquiry Labs for AP Chemistry from Flinn Scientific (p. 177)

Earth/Space Science

8:00–9:00 AM	G	001A, Conv. Center	NASA Galileo Educator Network: What Would Galileo Do? (p. 97)
8:00–9:00 AM	M	001B, Conv. Center	Getting a Grasp on the Geosphere (p. 97)
8:00–9:00 AM	E	002, Conv. Center	WeatherBug and the Elementary Classroom (p. 97)
8:00–9:00 AM	M–C	101A, Conv. Center	Grab-and-Go Geoscience Education: GeoMapApp Learning Activities (p. 97)
8:00–9:00 AM	G	101B, Conv. Center	Association for Astronomy Education Members Meeting (p. 91)
8:00–9:00 AM	G	Texas Ballroom E/F, Grand Hyatt	NMEA Session: A Whale of a Tale Share-a-Thon (p. 99)
8:00–9:00 AM	M–H	Conf. Rm. 17/18, Marr. Rivercenter	SYM-1 Presession: Demystifying Ocean Acidification (p. 96)
9:30–10:00 AM	E	003A, Conv. Center	Exploring Weather (p. 106)
9:30–10:30 AM	I	001A, Conv. Center	Make Your Own Virtual Fieldwork Experience (VFE)! (p. 111)
9:30–10:30 AM	M–H	001B, Conv. Center	"Astro"nishing Astronomy: The Electromagnetic Spectrum (p. 111)
9:30–10:30 AM	M–H/I	101A, Conv. Center	NASA's Global Precipitation Measurement Mission Has Tremendous Resources for You to Use in Your Classrooms! (p. 106)
9:30–10:30 AM	G	101B, Conv. Center	What's Up? Classroom Activities from the Association of Astronomy Educators, Session II: Beyond the Solar System (p. 111)
9:30–10:30 AM	H–C	Seguin A, Grand Hyatt	Using Earthquakes to Teach Plate Tectonics (p. 108)
9:30–11:00 AM	5–12	007B, Conv. Center	Hurricanes and Earthquakes (p. 114)
10:00–10:30 AM	P–E	003A, Conv. Center	Science Through the Use of Music and Movement (p. 106)
10:30–11:30 AM	5–8	214C, Conv. Center	Asteroid! Will Earth Be Hit Again? Planetary Science for Middle School (p. 121)

12 Noon–1:00 PM	5–8	214C, Conv. Center	NASA's Kepler Mission and the Hunt for Exoplanets: Planetary Science for Middle School (p. 128)
12:30–1:30 PM	M–H	001A, Conv. Center	NASA's WISE (Wide-Field Infrared Survey Explorer) Mission Presents: Size and Scale of the Universe (p. 138)
12:30–1:30 PM	E–M	002, Conv. Center	Rock and Roll Through Earth Science as You Connect Science and Mathematics in Your Classroom (p. 138)
12:30–1:30 PM	M	003A, Conv. Center	Citizen Science—From Space to Deep Earth (p. 132)
12:30–1:30 PM	G	101A, Conv. Center	See Yourself as a Scientist! (p. 132)
12:30–1:30 PM	M–C	101B, Conv. Center	Use Seismic Data from a Recent Earthquake to Discover and Measure the Size of Earth's Layered Interior (p. 138)
12:30–1:30 PM	E	202A, Conv. Center	Putting a New "Spin" on Moon Phases (p. 138)
12:30–1:30 PM	G	Texas Ballroom D, Grand Hyatt	NSTA Press® Session: Uncovering K–12 Students' (and Teachers') Ideas on the Earth and Space Sciences (p. 136)
1:30–3:00 PM	5–12	007B, Conv. Center	The Secret Lives of Stars (p. 148)
2:00–3:00 PM	M–H	001A, Conv. Center	Some Like It Hot! (p. 162)
2:00–3:00 PM	E	001B, Conv. Center	The Magic and Mystery of Our Very Own Star—the Sun (p. 162)
2:00–3:00 PM	E–M	002, Conv. Center	Using *The Cloud Book* to Teach an Integrated Weather Unit (p. 162)
2:00–3:00 PM	M	003A, Conv. Center	Investigating Tectonics with Web GIS (p. 155)
2:00–3:00 PM	G	101A, Conv. Center	Lunar Phases, Multicultural Awareness, and the Simple Pleasure of Knowing One's Place in the World (p. 155)
2:00–3:00 PM	E–H	101B, Conv. Center	Mercury…Emerging Through a Veil of Mystery (p. 162)
2:00–3:00 PM	M	Bonham E, Grand Hyatt	NARST Session: Introducing and Assessing Argumentation in Your Science Classroom (p. 163)
2:00–3:00 PM	M–C	Texas Ballroom E/F, Grand Hyatt	NMEA Session: Bridge Data Activity: Sea Level Trends (p. 163)
3:30–4:30 PM	G	001A, Conv. Center	Stellar Evolution—From Formation to Destruction (p. 172)
3:30–4:30 PM	M–H	001B, Conv. Center	Looking at Clouds from Both Sides! (p. 172)
3:30–4:30 PM	E–M	002, Conv. Center	Solar System Activities for Elementary/Middle School (p. 172)
3:30–4:30 PM	G	213A, Conv. Center	Astronomical Café: Exploring Celestial Ideas for Your Classroom (p. 173)
3:30–5:00 PM	K–12	007B, Conv. Center	Master of Science in Geosciences via Distance Learning from Mississippi State University (p. 176)
4:00–5:30 PM	9–C	008A, Conv. Center	Deep Time, Evolution, and the Nature of Scientific Consensus in HHMI's New DVD *Changing Planet: Past, Present, Future* (p. 179)

Environmental Science

8:30–9:00 AM	H	Bonham D, Grand Hyatt	Building a Green Home—Is It Worth It? (p. 103)
9:30–10:30 AM	M–H/I	Presidio B, Grand Hyatt	The Little Things That Run the World: Soil Ecology in the Classroom (p. 112)
9:30–10:30 AM	M–H	Bonham D, Grand Hyatt	ICCARS: Investigating Climate Change and Remote Sensing (p. 107)
9:30–10:30 AM	M–H	Conf. Rm. 17/18, Marr. Rivercenter	SYM-1 Presession: Warming Oceans and Marine Organisms (p. 110)
11:30 AM–1:00 PM	9–12	206A, Conv. Center	Hands-On Activities to Explore Environmental Change (p. 126)
12:30–1:30 PM	H	Bonham D, Grand Hyatt	Assessing Inquiry-based Labs in AP Environmental Science (p. 133)
2:00–3:00 PM	H	Bonham D, Grand Hyatt	Synthesis of AP Environmental Science and AP English Composition (p. 156)
2:00–3:00 PM	G	Presidio B, Grand Hyatt	Cache In Trash Out—Teaching Environmental Awareness Through Geocaching (p. 163)
2:00–3:00 PM	H–C	Seguin A, Grand Hyatt	Forestry Field Studies for High School Students (p. 159)
2:00–3:30 PM	7–C	210B, Conv. Center	Water Quality with Vernier (p. 167)
3:30–4:30 PM	E–M/I	Presidio B, Grand Hyatt	We're All in This Together—Watersheds and You! (p. 174)
3:30–5:00 PM	K–12	209, Conv. Center	Science of Everyday Life (p. 178)
4:00–4:30 PM	E	208, Conv. Center	Oil Spill: Solving a Real-World Problem (p. 179)
4:00–4:30 PM	H	Bonham D, Grand Hyatt	Watershed Dynamics: Curriculum to Teach the Human Impacts on Your Watershed Using Web-GIS (p. 179)
4:00–5:30 PM	9–12	006D, Conv. Center	Environmental Science: Modeling Ecosystems with Probeware (p. 179)

Integrated/General

7:30–9:00 AM	6–C	103A, Conv. Center	Make Safety a Habit! Flinn Scientific Safety Workshop (p. 90)
7:30–9:00 AM	9–12	209, Conv. Center	The Dirty Job of Teaching Just Got Easier with Discovery High School Science Techbook (p. 90)
7:30–9:00 AM	G	211, Conv. Center	New Teacher's Welcome Breakfast (p. 90)
8:00–8:20 AM	H–C	Bowie C, Grand Hyatt	SCST Session: Influence of High School Biology and Mathematics Courses on the Introductory College Biology Course Success at Angelo State University (p. 92)
8:00–8:30 AM	C	Mission B, Grand Hyatt	Transforming Science Learning at a Cambodian University: Bridges and Barriers to Inquiry (p. 94)
8:00–8:30 AM	M–H	Salon C, Marr. Rivercenter	3Ring: A Next Generation Lesson Planning System (p. 90)
8:00–9:00 AM	E	103B, Conv. Center	Making the Most of a Math and Science Night (p. 97)
8:00–9:00 AM	E–H	201, Conv. Center	How to Present to African-American Men (p. 97)
8:00–9:00 AM	G	202A, Conv. Center	Magical Illusions for K–9 Teachers (p. 91)
8:00–9:00 AM	M	202B, Conv. Center	Students Steer the Course—Don't Crash and Burn with Meaningless Assessment (p. 98)
8:00–9:00 AM	1–12	205, Conv. Center	Turn Your Science Classroom into a STEM Classroom with Fourier Education Technology (p. 100)
8:00–9:00 AM	E	213A, Conv. Center	ASTC Session: Science Process Skills Are Tools for Learning (p. 98)
8:00–9:00 AM	E–M	215, Conv. Center	Flip the Switch to Inquiry (p. 91)
8:00–9:00 AM	E–M	216B, Conv. Center	Modeling an Integrated Science and Technology Classroom (p. 92)
8:00–9:00 AM	E	217D, Conv. Center	Forming Foundations for the Future (p. 98)
8:00–9:00 AM	G	Bonham B, Grand Hyatt	Flipping Classrooms with iPads (p. 92)
8:00–9:00 AM	G	Bowie A, Grand Hyatt	ASTE Session: Lifelong Learning—The Secret to Teacher Empowerment (p. 92)
8:00–9:00 AM	I	Lone Star Ballroom C, Grand Hyatt	Successful Classroom Inquiry—Going Beyond "Hands On" (p. 98)
8:00–9:00 AM	M–H/I	Lone Star Ballroom D, Grand Hyatt	DIY Forensics (p. 98)
8:00–9:00 AM	G	Lone Star Ballroom E, Grand Hyatt	Tricks of the Trade (p. 98)
8:00–9:00 AM	M–H/S	Mission A, Grand Hyatt	CSSS Session: Building Capacity for the Next Generation Science Standards (NGSS @ NSTA) (p. 92)
8:00–9:00 AM	G	Presidio B, Grand Hyatt	Soils: More Than the Dirt Under Your Feet (p. 99)
8:00–9:00 AM	E–H	Republic B, Grand Hyatt	How Do You Decide? ABC, ARB, ACE, CAD, or MI? (p. 99)
8:00–9:00 AM	G	Texas Ballroom C, Grand Hyatt	Is This Your First NSTA Conference? (p. 99)
8:00–9:00 AM	M–H	Texas Ballroom D, Grand Hyatt	NSTA Press® Session: CCSS for ELA and Literacy + NGSS = Even More Brain-powered Science (p. 94)
8:00–9:00 AM	M/I	Travis C/D, Grand Hyatt	Engineering for Space (p. 100)
8:00–9:00 AM	M–H	Salon A, Marr. Rivercenter	iPad Invasion in the Middle School Science Classroom (p. 96)
8:00–9:00 AM	G	Salon B, Marr. Rivercenter	"Bridging" Engineering and Science: Engineering Design Challenges That Inspire Inquiry (p. 100)
8:00–9:00 AM	M–H	Salon J, Marr. Rivercenter	Teaching the Hard to Teach to the Hard to Reach: Advanced Topics for Struggling Learners (p. 96)
8:00–9:00 AM	G	Salon K, Marr. Rivercenter	McREL Pathway Session: Creating a Classroom Environment Where All Students Can Learn (p. 100)
8:00–9:00 AM	G	Seguin B, Grand Hyatt	Getting Them There: Recruitment and Retention of Girls in STEM Programs (p. 94)
8:00–9:15 AM	6–12	214A, Conv. Center	A Simple Connection Between STEM and Data Logging (p. 101)
8:00–9:15 AM	K–6	214B, Conv. Center	Inquiring Minds Provide Spark for Science Lessons (p. 101)
8:00–9:30 AM	K–12	006C, Conv. Center	Equip Your iPad or Android Tablet for Science with SPARKvue® HD, a Full-featured Science Application (p. 101)
8:00–9:30 AM	G	207A, Conv. Center	Using iPads to Create Innovative Scientists (p. 101)
8:00–10:00 AM	K–6	214C, Conv. Center	Science-centered Language Development Using FOSS (p. 102)
8:00–10:00 AM	P–E	Salon L, Marr. Rivercenter	WISP Pathway Session: They're Not Too Young—Emergent Writers Thinking and Writing Like Scientists (p. 102)
8:00–11:00 AM	G	Salon del Rey A, Hilton	The Outstanding Science Trade Books of 2012 Share-a-Thon! (p. 103)

8:00 AM–12 Noon	E–M	Conf. Rm. 13/14, Marr. Rivercenter	BSCS-N Pathway Session: Uncovering Student Science Ideas as a Springboard to Deeper Understanding (p. 103)
8:30–9:00 AM	E	213B, Conv. Center	Strategies for Fostering Meaningful Student Discourse in the Elementary Science Classroom (p. 103)
8:30–9:00 AM	C	Mission B, Grand Hyatt	Peer Evaluation and Self-Assessment: Helping Teacher Candidates' Develop and Improve Their Lesson Planning and Professional Dispositions (p. 94)
9:30–10:00 AM	G	Texas Ballroom C, Grand Hyatt	Is This Your First Conference? A Student Teacher's Perspective (p. 109)
9:30–10:00 AM	M–H	Conf. Room 15, Marr. Rivercenter	Differentiation Through Project Based Learning and Inquiry (p. 110)
9:30–10:30 AM	E	103B, Conv. Center	Science Fair: "Hey, What's the Big Idea?" (p. 111)
9:30–10:30 AM	G	201, Conv. Center	Interactive, Conceptual Word Walls: Transforming Content Vocabulary Instruction One Word at a Time (p. 106)
9:30–10:30 AM	P–E	202A, Conv. Center	MORE Science on the Cheap (p. 111)
9:30–10:30 AM	M–H/S	202B, Conv. Center	Improving Instruction Through Better Assessments: A Framework for Teacher-Leaders (p. 106)
9:30–10:30 AM	6–8	205, Conv. Center	Merging the Three Dimensions of the Next Generation Science Standards (p. 114)
9:30–10:30 AM	E	212A, Conv. Center	CESI Session: We've Got the Whole World in Our Hands (p. 112)
9:30–10:30 AM	E–M/I	213A, Conv. Center	ASTC Session: The Art of Energizing STEM (p. 112)
9:30–10:30 AM	P–E	213B, Conv. Center	The 3Rs of Science Notebooks: Record, Reflect, and Reach Out (p. 106)
9:30–10:30 AM	E–M	215, Conv. Center	Protecting Against the Sun's Ultraviolet Light (p. 112)
9:30–10:30 AM	G	216B, Conv. Center	Presenting at NSTA Boston 2014! (p. 107)
9:30–10:30 AM	E–M	217A, Conv. Center	Teaching Tornado Technology Through the Trauma (p. 112)
9:30–10:30 AM	E–H	Bonham B, Grand Hyatt	iPads and Beyond—Taking the Tablet to the Next Level (p. 107)
9:30–10:30 AM	M–H	Bonham E, Grand Hyatt	ASTE Session: Teacher Academy in the Natural Sciences (TANS) Professional Development Program: Effective Content and Performance Assessment Instruction for Your Science Classroom (p. 112)
9:30–10:30 AM	M	Bowie A, Grand Hyatt	NARST Session: Gendered Expectations for ELL Students' Science Achievement and Participation (p. 107)
9:30–10:30 AM	G	Bowie B, Grand Hyatt	How I Turned a Great Science Lesson into a Presidential Award and $10,000 (p. 107)
9:30–10:30 AM	I	Lone Star Ballroom C, Grand Hyatt	After-School Science PLUS (p. 112)
9:30–10:30 AM	E–H	Lone Star Ballroom D, Grand Hyatt	CSI2: A Multi-State Technology-enhanced Whodunit? (p. 108)
9:30–10:30 AM	G	Lone Star Ballroom E, Grand Hyatt	Teaching Essential Science Concepts and Skills: Doing Science, Reading Science, Writing Science, and Talking Science (p. 108)
9:30–10:30 AM	G	Seguin B, Grand Hyatt	Beyond Career Day: Integrating STEM Professionals into the Science Classroom (p. 108)
9:30–10:30 AM	M–H	Texas Ballroom D, Grand Hyatt	NSTA Press® Session: CCSS for Mathematics + NGSS = More Brain-powered Science (p. 109)
9:30–10:30 AM	G	Travis A/B, Grand Hyatt	GUESS What? This Experiment Is "Sick"! (p. 112)
9:30–10:30 AM	M	Travis C/D, Grand Hyatt	Promoting Disciplinary Literacy in the Science Classroom: Active Reading of Science Text with Digital Supports (p. 112)
9:30–10:30 AM	E	Conf. Room 3/4, Marr. Rivercenter	ITEEA Pathway Session: STEM Building for the Elementary Grades (p. 110)
9:30–10:30 AM	H	Conf. Room 6, Marr. Rivercenter	AMSE Session: Creating Project Based Learning (PBL) Experiences (p. 110)
9:30–10:30 AM	G	Conf. Room 8, Marr. Rivercenter	ASSET Pathway Session: Building a Collaborative Culture Within Your Professional Learning Community (p. 110)
9:30–10:30 AM	G	Conf. Room 12, Marr. Rivercenter	WestEd Pathway Session: Understanding the Conceptual Flow (p. 113)
9:30–10:30 AM	G	Salon B, Marr. Rivercenter	Using LEGO® Robotics to Introduce Technology to Primary Students (p. 113)
9:30–10:30 AM	M–H	Salon C, Marr. Rivercenter	Integrated STEM Projects: Teaching Technology and Engineering Concepts to Address the Next Generation Science Standards (p. 110)
9:30–10:30 AM	M–H/S	Salon J, Marr. Rivercenter	First Steps in Meeting the Needs of Emotionally Impaired Students (p. 111)

9:30–10:30 AM	G	Salon K, Marr. Rivercenter	McREL Pathway Session: Using a Formative Assessment Process to Provide Effective Feedback (p. 113)
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9:30–11:00 AM	K–12	006B, Conv. Center	From Science to Engineering (p. 114)
9:30–11:00 AM	2–5	007A, Conv. Center	Enhancing the Elementary Classroom Through Robotics (p. 114)
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11:00 AM–12 Noon	G	Texas Ballroom E/F, Grand Hyatt	NMEA Session: Real-Time and Near Real-Time Ocean Exploration in the Classroom (p. 122)
11:00 AM–12 Noon	E–M	Salon C, Marr. Rivercenter	AMSE Session: RAFTing Through the Standards (p. 122)
11:00 AM–12:30 PM	G	Grand Blrm. C 1/2, Conv. Center	General Session: D.R.E.M.E. Foundation Makes Science for All Learners (Speaker: Cheryl M. McNair) (p. 123)
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12:30–1:30 PM	6–12	205, Conv. Center	*Project-Based Inquiry Science: PBIS*™—Time to Move Beyond "What Is Science?" and Implement the Next Generation Science Standards (p. 143)
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12:30–1:30 PM	E–M	217A, Conv. Center	Nanotechnology—Nanodream or Nanonightmare? (p. 140)
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12:30–1:30 PM	E	Grand Blrm. C3, Conv. Center	Mary C. McCurdy Lecture: Beyond the Three Rs: Inspiring Curious Minds (Speaker: Yvonne M. Spicer) (p. 130)
12:30–1:30 PM	G	Bonham B, Grand Hyatt	iPad Photography for the Science Classroom (p. 133)
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12:30–1:30 PM	I	Lone Star Ballroom C, Grand Hyatt	Sixteen Years of Bringing Informal Science Educators Together in Texas (p. 134)
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12:30–1:30 PM	G	Lone Star Ballroom E, Grand Hyatt	Building Academic Vocabulary One Fold at a Time (p. 140)
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12:30–1:30 PM	G	Salon K, Marr. Rivercenter	McREL Pathway Session: Nanoscience and Technology—Teaching Emerging Science Content (p. 142)
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2:30–3:00 PM	G	Salon B, Marr. Rivercenter	Inquiry Teaching and Learning—Problems and Solutions (p. 161)
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3:30–4:00 PM	P–M	216B, Conv. Center	Get Walled In! Interactive Science Word Walls (p. 169)
3:30–4:00 PM	G	Bonham B, Grand Hyatt	An Interactive Inquiry Activity (p. 169)
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3:30–4:00 PM	E–H	Conf. Room 15, Marr. Rivercenter	Student Engagement: Using Scientists to Teach Science (p. 171)
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3:30–4:30 PM	I	Lone Star Ballroom C, Grand Hyatt	Top Tips and Tools for Retention, Review, and Results (p. 173)
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3:30–4:30 PM	E–H	Lone Star Ballroom E, Grand Hyatt	Vocabulary Magic—Making Words Real: Powerful Strategies That Can Accelerate the Acquisition of Science Vocabulary (p. 174)
3:30–4:30 PM	G	Mission A, Grand Hyatt	CSSS Session: Connecting Standards to Instruction: Using the Cloud to Develop an Online Resource for Teachers (p. 170)
3:30–4:30 PM	G	Mission B, Grand Hyatt	The DuPont Challenge: Winning with Science Writing and Research (p. 170)
3:30–4:30 PM	G	Republic B, Grand Hyatt	Misconceptions: How to Identify Them and What to Do with Them (p. 174)
3:30–4:30 PM	G	Texas Ballroom C, Grand Hyatt	Conference Tips for First-Timers (p. 174)
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3:30–4:30 PM	G	Travis A/B, Grand Hyatt	Using the National Facilities Standards to Plan and Design Your School Science Classroom/Laboratory (p. 174)
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3:30–4:30 PM	G	Conf. Room 12, Marr. Rivercenter	Fruit Power! Let's Build a Lemon Battery! (p. 175)
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3:30–5:00 PM	K–5	204B, Conv. Center	REAL School Gardens: STEM in the School Yard (p. 178)
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4:00–4:30 PM	G	216B, Conv. Center	Inquiry and Literacy in Science and Across the Curriculum (p. 169)
4:00–4:30 PM	G	Bonham B, Grand Hyatt	Possibilities, Big Ideas, and Flow with Inquiry (p. 169)
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4:00–4:30 PM	G	Conf. Room 15, Marr. Rivercenter	Using Personal Response Systems Effectively (p. 171)
4:00–5:30 PM	K–12	006C, Conv. Center	Equip Your iPad or Android Tablet for Science with SPARKvue® HD, a Full-featured Science Application (p. 179)
5:00–5:20 PM	C	Bowie C, Grand Hyatt	SCST Session: Student Attitudes Toward Chemistry (p. 181)
5:00–6:00 PM	E–M	001B, Conv. Center	Hands-On Approaches to Developing Visual Literacy by Understanding Imaging Technology (p. 181)
5:00–6:00 PM	P–E	103B, Conv. Center	Time: Developing This Integrated Concept with Young Learners (p. 181)
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5:00–6:00 PM	E–H	Bonham B, Grand Hyatt	Give Science a Voice! Digital Storytelling in the Science Classroom (p. 180)
5:00–6:00 PM	M	Lone Star Ballroom C, Grand Hyatt	NSTA Press® Session: Everyday Engineering (p. 181)
5:00–6:00 PM	G	Republic B, Grand Hyatt	Preparing Your Students for the Quantum Leap into the Scientific Thinking Practices Needed for *A Framework for K–12 Science Education* (p. 182)
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5:00–6:00 PM	M–H	Travis C/D, Grand Hyatt	Go Digital and High Tech with FlexCams and Laptops (p. 182)
5:20–5:40 PM	C	Bowie C, Grand Hyatt	SCST Session: College Science Student Ethics: Recent High School Graduates *vs.* Delayed College-Entry Students (p. 181)
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Physics/Physical Science

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8:00–9:00 AM	M–C	Conf. Room 11, Marr. Rivercenter	Make Your Demonstrations More Effective (p. 94)
8:00–9:00 AM	H	Salon D, Marr. Rivercenter	Hit the Ground Running! An Authentic Approach to Units and Measurement (p. 100)
8:00–9:30 AM	9–12	006D, Conv. Center	AP Physics: Impulse and Momentum (p. 101)
8:00–9:30 AM	9–C	210A, Conv. Center	*Physics with Vernier* (p. 102)
8:00–9:30 AM	6–12	214D, Conv. Center	Chemistry and the Atom: Fun with Atom Building Games! (p. 102)
9:30–10:30 AM	E–M	216A, Conv. Center	Get Moving! The Physics Edition (p. 107)
9:30–10:30 AM	H–C	Mission B, Grand Hyatt	Flight Fidelity: Building and Analyzing Model Rockets (p. 108)
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9:30–10:30 AM	M–H	Salon D, Marr. Rivercenter	Literacy in High School Science? How We Made It Work (p. 113)
9:30–11:00 AM	5–9	102B, Conv. Center	Bring the Excitement of Hands-On Learning to Your Middle School Classroom! (p. 115)
11:30 AM–1:00 PM	3–6	102B, Conv. Center	Bring Simple Machine Concepts to Life with Real-World Models! (p. 125)
12 Noon–1:30 PM	6–12	006D, Conv. Center	Investigating Motion: Understanding and Interpreting Graphs (p. 128)
12 Noon–1:30 PM	6–12	214D, Conv. Center	A STEM Approach to Teaching Electricity and Magnetism (p. 130)
12:30–1:30 PM	E–H	212A, Conv. Center	CESI Session: Working with Electricity, Magnetism, and the Multimeter (p. 140)
12:30–1:30 PM	E	216A, Conv. Center	Microbotic Racers for Elementary Engineers (p. 140)
12:30–1:30 PM	G	Texas Ballroom E/F, Grand Hyatt	NMEA Session: Rafts to ROVs (p. 141)
12:30–1:30 PM	G	Conf. Room 11, Marr. Rivercenter	Inspiring Girls with Physics—From Empirical Research to Applications in the Classroom (p. 136)
1:30–3:00 PM	K–9	204A, Conv. Center	Properties of Light—See Your Students Shine (p. 150)
2:00–3:00 PM	E	202A, Conv. Center	Inquiring Minds Want to Know (p. 162)
2:00–3:00 PM	E–M	216A, Conv. Center	Shine Some Light on Science (p. 156)
2:00–3:00 PM	M–C	Conf. Room 11, Marr. Rivercenter	Powerful and Free Simulations for Physics and Physical Science Teaching (p. 161)
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3:30–4:30 PM	M	Bonham C, Grand Hyatt	Challenge-based Learning: An Innovative Twist on the Marble Roller Coaster Project (p. 173)
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3:30–5:00 PM	3–5	007A, Conv. Center	Machines and Mechanisms in the Classroom and Beyond (p. 176)
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3:30–5:00 PM	5–9	102B, Conv. Center	Go Green and Bring STEM Concepts to Life with the K'NEX® Education Renewable Energy Set! (p. 177)
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4:00–5:30 PM	6–12	214D, Conv. Center	Car and Ramp: Using a Graph to Predict Speed with the CPO Science Data Collector (p. 180)
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- State STEM networks—How Are They Working to Change STEM Education?
- STEM in Urban Science Education and Engaging—and Keeping—More Girls and Minorities in STEM
- Public/Private Partnerships, Out-of-School and Informal Programs that Excite Students about the World of STEM
- Putting the "T" and "E" in Your STEM Program
- A Whole School Approach to STEM: What You Need to Know
- Promising STEM Programs: Four to Watch

Educator, Administrator, and Exhibitor Sessions

For updates, more information, and to register:

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