NSTA 2012 Area Conference on Science Education

ATLANTA

Science: Passport for Success

National Science Teachers Association

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WHAT WORKS WORKSHOPS FOR 21ST-CENTURY CLASSROOMS

Georgia World Congress Center • Room B309

WORKSHOPS

Thursday, November 1st

10:00–11:15AM **Session #436** That's Amazing! Explore the Bizarre, Cool, and Exciting World of Project-based Biology
Author Presenter: Michael Heithaus

12:30–1:45PM **Session #437** Ecology Adventures: Motivating Students through Project-Based Learning (PBL)
Author Presenter: Michael Heithaus

2:15–3:30PM **Session #439** Connecting to Chemistry: Igniting Student Motivation with STEM Examples and Ideas
Author Presenter: Michael DiSpezio

4:00–5:15PM **Session #440** New Physics for New Students: Guiding Them as They See It for the First Time
Consultant Presenter: Beth Swayze

Friday, November 2nd

12:00–1:15PM **Session #443** Effective STEM Challenges for the Classroom
Author Presenter: Michael DiSpezio

2:00–3:15PM **Session #441** Biology–"Biology for Life"
Consultant Presenter: Beth Swayze

4:00–5:15PM **Session #438** Misconception Mania: Exciting and Engaging Ways to Address Common Misunderstandings in K–8
Author Presenter: Michael DiSpezio

Michael DiSpezio

Global educator and author of ***ScienceFusion*** and ***Modern Chemistry*** *Learn It! Videos.*

Dr. Michael Heithaus

Professor of Biology at Florida International University and author of ***ScienceFusion*** and ***Holt McDougal Environmental Science***.

Visit us at Booth #1348.

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

NSTA National Science Teachers Association

NSTA 2012 Area Conference on Science Education

Atlanta, Georgia • November 1–3, 2012

Registration, Travel, and Hotels

Conference Resources

Conference Resources, cont.

Conference Program

Indexes

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

Cover Photo
Courtesy of Leo Mason OLYMPIC GAMES PHOTOS/Alamy

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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Bring science to life with Twig science videos that are:

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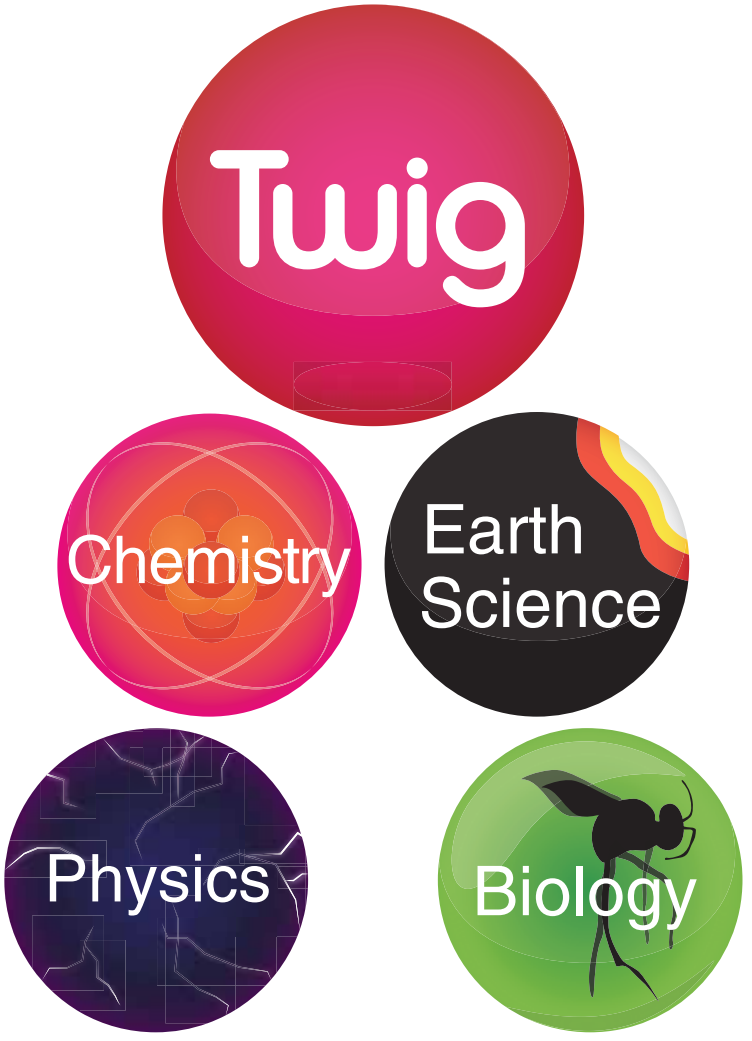

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Welcome to Atlanta

Steve Rich

Kelly Price

Karol Stephens

On behalf of the science education community in Georgia, welcome to Atlanta! We are proud to have you experience southern hospitality at its finest as part of NSTA's Atlanta Area Conference on Science Education. Inspired by the theme of NSTA President Karen Ostlund, we have an exciting lineup of presentations, featured speakers, vendors, and field trips that are sure to help "Build the Scaffolding for 21st-Century Science Literacy."

According to President Ostlund, "Implementing the NGSS when they are completed will require the use of 21st-century science literacy skills, including critical thinking, problem solving, communication, collaboration, creativity, and innovation." In order to help conference participants understand where we are with the new standards initiative, we welcome home a leader in the effort to bring us the Next Generation Science Standards, Georgia native Stephen Pruitt.

The robust program for this area conference also features three top-notch strands:

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

Exciting featured speakers will anchor these strands, including an NSTA leader, a young discoverer, and an administrator with a compelling personal and professional journey. In addition, you'll hear from inspirational presenters who are passionate about making science the Passport to Success for their students.

Set in the center of the city, you'll have easy access to nearby attractions like CNN Center, the Georgia Aquarium, and Centennial Olympic Park.

As you network during the conference, be sure to meet some Georgia educators and ask them about the state's waiver for No Child Left Behind—giving science achievement equal standing with mathematics, ELA, and social studies. Compare what's going on here with other states, and find the resources you need for your own Passport to Success in science teaching and learning.

2012 Atlanta Area Conference Committee Leaders
Steve Rich, Kelly Price, and Karol Stephens

We at NSTA wish to express our heartfelt thanks to the members of the Georgia Science Teachers Association for the many hours of time they volunteered in planning this conference.

Conference Chairperson

Steve Rich
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Atlanta Conference Committee

Program Committee

Strand Leader: Effective and Engaging K–8 Science
Sally Creel
2012–2013 GSTA President
Cobb County Schools
Marietta, GA

Strand Leader: Providing Access for All Students to the Science in STEM
Donna Governor
Forsyth County Schools
Dahlonega, GA

Strand Leader: No Student or Teacher Left Inside
Amanda Buice
Georgia Dept. of Education
Atlanta, GA

NSTA Director, District V
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University of Alabama at Birmingham
Birmingham, AL

Program Representatives
Brian D. Butler
Director, GSTA District VII
Rutland High School
Macon, GA

Cherry C. Brewton
Georgia Southern University
Statesboro, GA

Jessica Jetton
Forsyth County Schools
Cumming, GA

Marlee Tierce
Consultant/Retired Teacher
Hampton, GA

Michele Williams
SECME, Inc.
Atlanta, GA

Local Arrangements Committee

Field Trips Manager
Donald White
Coweta County School System
Newnan, GA

Guides Manager
Tom Brown
Cobb County School District
Marietta, GA

Manager of Services for People with Disabilities
Lisa Alexander
Fulton County Schools
Atlanta, GA

Volunteers Manager
Jo-ne Bourassa
Bibb County School District
Macon, GA

How can I motivate my students
to love science?

celebrating 20 years of ideas

TOSHIBA | NSTA

ExploraVision

The Science of A-HA!

Today's Young Minds Drive Tomorrow's Innovation

ExploraVision, the world's largest K-12 science competition, offers teams of students an opportunity to create and explore their visions of future technologies.

Up to $240,000 in savings bonds (at maturity value) is awarded each year, plus expense-paid trips to Washington, DC for national winning students and their parents. Schools, coaches, and mentors win too!

Your students can reach that incredible "A-ha!" moment – when all of their real-world learning comes together in problem-solving, critical thinking, collaboration, and recognition.

Teachers submitting the most team projects win a **Toshiba Tablet!**

GOOD NEWS! ExploraVision is now more aligned with the **National Research Council** Framework for K-12 Science Education!

www.exploravision.org/regionalconference

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

NSTA

President's Welcome

Build the Scaffolding for 21st-Century Science Literacy

Welcome to the NSTA Atlanta Area Conference on Science Education! This conference promises to be an exemplary professional development experience for you. The conference provides the opportunity to gain cutting-edge science content knowledge along with effective classroom instructional strategies. You will be able to document your attendance through our evaluation process in order to build your professional portfolio. I hope you will be able to acquire new tools, resources, and understandings to take back to your colleagues and students as a result of attending this conference.

I believe your experiences here will support my presidential theme—Build the Scaffolding for 21st-Century Science Literacy. You will learn about the ways that science can be your passport to success—scientific literacy is a necessity to survive and thrive in the 21st century. The Atlanta Conference Planning Committee has built the conference program around the theme, *Science: Passport for Success.* The professional development strands supporting this theme focus on the following relevant topics: "Providing Access for All Students to the Science in STEM," "Effective and Engaging K–8 Science," and "No Student or Teacher Left Inside." 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 to choose from to enhance your professional development experience.

We are at a pivotal point to move science education forward in the 21st century with the publication of the NRC *Framework* and the pending release of the Next Generation Science Standards. These momentous documents have the potential to impact the teaching and learning of science in significant ways. Be part of the change process by participating in the conversation during this conference. 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 knowledge and instructional strategies that will provide the scaffolding for your efforts to help all students attain 21st-century science literacy.

I look forward to meeting you and sharing thoughts and ideas throughout the conference to see how we can work together to build the scaffolding for 21st-century science literacy for all!

Karen L. Ostlund
2012–2013 NSTA President

Contributors to the Atlanta Conference

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

- American Association of Physics Teachers and the Southern Atlantic Coast Section of AAPT
- American Chemical Society
- American Society for Engineering Education (ASEE)
- Appleseed Expeditions
- Carolina Biological Supply
- Georgia Aquarium
- Georgia Science Teachers Association
- Southwest Airlines Co.
- Texas Instruments, Inc.
- Zoo Atlanta

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

NSTA Conferences Go Green!

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

Conference Previews

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

Online Conference Information and Personal Scheduler

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

Final Conference Programs by E-Mail

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

Recycled Paper and Sustainable Print Services

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

Environmentally Friendly Exhibition Practices

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

Georgia World Congress Center's Green Efforts

The Georgia World Congress Center (GWCC) assists in reducing the environmental impact of meetings with an in-house sustainability coordinator and Leadership in Energy and Environmental Design (LEED) Accredited Professional, a committed operations team, and by offering the services below. The GWCC is also a member of the Green Meetings Industry Council and the U.S. Green Building Council, and is registered with the LEED for Existing Buildings rating system.

- Item-specific recycling containers are placed around exhibit halls to collect corrugated cardboard, plastic film/wrap/visquine, and other recyclable materials. Wood pallets are recycled and durable goods, supplies, materials, scrap metals, and even carpet can be donated to local organizations for reuse or recycling.
- Blue recycling containers are located throughout GWCC to encourage recycling of plastic bottles and containers (#1–7), glass bottles, aluminum, clean mixed paper, and cardboard.
- Kitchen food waste is regularly composted; food services use compostable cups, utensils, napkins, and plates; and excess pre-consumer food is donated to a local shelter or organization.
- Each of the 106 meeting rooms has a spring water cooler with compostable cups.
- Clients are encourage to utilize GWCC's large digital signage displays rather than printing banners/signage.
- Recycled content paper is used for paper towels, toilet tissue, office paper, and collateral.
- CO_2 sensors are installed in each exhibit hall
- Lighting and HVAC in the exhibit halls are minimized during move-in and move-out

"Go Green" at the Atlanta Conference!

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

Ward's Welcomes New Teachers to NSTA Atlanta!

Our experts are here to help.

Join us for a free breakfast to learn more.

FREE! New Teacher Survival Kit

Friday, November 2, 2012
6:30 a.m.–8:00 a.m.
The Omni Hotel at CNN Center
International Ballroom E & F

+Us

The Plus is Us.

Ward's would like to officially welcome you into the wonderful world of science education.

- Free continental breakfast
- Free New Teacher Survival Kit
- Invaluable tips and resources for first-year or beginning science teachers
- Meet your personal account manager
- Bring your principal or mentor for a free gift too!

WARD'S™ Natural Science

wardsci.com

Offer details: To receive a free New Teacher Survival Kit, science teachers must have no more than 3 years teaching experience. Free gifts available while supplies last.

Registration, Travel, and Hotels

Meeting Location and Times

The conference hotels are the Omni Hotel at CNN Center (*headquarters*) and the Holiday Inn Atlanta Downtown. Conference registration, the exhibits, the NSTA Avenue, the NSTA Science Bookstore, exhibitor workshops, and most sessions will be located at the Georgia World Congress Center (GWCC). Other sessions and events will be held at the Omni. The conference will begin on Thursday, November 1, at 8:00 AM, and end on Saturday, November 3, 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 (short courses, field trips, networking events, etc.).

The NSTA Registration Area, located in Exhibit Hall B2 of GWCC, will be open during the following hours:

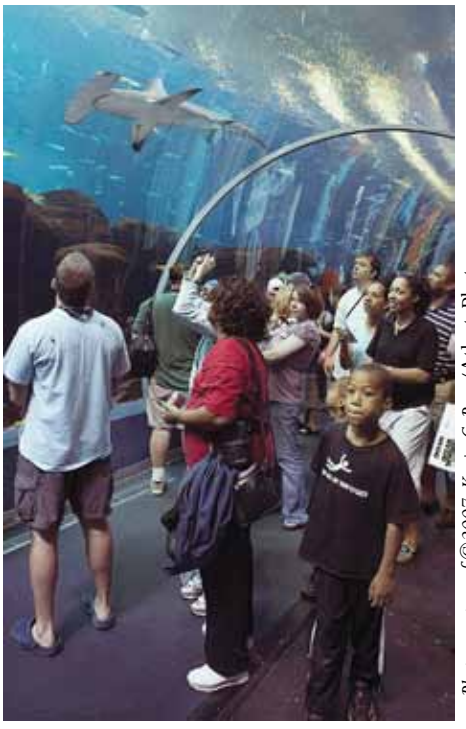
Wed., Oct. 31	5:00–7:00 PM
Thu., Nov. 1	7:00 AM–5:00 PM
Fri., Nov. 2	7:00 AM–5:00 PM
Sat., Nov. 3	7:30 AM–12 Noon

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 Atlanta Planning Committee has scheduled a variety of ticketed events. Each of these events requires a separate fee and ticket. You may purchase tickets for these events, space permitting, in the NSTA Registration Area. See the Conference Program section (starting on page 24) for details. Note that some events may have required advance registration.

—*Photo courtesy of ©1996, Kevin C. Rose/AtlantaPhotos.com*



—*Photo courtesy of ©2007, Kevin C. Rose/AtlantaPhotos.com*

Above Left: The colorful "Olympia" sculpture by the entry of the Promenade in Midtown.
Above Right: The Georgia Aquarium boasts a 100-foot-long tunnel and one of the largest aquarium windows in the world with views into whale shark habitat.

Airlines

NSTA has made arrangements with several major airlines to offer discounted fares to Atlanta conference attendees. Visit *http://bit.ly/RxMHTF* for details.

Ground Transportation to/from Airport

Atlanta is home to the busiest and most efficient airport in the world, Hartsfield-Jackson Atlanta International Airport. The Atlanta Airport Shuttle Service (TAASS) is the official Share Ride Shuttle service provider. One way fair to downtown is $16.50, round trip is $29. TAASS operates from 6:00 AM to 12 Midnight.

Getting Around Town

Use **Georgia 511** to receive free traffic and travel information 24 hours a day, seven days a week. It provides state route and interstate information, plus estimated Atlanta travel times. Speak to live operators to report incidents or request assistance.

Atlanta's mass transit system, MARTA, provides a convenient one-way ride from the airport for $2.50. The Peach, or MARTA Route 110, travels from Lenox Square Mall to the Georgia State Capitol, with stops at popular locations.

Parking

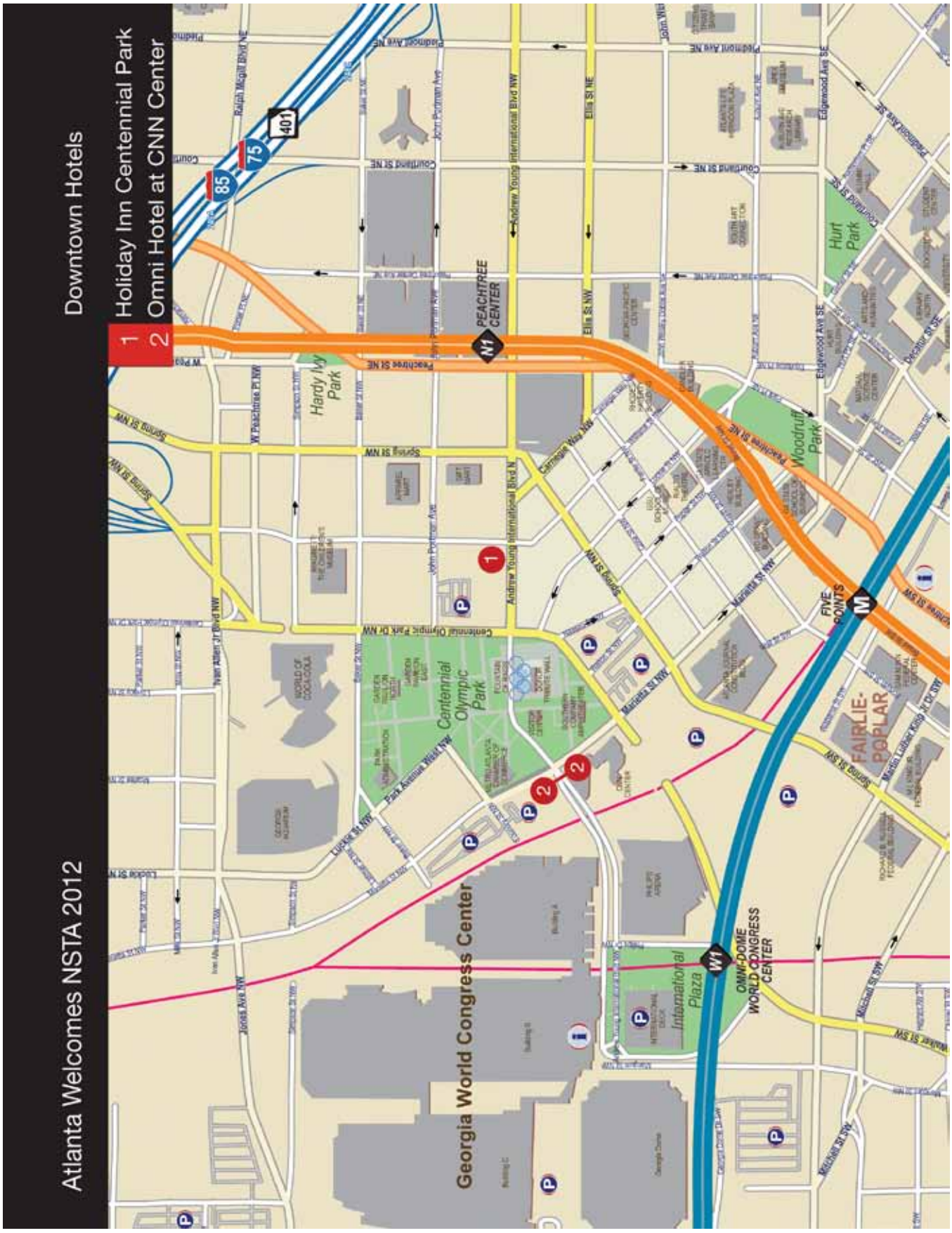
The Georgia World Congress Center Authority operates six surface lots and two parking decks on campus managed by AAA Parking. The standard daily rate for parking is $10. For a list of many other parking lots/garages in downtown Atlanta, visit *www.atlantadowntown.com/guide/getting-around/parking.*

Discounted Rental Cars

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

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."*


Atlanta Welcomes NSTA 2012
Downtown Hotels
1 Holiday Inn Centennial Park
2 Omni Hotel at CNN Center
Georgia World Congress Center
Centennial Olympic Park
PEACHTREE CENTER
FIVE POINTS
FAIRLIE-POPLAR
OMNI-DOME WORLD CONGRESS CENTER
International Plaza
Hardy Ivy Park
Woodruff Park
Hurt Park
Andrew Young International Blvd NW
Centennial Olympic Park Dr NW
Park Avenue West NW
Marietta St NW
Peachtree St NE
Spring St NW
MS IS Bridge
Ivan Allen Jr Blvd NW
Jones Ave NW
Courtland St NE
Ellis St NE
Edgewood Ave SE
Pittsburgh Ave NE
Ralph McGill Blvd NE
John Portman Ave
Carnegie Way NW
401
85
75

NSTA can help you become the best teacher you can be. Stop by NSTA Avenue (Booth #1445) 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. A complete list of exhibitors and contact information starts on page 110.

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

Exhibit Hall Hours. Located in Exhibit Hall B2 of GWCC, exhibits will be open for viewing during the following hours:

Thu., Nov. 1	11:00 AM–5:00 PM
Fri., Nov. 2	9:00 AM–5:00 PM
Sat., Nov. 3	9:00 AM–12 Noon

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

Exhibitor Workshops. Exhibitor-sponsored workshops for science teachers are offered throughout the conference. These workshops give you an opportunity to use a variety of commercial instructional materials. Attendance is on a first-come, first-served basis. See page 127 for a complete listing of exhibitor workshops.

NSTA Avenue

Stop by NSTA Avenue (Booth #1445) and learn about NSTA's benefits, products, services, programs, and partners…and receive free gifts, too! Share with others, expand your knowledge, and earn rewards for you and your students. See pages 118–119 for a complete list of NSTA services and programs.

NSTA Science Bookstore

Award-winning professional development titles; the newest books for 2012; and "I Love Science" T-shirts, mugs, and gifts galore stock the shelves in NSTA's bookstore. Located directly opposite registration, you're invited to examine some of our latest books—*Integrating Engineering and Science in Your Classroom*; *The Everyday Science Sourcebook, Revised 2nd Edition*; and *Teaching Science Through Trade Books*—and check out our brand-new line of children's books. Don't forget—all conference attendees enjoy a 20% discount on NSTA Press® titles along with free shipping for online orders placed during the conference.

Meet the Presidents and Board/Council

Be sure to stop by Friday from 11:00 AM to 12 Noon at the entrance to the Exhibit Hall for a 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!

Information Desk

The Atlanta Convention & Visitors Bureau has an Information Desk located in the GWCC Building B lobby, adjacent to Terraces Restaurant. It is open Thursday–Friday, 9:00 AM–5:00 PM to assist with booking non-NSTA tours and making restaurant reservations.

Housing Questions or Concerns?

If you have any questions or concerns about your housing, please contact the Atlanta Housing Bureau (EventSphere) at 678-704-8723 or 954-347-5963.

GSTA Booth

The Georgia Science Teachers Association (GSTA) booth is located in Exhibit Hall B2 of GWCC. Stop by for information on the benefits of becoming a member of this organization. Membership forms and information on association activities will be available. Stop by the booth to update your information, renew your membership, or become a member!

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.

Graduate Credit Opportunity

Atlanta conference attendees can earn one graduate-level credit in professional development through Framingham State University. To learn more about the assignment requirements and access a registration form, go to the Framingham State University website: *www.framingham.edu/nsta2012*. An NSTA transcript is required. *Note:* Credit is by pass/fail option only.

NSTA Mobile Website

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

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

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

Lost and Found

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

Audiovisual Needs

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

- B318/319, GWCC
- Cypress, Omni

First Aid Services

First Aid is located in front of Hall B-1 in GWCC (a First Aid sign is displayed outside the door). Attendees in need of first aid may simply walk into the room, or call 404-222-4098. Red phones that are located throughout GWCC can be used to reach the First Aid room by dialing extension 4098.

Conference Evaluation

All conference attendees are invited to complete a conference evaluation form online at *http://svy.mk/OnYlk9.*

Free Wi-Fi in GWCC

Free wireless for attendees is available in most of the GWCC lobbies by connecting to the "GWCC Free Wi-Fi" network.

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.

Business Services

Conveniently located in GWCC's Building B and C entrance lobbies, FedEx Office offers virtually everything to meet your convention and business needs. FedEx Office is open Monday through Friday, 8:00 AM–5:00 PM and offers weekend hours during showtime. Services include:

- full-service digital color and black and white copying and printing
- computer rentals and laptop docking stations
- document finishing services—binding, collating, cutting, folding, and stapling
- FedEx Express® and FedEx Ground® U.S. package services

Located on the M2 Level of the North Tower, Omni's full-service Business Center is complete with computers in a private environment. Guests may ship and receive all business-related materials from the Business Center. Most services are available Monday through Friday during regular business hours. For business services during evenings and weekends, please contact the Front Desk. Services include:

- Photocopying and fax machine
- Free-standing computer terminals with high-speed internet access
- Secretarial and notary public services
- Color transparency services

—Photo courtesy of Georgia Dept. of Economic Development

Online Session Evaluations and Tracking Professional Development

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

Help NSTA's **GREEN** efforts by completing session evaluations online November 1–14, 2012, via your smartphone *(m.nsta.org)* while the session is fresh in your mind! Or attendees can visit *www.nsta.org/evaluations* at a later time to complete a short online session evaluation for each session they attend. **And this year, we're giving away a Kindle Fire HD 8.9" to one lucky attendee who completes a session evaluation! Remember, the more sessions you attend and evaluate, the more chances you have to win!**

Concurrent session presenters may also complete evaluations 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 "Submit Session." The session information will appear and you can begin to evaluate the session.
- When finished evaluating the session, click "Submit Evaluation."
- Repeat this process for each session attended.

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

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

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

Beginning November 27, 2012, an attendee can view his or her transcript at the NSTA Learning Center *(learningcenter.nsta.org)* by clicking on "My PD Record and Certificates." Attendees can also document credit for activities that are not being evaluated (e.g., field trips, short courses, meetings, Exhibit Hall visits, etc.). Each attendee is responsible for tracking his or her own attendance at such events. The transcript can be printed here and presented to an administrator who requires documentation of participation in the conference. All information in these transcripts will be maintained (and can be accessed) indefinitely as part of an attendee's individual profile.

The following venues have extended special offers for Atlanta conference attendees.

Georgia Aquarium

www.georgiaaquarium.org/nsta

An entertaining, intriguing, and educational experience for guests of all ages, Georgia Aquarium is excited to offer our Atlanta attendees a special 10% discount. This discount is NOT available at the box office; attendees must make an advance reservation for admission at *http://bit.ly/Uz8gXN*. Because tickets for this special offer usually sell out each day, guests are required to make advance reservations. For a lit of other special offers, please visit *www.nsta.org/conferences/2012ata/specialoffers.aspx*. Please note that sales tax and service charge are NOT included. The Aquarium is open from Sunday to Friday, 10:00 AM–5:00 PM; and Saturday, 9:00 AM–5:00 PM.

Zoo Atlanta

www.zooatlanta.org

Present your NSTA conference badge at the Zoo Atlanta front gate from November 1 to 4 and receive discounted admission of nearly 25% OFF!

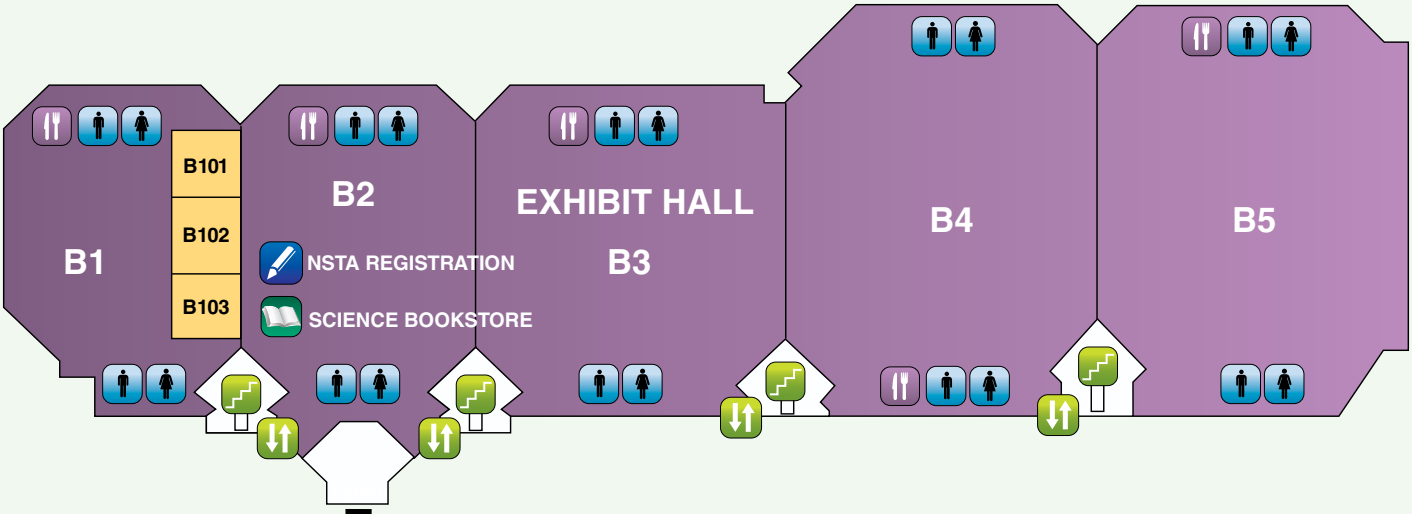
- Adult $15.99 before tax (Normally $20.99)
- Child $11.99 before tax (Normally $15.99)
- Children under 3 are FREE

Don't miss…

- More than 1,500 animals from around the world.
- The nation's largest collection of western lowland gorillas.
- Keeper talks and training demos, wildlife shows, petting zoo, and kid-friendly rides and attractions.

Georgia World Congress Center, Building B

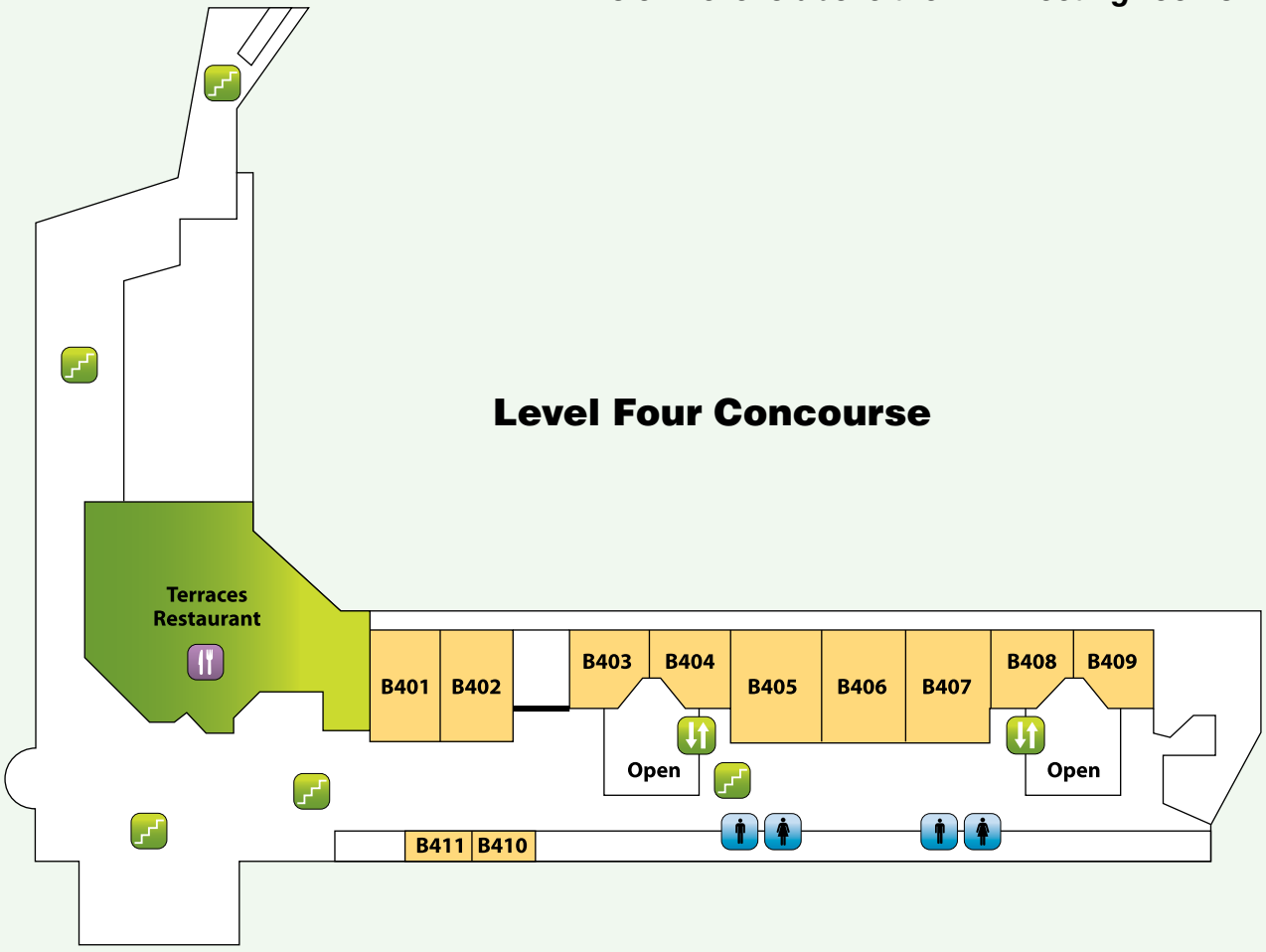
Level One Exhibit Halls



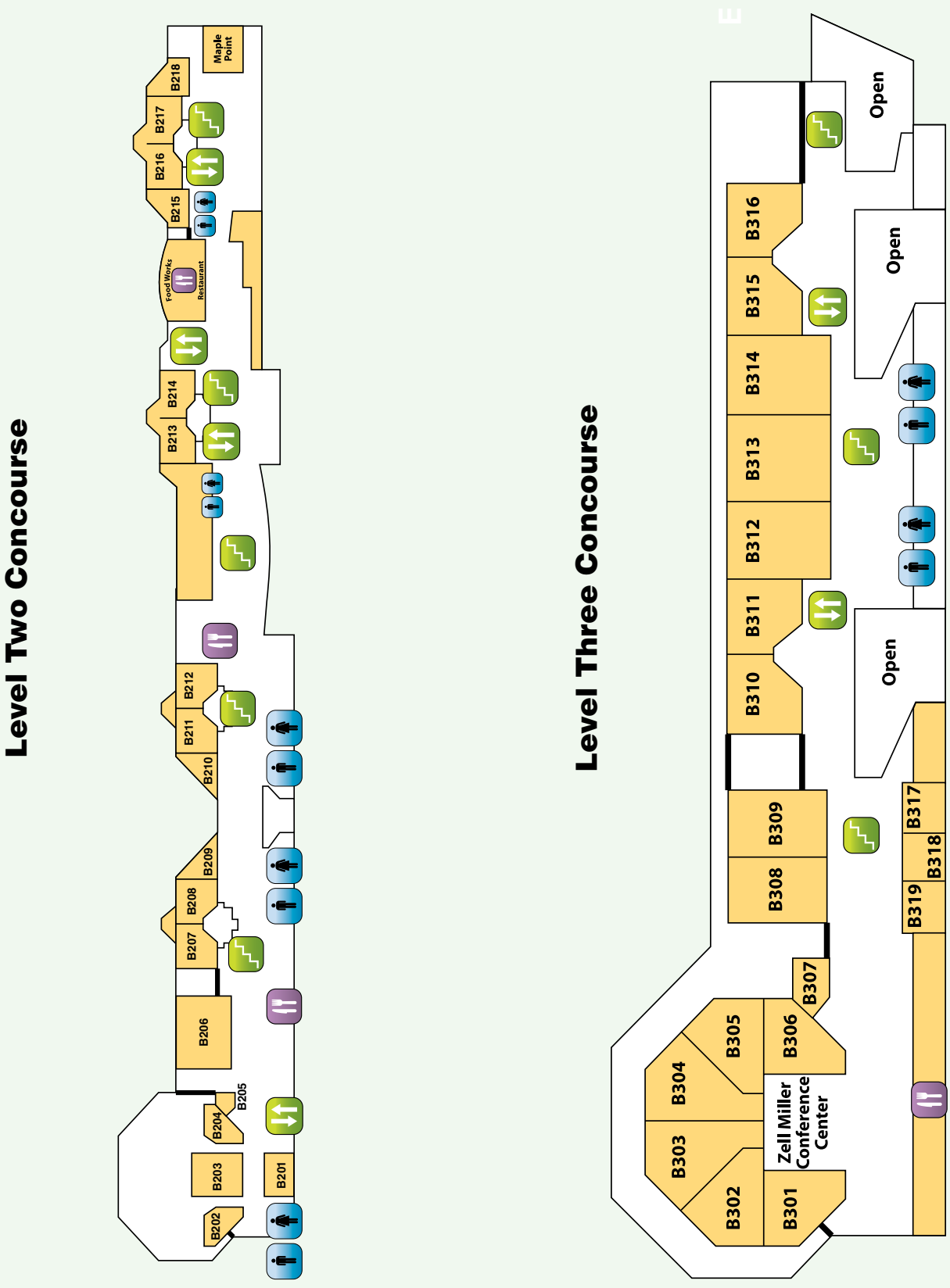
CONNECTOR for A EXHIBIT HALLS

Please note that Thomas Murphy Ballroom 2/3 is on Level 5 above the "B" meeting rooms.

Level Four Concourse

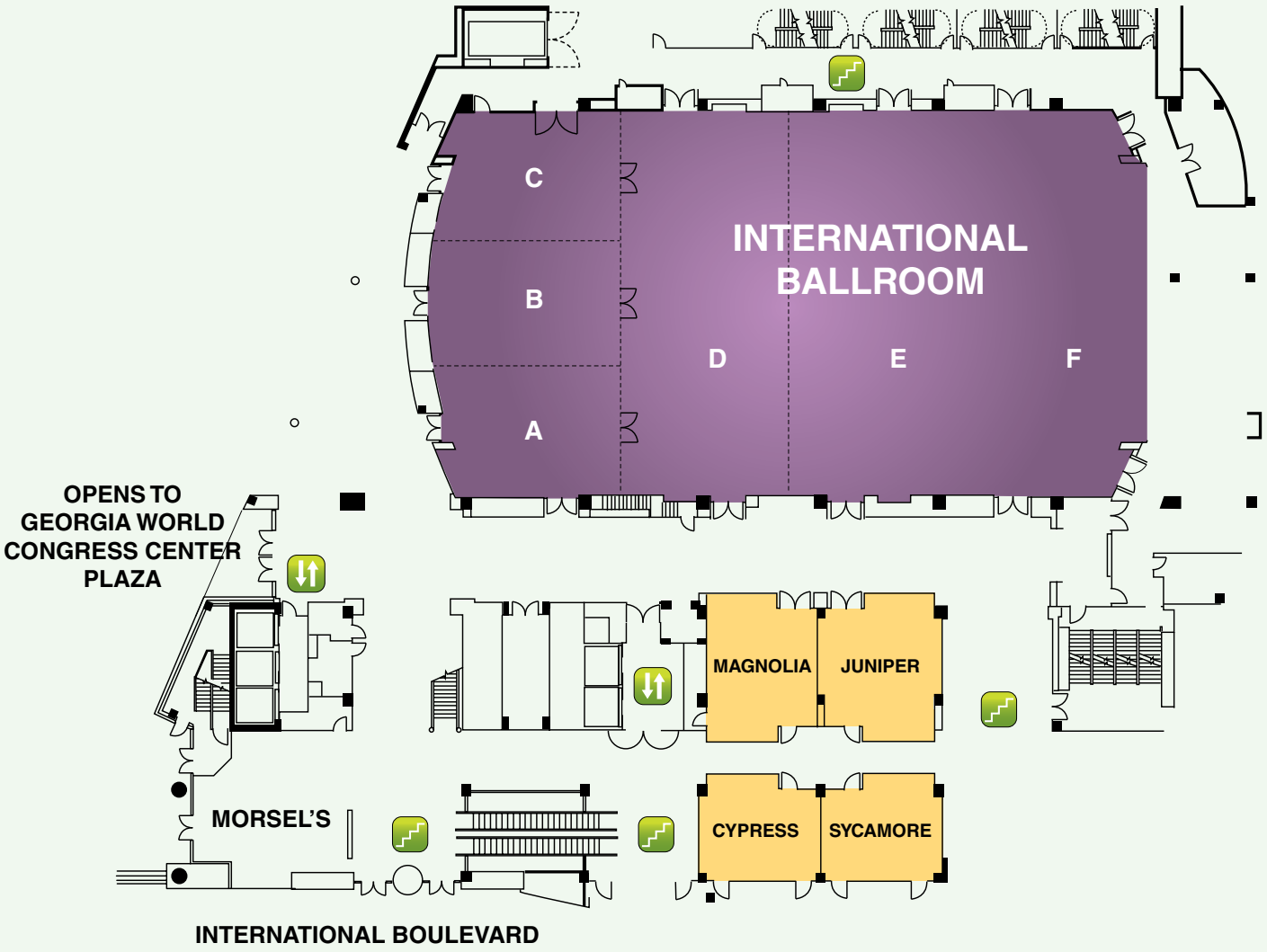


Georgia World Congress Center, Building B



Omni Hotel at CNN Center, North Tower

M2/International Ballroom Level



Please note the location of the following rooms:

- ***Beechnut—M3/Meeting Level (North Tower)***
- ***Willow—M4/Grand Ballroom Level (North Tower)***

Free Hands-On Workshops

USING VERNIER DATA-COLLECTION TECHNOLOGY

FRIDAY, NOVEMBER 2nd – ROOM B201	
8:00 – 9:30 am	Integrating Your iPad® or Mobile Device with Vernier Technology
10:00 – 11:30 am	Introducing the Vernier LabQuest® 2!
12:00 – 1:30 pm	Chemistry and Biology with Vernier
2:00 – 3:30 pm	Physics and Physical Science with Vernier

Stop by our **booth 1331**
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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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All cities are subject to change pending final negotiation.

National Conferences on Science Education

San Antonio, Texas
April 11–14, 2013

Boston, Massachusetts
April 3–6, 2014

Chicago, Illinois
March 26–29, 2015

2013 STEM Forum & Expo

St. Louis, Missouri
May 15–18

Area Conferences on Science Education

2012 Area Conference

Phoenix, Arizona—December 6–8

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 NATIONAL CONFERENCE on SCIENCE EDUCATION

SAN ANTONIO, TEXAS

APRIL 11–14, 2013

EVERYTHING'S BIGGER IN TEXAS

PROFESSIONAL DEVELOPMENT STRANDS

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

ATTENDEES CAN ACCESS:

- A wide range of Science, Technology, Engineering, and Math (STEM); Next Generation Science Standards (NGSS); and Common Core sessions
- 2,000 sessions, workshops, field trips, and short courses for K–16 educators
- Content development and ready-to-use teaching techniques
- Exhibit Hall featuring new products and giveaways from more than 400 exhibitors
- NSTA Science Bookstore with 100s of professional development books; attendees receive a 20% discount

FOR MORE INFORMATION OR TO REGISTER, VISIT
WWW.NSTA.ORG/CONFERENCES/2013SAN

NSTA National Science Teachers Association

—Photo courtesy of ©1995, Kevin C. Rose/AtlantaPhotos.com

Questions on the New Standards?

Visit page 46 for a list of standards-related sessions.

Is This Your First NSTA Conference?

Yes, you say? Then you are invited to attend a special session on Thursday, 8:00–9:00 AM. Learn how you can gain the most from your conference experience and have fun doing it! See page 43 for details. Refreshments are courtesy of Carolina Biological Supply.

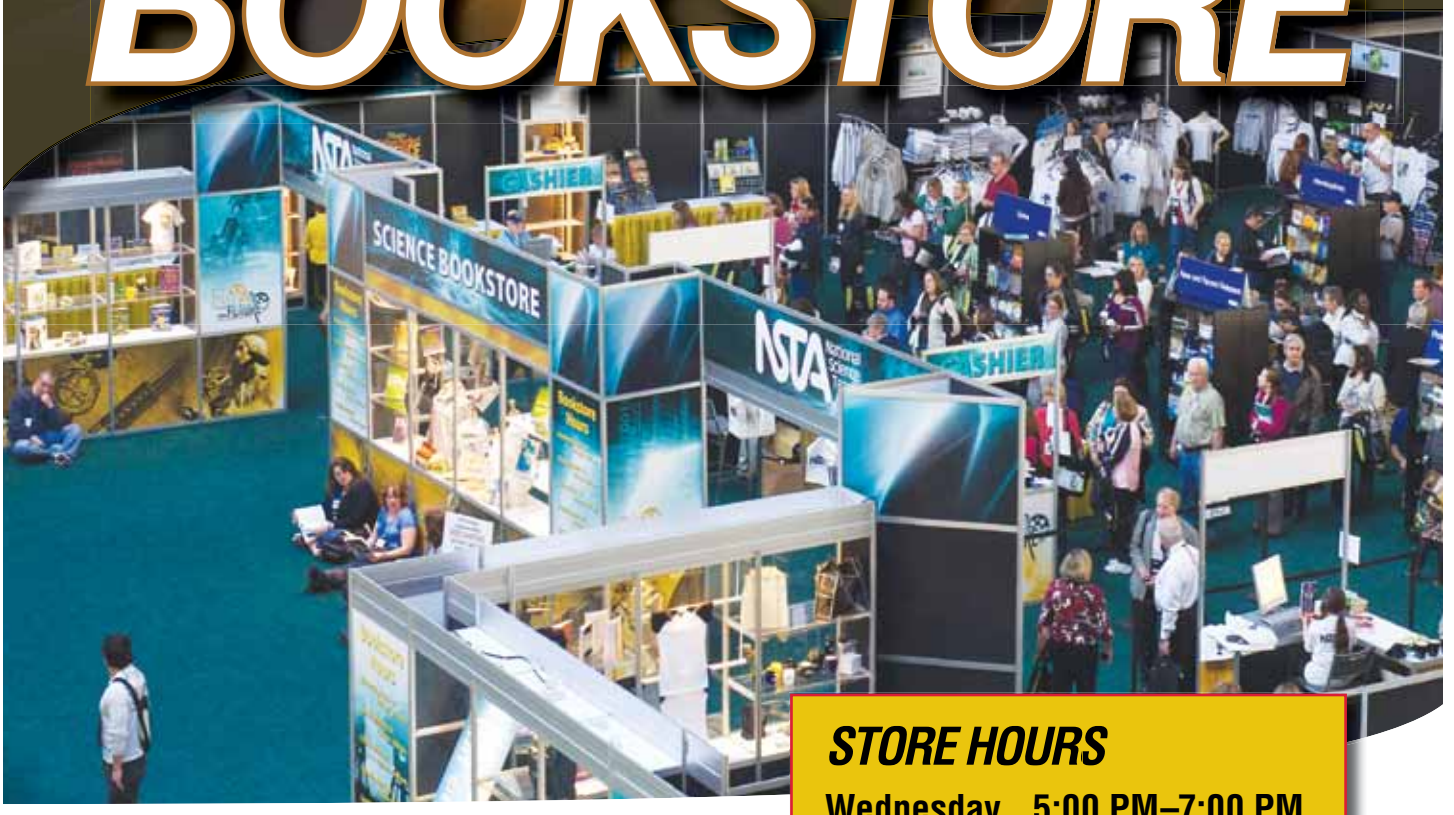
Thursday, November 1

Friday, November 2

Saturday, November 3

Visit NSTA's SCIENCE BOOKSTORE

Take advantage of FREE Shipping!



STORE HOURS

Wednesday	5:00 PM–7:00 PM
Thursday	7:00 AM–5:00 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: *Integrating Engineering and Science in Your Classroom*; *Rise and Shine*; and *Teaching Science Through Trade Books*, to name a few.
- Plus *Dig In!*, *Outdoor Science*, and *Picture-Perfect Science Lessons*, *Expanded 2nd Edition*, along with Class Packs containing all the materials necessary to conduct each lesson.
- All attendees get member pricing—20% off all NSTA Press products.

Visit *www.nsta.org/store* to make a purchase today, or call 1-800-277-5300.

NSTA National Science Teachers Association

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

Providing Access for All Students to the Science in STEM

As educators, we must prepare all learners for future careers that we can only imagine. This strand focuses on the imperative to meet the needs of all learners and to provide access for science success. Research-based instructional practices that integrate STEM concepts effectively and equitably need to be employed in order to meet the needs of all learners, particularly English language learners, learners with special needs, and those from urban, rural, and low socioeconomic backgrounds.

Effective and Engaging K–8 Science

Creating a scientifically literate citizenry is the foundation for global competitiveness in an increasingly complex science and technologically based world. All K–8 students need effective, meaningful, and thoughtfully planned science instruction that includes hands-on active learning, inquiry, integration of disciplines and content areas, and multisensory methods. This strand will provide K–8 teachers with effective and engaging classroom-ready science lessons that build a foundation to scaffold future science learning.

No Student or Teacher Left Inside

Environmental literacy is a key component of students becoming informed consumers of materials and energy for a sustainable future. In order for students to effectively process the barrage of environmental evidence, they need quality environmental science instruction in authentic settings. For example, the No Child Left Inside® movement supports environmental education and compels educators to utilize the school yard and the community as a context for learning. This strand will improve participants' understanding of environmental science content, share best practices for instruction, and provide effective resources for lessons.

Providing Access for All Students to the Science in STEM

Thursday, November 1

8:00–9:00 AM
Iteration in Engineering

12:30–1:30 PM
Teaching Problem-solving Strategies in the Elementary Classroom: Helping Students See the Interconnectedness of Science, Technology, Engineering, and Mathematics

2:00–3:00 PM
Addressing Core Science Standards Through Nanoscale Science for Grades 6–8

Friday, November 2

8:00–9:00 AM
Mission Discovery: Exploring a Pathway to Renewable Energy Education

9:30–10:30 AM
Featured Presentation: The Power of One (Speaker: Brad Cohen)

2:00–3:00 PM
STEM in Georgia

3:30–4:30 PM
STEM Internships for High School Students

Saturday, November 3

8:00–9:00 AM
Teaching Research Skills in Low-Income and Minority Schools

8:00–11:00 AM
SC-3: Be a Winner! Get a Grant and Your Students Win, Too!
(Tickets required: $25)

Effective and Engaging K–8 Science

Thursday, November 1

8:00–9:00 AM
Science Inquiry Through Toys

12:30–1:30 PM
Dazzling Deceptions: Discrepant Events That Delight and Mystify!

2:00–3:00 PM
Tempt and Tantalize with Trade Books

Interesting, Creative Science Writing Prompts? Eureka!

3:30–4:30 PM
Engage Your Students with NOAA's Coral Reef Resources

Friday, November 2

8:00–9:00 AM
"Astro"nishing Astronomy: The Electromagnetic Spectrum

10:00 AM–12 Noon
SC-2: Home and School Science Activities
(Tickets required: $54)

11:00 AM–12 Noon
Primary Plants: Integrating Science and Common Core Literacy Standards in a Grade 1 Classroom

12:30–1:30 PM
How Does Your Garden Grow?

2:00–3:00 PM
Featured Presentation: Build the Scaffolding for Inquiry at K–8
(Speaker: Karen L. Ostlund)

3:30–4:30 PM
Extended Learning Through Multimodal Technologies for Effective, Engaging Science Education

Using Science Notebooks to Develop Scientific Understanding

Saturday, November 3

8:00–9:00 AM
How to Make Time to Teach Science in Grades 3–5—Integrate!

9:00 AM–12 Noon
SC-4: Exploring Planetary Science and Astronomy: What Would Galileo Do?
(Tickets required: $60)

11:00 AM–12 Noon
Teaching Nature of Science in the Physical Sciences for Grades K–8

No Student or Teacher Left Inside

Thursday, November 1

8:00–9:00 AM
Sustainability and Service Learning: Supporting Your Local Community Through Gardening

12:30–1:30 PM
Developing an Effective Outdoor Classroom

12:30–5:30 PM
SC-1: The View Below: Using Stream Snorkeling to Teach Science
(Tickets required: $51)

2:00–3:00 PM
Featured Presentation: Walking with Dinosaurs
(Speaker: Cary Woodruff)

Friday, November 2

9:30–10:30 AM
Can We Go to Tree-town?

11:00 AM–12 Noon
Sci-Casting: Using Technology to Connect Field Trip Science and School Science

12:30–1:30 PM
Nature in Rhyme

3:30–4:30 PM
NASA CERES S'COOL Project: Cloud Observation Is S'COOL!

Saturday, November 3

8:00–9:00 AM
Teaching Climate and Energy with the CLEAN Collection: Peer-reviewed Climate and Energy Resources at Your Fingertips!

9:30–10:30 AM
Field Studies as Vehicles for Project Based Learning (PBL) and Service Learning

Regular People, Real Science: Discover Why Citizen Science Is the Wave of the Future for Natural Science Education

11:00 AM–12 Noon
Oceans of Professional Development Opportunities Through NOAA

NSTA Exemplary Science Program (ESP)

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

Friday, November 2, 12:30–2:30 PM
B305, GWCC

The National Science Education Standards offered four goals/justifications for science in K–6 settings, namely that all students would: 1) Experience the richness and excitement of knowing about and understanding the natural world; 2) Use appropriate scientific processes and principles in making personal decisions; 3) Engage intelligently in public discourse and debate about matters of scientific and technological concern; and 4) Increase their economic productivity through the use of the knowledge, understandings, and skills of the scientifically literate person in their careers.

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

The 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!

Coordinator: Thomas R. Lord, Indiana University of Pennsylvania, Indiana

Symposium Participants:

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

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

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

Engineering Day at NSTA

Sponsored by the American Society for Engineering Education

Friday, November 2, 8:00 AM–4:30 PM
B306, GWCC

The American Society for Engineering Education (ASEE) has put together a public/private partnership to develop ways of engaging elementary, middle school, and high school students and teachers in engineering. Participants will learn about innovative, hands-on, project-based engineering activities, courses, curriculum options, events, outreach programs, professional development, and competitions designed to increase engineering and technological literacy of all students; encourage more and more diverse students to pursue engineering careers; and enable teachers to learn about and experience engineering. Presenters will share lessons learned and examples of inquiry and design activities that have been developed in partnership with K–12 science teachers for use in the classroom and in informal educational settings. The materials result from a collaboration of engineering educators and STEM professionals working with NASA, *Teachengineering.org,* Engineering is Elementary, and Colleges of Engineering across the nation who actively engage in K–12 engineering in collaboration with partner teachers and schools.

8:00–9:00 AM	**ASEE's K–12 Outreach Program eGFI: Engineering, Go For It and the Marshmallow Challenge** (p. 71)
9:30–10:30 AM	**Building Blocks for Nanoscale Science and Engineering in Grades K–5** (p. 77)
11:00 AM–12 Noon	**Introducing Engineering to Elementary School Students** (p. 82)
12:30–1:30 PM	**NASA's BEST Students (Beginning Engineering, Science, and Technology): Build a Buggy to Explore Mars!** (p. 88)
2:00–3:00 PM	**Engineering the Future with *TeachEngineering.org*** (p. 92)
3:30–4:30 PM	**Visualizing and Measuring Robot Motion Using Data Logging** (p. 98)

ACS Chemistry for Life™

Chemistry Day at NSTA

Sponsored by the American Chemical Society

Equilibrium, Le Chatelier, and Rate

For Grades 9–12

Friday, November 2, 8:00 AM–4:30 PM
B303, GWCC

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

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

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

8:00–9:00 AM	**Equilibrium and Concentration** (p. 70)
9:30–10:30 AM	**Equilibrium and Energy** (p. 77)
11:00 AM–12 Noon	**Rate** (p. 82)
12:30–1:30 PM	**Catalysis** (p. 88)
2:00–3:00 PM	**Light as a Reactant and/or Product** (p. 92)
3:30–4:30 PM	**Half-Life** (p. 97)

Middle School Chemistry Day

Sponsored by the American Chemical Society

Middle School Chemistry—
Big Ideas About the Very Small

Friday, November 2, 8:00 AM–4:30 PM
B302, GWCC

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

8:00–9:00 AM	**Solids, Liquids, and Gases: The Kinetic-molecular Theory of Matter** (p. 70)
9:30–10:30 AM	**Changes of State: Evaporation and Condensation** (p. 76)
11:00 AM–12 Noon	**Density: A Molecular View** (p. 82)
12:30–1:30 PM	**The Periodic Table, Energy Levels, and Bonding** (p. 88)
2:00–3:00 PM	**The Polarity of the Water Molecule and Its Consequences** (p. 92)
3:30–4:30 PM	**Chemical Change: Breaking and Making Bonds** (p. 97)

Physics Day at NSTA

Sponsored by the American Association of Physics Teachers (AAPT) and the Southern Atlantic Coast Section of AAPT

Friday, November 2, 9:30 AM–4:30 PM
B301, GWCC

The American Association of Physics Teachers offers a full day of physics content. Physics Day consists of presentations on physics topics of current interest, physics demonstrations for the precollege classroom, and a make-and-take session where participants can construct a piece of physics apparatus for use as a demonstration or laboratory experiment. Physics Day in Atlanta is being organized by the Southern Atlantic Coast Section of the American Association of Physics Teachers.

9:30–10:30 AM	**Activities for Teaching Physics for the First Time** (p. 76)
11:00 AM–12 Noon	**Building a Soda Bottle Speaker** (p. 82)
12:30–1:30 PM	**Modeling Physics and Modeling Chemistry Curricula** (p. 86)
2:00–3:00 PM	**Analyzing and Modeling Real-World Student Motion Using GPS Units** (p. 92)
3:30–4:30 PM	**Professional Development via the Physics Teacher Resource Agent Program** (p. 97)

NSTA Press Sessions

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

Thursday, November 1

8:00–9:00 AM	Uncovering Earth and Space Science Core Ideas in the NGSS Using Formative Assessment Probes (p. 41)
12:30–1:30 PM	Classroom Activities for *Stop Faking It! Energy* (p. 52)
2:00–3:00 PM	Classroom Activities for *Stop Faking It! Force & Motion* (p. 58)
3:30–4:30 PM	*Stop Faking It!* Finally Understand Chemistry Basics So You Can Teach Them (p. 64)

Friday, November 2

8:00–9:00 AM	Uncovering Life Science Core Ideas in the NGSS Using Formative Assessment Probes (p. 69)
9:30–10:30 AM	*Bringing Outdoor Science In* (p. 75)
11:00 AM–12 Noon	Once Upon a Science Book (p. 82)
12:30–1:30 PM	Teaching and Learning Biology Through Scientific Argumentation (p. 86)
2:00–3:00 PM	Inquiring Scientists, Inquiring Readers: Using Nonfiction to Promote Science Literacy, Grades 3–5 (p. 92)
3:30–4:30 PM	A Buyer's Guide…and Gourmet Menu! Selecting and Using Outstanding Trade Books (p. 97)

Saturday, November 3

8:00–9:00 AM	Uncovering Physical Science Core Ideas in the NGSS Using Formative Assessment Probes (p. 103)

Thursday, November 1

Council for Elementary Science International Board Meeting
International C, Omni .....3:00–6:00 PM

Friday, November 2

WARD'S Welcomes New Teachers to NSTA Atlanta!
By Registration Online
International E/F, Omni ..... 6:30–8:00 AM

GSTA Annual Meeting
By Invitation Only
International B, Omni .....5:00–6:00 PM

Saturday, November 3

Council for Elementary Science International Breakfast
(Tickets required: M-1; $36)
Speakers: Lee and Donna German
B402, GWCC.....8:30–10:30 AM

AMSE Board Meeting
By Invitation Only
Willow Boardroom, Omni ..... 9:30–11:30 AM

SEPA Fall Board Meeting
By Invitation Only
Willow Boardroom, Omni ..... 1:00–5:00 PM

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

NSTA 2012 Atlanta Area Conference
Professional Development Documentation Form

All attendees can evaluate concurrent teacher and exhibitor sessions online while simultaneously tracking professional development certification (based on clock hours). Use this form to keep track of all sessions/events attended during the Atlanta 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 November 27, 2012, Atlanta transcripts can be accessed at the NSTA Learning Center *(learningcenter.nsta.org)* by logging on with your Atlanta Badge ID# and then clicking on "My PD Record and Certificates." Keep this form and use it to add the following activities to your Atlanta transcript. Completed transcripts can be printed from this website and presented to an administrator who requires documentation of participation in the conference. All information in these transcripts will be maintained (and can be accessed) indefinitely as part of an attendee's individual profile.

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

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

Thursday, November 1 8:00 AM–10:00 PM

Start Time	End Time	Activity/Event Title

We're giving a Kindle Fire HD 8.9" to one lucky attendee who evaluates sessions that he or she attends. The more sessions you attend and evaluate, the more chances you have to win!

Thursday, November 1, cont.

Start Time	End Time	Activity/Event Title

Friday, November 2 8:00 AM–6:00 PM

Start Time	End Time	Activity/Event Title

Saturday, November 3 8:00 AM–5:00 PM

Start Time	End Time	Activity/Event Title

The View Below: Using Stream Snorkeling to Teach Science (SC-1)

CANCELED

Keith Williams, NorthBay Math East, Md.
Level: Middle Level–College
Date: Thursday, November 1, 12:30–5:30 PM
Location: Off-site (Cochran Mill Park)
Registration Fee: $51

Using streams as a laboratory to teach science is not a new idea; observing streams from beneath the surface is. Once we look beneath the reflective plane of our rivers and streams, a whole new world appears. Stream snorkeling provides an engaging, discovery-based, exploratory-learning experience fostering questioning that can lead to controlled variable experiments. This short course will engage participants in authentic observational stream ecological science, and will provide a platform for future student-led investigations. Learn how to implement a successful stream snorkeling program as you discuss classroom curricula, stream trip logistics, and participate in a snorkeling trip to a local fresh water stream to discover, explore, and question. Join us—the underwater view of our creeks is amazing!

Note: This short course is held at Cochran Mill Park and all participants will be required to sign a waiver on-site. Participants are encouraged to bring a swimsuit and towel. Bringing a snack is optional, but recommended.

Participants will meet their field trip leader at the GWCC main entrance (on Andrew Young International Drive) 15 minutes before departure time.

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

Home and School Science Activities (SC-2)

Bernie Horvath *(bgrizwald@aol.com),* Retired Educator, Jeffersonville, Ind.
Level: Elementary–Middle Level
Date: Friday, November 2, 10:00 AM–12 Noon
Location: B409, GWCC
Registration Fee: $54

Come to this short course and participate in innovative physical science demonstrations for grades 4–9 that create inquiry-based problem-solving methods that promote literacy. We'll compare and contrast activities related to the periodic table, its origination, and order. Practical use of graphic organizers will also be integrated into this section. Next, we'll perform demonstrations providing circumstantial evidence of the kinetic-molecular theory. Concepts included here will be physical and chemical changes, including expansion, contraction, evaporation, condensation, and melting. Activities include several variations of air pressure

experiments from the idea of empty and full to a real tornado to a vacuum cleaner with some Bernoulli's principle and surface tension included. The related effects of gravity, friction, inertia, and centripetal force are from the viewpoints of airplane flight to the Space Shuttle to NASCAR to planetary orbits to ice skaters. Participants will receive two resource books, lesson plans, and a packet of materials.

Be a Winner! Get a Grant and Your Students Win, Too! (SC-3)

Kitchka Petrova *(kpetrova7@dadeschools.net),* Ponce de Leon Middle School, Coral Gales, Fla.
Patty McGinnis *(pmcginnis@methacton.org),* NSTA Director, Middle Level Science Teaching, and Arcola Intermediate School, Eagleville, Pa.
Level: Elementary–High School
Date: Saturday, November 3, 8:00–11:00 AM
Location: B401, GWCC
Registration Fee: $25

Are you excited about a project that will benefit your students? Grant money can help you realize your idea. Come learn about the many agencies, organizations, and foundations that have money to give away and are looking for high-quality proposals. This short course includes instruction on fulfilling the agencies' requirements and proposal writing activities to show you step by step how to develop a successful grant proposal. Participants will actively engage in writing a proposal to fund STEM education projects. *Note:* Participants should bring their laptops, a removable disk (USB), and their laptop power cords.

Exploring Planetary Science and Astronomy: What Would Galileo Do? (SC-4)

Roberta M. Johnson *(rmjohnsn@nestanet.org),* National Earth Science Teachers Association, Boulder, Colo.
Ardis Herrold, National Earth Science Teachers Association, Plymouth, Mich.
Level: Elementary–High School
Date: Saturday, November 3, 9:00 AM–12 Noon
Location: B404, GWCC
Registration Fee: $60

This NESTA short course will explore key concepts in planetary science and astronomy, emphasizing inquiry-based strategies and the nature and practice of science. Using Galileo as a guide, we will explore classroom-tested standards-based activities with a focus on development of student reasoning and helping students to think like scientists. The short course will draw on extensive astronomy and planetary science educational resources, including *The Universe at Your Fingertips* 2.0 DVD, Windows to the Universe *(www.windows2universe.org),* and other exemplary resources. Subsequent free web seminars in spring 2013 will provide additional opportunities to extend your knowledge of astronomy and planetary science.

Tickets for field trips may be purchased (space permitting) at the Ticket Sales Counter in the NSTA Registration Area. Meet your field trip leader at the GWCC main entrance on Andrew Young International Drive 15 minutes before departure time.

Take a Walk on the Wild Side at Zoo Atlanta — $40

#T-1 Thurs., Nov. 1 10:30 AM–1:45 PM

CANCELED

Giant pandas and other creatures await you as you take a walk on the wild side at Zoo Atlanta. On this field trip, you'll get a behind-the-scenes tour of the Zoo's Animal Nutrition Kitchen where you'll learn how animal diets are prepared and see some of the unusual treats the animals enjoy. You'll also receive a guided tour of Zoo highlights plus enjoy time on your own for lunch and exploration. Natural settings and first-rate exhibits make Zoo Atlanta a memorable place where you can explore new ways to teach your students the irreplaceable value of all life on our planet.

The Geology and Ecology of Stone Mountain — $23

#T-2 Thurs., Nov. 1 1:00–5:15 PM

Did you know the Southeast's largest granite outcrop is located in Georgia? Want to climb it? Join Stone Mountain Science Museum and Education Center staff for a one-mile hike to the top of this 800-foot-high geological treasure. In addition, an interpretive program and short session in the geology exhibit will make this a monumental mountain-top experience during your visit to Georgia. Note: Please dress for the weather and wear shoes appropriate for hiking. Bring a water bottle. Visit *www.stonemountainpark.org* for more information.

Science Comes to Life at Fernbank Museum of Natural History — $42

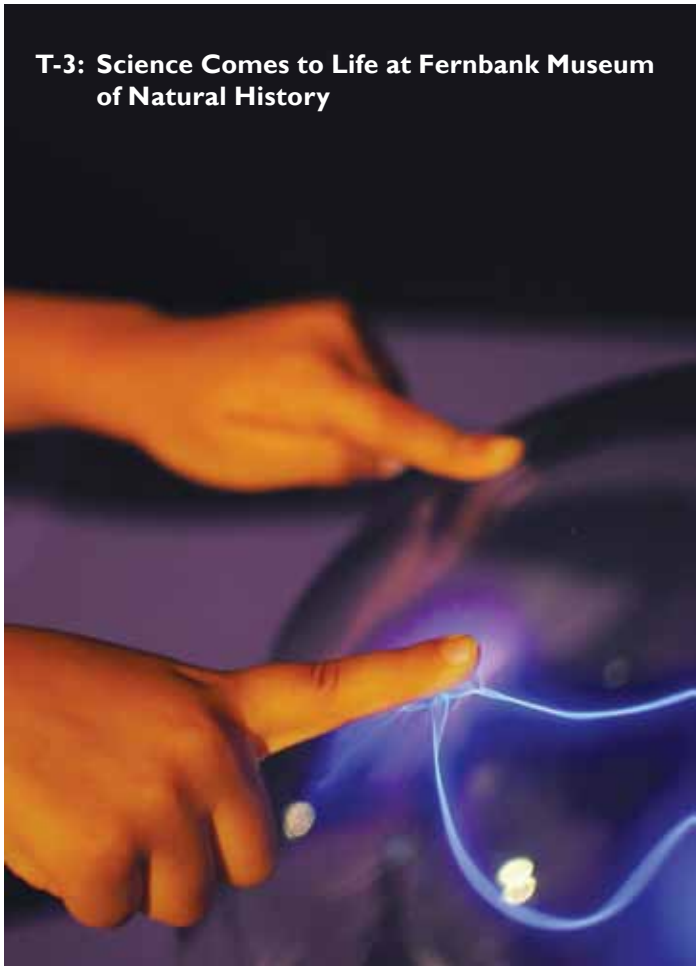
#T-3 Thurs., Nov. 1 1:30–5:30 PM

#F-4 Fri., Nov. 2 1:30–5:30 PM

F-4 CANCELED

Journey back in time, around the world, and inside nature's beauty—all in one afternoon! Atlanta's Fernbank Museum of Natural History *(www.fernbankmuseum.org)* brings science to life as you discover and explore world cultures, nature, animals, the prehistoric world, and more! Hands-on exhibitions, unique programming, larger-than-life IMAX films, and special features offer fun for all ages. You will have the opportunity to tour all museum exhibits, see an IMAX film, and participate in a custom field trip adventure created especially for NSTA and inspired by the concept of form and function. Discover the science and engineering inherent in nature and observed in human history on a highlights tour throughout the museum, and see how a museum field trip is an engaging tool that can enhance students' understanding of STEM concepts.

T-3: Science Comes to Life at Fernbank Museum of Natural History



—Photo courtesy of © Fernbank Museum

Foodie Science — $80

#T-4 Thurs., Nov. 1 5:15–7:45 PM

Come join chef Scott Serpas and his staff for a culinary adventure delving into the science behind his southern American cooking. Named one of the 10 "Best New Restaurants in America" by *GQ* magazine, Serpas is part of the vibrant independent culinary scene in Atlanta. Enjoy dinner and conversation with the chef as he explains some science secrets of the art of food as well as some insight into the "farm to table" movement. You'll see a cooking demonstration followed by three courses of some of the best modern Southern cuisine this side of New Orleans! Soft drinks, tax, and gratuity are included in the ticket price; adult beverages available for an additional cost.

NSTA Evening at Fernbank Science Center **$28**

#T-5 Thurs., Nov. 1 6:00–10:00 PM

Looking for some nighttime fun? Come experience the Fernbank Science Center at night. Located six miles from downtown Atlanta, Fernbank Science Center is a unique educational science resource center that hosts a 500-seat planetarium, a 36-inch telescope and observatory, science exhibits, and a staff of scientists who work daily with a wide variety of K–12 classes throughout the DeKalb County School District. During this field trip, participants will choose from several workshops, including Top Demonstrations Every Physics Teacher Should Have; Teaching Evolution to a Challenging Class; Google Earth Explorations for Middle School Earth Science; Bird-themed Citizen Science Projects for Your Students; Developing Your School Campus for Outdoor Education; Radar, Satellite, and Surface Weather Maps for Middle School; and Planetarium Show—Cowboy Astronomer. Admission to both the 8:00 PM planetarium show and the observatory (weather permitting) is included. *Note:* Please visit *fernbank.edu/nsta* for details on the workshops. Once you have purchased a ticket for this field trip, please visit *fernbank.edu/nsta* again to select your workshop choices.

The Science Behind Auto Racing **$28**

#F-1 Fri., Nov. 2 9:00 AM–1:00 PM

Do you love NASCAR? Then you'll love this tour of the Atlanta Motor Speedway where you'll learn about the science behind auto racing. Walk through pit row. Get a grand view of the track from the corporate suites. Depending on the track schedule, see racers in action or take a high-speed run around the track in one of the speedway vans—as a passenger, of course! Rev up your science lessons with high-speed activities for your classroom.

Atlanta Botanical Garden **$40**

#F-2 Fri., Nov. 2 9:30 AM–12:30 PM

Come explore the Atlanta Botanical Garden, which offers more than 30 acres of unmatched beauty in the heart of Atlanta, featuring breathtaking gardens, woodlands, and more. We'll begin with a one-hour guided tour followed by an hour of exploration on your own. Stimulate your senses as you stroll through one of the world's largest permanent orchid displays, view rare and endangered plants from tropical rain forests and desert regions, and take delight in the interactive children's garden. You can also stroll through the treetops of Storza Woods on the Kendeda Canopy walk, the only tree canopy–level walkway of its kind in the United States. *Note:* No outside food is allowed. Participants may eat lunch on-site at Metrofresh Café, which offers a menu of fresh healthy options.

Tellus Science Museum: A One-Stop Wonder! **$35**

#F-3 Fri., Nov. 2 1:00–6:00 PM

CANCELED

This world-class science museum features four galleries, a digital planetarium, and the Solar Decathlon House. After a highlight tour, you can visit the Weinman Mineral Gallery to see phosphorescent minerals or the Fossil Gallery to experience a battle between dinosaurs. You can even dig for your own fossils or pan for gold and gems! At the Science in Motion Gallery you'll be propelled from Kitty Hawk to the Moon. During your visit, you'll be treated to a show in the planetarium and a visit to the Solar Decathlon House, which was designed and built by Georgia Tech engineering students. This museum is a one-stop wonder!

World of Coca-Cola **$25**

#F-5 Fri., Nov. 2 1:45–5:15 PM

For more than 125 years, we've been putting our secret formula into each bottle of Coca-Cola®. Now we are inviting you to feel closer than ever before to Coca-Cola's most closely guarded trade secret and learn about the intrigue behind the secret formula in our new Vault of the Secret Formula experience at the World of Coca-Cola. Atlanta's must-see destination offers even more—from a thrilling, multisensory 4-D theater to a gallery dedicated to Coke and pop culture, around every corner you'll experience something new and inviting! Meet our seven-foot Coca-Cola polar bear. Take your taste buds on a tantalizing tour of nearly 70 different beverage products, or create your own refreshing blend!

Behind the Scenes at Georgia Aquarium **$25**

#F-6 Fri., Nov. 2 2:45–5:15 PM

Georgia Aquarium *(www.georgiaaquarium.org)* is an entertaining, intriguing, and educational experience for guests of all ages. Let your imagination play as you explore the aquarium's Learning Loop, where you can go behind the scenes to learn about our amazing animals. Don't forget your camera…where else in the world can you get within three feet of the world's largest fish, the whale shark! Participants will also receive access to all six of the aquarium's galleries afterward.

Association for Multicultural Science Education (AMSE)

President: Eddie A. Chevis

Thursday, November 1

12:30–1:30 PM	Strategies and Resources That Enhance the Learning of Students from Underrepresented Groups in the Sciences	B304, GWCC

Friday, November 2

11:00 AM–12 Noon	Infusing Design Projects into the Early Elementary Classroom	B407, GWCC

Saturday, November 3

9:30–11:30 AM	AMSE Board Meeting	Willow Boardroom, Omni

Association of Science-Technology Centers (ASTC)

President: Bryce Seidl

Friday, November 2

2:00–3:00 PM	The Ideal Solution—Merging the Classroom and Community	B315, GWCC

Council for Elementary Science International (CESI)

President: Barbara Z. Tharp

Thursday, November 1

3:00–6:00 PM	Council for Elementary Science International Board Meeting	International C, Omni

Friday, November 2

2:00–3:00 PM	Powerful Paper Projects for Physical Science	B308, GWCC
3:30–4:30 PM	Council for Elementary Science International Share-a-Thon	B308, GWCC

Saturday, November 3

8:30–10:30 AM	CESI Breakfast (Ticket M-1) Speakers: Lee and Donna German, Co-owners, Sylvan Dell Publishing, Mount Pleasant, S.C.	B402, GWCC

National Association for Research in Science Teaching (NARST)

President: Sharon Lynch

Friday, November 2

8:00–9:00 AM	The Influence of Students' Acceptance of Evolution on SSI Negotiation	B308, GWCC
	Argument-driven Inquiry as a Way to Help Students Learn How to Engage in Scientific Inquiry and Understand the Nature of Scientific Inquiry	
9:30–10:00 AM	An Effective Teacher Professional Development Model Focused on Authentic Science Practices in the Classroom	B308, GWCC

National Middle Level Science Teachers Association (NMLSTA)

President: Rajeev Swami

Thursday, November 1

3:30–4:30 PM	Writing a Successful Grant Proposal	B306, GWCC

Friday, November 2

12:30–1:30 PM	Science and Special Education—How to Make It Work	B217, GWCC

National Science Education Leadership Association (NSELA)

President: Elizabeth Allan

Thursday, November 1

12:30–1:30 PM	Tools for Leaders, Part I	B306, GWCC
2:00–3:00 PM	Tools for Leaders, Part II	B306, GWCC

Hands-on, Eyes-on

Bring STEM education to every seat in the classroom with the ***FlexCam® 2***

This high-definition document camera offers versatility for any curriculum. It is perfect for demonstrations, showing various items in any size classroom, pointing out small details, or for student use in project collaboration and assessment.

The FlexCam 2 features an HD 1080P camera and Applied Vision™ Software.

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—*Photo courtesy of Georgia Dept. of Economic Development*

8:00–9:00 AM Presentations

SESSION 1

Sustainability and Service Learning: Supporting Your Local Community Through Gardening (Bio)

(Middle Level–High School) *B215, GWCC*

Mickey MacDonald *(mmacdonald@pky.ufl.edu),* P.K. Yonge Developmental Research School, Gainesville, Fla.

Learn how to use gardening to teach sustainability, scientific inquiry, and social responsibility among high schoolers; support a local nonprofit; and integrate cross-grade-level teaching and learning.

SESSION 2

NSTA Press® Session: Uncovering Earth and Space Core Ideas in the NGSS Using Formative Assessment Probes (Earth)

(General) *B216, GWCC*

Page Keeley *(pagekeeley@gmail.com),* 2008–2009 NSTA President, and Author/Consultant, Jefferson, Maine

Learn how the *Uncovering Student Ideas in Science* probes can be used as diagnostic and formative assessments of students' thinking related to Earth and space science core ideas in the highly anticipated Next Generation Science Standards and how use of these probes supports the science practices.

SESSION 3

How to Integrate Technology into Your Classroom (Gen)

(General) *B217, GWCC*

Sabrina M. Helm *(sabrina.helm@dcs.edu),* Cedar Ridge Middle School, Decatur, Ala.

Come find out how to successfully integrate technology into the classroom in an easy, uncomplicated way using what you have and exploring innovative technologies. Learn some ways to get technology into the classroom on a budget.

SESSION 4

Data: It's Not a Four-Letter Word (Gen)

(General) *B301, GWCC*

Britta Culbertson *(britta.culbertson@noaa.gov),* Einstein Fellow, NOAA Office of Education, Washington, D.C.

NOAA's data are not your grandfather's data. Learn about NOAA data resources that are readily available and easy to use in the classroom.

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 133, you will find the conference sessions grouped according to their assigned science area category.

The science areas and their abbreviations are:

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

Glossary

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

Strands

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

Providing Access for All Students to the Science in STEM

Effective and Engaging K–8 Science

No Student or Teacher Left Inside

The following icon will be used throughout this program.

NSTA Press Sessions

SESSION 5 (two presentations)
(General) *B303, GWCC*

Crime Scene Portfolios (Gen)
Kristie L. Cannon *(kcannon@hoover.k12.al.us),* Spain Park High School, Hoover, Ala.
Learn how to create a project-based assessment on crime scene processing techniques.

Incorporating Reading into Forensic Science (Gen)
Kristie L. Cannon *(kcannon@hoover.k12.al.us),* Spain Park High School, Hoover, Ala.
This session will help participants incorporate reading and reading strategies into forensic science.

SESSION 6
Before and After Retirement: Practicalities and Possibilities (Gen)
(General) *B304, GWCC*
Howard Wahlberg *(hwahlberg@nsta.org),* Assistant Executive Director, Membership, NSTA, Arlington, Va.
The NSTA Retired Advisory Board invites you to a vibrant and useful information-sharing session. Join your fellow colleagues and share your ideas about staying active both in and out of the profession.

SESSION 7
Integrating Bioethical Case Studies into the Science Curriculum (Bio)
(Middle Level–High School) *B308, GWCC*
Terry Maksymowych *(tmaksymowych@ndapa.org),* Academy of Notre Dame de Namur, Villanova, Pa.
The study of bioethics in the science classroom can encourage scientific literacy as well as the development of critical-thinking and problem-solving skills.

SESSION 8
Science Is Pure Poetry! (Bio)
(Elementary) *B313, GWCC*
Leslie Bulion, Poet, Durham, Conn.
Award-winning science poet Leslie Bulion demonstrates how current scientific discoveries inspire cross-disciplinary creativity in a fascinatingly fun multimedia experience.

8:00–9:00 AM Workshops

Science Inquiry Through Toys (Gen)
(Preschool–Middle Level) *B213, GWCC*
Olga S. Jarrett *(ojarrett@mindspring.com),* Georgia State University, Atlanta
This workshop will engage participants at stations in guided and open inquiry using such toys as tops, kaleidoscopes, balancing toys, paper helicopters, and Matchbox® cars.

Iteration in Engineering (Gen)
(Middle Level–High School) *B214, GWCC*
Jacklyn Bonneau *(bonneau@wpi.edu),* Massachusetts Academy of Math & Science at WPI, Worcester
Engineering is the new buzzword, but engineering without testing prototypes that students create and iterating those designs to make better products lacks rigor and reality.

NASA Brings You Newton's Laws of Motion (Phys)
(Middle Level–High School) *B305, GWCC*
Daryl Taylor *(daryl261@gmail.com),* Greenwich High School, Greenwich, Conn.
Facilitate your students' deeper understanding of Newton's laws of motion by taking part in a series of hands-on/minds-on activities. Investigations featured in this workshop will allow your students to gain a richer appreciation of Newton's laws of motion and see how they relate to common real-life events. Take home FREE NASA materials!

Integrating the Dimensions at the Elementary Level: Practices, Concepts, and Core Ideas (Gen)
(Elementary) *B306, GWCC*
Christine A. Royce *(caroyce@aol.com),* Shippensburg University, Shippensburg, Pa.
Join me as I model lessons that integrate literacy strategies, mathematical concepts, and science concepts. Walk away with an overview of research connected to the Common Core State Standards.

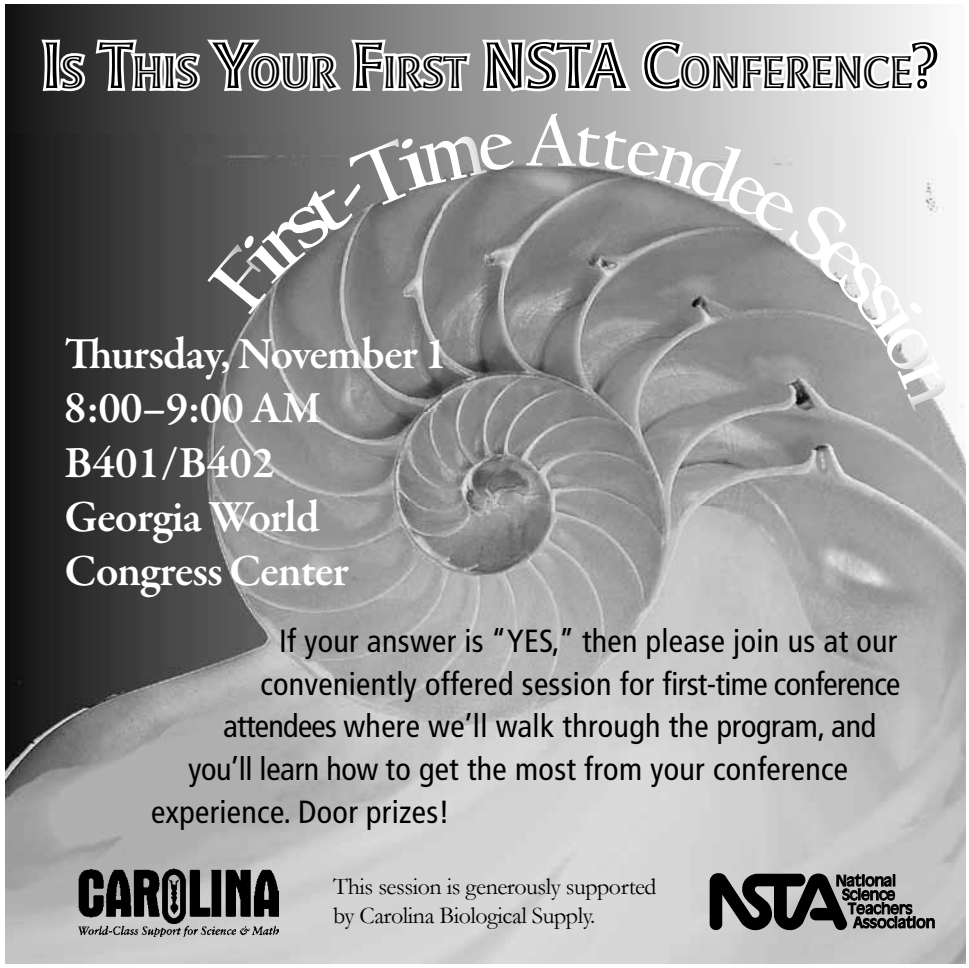
Inquiry in Action: Investigating Matter Through Inquiry (Chem)
(Elementary) *B314, GWCC*
James H. Kessler *(jhkessler@acs.org),* American Chemical Society, Washington, D.C.
Conduct hands-on guided inquiry activities with common substances from the free website *inquiryinaction.org.* View and discuss molecular animations and receive a handout of all activities.

Baby, You Move Me **(Phys)**
(Elementary) *B315, GWCC*
Sharon R. Golden *(sharon.golden@cobbk12.org)* and **Jenny Hohn** *(jennifer.hohn@cobbk12.org),* Garrison Mill Elementary School, Marietta, Ga.
Presider: Sharon R. Golden
Make learning about simple machines, force and motion, and Newton's laws fun! Try a variety of inquiry-based hands-on activities that can enhance your teaching.

Is This Your First NSTA Conference? **(Gen)**
(General) *B401/B402, GWCC*
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. Refreshments courtesy of Carolina Biological Supply. Door prizes!

What Is Your Cosmic Connection to the Elements? **(Chem)**
(High School) *B404, GWCC*
Cheryl Niemela, Universities Space Research Association, Puyallup, Wash.
Let me introduce you to activities and curricula from NASA on the origin of the periodic elements. A workbook, poster, and *Imagine the Universe* DVD are highlighted and given to participants.

Playing Games to Learn Complex Environmental Science Concepts **(Env)**
(High School) *B407, GWCC*
Kristen R. Dotti *(kristen_dotti@yahoo.com),* Christ School, Arden, N.C.
Playing the role of a coal-fired power plant owner, students learn cap-and-trade principles, sulfur-reduction techniques, cost-cutting measures, and the terminology of the industry.



8:00–9:00 AM Exhibitor Workshop

Active Chemistry—Ahead of Its Time in Capturing the Essence of NGSS and STEM (Gen)

(Grades 9–12) *B211, GWCC*

Sponsor: It's About Time

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

Dr. Arthur Eisenkraft will show how this proven program implements STEM and the essence of the highly anticipated Next Generation Science Standards. Learn the benefits of the Engineering Design Cycle for teaching and learning. See how Dr. Eisenkraft designed a project-driven course that makes a positive impact for students of all levels.

8:00–9:15 AM Exhibitor Workshops

A Simple Connection Between STEM and Data Logging (Gen)

(Grades 9–12) *B201, GWCC*

Sponsor: Frey Scientific/School Specialty Science

Lou Loftin, Consultant, Reno, Nev.

Conduct a STEM-focused activity that links science concepts with the technology of data logging using the new uLog™ USB sensors. Integrate technology and hands-on inquiry activities effortlessly in the classroom with a cost-effective, easy-to-use data collection and analysis system.

Inquiring Minds Provide Spark for Science Lessons (Gen)
(Grades K–6) *B202, GWCC*
Sponsor: Delta Education/School Specialty Science
Tom Graika, Consultant, Lemont, Ill.
Johanna Strange, Consultant, Richmond, Ky.
Inquiry is at the heart of science teaching. Using topics from the Delta Science Modules program, learn how inquiry strategies can provide a variety of learning opportunities for students. Engage in guided, challenge, and open inquiries and take home a resource packet.

AUTOPSY: Forensic Dissection Featuring Carolina's Perfect Solution® Pigs (Bio)
(Grades 6–12) *B207, GWCC*
Sponsor: Carolina Biological Supply
Carolina Teaching Partner
Are you ready for a forensic dissection activity that is on the cutting edge? Engage students and revitalize your instruction of mammalian structure and function with a "real" classroom autopsy! Participants dissect a Carolina's Perfect Solution pig by modeling protocols of a forensic pathologist. Free dissection supplies and door prizes!

I Think There's a Genetically Engineered Fly in My Genetically Modified Pea Soup! (Bio)
(Grades 9–12) *B209, GWCC*
Sponsor: LAB-AIDS, Inc.
Barbara Nagle, The Lawrence Hall of Science, University of California, Berkeley
Students often have trouble conceptualizing how selective gene expression works. In this workshop, participants will use manipulatives to teach this concept and see how it is connected to genetic engineering. Innovative activities are selected from the new *Science & Global Issues* biology program by SEPUP and LAB-AIDS. Activities focus on ways to integrate this topic as a relevant and engaging sustainability issue into teaching about selective gene expression.

8:00–9:30 AM Exhibitor Workshop

Chemistry and the Atom: Fun with Atom-building Games! (Chem)
(Grades 5–12) *B203, GWCC*
Sponsor: CPO Science/School Specialty Science
Nathan Olsson, 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 into your lessons.

8:00–10:00 AM Exhibitor Workshop

Science-centered Language Development with FOSS (Gen)
(Grades K–8) *B204, GWCC*
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.

9:30–10:30 AM Exhibitor Workshop

Active Physics—Ahead of Its Time in Capturing the Essence of NGSS and STEM (Gen)
(Grades 9–12) *B211, GWCC*
Sponsor: It's About Time
Arthur Eisenkraft, 2000–2001 NSTA President, and University of Massachusetts, Boston
Dr. Arthur Eisenkraft will show how this proven program implements STEM and the essence of the highly anticipated Next Generation Science Standards. Learn the benefits of the Engineering Design Cycle for teaching and learning. See how Dr. Eisenkraft designed a project-driven course that makes a positive impact for students of all levels.

9:30–10:45 AM General Session

Kids and Nature—Reconnecting Youth to the Outdoors
(General) *Thomas Murphy Ballroom 2/3, GWCC*

David Mizejewski *(mizejewski@nwf.org),* Naturalist, Media Personality, Blogger, and Author, National Wildlife Federation, Reston, Va.

Presider: Karen L. Ostlund, NSTA President, and Advisory Council, Texas Natural Sciences Center, The University of Texas at Austin

Introduction of Speaker: Steve A. Rich, Chairperson, NSTA Atlanta Area Conference; NSTA Director, Professional Development; and West GYSTC, Carrollton, Ga.

Platform Guests: David Mizejewski; Karen L. Ostlund; Steve A. Rich; Patricia Simmons, NSTA Retiring President, and North Carolina State University, Raleigh; Bill Badders, NSTA President-Elect, and Retired Director, Cleveland Math and Science Partnership, Cleveland, Ohio; Kelly Price, Program Coordinator, NSTA Atlanta Area Conference, and Forsyth County Schools, Cumming, Ga.; Karol Stephens, Local Arrangements Coordinator, NSTA Atlanta Area Conference, and Fulton County Schools, Atlanta, Ga.; Sally Creel, GSTA President, and K–5 Science Supervisor, Cobb County Schools, Marietta, Ga.; Cynthia Willingham, NSTA Director, District V, and The University of Alabama at Birmingham; Gerry Wheeler, NSTA Interim Executive Director, Arlington, Va.

The nature of childhood has changed and, sadly, there isn't much nature in it. Once children enjoyed regular unstructured outdoor playtime and formal outdoor science field trips and experimentation, but such experiences for discovery are rapidly waning. Learn how science educators can turn the tide on this disturbing trend and reconnect kids to nature. In the spirit of natural discovery, the session will conclude with the help of several animal ambassadors.

David Mizejewski has been fascinated by our natural world for as long as he can remember. A lifelong naturalist, he spent his youth outdoors observing and learning about the diversity of wildlife.

David is a media personality, author, blogger, and a naturalist with the National Wildlife Federation. He hosted and co-produced Backyard Habitat *on Animal Planet, a television series that showed people how to transform their yards and gardens into thriving habitats for birds and other local wildlife. He also appeared in an Animal Planet mini-series called* Springwatch U.S.A., *which looked at the effect seasonal change has on wildlife from salamanders and flying squirrels to great horned owls and black bears.*

10:00–11:15 AM Exhibitor Workshops

Solving the Mystery of STEM Using Forensic Science (Bio)
(Grades 9–12) *B201, GWCC*
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. Examine additional STEM-focused assets and see how the program software allows the integration of virtual labs and investigative activities, as well as the preparation of web-based content and individualized assessment.

DSM and STEM: Challenges for the Elementary Student (Gen)
(Grades K–6) *B202, GWCC*
Sponsor: Delta Education/School Specialty Science
Tom Graika, Consultant, Lemont, Ill.
Johanna Strange, Consultant, Richmond, Ky.
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.

Don't miss these standards-related sessions

Featured Presentation: The Current State of the Next Generation Science Standards (page 62)

Preparing for NGSS—Exploring the Scientific and Engineering Practices (page 69)

Demystifying the Practices in the Next Generation Science Standards (page 75)

Implication of the NRC *Framework* and the Highly Anticipated NGSS for Teaching and Learning (page 90)

How to Engage Science Educators in the Public Review of NGSS (page 96)

NEXT GENERATION SCIENCE STANDARDS
For States, By States

Hands-On Activities to Explore Environmental Change (Env)
(Grades 9–12) *B207, GWCC*
Sponsor: Carolina Biological Supply
Carolina Teaching Partner
Simulate how human influence effects 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. These real-world scenarios will challenge and engage your students. Door prizes!

NGSS and Scientific Practices—More Than Photoshopping Models' Flaws (Gen)
(Grades 5–8) *B208, GWCC*
Sponsor: Sangari Active Science
Joseph Krajcik, Michigan State University, East Lansing
What comes to mind when you hear the word "model"? Solar system mobiles? Cells in pie plates? New standards require going beyond the models used in science for years! Come engage in modeling activities for middle schoolers and unpack how to think about models you use now in ways consistent with the highly anticipated NGSS.

I Think There's a Genetically Engineered Fly in My Genetically Modified Pea Soup! (Bio)
(Grades 9–12) *B209, GWCC*
Sponsor: LAB-AIDS, Inc.
Barbara Nagle, The Lawrence Hall of Science, University of California, Berkeley
Students often have trouble conceptualizing how selective gene expression works. In this workshop, participants will use manipulatives to teach this concept and see how it is connected to genetic engineering. Innovative activities are selected from the new *Science & Global Issues* biology program by SEPUP and LAB-AIDS. Activities focus on ways to integrate this topic as a relevant and engaging sustainability issue into teaching about selective gene expression.

Hurricanes and Volcanoes (Earth)
(Grades 4–12) *B212, GWCC*
Sponsor: Simulation Curriculum Corp.
Herb Koller *(hkoller@simcur.com),* Simulation Curriculum Corp., Minnetonka, Minn.
What are hurricanes and how are they formed? Why are volcanoes common in certain parts of the world? With *The Layered Earth,* students can visualize, measure, and manipulate these forces of nature as well as basic concepts of geology and meteorology using a virtual model of Earth.

That's Amazing! Explore the Bizarre, Cool, and Exciting World of Project-based Biology (Bio)
(Grades K–12) *B309, GWCC*
Sponsor: Houghton Mifflin Harcourt
Michael Heithaus, Florida International University, North Miami
Drawing from cutting-edge research from around the world and fast-paced high-quality productions, *That's Amazing* project-based videos grab students' attention immediately. Kicking off with a high school student–posed question about the bizarre, the cool, and the exciting, Mike Heithaus takes students on a scientific investigation with the experts, but it's up to the students to work with the data they see collected to solve the mystery…or debate its merits! By engaging students' curiosity and immersing them in the scientific process, these project-based videos can help students grasp and retain key science standards. In this session, Mike will draw on his background in field research and documentary filmmaking to help you make the most of this exciting teaching tool.

Wait! The Chips I Ate Were a Genetically Modified Organism (GMO)? (Bio)
(Grades 8–College) *B310, GWCC*
Sponsor: Edvotek Inc.
Jack Chirikjian *(info@edvotek.com),* **Khuyen Mai** *(info@edvotek.com),* and **Tom Cynkar** *(info@edvotek.com),* Edvotek Inc., Washington, D.C.
Because the U.S. Food and Drug Administration does not require foods to be labeled as GMO, it is difficult to discern GMO products in your grocery store. By extracting DNA from soybean and FRITOS® chips from GMOs and performing a polymerase chain reaction (PCR), you will determine if any genetically modified indicator genes are present. Amplified DNA is separated and sized by gel electrophoresis. Take home a free T-shirt and flash drive.

Getting the Most Out of Molecular-Level Visualization and Simulation Tools (Chem)
(Grades 7–College) *B311, GWCC*
Sponsor: Wavefunction Education Labs
Sean Ohlinger *(sales@wavefun.com),* Wavefunction Education Labs, Irvine, Calif.
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 2012 releases of *Odyssey High School Chemistry* and *Odyssey AP Chemistry*.

Best Practices for Teaching Chemistry (Chem)
(Grades 9–12) *B312, GWCC*
Sponsor: Flinn Scientific, Inc.
Irene Cesa *(icesa@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 new comprehensive *Teaching Chemistry*™ eLearning video series professional development program. Imagine the opportunity to learn best practices from 20 award-winning master teachers as they carry our their favorite experiments, demonstrations, and chemistry lab activities.

10:00–11:30 AM Exhibitor Workshop

Genetics: Crazy Traits and Adaptation Survivor (Bio)
(Grades 5–12) *B203, GWCC*
Sponsor: CPO Science/School Specialty Science
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 come alive as you create crazy creatures with a unique kit and then study the resulting population. Take away STEM activities and an understanding of how to incorporate science and engineering practices into lessons.

10:30–11:30 AM Exhibitor Workshop

Asteroid! Will Earth Be Hit Again? Planetary Science for Middle School (Earth)
(Grades 5–8) *B204, GWCC*
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 review new features, strategies, content, and materials in the revised FOSS Planetary Science Course.

11:00–11:10 AM Ribbon Cutting Ceremony/ Exhibits Opening

Entrance to Exhibit Hall B2, GWCC
Presider: Karen L. Ostlund, NSTA President, and Advisory Council, Texas Natural Sciences Center, The University of Texas at Austin

Welcoming Remarks: Steve A. Rich, Chairperson, NSTA Atlanta Area Conference; NSTA Director, Professional Development; and West GYSTC, Carrollton, Ga.

Special Guests: Karen L. Ostlund; Steve A. Rich; Patricia Simmons, NSTA Retiring President, and North Carolina State University, Raleigh; Bill Badders, NSTA President-Elect, and Retired Director, Cleveland Math and Science Partnership, Cleveland, Ohio; Cynthia Willingham, NSTA Director, District V, and The University of Alabama at Birmingham; Kelly Price, Program Coordinator, NSTA Atlanta Area Conference, and Forsyth County Schools, Cumming, Ga.; Karol Stephens, Local Arrangements Coordinator, NSTA Atlanta Area Conference, and Fulton County Schools, Atlanta, Ga.; Sally Creel, GSTA President, and K–5 Science Supervisor, Cobb County Schools, Marietta, Ga.; Gerry Wheeler, NSTA Interim Executive Director, Arlington, Va.; Rick Smith, Managing Director, NSTA Advertising, Exhibits, and Workshops, Arlington, Va.

Musical Entertainment provided by Johns Creek High School String Ensemble under the direction of Young K. Kim.

11:00 AM–12 Noon Exhibitor Workshop

Engineering the Future: A Practical Approach to STEM for High School (Gen)
(Grades 9–12) *B211, GWCC*
Sponsor: It's About Time
Yvonne M. Spicer, Museum of Science, Boston, Mass.
STEM—it's a real need. *Engineering the Future* is a real answer. See how the Museum of Science, Boston has packaged a solution that makes implementing STEM easy. Learn how *Engineering the Future's* four real-world projects give students an opportunity to see how engineering is part of their everyday world.

11:10 AM–5:00 PM Exhibits

Exhibit Hall B2, GWCC
Come see the most up-to-date science textbooks, software, equipment, and other teaching materials. Some exhibitors will offer materials for sale.

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) *B204, GWCC*
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 excitedly announced 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

STEM: The Game Changer in Science Lab Design (Gen)

(Grades 9–12) *B201, GWCC*

Sponsor: Frey Scientific/School Specialty Science

Gordon Strohminger, Frey Scientific/School Specialty Science, Nashua, N.H.

Discover 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.

12 Noon–1:30 PM Exhibitor Workshop

STEM Approach to Teaching Electricity and Magnetism (Phys)

(Grades 5–12) *B203, GWCC*

Sponsor: CPO Science/School Specialty Science

Nathan Olsson, CPO Science/School Specialty Science, Nashua, N.H.

Use hands-on experiences to explore how electricity and magnetism are related. 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.

12:30–1:00 PM Exhibitor Workshop

Welcome to the Neighborhood: An Overview of the Solar System (Earth)

(Grades 5–8) *Booth #1239, Exhibit Hall, GWCC*

Sponsor: Science First®/STARLAB®

Helmut Albrecht *(halbrecht@starlab.com)* and **Nathaniel Bell,** Science First®/STARLAB®, Yulee, Fla.

In this "in dome" workshop, we demonstrate how you can introduce your students to our neighborhood—the solar system.

12:30–1:30 PM Presentations

SESSION 1

Teaching Problem-solving Strategies in the Elementary Classroom: Helping Students See the Interconnectedness of Science, Technology, Engineering, and Mathematics (Gen)

(General) *B214, GWCC*

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

Join me as I identify and discuss essential problem-solving strategies and process skills. I'll demonstrate how to develop these process skills across the curriculum. Handouts!

SESSION 2

Developing an Effective Outdoor Classroom (Env)

(General) *B215, GWCC*

Doyle E. Keasal *(keasade@auburn.edu),* Auburn University, Auburn, Ala.

Developing an effective and sustainable outdoor classroom on a school's campus requires careful planning. Learn about a highly successful program taking place in Alabama that focuses on getting students and teachers outdoors where they have the opportunity to learn about the natural world.

SESSION 3

Give Science a Voice! Digital Storytelling in the Science Classroom (Gen)

(Elementary–High School) *B217, GWCC*

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

Less Stress in the Classroom Means Academic Achievement Increases (Gen)

(General) *B218, GWCC*

Wallace Allen *(abcwally@yahoo.com),* Center for Teacher Effectiveness, Crawfordville, Fla.

Learn how your students can increase their academic achievement and you can decrease classroom disruption by 70% to 90%.

SESSION 5

AMSE Session: Strategies and Resources That Enhance the Learning of Students from Underrepresented Groups in the Sciences (Gen)

(General) *B304, GWCC*

Cherry C. Brewton *(cbrewton@georgiasouthern.edu),* Statesboro, Ga.

Join me as I share STEM and standards-based strategies and resources that promote the success of students from underrepresented groups in the sciences.

SESSION 6

NSELA Session: Tools for Leaders, Part I (Gen)

(General) *B306, GWCC*

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

Craig Gabler *(cgabler@esd113.org),* Educational Service District 113, Tumwater, Wash.

Pat Shane *(pshane@unc.edu),* 2009–2010 NSTA President, and Retired Educator, Chapel Hill, N.C.

Join us as we share various tools and strategies that support science teachers in their work to enhance teaching and learning in their context.

SESSION 7

True Science Practices in the New AP Chemistry Course (Chem)

(High School–College) *B404, GWCC*

Trinna S. McKay *(trinna_s_mckay@fc.dekalb.k12.ga.us),* Dunwoody High School, Dunwoody, Ga.

The AP Chemistry Development Committee will present how to address the skills of practicing chemists in the revised AP Chemistry course.

SESSION 8

Making the Leap to a Textbook-less Course (Gen)

(High School) *B405, GWCC*

Mary H. Chuboff *(mchuboff@athensacademy.org),* Athens Academy, Athens, Ga.

Discover how to gather resources into a single easily updated electronic space that can make students, teachers, and parents willing to toss the textbook!

SESSION 9

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

(General) *B406, GWCC*

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

Science experiences that seem contrary to "common sense" are great motivators for kids! Discrepant events build scientific understanding and stimulate creativity.

SESSION 10

Ecosystems and Biodiversity Field Study: Environmental Science Coursework That Jumps into Your Lap! (Env)

(General) *B407, GWCC*

Lucia K. Jacobs *(lckjacobs@gmail.com),* Keenan High School, Columbia, S.C.

Immersed in water and mud and collecting different species is all in a day's fun when studying ecosystems along the banks of the Saluda River!

SESSION 11

The Scale of the Universe (Earth)

(General) *B408, GWCC*

Jeffrey Bennett *(jeff@bigkidscience.com),* Big Kid Science, Boulder, Colo.

How big is the Sun? How far are the stars? The amazing scale of the universe can help you integrate science across your curriculum.

12:30–1:30 PM Workshops

NSTA Press® Session: Classroom Activities for *Stop Faking It! Energy* (Phys)

(Elementary–High School) *B216, GWCC*

Bill Robertson *(wrobert9@ix.netcom.com),* Bill Robertson Science, Inc., Woodland Park, Colo.

In response to teacher demand, I'm developing a set of classroom activities on energy to accompany the *Stop Faking It! Energy* book. We incorporate the learning cycle in an easy-to-use, teacher-friendly, research-based upper elementary curriculum and conceptually based high school curricula that can help students truly understand energy concepts. Join the author of the book for activities from the upcoming book.

Powers of 10: Scaling the Universe with NASA (Gen)

(Middle Level–High School) *B301, GWCC*

Tyson H. Harty *(tysonharty@gmail.com),* Sonoma State University, Rohnert Park, Calif.

How big is big? How small is small? "Scale the Universe" as we investigate the powers of 10 with free NASA materials.

Beyond Our Solar System with NASA's Education Resources (Earth)

(Middle Level–High School) *B302, GWCC*

Lester Morales *(lester.morales@nasa.gov),* NASA Aerospace Education Service Project, Penn State, Kennedy Space Center, Fla.

The science concepts of the expanding universe, the red shift, black holes, and Earth's place in the universe will be explored.

Fueling the Future: Energy Interconnections and Sustainable Choices (Gen)

(Informal Education) *B305, GWCC*

Pamela Whiffen *(pwpwr@aol.com),* NASA/Facing the Future, Phoenix, Ariz.

Experience hands-on lessons that demonstrate the interconnections between energy sources, human choices, economic challenges, and environmental impacts. Think critically about the science behind the headlines. Free curriculum!

Evaluating the Routes of Influenza Vaccine Immunization **(Bio)**

(Middle Level–High School) *B308, GWCC*

Samantha Andrews *(sandrews@gatech.edu),* **Nancy Healy** *(nancy.healy@mirc.gatech.edu),* and **Joyce Allen** *(joyce.palmer@mirc.gatech.edu),* Georgia Institute of Technology, Atlanta

Presider: Samantha Andrews

Use ELISA (Enzyme-linked Immunosorbent Assay) to assess the effectiveness of the influenza vaccine that was administered using different drug delivery routes.

Teaching Forms of Energy to Younger Students **(Gen)**

(Preschool–Elementary) *B313, GWCC*

Karen Reagor *(kreagor@need.org),* The NEED Project, Manassas, Va.

Join me for hands-on experiments on the fundamental concepts of energy. We'll explore the science of motion, heat, sound, and light.

Excite Elementary Students with Science Olympiad **(Gen)**

(Elementary) *B314, GWCC*

Kelly Price *(price_kel@yahoo.com),* Program Coordinator, NSTA Atlanta Area Conference, and Forsyth County Schools, Cumming, Ga.

Jessica Jetton *(jjetton@forsyth.k12.ga.us),* Forsyth County Schools, Cumming, Ga.

Denise Webb *(dewebb@forsyth.k12.ga.us),* Coal Mountain Elementary Schhool, Cumming, Ga.

Even elementary students can perform and compete with Science Olympiad activities. Join us to learn about all of the fun and exciting resources.

Elastic Power—Wind Up Your Engines and Explore **(Phys)**

(Elementary–Middle Level) *B315, GWCC*

Norm B. Barstow *(barstow@hartford.edu),* Hartford, Conn.

Use an elastic-powered wooden car to explore concepts, including energy transfer, force, and motion. Continued exploration focuses on mass, friction, inertia, motion, momentum, and force.

Marine Ecology, Human Impacts, and Conservation: A High School Ecology Unit from National Geographic **(Bio)**

(High School) *B316, GWCC*

Michelle Ashley *(mashley@aiken.k12.sc.us),* South Aiken High School, Aiken, S.C.

Experience National Geographic's FREE multimedia high school ecology unit—Marine Ecology, Human Impacts, and Conservation—developed with 60 biology teachers from across the country.

Carbon Capture and Storage **(Earth)**

(High School) *B403, GWCC*

Caryn Turrel *(cturrel@need.org),* The NEED Project, Manassas, Va.

Introduce students to a potential technique of mitigating climate change by capturing carbon dioxide at power plants and storing it in deep geologic formations.

12:30–1:30 PM Exhibitor Workshop

Your Technology Solution for STEM and the Highly Anticipated Next Generation Science Standards **(Gen)**

(Grades 6–12) *B211, GWCC*

Sponsor: It's About Time

David Birchler, It's About Time, Mount Kisco, N.Y.

Meeting the demands of 21st century education requires technology. It's About Time helps you implement that goal with today's budgets. First, **Fourier Education:** the technology that gives you more for your money in data logging. Second, **WebCam Laboratory:** one the most effective software solutions making experiments feasible with inexpensive equipment.

Meet the Presidents and Board/Council

Come "meet and greet" with your elected NSTA officers on your way to the exhibits. Share some face-to-face time with the President, President-Elect, and Retiring President along with your Board and Council members. This Friday special session runs from 11:00 AM to 12 Noon at the entrance to the Exhibit Hall (page 80).

12:30–1:45 PM Exhibitor Workshops

What Quality Science Instruction Has to Do with Raising Achievement Scores K–8 (Gen)
(Grades K–8) *B207, GWCC*
Sponsor: Carolina Biological Supply
Carolina Teaching Partner
Learn how inquiry-based science instruction increases student achievement on assessments in reading, writing, and mathematics. Leave with practical strategies that can help you advocate for quality science instruction in your district.

Environmental Issues—What Can Students Really Do to Help? (Env)
(Grades 6–9) *B208, GWCC*
Sponsor: eCYBERMISSION
Brian P. Short *(missioncontrol@ecybermission.com)*, Director, Science Education Competitions, NSTA, Arlington, Va.
In this hands-on workshop, come experience how to get grades 6–9 students excited and engaged in environmental issues. Find out what students can actually do about environmental issues rather than just reading about what others are doing. Learn how to make these issues relevant to your students and how to turn an issue into a problem that can be solved using the scientific method. Sample lesson plans and other resources will be distributed along with information on how the new NSTA competition, eCYBERMISSION, can be used to help students solve real community environmental issues.

Investigating a Cliff Model (Earth)
(Grades 6–8) *B209, GWCC*
Sponsor: LAB-AIDS, Inc.
Bill Cline and **Lisa Kelp,** LAB-AIDS, Inc., Ronkonkoma, N.Y.
When was the last time you engineered a coastal breakwater? Here's your chance! Engineer a coastal breakwater (from the *Issues & Earth Science* "Erosion and Deposition" unit from LAB-AIDS) and analyze the trade-offs of the design. Explore how the natural world is modified by engineering design, which in turn creates more questions and issues for research. Activities support the NRC *Framework* and show how SEPUP embeds the engineering practices and uses real issues to deliver content learning.

Integrate! A Better Way to Teach and Learn (Gen)
(Grades 2–6) *B210, GWCC*
Sponsor: Wireless Generation
Traci Wierman and **Carrie Strohl,** 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.

Master of Science Degree in Geosciences Available Online Through the Teachers in Geosciences Program (Earth)
(Grades K–12) *B212, GWCC*
Sponsor: Mississippi State University
Kathleen M. Sherman-Morris *(kms5@msstate.edu),* Mississippi State University, Mississippi State, Miss.
Discover how you can earn an MS degree via distance learning from Mississippi State University. The 12-course graduate program includes courses in meteorology, geology, astronomy, oceanography, hydrology, environmental geoscience, and a 10-day capstone field course. We have alumni in all 50 states, and all students qualify for in-state tuition rates.

Ecology Adventures: Motivating Students Through Project Based Learning (PBL) (Gen)
(Grades 3–8) *B309, GWCC*
Sponsor: Houghton Mifflin Harcourt
Michael Heithaus, Florida International University, North Miami
Do you want to get your students out in the field doing science but can't take a field trip? Join Houghton Mifflin Harcourt author Dr. Mike Heithaus to learn how you can use exciting new video-based lessons to take your class on scientific adventures! Videos take your class along with real scientists studying sharks, sea turtles, dolphins, and more… and guide students through all the steps of the scientific method. Using high-paced video and exciting research, students are challenged to develop their own hypotheses, join research teams as they collect data, and then conduct their own data collection and analysis.

Water Contaminants! Biotechnology Can Help Save the Marine Environment (Bio)
(Grades 8–College) *B310, GWCC*
Sponsor: Edvotek Inc.
Jack Chirikjian *(info@edvotek.com),* **Khuyen Mai** *(info@edvotek.com),* and **Tom Cynkar** *(info@edvotek.com),* Edvotek Inc., Washington, D.C.
Drinking water is routinely tested for contamination and, if a screening tests positive, more sophisticated tests are required. One such test uses a polymerase chain reaction (PCR) in multiplex format. Join us as we test for the presence of classroom-safe organisms in a water sample using a single PCR reaction. Take home a free T-shirt and flash drive.

Forensic Digital Microscopy and Inquiry Learning (Gen)
(Grades 7–College) *B311, GWCC*
Sponsor: Swift Optical Instruments, Inc.
David Doty *(david@swiftoptical.com)* and **Cynthia Syverson-Mercer** *(cynthia@swiftoptical.com),* Swift Optical Instruments, Inc., Schertz, Tex.
Learn how to leverage the use of exciting microscopy principles to engage your students in forensic and other case studies using inquiry-based learning tools. Forensic digital microscopy combines a comparison microscope, digital camera, and a computer with software that allows students to become forensic scientists. Learn how to view and manipulate specimens, then capture and qualify the microscopic images.

Stand Back! We're Using Discovery Education Science Techbook for Grades K–12 (Gen)
(Grades K–12) *B312, GWCC*
Sponsor: Discovery Education
Brad Fountain *(brad_fountain@discovery.com),* Discovery Education, Silver Spring, Md.
Learn how to ENGAGE your students as they EXPLORE science through digital media in conjunction with hands-on resources. In this workshop, we'll EXPLAIN how digital media can help develop process skills, ELABORATE on strategies for the science literacy connection and ways to meet the needs of every student, and EVALUATE student progress through science concepts.

12:30–2:00 PM Exhibitor Workshop

Laurel and Hardy and the Laws of Science (Gen)
(Grades K–8) *B202, GWCC*
Sponsor: Delta Education/School Specialty Science
John Cafarella, Consultant, Canadensis, Pa.
Let's take a look at the NRC *Framework's* Scientific and Engineering Practices as well as the highly anticipated Next Generation Science Standards through a lens using excerpts from the Laurel and Hardy movie *The Music Box**. Participants will also engage in activities based on the NRC *Framework*. Some Science Gnus humor, too.

**Permission has been granted by copyright holder to use excerpts from the movie for this session.*

12:30–5:00 PM Short Course

The View Below: Using Stream Snorkeling to Teach Science (SC-1)
(Middle Level–College) *Offsite (Cochran Mill Park)*
CANCELED
Tickets Required: $51
Keith Williams, NorthBay, North East, Md.
For description, see page 33.
Note: Participants will meet their field trip leader at the GWCC main entrance (on Andrew Young International Drive) 15 minutes before departure time.

1:30–3:00 PM Exhibitor Workshop

Engage Students with Active Learning Through the FOSS, 3rd Edition Program (Gen)
(Grades K–6) *B204, GWCC*
Sponsor: Delta Education/School Specialty Science–FOSS
Linda De Lucchi, Kathy Long, and **Brian Campbell,** 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.

2:00–3:00 PM Featured Presentation

Walking with Dinosaurs (Gen)
(General) *B206, GWCC*

Cary Woodruff *(sauropod4@gmail.com),* Paleontology Graduate Student, Montana State University, Bozeman

Presider: Kelly Price, Program Coordinator, NSTA Atlanta Area Conference, and Forsyth County Schools, Cumming, Ga.

Every child in the world grows up completely fascinated by dinosaurs. These towering, gigantic, and bizarre behemoths captivate us because they were real monsters. All that remains of them today are their fossilized bones, and while we can examine and study these remnants, a part of the dinosaur allure remains in the mystique and intangible awe of these near fabricated beasts. While all children are near professionally versed in dinosaur knowledge, most reflect back on that time of their life as simply a hobby, interest, or fascination. But, as we all know, there are people who do study dinosaurs for a living. So how does someone take that childhood passion and turn it into a serious career? And why on Earth would anyone want to make a career out of dinosaurs?

Cary Woodruff grew up in rural central Virginia, graduated from Louisa County High School (class of 2005), received a BS in Earth sciences with an emphasis in paleontology from Montana State University. He is currently working on an MS in geobiology at Montana State University under Dr. Jack Horner.

Cary was invited as only one of 10 international graduate students to present at the 2nd International Workshop of Sauropod Biology and Gigantism in Bonn, Germany. He has had four papers published (one in a book); his first was on the burrowing dinosaur Oryctodromeus cubicularis *and the others are on sauropod dinosaurs and their growth. Cary described and named the new sauropod dinosaur* Rugocaudia cooneyi *and has given several presentations at professional conferences worldwide.*

2:00–3:00 PM Presentations

SESSION 1 (two presentations)
(Elementary–Middle Level) *B213, GWCC*

Tempt and Tantalize with Trade Books (Gen)
Lee Anne Barranco *(lbarranco@montgomerycatholic.org),* Montgomery Catholic Preparatory School, Montgomery, Ala.
Nicholas F. Bourke *(nbourke@aum.edu),* Auburn University at Montgomery, Ala.
Explore creative ways to use trade books to enhance your curriculum as we share ideas presented in Ansberry and Morgan's book, *Picture Perfect Science Lessons.*

Interesting, Creative Science Writing Prompts? Eureka! (Gen)
Tina G. Gay *(tina_gay@gwinnett.k12.ga.us),* K.E. Taylor Elementary School, Lawrenceville, Ga.
Trying to implement meaningful, interesting writing into your science curriculum? This session will provide you with writing prompts that you can use immediately in class.

SESSION 2
Engaging Students in Creating Their Own Media (Gen)
(Middle Level–High School) *B217, GWCC*
Nicole Hesson *(nicole.hesson@temple.edu),* Temple University, Philadelphia, Pa.
Why not get students involved in creating their own? In this session, we will describe how we engaged our students in creating their own media.

SESSION 3
Assessing the AAAS Document Through Action: Vision and Change in Undergraduate Biology Education (Bio)
(College) *B303, GWCC*
Thomas Lord *(trlord@iup.edu),* NSTA Director, College Science Teaching, and Indiana University of Pennsylvania, Indiana
Join members of the NSTA College Science Teachers Committee in an action-packed hour of assessing and implementing the suggestions for change in the way institutions of higher education are teaching science.

SESSION 4
Siemens We Can Change the World Challenge: Top Free STEM Resources for Your Classroom (Env)
(General) *B304, GWCC*
Kyle Schutt, Discovery Education, Silver Spring, Md.
Are you looking for new ideas to integrate STEM learning into your classroom? Join us as we explore numerous free STEM resources that will excite your students, including the Siemens We Can Change the World Challenge *(www.wecanchange.com),* a project-based learning environmental challenge with corresponding curriculum.

SESSION 5
NSELA Session: Tools for Leaders, Part II (Gen)
(General) *B306, GWCC*
Elizabeth Allan *(eallan@uco.edu),* NSELA President, and University of Central Oklahoma, Edmond
Craig Gabler *(cgabler@esd113.org),* Educational Service District 113, Tumwater, Wash.
Pat Shane *(pshane@unc.edu),* 2009–2010 NSTA President, and Retired Educator, Chapel Hill, N.C.
Join us as we share various tools and strategies that support science teachers in their work to enhance teaching and learning in their context.

SESSION 6
DI on the Fly: Differentiated Instruction for Every Classroom (Gen)
(High School) *B405, GWCC*
Pamela E. Harman *(pharman@hoover.k12.al.us)* and **Melisa R. Guthrie** *(meguthrie@hoover.k12.al.us),* Spain Park High School, Hoover, Ala.
Join us and get exposed to a large variety of examples of differentiated science lessons based on student readiness, interest, and learning profiles.

SESSION 7
Genetics Gets Personal: Teaching the Ethical, Legal, and Social Issues in Personal Genetics (Bio)
(High School–College) *B408, GWCC*
Dana Waring *(dwaring@pged.med.harvard.edu),* Harvard Medical School, Boston, Mass.
Explore the cutting-edge field of personal genetics and its benefits and challenges for individuals and our society through relatable lenses, including athletics and crime.

2:00–3:00 PM Workshops

Addressing Core Science Standards Through Nanoscale Science for Grades 6–8 **(Gen)**
(Middle Level) *B214, GWCC*
Joyce Allen *(joyce.palmer@mirc.gatech.edu),* Georgia Institute of Technology, Atlanta
Perform hands-on activities and have fun exploring how teaching about small-scale objects can fit into your curriculum. Take home a CD full of activities.

NSTA Press® Session: Classroom Activities for *Stop Faking It! Force & Motion* **(Phys)**
(Elementary–High School) *B216, GWCC*
Bill Robertson *(wrobert9@ix.netcom.com),* Bill Robertson Science, Inc., Woodland Park, Colo.
In response to teacher demand, there is now a set of classroom activities on Force and Motion to accompany the *Stop Faking It! Force & Motion* book. We incorporate the learning cycle in an easy-to-use, teacher-friendly, research-based upper elementary curriculum and conceptually based high school curricula that can help students truly understand force and motion concepts. Join the author of the book for activities from the book. Lame jokes quite possible.

Effective Professional Development with NSTA Resources **(Gen)**
(General) *B218, GWCC*
Steve A. Rich *(bflywriter@comcast.net),* Chairperson, NSTA Atlanta Area Conference; NSTA Director, Professional Development; and West GYSTC, Carrollton, Ga.
Professional development providers will get tips from the PD committee on effective use of NSTA Press® books and other resources that boost teachers' content knowledge and pedagogy.

Scale the Universe **(Gen)**
(Middle Level) *B301, GWCC*
Christine A. Royce *(caroyce@aol.com),* Shippensburg University, Shippensburg, Pa.
How big is big? How small is small? Let's "scale the universe" as we investigate a variety of different scaling activities.

I'm Too Wise to Believe My Eyes **(Earth)**
(Middle Level–High School) *B302, GWCC*
Pamela Whiffen *(pwpwr@aol.com),* NASA Educator Ambassador, Carl Hayden High School, Phoenix, Ariz.
Facilitated by a NASA Educator Ambassador, come explore the hidden universe and enliven your students' experience with metric measurements. Free NASA CD-ROM with PowerPoints.

Mass *vs.* Weight **(Phys)**
(Middle Level–High School) *B305, GWCC*
Lester Morales *(lester.morales@nasa.gov),* NASA Aerospace Education Service Project, Penn State, Kennedy Space Center, Fla.
We can measure weight here on Earth, but not in the microgravity environment on the International Space Station (ISS).

Life Science Activities You Will Love Forever **(Bio)**
(Middle Level–High School) *B308, GWCC*
Tom Brown *(thomas.brown@cobbk12.org),* Cobb County Schools, Marietta, Ga.
This "show and share" session will feature Cobb and Paulding county teachers sharing their most excellent and ultra-engaging life science activities. Don't miss it!

Connecting Science Across the Elementary Curriculum **(Gen)**
(Elementary) *B313, GWCC*
Karol Stephens *(krhstephens@yahoo.com),* Local Arrangements Coordinator, NSTA Atlanta Area Conference, and Fulton County Schools, Atlanta, Ga.
Use integrating experiences to connect science content to standards across the curriculum and teach in a meaningful way that excites students and provides for more retention of skills and content.

Science in a Grain of Sand **(Earth)**
(Preschool–Middle Level/Informal Education) *B314, GWCC*
Olga S. Jarrett *(ojarrett@mindspring.com)* and **Robert E. Jarrett** *(bjarrett@mindspring.com),* Georgia State University, Atlanta
Learn about the origins and nature of sand and perform activities on the uses of sand in science, technology, and art. Receive handouts and make sand viewers.

Using the 5Es to Become Next Generation Ready **(Gen)**
(Elementary–Middle Level) *B315, GWCC*
Sally Creel *(sally.creel@cobbk12.org),* Cobb County Schools, Marietta, Ga.
The highly anticipated Next Generation Science Standards require more than rote learning, memorization, and fact-based learning. Come learn simple strategies to incorporate the 5Es (Engage, Explore, Explain, Elaborate, and Evaluate) into your classroom.

Creatively Conceptualizing the Central Dogma of Molecular Biology **(Bio)**
(High School) *B316, GWCC*
Amber Lewis *(alewis@hoover.k12.al.us)* and **Stephanie Millard** *(smillard@hoover.k12.al.us),* Spain Park High School, Hoover, Ala.
Essential questions are addressed throughout the journey from DNA to RNA to protein to trait. These questions will be answered using a variety of engaging demonstrations and activities giving students a hands-on experience in understanding this important scientific concept.

Pop Bead Equilibrium **(Chem)**
(High School–College) *B403, GWCC*
CANCELED
Edmund J. Escudero *(e_escudero_e@summitcds.org),* Summit Country Day School, Cincinnati, Ohio
Pop beads can be used to reinforce the concepts that are key to understanding chemical equilibrium. Have a group of up to nine students simulate a synthesis reaction.

Water, Water Everywhere **(Env)**
(Informal Education) *B407, GWCC*
Leann F. Iacuone *(liacuone@gmail.com),* Laurens County School District 55, Laurens, S.C.
Water is the most important chemical in the world. Yet so many people don't think about water and what we do with it on a daily basis. This hands-on workshop will provide three activities you can use to teach about the water cycle and water quality. The activities can be adjusted for elementary, middle school, and high school students.

2:00–3:00 PM Exhibitor Workshop

How Do Scientists Work Together to Answer Big Questions and Solve Big Problems in *PBIS*™? **(Gen)**
(Grades 6–8) *B211, GWCC*
Sponsor: It's About Time
Mary Starr, Starr and Associates, Educational Consultants, Plymouth, Mich.
Project-Based Inquiry Science Launcher units help students learn science and engineering practices while developing a culture of "doing" science. Investigate our Launcher units, discover the research that supports their use, and hear teachers testify to how these units have changed their students' ideas of science.

2:00–3:30 PM Exhibitor Workshop

Light and Optics: A Series of EnLIGHTening Experiments! **(Phys)**
(Grades 5–12) *B203, GWCC*
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.

2:15–3:30 PM Exhibitor Workshops

Hands-On Science with Classroom Critters **(Bio)**
(Grades 3–8) *B207, GWCC*
Sponsor: Carolina Biological Supply
Carolina Teaching Partner
Animals broaden inquiry-based explorations and student interest in science. Through fun, simple hands-on activities, participants learn about termites and insect pheromones; how isopods are great for teaching evolution, adaptation, and behavior; and about experiments that incorporate measuring with beetle activities. Session includes care and handling information, free samples, and literature.

Exploring STEM Careers: Water and Our Environment **(Env)**
(Grades 6–12) *B208, GWCC*
Sponsor: Fisher Science Education
Robert Marshall *(marshallr@carnegiesciencecenter.org),* Carnegie Science Center, Pittsburgh, Pa.
With global population growth creating a rise in demand, access to clean water is becoming increasingly important. Learn how you can bring this real-world issue to life for your middle school and high school students. Gain hands-on experience in this technology-focused environmental workshop, led by Robert Marshall, a STEM educator from Carnegie Science Center, one of the nation's leading hands-on science museums. Handouts and door prizes!

Mastering the Chemical Formula: An Exceptionally Effective Way to Teach Subscripts and Coefficients (Chem)

(Grades 9–12) *B209, GWCC*

Sponsor: LAB-AIDS, Inc.

Brandon Watters, Lakes Community High School, Lake Villa, Ill.

What is the difference between subscripts and coefficients? What does "balancing" a chemical equation mean? Many students have trouble with these fundamental chemistry concepts. Moles, reactions, and stoichiometry are hopelessly confusing if a student does not fully understand the chemical formula. Join us for some elegant, intuitive, and well-differentiated lessons that can help students of all ability levels master the chemical formula and, therefore, move confidently into a deeper understanding of chemistry.

Stream Ecology: Slimy Leaves for Clean Streams (Env)

(Grades 5–College) *B210, GWCC*

Sponsor: LaMotte Co.

Christina Medved, Stroud Water Research Center, Avondale, Pa.

Observe aquatic macroinvertebrate specimens, conduct experiments, learn classification skills, and calculate a biotic index in this hands-on introduction to stream ecology. Learn from the Stroud Water Research Center scientists. Takeaways and door prize!

The Sky Through the Ages (Earth)

(Grades 4–12) *B212, GWCC*

Sponsor: Simulation Curriculum Corp.

Herb Koller *(hkoller@simcur.com),* Simulation Curriculum Corp., Minnetonka, Minn.

What did our ancestors see in the night sky? How can astronomy help us determine the date of a battle fought thousands of years ago? Find out the answers to these and other historical questions and learn how Starry Night can make astronomy come alive for your students.

Connecting to Chemistry: Igniting Student Motivation with STEM Examples and Ideas (Chem)

(Grades 9–12) *B309, GWCC*

Sponsor: Houghton Mifflin Harcourt

Michael DiSpezio *(icaris@aol.com),* Science Writer and Educational Consultant, North Falmouth, Mass.

Join Michael DiSpezio as he presents an entertaining minds-on/hands-on overview of inspiring examples that can integrate STEM into your current chemistry curriculum. Learn ways to teach gas solubility based upon the bends and the building of the Brooklyn Bridge! Come assemble an inexpensive fuel cell vehicle. Build a model flushing toilet based upon air pressure. Test and evaluate a easy new method for extracting DNA from fresh wheat germ. Learn about these and other engaging STEM examples that will hook your students on the STEM/Chem connection!

The Case of the Missing Archive: Crime Scene and DNA Fingerprinting Investigation (Bio)

(Grades 8–12) *B310, GWCC*

Sponsor: Edvotek Inc.

Jack Chirikjian *(info@edvotek.com),* **Khuyen Mai** *(info@edvotek.com),* and **Tom Cynkar** *(info@edvotek.com),* Edvotek Inc., Washington, D.C.

Are you ready for a cutting-edge forensic activity? Examine crime scene evidence to determine who stole priceless historical documents from the Maryland Historical Society, including copies of speeches by President Franklin D. Roosevelt. By analyzing "crime scene" and "suspect" DNA samples, you'll model the process of electrophoresis and DNA fingerprinting to determine whose DNA was left at the crime scene. Take home a free T-shirt and flash drive.

Create a Digital Classroom Using 21st-Century STEM Initiatives! (Gen)

(Grades 7–College) *B311, GWCC*

Sponsor: Swift Optical Instruments, Inc.

David Doty *(david@swiftoptical.com)* and **Cynthia Syverson-Mercer** *(cynthia@swiftoptical.com),* Swift Optical Instruments, Inc., Schertz, Tex.

Go digital…using STEM technology. Transform your labs, lesson plans, and activities into digital formats. Engage your students by incorporating Motic software, digital cameras, and Swift microscopes into your lessons. Learn how to integrate digital technology, student assessment, and motivation into your current curriculum.

Fantastic Physical Science Demonstrations (Phys)

(Grades 7–12) *B312, GWCC*

Sponsor: Flinn Scientific, Inc.

Janet Hoekenga *(jhoekenga@flinnsci.com),* Flinn Scientific, Inc., Batavia, Ill.

Amaze your students with quick demonstrations that teach common physical science topics—sound, color dynamics, energy, pressure, density, rotation, and scientific inquiry. More than a dozen effective demonstrations will be performed.

3:00–4:30 PM Exhibitor Workshop

What's Going on in There? NGSS Inquiry Science for Supervisors, Trainers, and Teachers (Gen)
(Grades K–8) *B202, GWCC*
Sponsor: Delta Education/School Specialty Science
John Cafarella, Consultant, Canadensis, Pa.
Learn how to observe an inquiry science lesson as we support and evaluate it. We'll define types of inquiry and look at the use of inquiry skills through the lens of a draft of the Next Generation Science Standards. We will also engage in activities based on the NRC *Framework's* Scientific and Engineering Practices.

3:00–6:00 PM Meeting

Council for Elementary Science International Board Meeting
International C, Omni
Visit *www.cesiscience.org* for more information.

3:30–4:30 PM Featured Presentation

The Current State of the Next Generation Science Standards (Gen)

(General) *B206, GWCC*

Stephen L. Pruitt, Vice President for Content, Research, and Development, Achieve, Inc., Washington, D.C.

Presider: Gerry Wheeler, NSTA Interim Executive Director, Arlington, Va.

The first public draft and review period for the Next Generation Science Standards (NGSS) is complete and revisions are under way. This informational session will provide an update on the development of these standards, including process and timeline for release of drafts and final documents, how science educators can be involved, and implications for science teaching.

With private funding from the Carnegie Corporation, the National Research Council (NRC) and Achieve, Inc., with support from NSTA and the American Association for the Advancement of Science, have embarked on a two-step cooperative process to develop the Next Generation Science Standards. The first step, the NRC *Framework,* was released in July 2011. The next step is the development of the actual standards, a process led by Achieve involving science experts, science teachers, states, and other science education partners. The NGSS are due for completion in early 2013.

Stephen L. Pruitt was named vice president for Content, Research, and Development at Achieve in November 2010. He is leading the development of the Next Generation Science Standards. A native Georgian, Stephen earned a PhD in philosophy in chemistry education from Auburn University.

3:30–4:30 PM Presentations

SESSION 1

Science: There's an App for That (Using iPads in the Science Classroom) (Gen)

(Middle Level–High School) *B217, GWCC*

Susan Leverette *(sleverette@bbschool.org)* and **Becky C. Oakley** *(boakley@bbschool.org),* Boyd-Buchanan School, Chattanooga, Tenn.

Join us as we explore many ways to use Apple iPads in the secondary science classroom, including apps, research, skill building, homework, and organization.

SESSION 2 (two presentations)

(General) *B218, GWCC*

Improving Science Achievement Among High-Risk Students in the Urban South (Bio)

Amanda Glaze *(amlee1@crimson.ua.edu),* The University of Alabama, Tuscaloosa

Come learn about a study investigating the building of communities of learners within the school setting in order to facilitate learning among traditionally high-risk students.

Science Strategies for Students with Disabilities (Gen)

Tanya D. Hyman *(tanya.hyman@cobbk12.org),* Durham Middle School, Acworth, Ga.

Learn tips and strategies to make scientific concepts more engaging, memorable, and accessible for students with disabilities.

SESSION 3

NASA's High-Energy Vision: Chandra and the X-Ray Universe (Earth)

(General) *B302, GWCC*

Donna L. Young *(donna@aavso.org),* NASA/Chandra EPO Office, Cambridge, Mass.

Listen to the latest discoveries from NASA's Chandra X-Ray Observatory, including black holes, neutron stars, supernovas, star formation, colliding galaxies, X-ray binaries, and dark matter.

SESSION 4

Linking Science Writing and Research Through the DuPont Challenge (Gen)

(General) *B304, GWCC*

Barbara R. Pietrucha, Earth/Environmental Science Educator, 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 5

NMLSTA Session: Writing a Successful Grant Proposal (Phys)

(General) *B306, GWCC*

Kitchka P. 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.

Come familiarize yourself with the main components of a grant proposal and learn how to tailor ideas to funding agencies requirements.

SESSION 6

iScience (Gen)

(Preschool–Middle Level) *B315, GWCC*

Kate H. Burton *(kburton@trinityatl.org)* and **Suzanne Edwards** *(sedwards@trinityatl.org),* Trinity School, Atlanta, Ga.

This engaging and enlightening session focuses on how iTechnologies (iTouches and iPads) can enrich the elementary science classroom.

SESSION 7

Learning and Teaching from the Inside Out (Gen)

(High School) *B405, GWCC*

Danielle D. Armstrong *(danielle_d_armstrong@fc.dekalb.k12.ga.us)* and **Shannon Thorne-Brackett** *(shannon_t_thorne-brackett@fc.dekalb.k12.ga.us),* DeKalb Early College Academy, Stone Mountain, Ga.

Join us as we focus on strategies for engaging nontraditional and at-risk students taking biology, physics, and physical science. These strategies are geared toward maximizing student engagement while increasing rigor.

SESSION 8

Magical Illusions for Science (Gen)

(General) *B406, GWCC*

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

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.

3:30–4:30 PM Workshops

Engage Your Students with NOAA's Coral Reef Resources (Bio)

(Informal Education) *B213, GWCC*

Britta Culbertson *(britta.culbertson@noaa.gov),* Einstein Fellow, NOAA Office of Education, Washington, D.C.

Grab your students' attention by incorporating coral reefs into your existing curriculum. Several NOAA resources will be highlighted, including demos, labs, activities, and multimedia.

NanoTeach: Designing Effective Science Lessons in Nanoscience and Technology (Gen)

(Middle Level–High School) *B214, GWCC*

Anne Tweed *(atweed@mcrel.org),* 2004–2005 NSTA President, and McREL, Denver, Colo.

Cynthia Long *(clong@mcrel.org),* McREL, Denver, Colo.

Integrate cutting-edge STEM content into your curriculum!

Edward Lawrence *(edward.lawrence@cobbk12.org),* Kell High School, Marietta, Ga.

Melinda Ogden *(melinda.ogden@gmail.com),* Grayson High School, Loganville, Ga.

Join educators from NanoTeach, an NSF project, in activities related to nanoscience and technology and strategies from Designing Effective Science Instruction (DESI).

NSTA Press® Session: *Stop Faking It!* Finally Understand Chemistry Basics So You Can Teach Them (Chem)

(Elementary–High School) *B216, GWCC*

Bill Robertson *(wrobert9@ix.netcom.com),* Bill Robertson Science, Inc., Woodland Park, Colo.

Tired of trying to teach concepts you don't fully understand yourself? Join the author of the *Stop Faking It!* books for hands-on activities from the two chemistry books in the series. Wouldn't it be nice if your students knew why we think atoms look the way we say they do? Sure would!

Math/Science Integration for Earth's Sake (Env)

(Middle Level) *B301, GWCC*

Kenneth Jones *(jones_kenneth@columbusstate.edu),* Columbus State University, Columbus, Ga.

Engage in memorable hands-on activities that reinforce middle school math skills while teaching about human population trends and their environmental impacts. Free CD-ROM!

Batty About Bats (Bio)

(General) *B303, GWCC*

Vicky Beckham Smith *(batlady1963@yahoo.com),* Fayetteville, Ga.

Let me introduce you to the world of bats. You'll meet live bats and receive a CD of lesson plans, crafts, and resources.

Understanding the School Building as a System (Phys)

(Middle Level–High School) *B305, GWCC*

Karen Reagor *(kreagor@need.org),* The NEED Project, Manassas, Va.

The purpose of this session is to show participants how they can go beyond turning the lights off and really understand how a house works.

Red Algae Is Growing in My Classroom! (Bio)

(Middle Level–College) *B308, GWCC*

Alan Gorlin, North Cobb High School, Kennesaw, Ga.

Use red algae to teach scientific research skills and biotechnology to your students.

Lost in Translation: Exploring Protein Synthesis with Interactive Physical Models (Bio)

(High School–College) *B316, GWCC*

Margaret Franzen *(franzen@msoe.edu)* and **Gina R. Vogt** *(vogt@msoe.edu),* Milwaukee School of Engineering, Milwaukee, Wis.

Discover the translation process from mRNA to protein using innovative hands-on physical models of the insulin gene and protein.

Addressing Core Science Standards Through Nanoscale Science for Grades 9–12 (Gen)

(High School) *B404, GWCC*

Joyce Allen *(joyce.palmer@mirc.gatech.edu),* Georgia Institute of Technology, Atlanta

Perform hands-on activities and have fun exploring how teaching about small-scale objects can fit into your curriculum. You will leave with a CD full of activities.

GreenSchools! (Env)

(Informal Education) *B407, GWCC*

Jaclyn Stallard *(jstallard@plt.org)* and **Al Stenstrup** *(astenstrup@plt.org),* Project Learning Tree, Washington, D.C.

Carla Rapp *(carla@gfagrow.org),* Georgia Forestry Association, Forsyth

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

"Stuff," Science, and Sustainability—Engaging Students in Examining Systems, Resources, and Consumption (Gen)

(Informal Education) *B408, GWCC*

Pamela Whiffen *(pwpwr@aol.com),* NASA/Facing the Future, Phoenix, Ariz.

Engage students in exploring the materials economy—the system of extraction, production, and consumption. Examine its major systems, analyze their sustainability, and improve those systems in ways that benefit people, economies, and environments. Free curriculum!

3:30–4:30 PM Exhibitor Workshops

Materials in Our World: STEM for Early Childhood (Gen)
(Kindergarten) *B204, GWCC*
Sponsor: Delta Education/School Specialty Science–FOSS
Linda De Lucchi and **Larry Malone,** The Lawrence Hall of Science, University of California, Berkeley
For thousands of years, humans have used natural fibers to produce useful materials. Join FOSS developers to see how early childhood students use FOSS to explore the properties of paper and to investigate how paper can be designed and engineered into diverse products.

PBIS™**—Moving Beyond "What Is Science?" to Being Scientists Through Science and Engineering Practices (Gen)**
(Grades 6–8) *B211, GWCC*
Sponsor: It's About Time
Mary Starr, Starr and Associates, Educational Consultants, Plymouth, Mich.
Project-Based Inquiry Science aligns to the NRC *Framework* and the highly anticipated NGSS by blending practices, core ideas, and crosscutting themes. In this workshop, experience Project Science. Work with others to complete a science investigation that requires modeling, asking questions, and other science and engineering practices while developing core ideas.

4:00–5:15 PM Exhibitor Workshops

Carolina Chemistry Investigations (Chem)
(Grades 9–12) *B207, GWCC*
Sponsor: Carolina Biological Supply
Carolina Teaching Partner
Bring inquiry to your classroom with new Carolina chemistry activities and see your classroom come alive. Carolina's new labs help students develop essential chemistry practices, understand core chemistry concepts, and build critical problem-solving skills, appropriate for honors or AP courses. Experience three different activities in this hands-on workshop. Handouts and free giveaways!

An Absorbing Misconception About Waves and the "Power" of Colors (Chem)
(Grades 6–8) *B209, GWCC*
Sponsor: LAB-AIDS, Inc.
Lisa Kelp, LAB-AIDS, Inc., Ronkonkoma, N.Y.
Most of us—middle school students included—have no idea how electromagnetic waves actually work despite their relevance to our lives. Join us for a "Next Generation Waves" unit from *Issues & Physical Science* by LAB-AIDS and SEPUP. Explore properties of light by investigating colors of the visible spectrum and energy levels of white light colors through the use of a phosphorescent material. Activities exemplify the NRC *Framework* and show how SEPUP embeds research-based practices and real issues to powerfully deliver content learning.

Math and Science Come to Life with LEGO® Engineering! (Phys)
(Grades 6–9) *B210, GWCC*
Sponsor: LEGO Education
Kristie Brown, LEGO Education, Pittsburg, Kans.
Using LEGO Education's Simple and Motorized Mechanisms kits, attendees will engage in the engineering process to solve real problems through the discovery and application of forces and motion, measurement, energy, and simple machines. This kit is also a part of a three-year partnership with NASA on the International Space Station!

New Physics for New Students: Guiding Them as They See It for the First Time (Phys)
(Grades 9–12) *B309, GWCC*
Sponsor: Houghton Mifflin Harcourt
Beth Swayze *(elizabeth.swayze@hmhpub.com),* Houghton Mifflin Harcourt, Boston, Mass.
Join Houghton Mifflin Harcourt consultant Beth Swayze and friends as she takes a look at physics from the eyes of a student as he or she sees it for the first time. During this workshop, participants will experience new techniques and tools in differentiation, inquiry, and problem solving using examples from *Holt McDougal Physics* updated resources.

How Is HIV Detected in Humans? Welcome to the Exciting World of Immunobiotechnology! (Bio)
(Grades 8–College) *B310, GWCC*
Sponsor: Edvotek Inc.
Jack Chirikjian *(info@edvotek.com),* **Khuyen Mai** *(info@edvotek.com),* and **Tom Cynkar** *(info@edvotek.com),* Edvotek Inc., Washington, D.C.
Join us to discover the endless applications offered by ELISA in research and allied healthcare. Participants learn how ELISA is used as a diagnostic tool in medical diagnostics. The workshop features our new, simple, and foolproof single antibody ELISA that can be completed in under 40 minutes and analyzed by visual inspection. This procedure is much more rapid than the traditional ELISA. Take home a free T-shirt and flash drive.

Creating a Digital Strategy for STEM (Bio)
(Grades 7–College) *B311, GWCC*
Sponsor: Swift Optical Instruments, Inc.
David Doty *(david@swiftoptical.com)* and **Cynthia Syverson-Mercer,** Swift Optical Instruments, Inc., Schertz, Tex.
Discover the strategies needed to create a digital STEM program for your school. Lab development, lesson plans, assessment, and teaching techniques will be demonstrated and modeled using Swift digital microscopes and Motic software. Leave with all you need to create a three- to five-year implementation plan and keys to sustaining your STEM program, including professional development.

Science Projects and Notebooking **(Gen)**
(Grades K–12) *B312, GWCC*
Sponsor: Dinah-Might Adventures, LP
Dinah Zike *(dma@dinah.com),* Dinah-Might Adventures, LP, San Antonio, Tex.
High energy, hands on, and research based describe this workshop! Hear from the creator of Foldables® on how to transform manila envelopes into Notebook Foldable projects sure to engage even the most reluctant student. Leave with your own model ready for immediate application.

4:00–5:30 PM Exhibitor Workshop

Sound, Waves, and Music **(Phys)**
(Grades 5–12) *B203, GWCC*
Sponsor: CPO Science/School Specialty Science
Erik Benton, CPO Science/School Specialty Science, Nashua, N.H.
Create standing wave patterns on a vibrating string with CPO's wave machine. Use a synthesizer to explore the wave properties of sound and play some music…and learn how to make your own instruments. Take away STEM activities and an understanding of how to apply the engineering cycle in science classes.

—Photo courtesy of Atlanta Botanical Garden

6:30–8:00 AM Breakfast

WARD'S Welcomes New Teachers to NSTA Atlanta!

International E/F, Omni

We would like to officially welcome you into the wonderful world of science education and help you through the toughest years of teaching. Stop by to receive a free breakfast and New Teacher Survival Kit* filled with helpful resources. Visit *http://bit.ly/Qepm5U* to register.

**To receive a free kit, teachers must have no more than three years teaching experience. Free gifts available while supplies last.*

8:00–9:00 AM Presentations

SESSION 1

Mission Discovery: Exploring a Pathway to Renewable Energy Education (Env)

(Elementary) *B214, GWCC*

Wayne Robinson *(jwr@cdmfun.org)* and **Sue Kral,** Creative Discovery Museum, Chattanooga, Tenn.

"Farming for Fuels" is a unique bioenergy project for students in grades 3–6 that incorporates current scientific research, hands-on learning, and a wide array of technology applications.

SESSION 2

NSTA Press® Session: Uncovering Life Science Core Ideas in the NGSS Using Formative Assessment Probes (Bio)

(General) *B216, GWCC*

Page Keeley *(pagekeeley@gmail.com),* 2008–2009 NSTA President, and Author/Consultant, Jefferson, Maine

Learn how the *Uncovering Student Ideas in Science* probes can be used as diagnostic and formative assessments of students' thinking related to the life science core ideas in the highly anticipated Next Generation Science Standards and how use of these probes supports the science practices.

SESSION 3

Preparing for NGSS—Exploring the Scientific and Engineering Practices (Gen)

(General) *B218, GWCC*

Ted Willard, 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 report, *A Framework for K–12 Science Education.* 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. Session participants will have a chance to win a FREE copy of the NRC *Framework!*

SESSION 4 (two presentations)

(General) *B308, GWCC*

NARST Session: The Influence of Students' Acceptance of Evolution on SSI Negotiation (Bio)

Samantha R. Fowler *(samanthafowler@clayton.edu),* Clayton State University, Morrow, Ga.

Let's discuss a study examining the influence of college students' acceptance of evolution on negotiation of socioscientific issues.

NARST Session: Argument-driven Inquiry as a Way to Help Students Learn How to Engage in Scientific Inquiry and Understand the Nature of Scientific Inquiry (Bio)

Victor Sampson *(vsampson@fsu.edu),* Florida State University, Tallahassee

The session provides an overview of a new approach to lab instruction called Argument-Driven Inquiry and some current research about it.

SESSION 5

The RSW Process: Integrating CCGPS Content Literacy into Science (Gen)

(Elementary–Middle Level) *B313, GWCC*

Jo-ne C. Bourassa *(jbourassa@bibb.k12.ga.us),* Bibb County School District, Macon, Ga.

The results of a pilot study integrating science inquiry into an established literacy program at an urban elementary and middle school will be discussed, as well as the development of a process that infuses reading, speaking, and writing into the science classroom.

SESSION 6

Give Them a Reason to Learn (Gen)

(Middle Level–High School) *B404, GWCC*

Deborah L. Jensen *(djensen1968@gmail.com),* Rice University, Houston, Tex.

Use student-centered design challenges to teach science in a way that is both effective and fun. Best practices, free resources, and challenges will be discussed.

SESSION 7

Standards-based Assessment for Inquiry-based Classrooms (Gen)

(General) *B405, GWCC*

Amy Beavers *(abeavers@utk.edu)* and **Jennifer Richards** *(jennifer.richards@utk.edu),* University of Tennessee, Knoxville

Meaningful assessment that supports inquiry-based science instruction is challenging. This session presents creative ways to integrate standards-based assessments to enhance student learning outcomes.

SESSION 8

Exploring the *2012 ACS Guidelines and Recommendations for Teaching High School Chemistry* (Chem)

(High School/Supervision) *B406, GWCC*

Terri M. Taylor *(t_taylor@acs.org)* and **Michael Mury** *(m_mury@acs.org),* American Chemical Society, Washington, D.C.

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

Featuring strategies for teaching high school chemistry, the *2012 ACS Guidelines and Recommendations for Teaching High School Chemistry* are a useful resource for strengthening high school chemistry programs.

8:00–9:00 AM Workshops

"Astro"nishing Astronomy: The Electromagnetic Spectrum (Earth)

(Middle Level–High School) *B213, GWCC*

Pamela Whiffen *(pwpwr@aol.com),* NASA Educator Ambassador, Carl Hayden High School, Phoenix, Ariz.

Facilitated by a NASA Educator Ambassador and teacher, explore the hidden universe with a new set of eyes. Take home NASA CD-ROM and posters.

ACS Middle Level Session: Solids, Liquids, and Gases: The Kinetic-molecular Theory of Matter (Chem)

(Middle Level) *B302, GWCC*

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

Explore solids, liquids, and gases on the molecular level to discover how heating and cooling affect matter.

ACS Session One: Equilibrium and Concentration (Chem)

(High School) *B303, GWCC*

Jerry Bell *(j_bell@acs.org),* American Chemical Society, Washington, D.C.

Visualizing the dynamic nature of equilibria is sometimes difficult for students. Putting the concepts in textbooks to work—explaining observations from activities makes Le Chatelier's principle more tangible by comparisons between simulations and experiments. Bring your USB flash drive and take away the presentation and activities to use in your classroom.

Siemens STEM Academy: Top Free STEM Resources for Your Classroom (Gen)

(General) *B304, GWCC*

Lance Rougeux, Discovery Education, Silver Spring, Md.

Let's explore 10 websites that can help you integrate STEM in your teaching—including the Siemens STEM Academy *(siemensstemacademy.com)*—featuring free resources and professional development opportunities.

SECME: Raising Results with Rockets, Robots, and Race Cars (Phys)
(Informal Education) *B305, GWCC*
Erich Landstrom *(erich.landstrom@palmbeachschools.org),* Seminole Ridge Community High School, Loxahatchee, Fla.
SECME isn't a curriculum—you can easily integrate our turn-key, standards-aligned activities and competitions from our nonprofit engineering program with your classroom teaching.

ASEE Session: ASEE's K–12 Outreach Program eGFI: Engineering, Go For It and the Marshmallow Challenge (Gen)
(General) *B306, GWCC*
Dennis Cummings *(d.cummings@asee.org),* ASEE, Washington, D.C.
Presider: Felicia Benton-Johnson, Georgia Institute of Technology, Atlanta
The American Society for Engineering Education (ASEE) will introduce participants to innovative ways to introduce engineering into the K–12 classroom.

Surviving Elementary Science (Gen)
(Elementary) *B314, GWCC*
Sally Creel *(sally.creel@cobbk12.org),* Cobb County Schools, Marietta, Ga.
Dawn M. Hudson *(dhudson@paulding.k12.ga.us),* Paulding County Schools, Dallas, Ga.
Stacey A. Osborne *(staceyaosborne@gmail.com),* Mountain View Elementary School, Marietta, Ga.
Grades 3–5 teachers from the Paulding Math Science Partnership (MSP) will share resources, ideas, and best practice lessons addressing a variety of science concepts. Handouts!

Fight Bac! Integrating Food Safety into Your Elementary Classroom (Gen)
(Elementary/Informal Ed) *B315, GWCC*
Laurie A. Hayes *(lhayes@cart.org),* Center for Advanced Research and Technology, Clovis, Calif.
Explore the FDA's FREE hands-on curriculum that integrates science and health standards while teaching students about the importance of hand washing and food safety.

Epigenetics: Integrating This Emerging Field into Your Biology Curriculum (Bio)
(High School–College) *B316, GWCC*
Dana Haine *(dhaine@unc.edu),* The University of North Carolina at Chapel Hill
Introduce students to the emerging field of epigenetics by considering the role of an individual's environment in influencing DNA structure and function.

Climate Change Classroom Tool Kit (Earth)
(Elementary–High School) *B401/B402, GWCC*
Roberta M. Johnson *(rmjohnsn@nestanet.org),* National Earth Science Teachers Association, Boulder, Colo.
Ardis Herrold, National Earth Science Teachers Association, Plymouth, Mich.
Explore the scientific foundations of what we know about climate change, greenhouse gases, and energy consumption through hands-on and data-rich classroom activities from NESTA.

Ruffner Mountain: The Nature of the City (Env)
(General) *B407, GWCC*
Shasha McCracken, Ruffner Mountain Nature Preserve, Birmingham, Ala.
Michal Grant Robinson *(mrobinson@alsde.edu),* Alabama Dept. of Education, Montgomery
Join us as we simulate quality field activities incorporating the highly anticipated Next Generation Science Standards that engage students in exploration of biodiversity and other ecological topics. Come learn about Ruffner Mountain Nature Preserve, a rare preserve located in Birmingham, Alabama, and discover the significance of performing hands-on experiences outside of the classroom in natural settings and how it can enhance sensory learning and excite students.

Poetry in Motion in Science Class (Gen)
(Elementary–High School) *B408, GWCC*
Tina G. Gay *(tina_gay@gwinnett.k12.ga.us),* K.E. Taylor Elementary School, Lawrenceville, Ga.
Shakespeare in science class? Robert Frost in a physics lecture? In this workshop, we will investigate and create science poetry to use in the classroom.

8:00–9:15 AM Exhibitor Workshops

Science: The Literacy Connection and the Core Curriculum (Gen)
(Grades K–6) *B202, GWCC*
Sponsor: Delta Education/School Specialty Science
Tom Graika, Consultant, Lemont, Ill.
Johanna Strange, Consultant, Richmond, Ky.
We'll show you various strategies and Delta products that can integrate reading and language arts into your science programs. Learn how your students can experience the enjoyment of learning science with Delta Science Modules and make the literacy connection. Receive a workshop packet and related Delta materials.

Comparative Vertebrate Anatomy Featuring Carolina's Perfect Solution® Specimens (Bio)
(Grades 9–12) *B207, GWCC*
Sponsor: Carolina Biological Supply
Carolina Teaching Partner
Explore animal diversity by comparing and contrasting the anatomical adaptations of the pig, rat, perch, and frog. Use hands-on dissection to identify the characteristics of these popular vertebrates. This is an excellent comparative dissection activity featuring Carolina's Perfect Solution specimens. Free dissection supplies and great door prizes!

Equip Your iPad for Science with SPARKvue® HD, a Full-featured Science Application for the iPad (Gen)
(Grades K–12) *B208, GWCC*
Sponsor: PASCO scientific
Presenter to be announced
Explore SPARKvue HD, PASCO's new science application for the iPad. This new app offers a full suite of display and analytical tools, including reflection prompts, journaling, and more…all within an integrated learning environment. SPARKvue HD also supports the growing collection of SPARKlabs®, which integrate rich content with live data collection and analysis.

Distillation: Simple and Fascinating Experiments in the Chemistry of Aromas and Smells (Chem)
(Grades 9–12) *B209, GWCC*
Sponsor: LAB-AIDS, Inc.
Brandon Watters, Lakes Community High School, Lake Villa, Ill.
We distill water to purify it, or so we think. So why does the clear distillate from apple cider smell like apples? Join us and find out! Using a clever test tube distillation apparatus, distill the essence of vanilla and the scent of mint… and we'll even show you how to make brandy from wine! Distillation is a crucial process in chemical engineering and technology, yet few students ever get to explore the process. This hands-on distillation workshop is not illegal, but it is excellent chemistry and extremely relevant to those of you who want to put a little STEM in your test tube!

Take a Swipe at Microbes! (Bio)
(Grades 7–12) *B210, GWCC*
Sponsor: LaMotte Co.
Ken Rainis, Precision Microslides, Cottonwood, Ariz.
Excite students with fun and safe ways to become scientific explorers of microbes in air, water, food, and on surfaces. As scientists, your students will use technology to identify the microbes that they find. As engineers, they will design methods to collect data using BioPaddles™. As mathematicians, they will quantify microbes in CFU/cm^2 units. Engage students in pondering real-world connections of microbes and life. Come microbe hunting with us! Takeaways!

Inquiry and Scientific Practices: Keys to Getting Students to Think (Gen)
(Grades K–12) *B211, GWCC*
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 highly anticipated 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.

Earthquakes and Tornadoes (Earth)
(Grades 4–12) *B212, GWCC*
Sponsor: Simulation Curriculum Corp.
Herb Koller *(hkoller@simcur.com),* Simulation Curriculum Corp., Minnetonka, Minn.
What are tornadoes and how are they formed? Why are earthquakes common in certain parts of the world? With *The Layered Earth,* students can visualize, measure, and manipulate these forces of nature as well as basic concepts of geology and meteorology using a virtual model of Earth.

"Hard" Doesn't Mean "Bad": Helping Students Understand That Facing Challenges Is a Good Thing (Gen)

(Grades 6–9) *B309, GWCC*

Sponsor: eCYBERMISSION

Brian P. Short, Director, Science Education Competitions, NSTA, Arlington, Va.

How many times have you heard your grades 6–9 students say, "This is too hard" or "My data does not support my hypothesis so I failed" or "I'm no good at science"? Many students are ready to give up if they feel that something is too difficult or if they don't succeed immediately. Since many scientific discoveries come from challenges, it's important that students learn how to embrace these challenges and become more comfortable with science. Participants will "do" science and walk away with lesson plans and resources along with information on a new NSTA competition, eCYBERMISSION, that can provide both rigor and relevance in your classroom.

Using Molecular-Level Visualization to Engage Middle School and High School Science Students (Chem)

(Grades 7–College) *B311, GWCC*

Sponsor: Wavefunction Education Labs

Sean Ohlinger *(sales@wavefun.com),* Wavefunction Education Labs, Irvine, Calif.

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 2012 release of *Odyssey High School Chemistry.*

Building and Assessing Academic Vocabulary Using Notebook Foldables® (Gen)

(Grades K–12) *B312, GWCC*

Sponsor: Dinah-Might Adventures, LP

Nancy F. Wisker *(nancy@dinah.com),* Dinah Zike Academy, Comfort, Tex.

Learn by doing in this fast-paced Notebook Foldables workshop aimed at immersing students in academic vocabulary essential for success. Delve into words in a new way and leave with your own mini-comp book constructed on-site filled with immediately usable ideas for teaching and assessing academic vocabulary.

8:00–9:30 AM Exhibitor Workshops

Integrating Your iPad or Mobile Device with Vernier Technology (Gen)

(Grades 3–College) *B201, GWCC*

Sponsor: Vernier Software & Technology

David Carter *(info@vernier.com)* and **Patti Smith** *(info@vernier.com),* Vernier Software & Technology, Beaverton, Ore.

In this hands-on workshop, we will use the built-in wireless capabilities of our new LabQuest 2. You will be able to view and analyze data collected on LabQuest 2 using Graphical Analysis for iPad or on any device with a supported browser using Vernier Data Share.

Genetics: Crazy Traits and Adaptation Survivor (Bio)

(Grades 5–12) *B203, GWCC*

Sponsor: CPO Science/School Specialty Science

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 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 into lessons.

Bio-Rad: Explore Inquiry and Ecology with Biofuel Enzymes (AP Big Idea 4) (Bio)

(Grades 9–College) *B310, GWCC*

Sponsor: Bio-Rad Laboratories

Sherri Andrews *(sherri_andrews@bio-rad.com),* Bio-Rad Laboratories, Hercules, Calif.

Need energy? Reveal the power of enzyme kinetics by illustrating the theory through a real-world application of biofuels—using cellobiase, a key enzyme in the production of cellulosic ethanol (a biofuel). The reaction serves as a jumping-off point for introducing variables such as temperature, pH, substrate, and enzyme concentration. The capstone activity is for student-directed experiments using naturally occurring enzymes found in mushrooms. Expand the lab to studies with mushrooms in different ecological niches.

8:00–10:00 AM Exhibitor Workshop

Using Science Notebooks to Impact Student Learning with FOSS **(Gen)**

(Grades K–8) *B204, GWCC*

Sponsor: Delta Education/School Specialty Science–FOSS

Virginia Reid, The Lawrence Hall of Science, University of California, Berkeley

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

Learn how we implement science notebooks in the new FOSS editions. Through active investigations from the new editions, you'll discover how science notebooks impact student achievement by providing a tool for developing conceptual understanding, exposing evidence of learning, and guiding instruction. Take home sample materials.

9:00 AM–5:00 PM Exhibits

Exhibit Hall B2, GWCC

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

9:30–10:00 AM Presentations

SESSION 1

The Hidden River: Engaging Students with Southeastern U.S. Aquatic Biodiversity **(Bio)**

(Middle Level) *B304, GWCC*

CANCELED

Keith Williams *(williamskeith73@yahoo.com),* NorthBay, North East, Md.

The Southeastern U.S. is a global aquatic diversity hotspot. This session brings this diversity to light and uses it to engage students in science education.

SESSION 2

NARST Session: An Effective Teacher Professional Development Model Focused on Authentic Science Practices in the Classroom **(Earth)**

(General) *B308, GWCC*

Barbara A. Crawford *(barbarac@uga.edu),* The University of Georgia, Athens

Presider: Maya R. Patel, Ithaca College, Ithaca, N.Y.

Discover an exciting and effective professional development model that immerses teachers in authentic science practices in meaningful contexts, aligned with diverse students working with scientists.

9:30–10:30 AM Featured Presentation

The Power of One **(Gen)**

(General) *B206, GWCC*

Brad Cohen *(brad.cohen@cobbk12.org),* Educator, Author, and Motivational Speaker, Brad Cohen Tourette Foundation, Inc., Roswell, Ga.

Presider: Karol Stephens, Local Arrangements Coordinator, NSTA Atlanta Area Conference, and Fulton County Schools, Atlanta, Ga.

If you've ever wondered what impact you as an educator have on the students you teach, Brad Cohen, a teacher with Tourette's syndrome, will help you to the "front of the class." You will hear how this "First Class Teacher of the Year" award winner came from the depths of abuse and how he was determined to rise above it to become an inspiration to others. If you want to be inspired, be sure to listen to Brad's story about keeping a positive attitude and never giving up!

As a child with Tourette's syndrome, Brad Cohen was ridiculed, beaten, mocked, and shunned. Other children, teachers, and even family members found it difficult to be around him. His mother's encouragement and his brother's support were key elements that kept him going. College and then job hunting brought new challenges, but he continued to strive toward his goal to be a teacher and was rewarded when he won the Sallie Mae First Year Teacher of the Year Award for Georgia.

Despite the trials of Tourette's syndrome, nothing has stopped Brad from taking leadership roles in a variety of settings and being a role model for others. Brad is an assistant principal at Addison Elementary School in Cobb County, Georgia. He previously taught second and third grade and was a technology lab instructor.

Brad started the Brad Cohen Tourette Foundation to help raise money for national programs for children with Tourette's syndrome. He received a BA in elementary education from Bradley University and he received both an MA in early childhood education and a Specialist Degree in leadership and administration from Georgia State University. Front of the Class: How Tourette Syndrome Made Me the Teacher I Never Had *was Brad's first book. It was named the Education Book of the Year and was made into a Hallmark Hall of Fame movie for CBS television in 2008.*

9:30–10:30 AM Presentations

SESSION 1

NSTA Press® Session: *Bringing Outdoor Science In* (Gen)

(Elementary–Middle Level) *B216, GWCC*

Steve A. Rich *(bflywriter@comcast.net),* Chairperson, NSTA Atlanta Area Conference; 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 2

Demystifying the Practices in the Next Generation Science Standards (Gen)

(Middle Level) *B305, GWCC*

Zoe O. Evans *(zoeevans@charter.net),* Central Middle School, Carrollton, Ga.

Julie M. Pepperman *(fjpep@att.net),* Maryville, Tenn.

Join members of the NGSS writing team as we help you demystify the practices and show you ways to incorporate them into your classroom practice.

SESSION 3

Creating a Culture of Science Fairs at Your School (Gen)

(General) *B313, GWCC*

Brian E. Lucy *(brian_lucy@gwinnett.k12.ga.us),* Trickum Middle School, Lilburn, Ga.

Cary Sell *(cary_sell@gwinnett.k12.ga.us),* Parkview High School, Lilburn, Ga.

Science fairs are the most authentic science engagement you can do with your classes. Interested in starting and sustaining a science fair at your school? Hear the scoop from successful science fair coaches.

SESSION 4 (two presentations)
(Middle Leve–College/Supervision) *B406, GWCC*

Public School Administrators' Knowledge and Perceptions Regarding Evolution in Georgia (Gen)
Gregory L. Bailey *(gbailey@whitfield.k12.ga.us),* Whitfield County Schools, Dalton, Ga.
Focus on public school administrators' knowledge and perceptions regarding the laws that govern the teaching of evolution in Northern Georgia.

Probes Expose Misconceptions in Disciplinary Core Ideas Among Preservice Teachers (Gen)
Christine A. Royce *(caroyce@aol.com),* Shippensburg University, Shippensburg, Pa.
Misconceptions preservice teachers hold in the Disciplinary Core Ideas from the NRC *Framework* will be examined.

SESSION 5

Integrating Literacy—Is There an App for That? (Gen)
(General) *B408, GWCC*
Steve Canipe *(steve.canipe@waldenu.edu),* Walden University, Minneapolis, Minn.
Join me as I share several tools to help you develop lessons to better integrate science competencies into the broader curriculum.

9:30–10:30 AM Workshops

Can We Go to Tree-town? (Env)
(Informal Education) *B215, GWCC*
Sherry E. Nichols *(snichols@bamaed.ua.edu),* The University of Alabama, Tuscaloosa
Cheryl W. Sundberg *(sundbergrc@bellsouth.net),* Retired Educator, Millbrook, Ala.
Learn how to use smart technologies to promote environmental literacies at local arboretums and community gardens.

Planning and Designing Safe, Sustainable, and Flexible Facilities for STEM-based Science (Science Facilities 101) (Gen)
(General) *B217, GWCC*
LaMoine L. Motz *(llmotz@comcast.net),* 1988–1989 NSTA President, and Science Education and Facilities Specialist, White Lake, Mich.
Juliana Texley *(jtexley@att.net),* Palm Beach State College, Boca Raton, Fla.
Presider: LaMoine L. Motz
So you want new science facilities? Does your curriculum define your science facility? Hear from experts on planning and designing safe, sustainable, and flexible facilities for STEM-based science. Join the authors of *NSTA Guide to Planning School Science Facilities,* 2nd edition, and learn the "basics" of science facility planning, designing, and budgeting.

EASY Discipline for a Less EXPLOSIVE Classroom! (Gen)
(General) *B218, GWCC*
Sasha DeVoe *(sashadevoe@4studentsuccess.com),* Atlanta, Ga.
Learn strategies for managing minor classroom misbehaviors, including techniques that eliminate gimmicks, reduce teacher stresses, and work for students. Regain 5–9 hours of your instruction time!

AAPT Session: Activities for Teaching Physics for the First Time (Phys)
(Middle Level–College) *B301, GWCC*
Ann Robinson *(amr496@bellsouth.net),* **Bob Powell** *(bpowell@westga.edu),* and **David Todd,** University of West Georgia, Carrollton
Sharon Kirby, Etowah High School, Woodstock, Ga.
Presider: Bob Powell
Join us for an overview of the book by Mader and Winn along with activities/demos highlighting electrostatics, waves, and optics.

ACS Middle Level Session: Changes of State: Evaporation and Condensation (Chem)
(Middle Level) *B302, GWCC*
James H. Kessler *(jhkessler@acs.org),* American Chemical Society, Washington, D.C.
Explore evaporation and condensation on the molecular level to discover how heating and cooling affect the rate of these processes.

ACS Session Two: Equilibrium and Energy (Chem)
(High School) *B303, GWCC*
Jerry Bell *(j_bell@acs.org),* American Chemical Society, Washington, D.C.
Quantitative studies deepen understanding of equilibria. Some chemical reactions produce energy and others require energy to proceed. Are energy and equilibrium related? How do we find out? Under what conditions can the energetics of a chemical system be changed and what are the consequences? Bring your USB flash drive and take away the presentation and activities to use in your classroom.

ASEE Session: Building Blocks for Nanoscale Science and Engineering in Grades K–5 (Gen)
(Elementary) *B306, GWCC*
Samantha Andrews, Joyce Allen *(joyce.palmer@ien.gatech.edu),* and **Nancy Healy** *(nancy.healy@ien.gatech.edu),* Georgia Institute of Technology, Atlanta
Presider: Felicia Benton-Johnson, Georgia Institute of Technology, Atlanta
Discover how skills taught in grades K–5 can be used as a foundation for later learning in the area of nanoscale science and engineering.

Grade 3 MSP Show and Share (Gen)
(Elementary) *B314, GWCC*
Sally Creel *(sally.creel@cobbk12.org),* Cobb County Schools, Marietta, Ga.
Marlee Tierce *(mtierce@aol.com),* Northwest Georgia Math-Science Partnership, Hampton
Stacey A. Osborne *(staceyaosborne@gmail.com),* Mountain View Elementary School, Marietta, Ga.
Grade 3 teachers from the Northwest Georgia Math-Science Partnership will share resources, ideas, and best practice lessons addressing a variety of science concepts. Handouts!

Black Holes in a Different Light (Earth)
(Middle Level–High School) *B315, GWCC*
Cheryl Niemela, Universities Space Research Association, Puyallup, Wash.
Join me as I shed a new light on black holes and their surroundings when viewed in high-energy wavelengths. Walk away with NASA curricula, activities, and a poster!

Let's Get Helical: Exploring DNA Structure/Function with Interactive Physical Models (Bio)
(High School–College) *B316, GWCC*
Margaret Franzen and **Gina R. Vogt** *(vogt@msoe.edu),* Milwaukee School of Engineering, Milwaukee, Wis.
Explore DNA structure and information storage with an interactive, magnetic DNA model and a paper bioinformatics exercise focusing on the beta subunit of hemoglobin.

Let's Get Well Grounded! (Earth)
(Elementary–High School) *B401/B402, GWCC*
Roberta M. Johnson *(rmjohnsn@nestanet.org),* National Earth Science Teachers Association, Boulder, Colo.
Ardis Herrold, National Earth Science Teachers Association, Plymouth, Mich.
This NESTA workshop presents multiple exemplary activities for the geology classroom that bring fundamental concepts in Earth science to life for your students. Handouts!

Candy Analysis (Chem)
(Middle Level–High School) *B403, GWCC*
Jacklyn Bonneau, Massachusetts Academy of Math & Science at WPI, Worcester
Using candy in the classroom is often a good motivator for students. We'll explore typical M&M's® using some newer technology.

Integrating Math and Science Through Balloon Rockets and Graphs (Phys)
(Elementary–High School) *B404, GWCC*
Jane M. Metty *(metty_jm@mercer.edu),* Mercer University, McDonough, Ga.
Engage in an inquiry-based science activity that emphasizes the seamless integration of math and science concepts within the context of inquiry instruction. Emphasis will be placed on the development of a common language between math and science.

Cell Models: Exploration of Practices Used in Science Teaching (Bio)
(General) *B405, GWCC*
Crystall S. Gomillion, Rockhurst University, Kansas City, Mo.
Engage in challenging hands-on activities and have open discussions regarding the use of student-constructed cell models as an assessment of conceptual understanding.

Cosmetics, OTC Drugs, Environmental Issues, and the BP Oil Spill—Let's Go Green (Env)
(Elementary) *B407, GWCC*
Ava F. Pugh *(apugh@ulm.edu)* and **Dona C. Delgado,** The University of Louisiana at Monroe
Presider: Ava F. Pugh
Conduct hands-on activities testing cosmetics and over-the-counter drugs for pH values, as well as a simulation activity on the BP oil spill. Let's go green! Handouts and door prizes!

The Atlanta Convention & Visitors Bureau has an Information Desk located in the GWCC Building B lobby, adjacent to Terraces Restaurant. It is open Thursday–Friday, 9:00 AM–5:00 PM to assist with booking non-NSTA tours and making restaurant reservations.

10:00–11:15 AM Exhibitor Workshops

Identifying, Clarifying, and Designing Experiments (Gen)
(Grades K–6) *B202, GWCC*
Sponsor: Delta Education/School Specialty Science
Tom Graika, Consultant, Lemont, Ill.
Johanna Strange, Consultant, Richmond, Ky.
Having trouble getting students ready for science fairs and STEM performances? Learn an effective method for teaching students to design experiments from simple investigations. The same process can help students crystallize engineering ideas. Join us as we feature Delta products and resources.

Introduction to Wisconsin Fast Plants® (Bio)
(Grades 3–12) *B207, GWCC*
Sponsor: Carolina Biological Supply
Carolina Teaching Partner
Small, fast-growing Wisconsin Fast Plants (35- to 40-day generation cycle) are ideal classroom tools for exploring variation and life cycle. Learn how to plant and germinate seeds and about plant growth/development, flower dissection, and hand pollination. These interdisciplinary science materials offer opportunities for student inquiry and learning. Samples included.

Achievable Inquiry in AP* Biology and Chemistry (Gen)
(Grades 9–12) *B208, GWCC*
Sponsor: PASCO scientific
Presenter to be announced
Experience a true guided inquiry approach with PASCO probeware. Use probeware technology to develop students' inquiry and reasoning skills while teaching learning objectives and science practices addressed in the new College Board® frameworks for Biology and Chemistry.

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

Color, Spectrophotometry, and Teaching the Structure of the Atom (Chem)
(Grades 9–12) *B209, GWCC*
Sponsor: LAB-AIDS, Inc.
Brandon Watters, Lakes Community High School, Lake Villa, Ill.
How do we teach topics such as electron configurations—that were graduate school material a generation ago—so that high school students can learn and understand them? Walk away with some effective ways to teach the structure of the atom. Using a user-friendly spectrophotometer, explore how light interacts with dyes. Then use unique spectrum cards to show how atoms, color, and spectra are related, making a conceptual bridge between a core chemical technology—making dyes—and the fundamental structure of the atom.

Detecting Radiation in Our Radioactive World (Gen)
(Grades 4–12) *B210, GWCC*
Sponsor: American Nuclear Society
Toni Bishop *(outreach@ans.org),* American Nuclear Society, La Grange Park, Ill.
Discover how to use Geiger counters to detect radioactivity and teach the principles of nuclear science. Expand your knowledge of ways nuclear technology is applied in the everyday life of our society.

What NGSS Means for Earth Science: A Message from the Authors (Earth)
(Grades K–12) *B211, GWCC*
Sponsor: Pearson
Michael Wysession, Washington University in St. Louis, Mo.
The highly anticipated Next Generation Science Standards represent a bold new direction for K–12 science in America, but also pose many challenges and questions. Join Michael

Wysession, a leader for the Earth and Space Science standards of NGSS, as he addresses the implications of these new standards for teaching, assessment, and professional development in American Earth science education.

STEM Engineering for Science (Gen)
(Grades 5–College) *B212, GWCC*
Sponsor: WhiteBox Learning
Graham Baughman *(graham@whiteboxlearning.com),* WhiteBox Learning, Louisville, Ky.
Connect the virtual to the physical. As the world's only integrated STEM learning system, WhiteBox Learning provides standards-based, web-based, applied STEM learning applications. Flight2.0, Green Car2.0, Structures2.0, Rockets2.0, and Dragster2.0 allow students to build, analyze, and simulate their designs…and compete "virtually", 24/7, all around the world—how cool is that?!

What the Heck Happened?! (Gen)
(Grades 1–11) *B309, GWCC*
Sponsor: Educational Innovations, Inc.
Ted Beyer, Educational Innovations, Inc., Bethel, Conn.
Discrepant events seize students' attention, and Educational Innovations has real jaw droppers. Come explore our favorite student confusers. Door prizes and freebies!

Nailing Molecular Concepts with Scientifically Accurate Visualization and Simulation Tools (Bio)
(Grades 7–College) *B311, GWCC*
Sponsor: Wavefunction Education Labs
Sean Ohlinger *(sales@wavefun.com),* Wavefunction Education Labs, Irvine, Calif.
Indispensable in college chemistry classes, molecular modeling is also an effective teaching tool for high schools. Bring your laptop (Windows or Mac OS X) to this hands-on workshop and learn how to get the most out of the powerful 2012 releases of *Odyssey High School Chemistry* and *Odyssey AP Chemistry.*

Promote Inquiry Using Chemistry Demonstrations (Chem)
(Grades 9–12) *B312, GWCC*
Sponsor: Flinn Scientific, Inc.
Irene Cesa *(icesa@flinnsci.com),* Flinn Scientific, Inc., Batavia, Ill.
Looking for new ways to incorporate more inquiry-based experiments in your chemistry classroom? Asking questions is the heart of inquiry, and there is no better way to get students to ask questions than with exciting, engaging demonstrations. Join us as we present classic demonstrations and describe a series of inquiry-based activities. We will model the inquiry process, sharing a strategy that is used in the Flinn ChemTopic™ Labs to integrate inquiry into every core curriculum concept. Take home a copy of *Oxidation and Reduction*, volume 16 in the series.

10:00–11:30 AM Exhibitor Workshops

Introducing the Vernier LabQuest 2! (Gen)
(Grades 3–College) *B201, GWCC*
Sponsor: Vernier Software & Technology
David Carter *(info@vernier.com)* and **Patti Smith** *(info@vernier.com),* Vernier Software & Technology, Beaverton, Ore.
In this hands-on workshop, we will conduct experiments using various sensors as we explore the features of our new LabQuest 2. The LabQuest 2 is our most versatile interface ever and it supports data collection as a stand-alone device, with a computer, and now with iPad and other mobile technology.

Chemistry and the Atom: Fun with Atom-building Games! (Chem)
(Grades 5–12) *B203, GWCC*
Sponsor: CPO Science/School Specialty Science
Nathan Olsson, 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 into your lessons.

10:00 AM–12 Noon Short Course

Home and School Science Activities (SC-2)
(Elementary–Middle Level) *B409, GWCC*
Tickets Required: $54
Bernie Horvath *(bgrizwald@aol.com),* Retired Educator, Jeffersonville, Ind.
For description, see page 33.

10:30 AM–12 Noon Exhibitor Workshop

Bio-Rad: Engineer the Tools for Inquiry of Candy Food Dyes (Bio)
(Grades 6–College) *B310, GWCC*
Sponsor: Bio-Rad Laboratories
Sherri Andrews *(sherri_andrews@bio-rad.com),* Bio-Rad Laboratories, Hercules, Calif.
What's in your candy? Extract the colorful food dyes from candy and separate them on a do-it-yourself agarose electrophoresis box to identify what dyes were used. This inquiry-based activity teaches pipetting, gel electrophoresis, and making solutions with stunning results. Turn this into a STEM activity by building your own horizontal electrophoresis box, allowing your students to investigate the science and engineering behind a workhorse in the biotech lab.

10:30 AM–12:30 PM Exhibitor Workshop

FOSS Formative Assessment: Making Student Thinking Visible (Gen)
(Grades K–6) *B204, GWCC*
Sponsor: Delta Education/School Specialty Science–FOSS
Kathy Long and **Brian Campbell,** The Lawrence Hall of Science, University of California, Berkeley
Formative assessment shows great promise for improving student achievement. FOSS makes it easy to make student thinking visible, interpret the evidence of learning, and take action to improve learning. Join FOSS developers for an introduction to the new assessment system created for the third edition, including new computer software—*FOSSmap.*

11:00–11:30 AM Exhibitor Workshop

Location, Location—Finding Your Way Around the Sky (Earth)
(Grades K–4) *Booth #1239, Exhibit Hall, GWCC*
Sponsor: Science First®/STARLAB®
Helmut Albrecht *(halbrecht@starlab.com)* and **Nathaniel Bell,** Science First®/STARLAB®, Yulee, Fla.
In this "in dome" workshop, come learn how to use Starry Night™ Small Dome to help your students discover how to use the stars to find their location on Earth and how to find their way around the night sky.

11:00 AM–12 Noon Special Session

Meet the Presidents and Board/Council (Gen)
(General) *Entrance to Exhibit Hall, GWCC*
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!

11:00 AM–12 Noon Presentations

SESSION 1

Sci-Casting: Using Technology to Connect Field Trip Science and School Science (Bio)

(Elementary–High School) *B215, GWCC*

Jennifer K. Frisch *(jfrisch1@kennesaw.edu),* Kennesaw State University, Kennesaw, Ga.

David C. Taube, 4/5 Academy at Fifth Avenue, Decatur, Ga.

Laurie Brantley-Dias *(lbdias@gsu.edu),* Georgia State University, Atlanta

Heather K. Borowski *(hborowski@csdecatur.net),* City Schools of Decatur, Ga.

Let us introduce you to a nature study project in which students and teachers collect data using digital cameras and communicate findings by creating a vodcast.

SESSION 2

Aligning STEM Theory and Application Through Community-based Initiatives (Gen)

(General) *B217, GWCC*

Emily S. Vercoe *(evercoe@earthforce.org),* Earth Force, Denver, Colo.

This workshop offers facilitated discussions and practical strategies that support critical coordination of STEM learning before, during, and after the school bell rings through coordinated partnerships.

SESSION 3

Science for Bl(all)ck Students (Gen)

(General) *B218, GWCC*

Theresa Y. Robinson, National Louis University, Chicago, Ill.

The Human Genome Project has established that humans are genetically more alike than different. Science education for all children regardless of culture, gender, or ability is of high importance. This presentation/discussion addresses research and strategies for how African-American cultural norms can be used to develop learners who are engaged and motivated to learn.

SESSION 4

Creative Problem Solving with Toshiba/NSTA ExploraVision (Gen)

(General) *B308, GWCC*

Barbara R. Pietrucha, Earth/Environmental Science Educator, Point Pleasant, N.J.

Motivate students and challenge them to think creatively! Learn how the ExploraVision competition encourages developmental skills necessary for success in STEM and uses students' natural curiosity to enhance their science achievement. ExploraVision activities illustrate standards-based connections between science and technology. Session participants have an increased chance to win a Toshiba product!

SESSION 5

Simple Setup STEM Activities (Gen)

(Preschool–Elementary) *B313, GWCC*

Virginia Lucy *(superscience@me.com),* Lilburn, Ga.

Planets, light and shadow, insect life cycles, fossils, and physical and chemical changes are used to develop scientific thinking in simple and adaptable labs.

SESSION 6

Understanding the New AP Biology Course: Curriculum, Science Practices, and Instructional Design (Bio)

(High School–College) *B316, GWCC*

Audra Brown Ward *(warda@marist.com),* Marist School, Atlanta, Ga.

AP Biology Development Committee members will provide an overview of the changes to the revised course, which include changes to the curriculum, labs, and exam.

SESSION 7

AMSE Session: Infusing Design Projects into the Early Elementary Classroom (Gen)

(Elementary) *B407, GWCC*

Robert L. Ferguson *(r.l.ferguson1@csuohio.edu),* Cleveland State University, Cleveland, Ohio

Explore different ways to infuse design projects (engineering-like tasks) in the K–3 classroom. Join me for activities, handouts, and assessment ideas.

SESSION 8

Promoting Scientific Literacy Through the Use of Novels (Gen)

(Middle Level–High School) *B408, GWCC*

Leigh Bunn *(leigh.bunn@athens.edu),* Athens State University, Athens, Ala.

Join me for a discussion on ways of incorporating novels within the science classroom to promote scientific literacy. Literacy strategies used with novels will also be provided.

11:00 AM–12 Noon Workshops

Primary Plants: Integrating Science and Common Core Literacy Standards in a Grade 1 Classroom **(Gen)**

(Elementary) *B213, GWCC*

Patricia Bricker *(bricker@email.wcu.edu),* Western Carolina University, Cullowhee, N.C.

Melissa Faetz *(melissa.faetz@macon.k12.nc.us),* South Macon Elementary School, Franklin, N.C.

Learn ideas and take part in activities for creating a garden and conducting classroom plant investigations. We'll share how we moved from gardening as an overwhelming idea to an exciting reality.

NSTA Press® Session: Once Upon a Science Book **(Gen)**

(Middle Level–High School) *B216, GWCC*

Jodi L. Wheeler-Toppen *(wheelertop@alumni.wfu.edu),* Atlanta, Ga.

Do your students struggle to understand their textbook? Find out why kids have trouble with science reading and try some proven techniques for turning your students into successful science readers.

AAPT Session: Building a Soda Bottle Speaker **(Phys)**

(Middle Level–College) *B301, GWCC*

Matt Marone *(marone_mj@mercer.edu),* Mercer University, Macon, Ga.

Presider: Bob Powell *(bpowell@westga.edu),* University of West Georgia, Carrollton

Build a working speaker from a soda bottle and other simple materials. *Note:* Hands-on activities available to the first 14 attendees. Participants should bring an empty soda or water bottle.

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

(Middle Level) *B302, GWCC*

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

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

ACS Session Three: Rate **(Chem)**

(High School) *B303, GWCC*

Jerry Bell *(j_bell@acs.org),* American Chemical Society, Washington, D.C.

Chemistry is about change. Some chemical changes are very slow and others are very fast. How are the rates (speeds) of chemical reactions measured? What are the factors that affect the rates? Are these factors the same as those that are responsible for changes in equilibria? Bring your USB flash drive and take away the presentation and activities to use in your classroom.

Science Olympiad Coaches Clinic **(Gen)**

(Middle Level–High School) *B305, GWCC*

Kelly Price *(price_kel@yahoo.com),* Program Coordinator, NSTA Atlanta Area Conference, and Forsyth County Schools, Cumming, Ga.

Are you a Science Olympiad coach or do you aspire to be one? Join me for rule clarifications and team-building strategies… and come practice many of the 2013 events.

ASEE Session: Introducing Engineering to Elementary School Students **(Gen)**

(Elementary) *B306, GWCC*

Elizabeth Parry *(eaparry@ncsu.edu),* North Carolina State University, Raleigh

Presider: Felicia Benton-Johnson, Georgia Institute of Technology, Atlanta

Become acquainted with the *Engineering is Elementary*® (EiE) program and learn a hands-on way to introduce the engineering design process to any grade level.

Rocks, Water, and Erosion **(Earth)**

(Preschool) *B314, GWCC*

Colleen Stapleton *(stapleton_c@mercer.edu)* and **John Payne** *(payne_jw@mercer.edu),* Mercer University, Lithia Springs, Ga.

Engage in activities that demonstrate how rocks can be changed by water. We will connect these topics to local geologic environments.

Wormy Scientific Method **(Gen)**

(Elementary) *B315, GWCC*

Heather M. Jones *(heathermichelejones@gmail.com),* Jackson Elementary School, Lawrenceville, Ga.

Come learn how students conduct a hands-on experiment that they created using earthworm habitats.

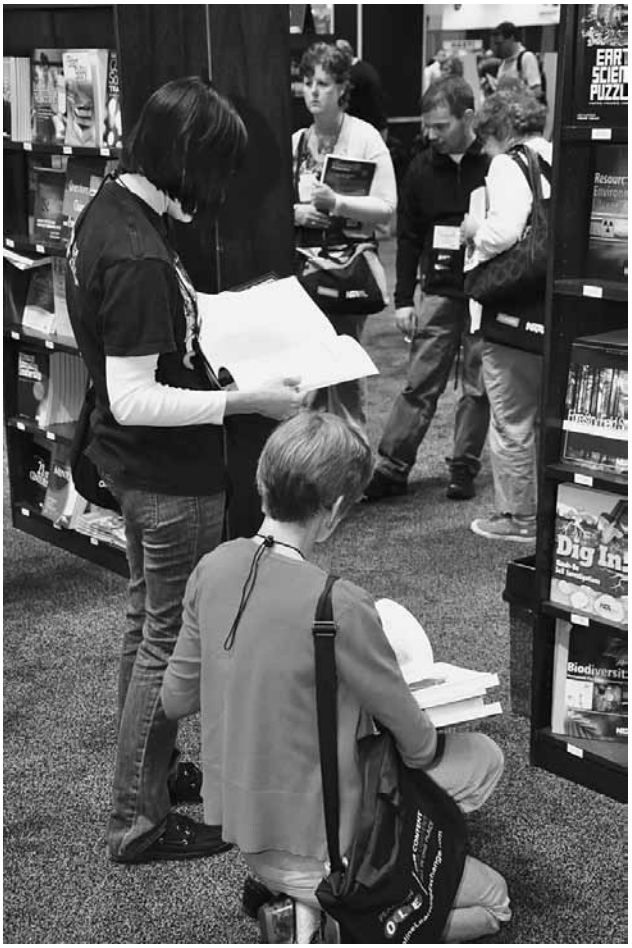
Activities from Across the Earth System (Earth)
(Elementary–High School) *B401/B402, GWCC*
Roberta M. Johnson *(rmjohnsn@nestanet.org),* National Earth Science Teachers Association, Boulder, Colo.
Ardis Herrold, National Earth Science Teachers Association, Plymouth, Mich.
In this NESTA workshop, engage in multiple effective inquiry-based hands-on activities that illustrate key concepts of Earth system science. Handouts!

Chemical Nomenclature Rummy: Naming Compounds and Ion Combination Rules (Chem)
(Middle Level–High School) *B403, GWCC*
Mark D. Greenman *(mgreenman2@verizon.net),* Marblehead Science Matters, Swampscott, Mass.
Discover a fun student-centered activity that uses a Rummy-like card game to teach basic rules for ion combinations and naming ionic compounds.

TETRIX Experiences for All (Gen)
(Middle Level/College) *B404, GWCC*
Charles M. Seimears *(cseimear@emporia.edu),* Emporia State University, Emporia, Kans.
Robotics at the middle school level is a door that needs to be widened for all to experience.

Engaging Students in Problem-Based Learning (PBL) (Gen)
(General) *B405, GWCC*
CANCELED
Allison Silvaggio *(allison.m.silvaggio@yahoo.com),* STEM Magnet Lab School, Northglenn, Colo.
Learn to engage your students in authentic PBLs by actively participating in one. We will also discuss how to select panel participants and rubrics.

Science Facilities 102: The Architects Have Started Without Me; What Do I Do Now? (Gen)
(Supervision/Administration) *B406, GWCC*
LaMoine L. Motz *(llmotz@comcast.net),* 1988–1989 NSTA President, and Science Education and Facilities Specialist, White Lake, Mich.
Juliana Texley *(jtexley@att.net),* Palm Beach State College, Boca Raton, Fla.
Presider: LaMoine L. Motz
Is your district planning new science facilities? Learn about budgeting, working with the architect, space requirements, technology, flexibility, safety, new types of spaces, and special adjacencies. In this advanced course (an extension of the Science Facilities 101 session, page 76), the NSTA author team for *NSTA Guide to Planning School Science Facilities,* 2nd Edition, will present more detailed information and examples of functional and flexible science spaces for STEM-based science. Resource packet available.



12 Noon–1:15 PM Exhibitor Workshops

Carolina Beyond the Tape: Forensic Science for Every Discipline (Bio)
(Grades 9–12) *B207, GWCC*
Sponsor: Carolina Biological Supply
Carolina Teaching Partner
Learn how to bring the science from headline news into your classroom. Be the first to experience Carolina's new forensic science laboratory activities with this fast-paced hands-on workshop. Activities are linked to standards and suitable for use in physical science, biology, and chemistry classes. Handouts and door prizes!

STEM: Meeting the Standards in Your Classroom (Gen)
(Grades 6–12) *B208, GWCC*
Sponsor: PASCO scientific
Presenter to be announced
Experience hands-on problem-solving STEM modules that engage students in scientific and engineering practices included in the NRC *Framework*. Not only do these modules incorporate specific Disciplinary Core Ideas and Crosscutting Concepts, they also support the Common Core State Standards for literacy, reading, and math.

Power Up! Investigating Electric Motors (Chem)
(Grades 6–8) *B209, GWCC*
Sponsor: LAB-AIDS, Inc.
Lisa Kelp and **Vicki Jackson,** LAB-AIDS, Inc., Ronkonkoma, N.Y.
How do electric motors work? What is the relationship between electricity and magnetism? Although modern life as we know it would be inconceivable without them, most students do not have a good idea of how electric motors—and generators—work. In this activity from the Energy unit of the SEPUP middle level program *Issues & Physical Science,* students make and operate a small battery-powered electric motor, then disconnect the battery and reverse the leads to use the motor to light a small LED. Participants will receive sample kit and print materials.

Integrating 21st-Century Learning Skills and STEM with LEGO® Robotics! (Phys)
(Grades 2–5) *B210, GWCC*
Sponsor: LEGO Education
Tonya L. Lebrun, Roper Mountain Science Center, Greenville, S.C.
The WeDo™ Robotics Set from LEGO Education is designed for seamless integration into the elementary classroom. With comprehensive curricula; easy-to-use point and click software; and fun, engaging models, this set is sure to get you and your students excited about learning STEM!

The Next Generation of Science Virtual Labs for the Entire Science Curriculum! No Cleanup (Gen)
(Grades 9–12) *B211, GWCC*
Sponsor: Pearson
Brian Woodfield, Brigham Young University, Provo, Utah
Brian Woodfield, author and creator of Pearson's innovative *Virtual Lab* series, will demo some of his latest eye-popping science virtual labs that are so visually realistic you have to see 'em to believe 'em. Whether you are short on time or short on lab materials, virtual labs meet your students where they are in the digital world and give them the opportunity to experiment numerous times with various materials and, of course, with no cleanup required.

Teaching and Learning Anatomy: Hands-On Method (Bio)
(General) *B212, GWCC*
Sponsor: Anatomy in Clay® Learning System
Brandee Gillham, Anatomy in Clay Learning System, Loveland, Colo.
The Anatomy in Clay Learning System is an innovative and successful method for teaching and learning anatomy. Join us for a hands-on workshop where you can experience the power of building body systems with clay. Using the specially designed Maniken® model, witness how this system promotes student collaboration, problem-solving skills, and motivation.

Effective STEM Challenges for the Classroom (Gen)
(Grades K–8) *B309, GWCC*
Sponsor: Houghton Mifflin Harcourt
Michael DiSpezio *(icaris@aol.com),* Science Writer and Educational Consultant, North Falmouth, Mass.
Join Michael DiSpezio for this high-energy, entertaining, and engaging workshop that explores effective and realistic STEM construction challenges. Experience how a bit of guidance can direct students' experiences toward addressing specific content standards in science and mathematics. Using little more than paper clips and sheets of paper, engage in activities that explore concepts in mechanical advantage, lift, and air resistance. Come join in the engineering fun and leave with new and exciting ideas for the classroom.

Experience the Future of Digital Science from National Geographic and Achieve3000® (Gen)
(Grades 6–8) *B311, GWCC*
Sponsor: Achieve3000
Kathy Warnert *(kathy.warnert@achieve3000.com),* Achieve3000, Lakewood, N.J.
Experience how a digital middle school science program can extend the day, improve reading and science scores, and engage all students through interactive National Geographic content. This dynamic program is delivered at four Lexile® reading levels and is poised to meet the highly anticipated Next Generation Science Standards.

12 Noon–1:30 PM Exhibitor Workshops

Chemistry and Biology with Vernier (Chem)
(Grades 9–College) *B201, GWCC*
Sponsor: Vernier Software & Technology
David Carter *(info@vernier.com)* and **Patti Smith** *(info@vernier.com),* Vernier Software & Technology, Beaverton, Ore.
In this hands-on workshop, we will use our new LabQuest 2 with various sensors to conduct experiments from our popular chemistry and biology lab books. LabQuest 2 is our most versatile interface, supporting data collection as a stand-alone device, with a computer, and now with iPad and other mobile technology.

Light and Optics: A Series of EnLIGHTening Experiments! (Phys)
(Grades 5–12) *B203, GWCC*
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.

12:30–1:00 PM Presentation

SESSION 1

Build It Up! (Phys)

(Elementary) *B315, GWCC*

Cynthia Deaton *(cdeaton@clemson.edu),* Clemson University, Clemson, S.C.

Shawn L. Coskey-Watkins *(scoskey@esu.edu),* East Stroudsburg University, East Stroudsburg, Pa.

Build It Up! is an engaging activity that integrates science with mathematics through a process that encourages problem solving, principles of design, creativity, and developing a sense of one's community. Through this activity, students use common and easily obtained recycled materials to design, construct, and test buildings they developed.

12:30–1:30 PM Presentations

SESSION 1

How I Turned a Great Science Lesson into a Presidential Award and $10,000 (Gen)

(General) *B214, GWCC*

Marilyn J. Suiter *(info@paemst.org),* National Science Foundation, Arlington, Va.

Presidential Awardees share how they each took a quality science lesson and turned it into a meeting with the President, $10,000, and leadership opportunities.

SESSION 2

NSTA Press® Session: Teaching and Learning Biology Through Scientific Argumentation (Bio)

(Middle Level–High School) *B216, GWCC*

Victor Sampson *(vsampson@fsu.edu),* Florida State University, Tallahassee

Sharon Schleigh *(sharon.schleigh@purduecal.edu),* Purdue University, Hammond, Ind.

Get introduced to some innovative ways to help middle school and high school students learn more about scientific argumentation in biology.

SESSION 3

NMLSTA Session: Science and Special Education—How to Make It Work (Gen)

(Middle Level–High School) *B217, GWCC*

Kathleen (Bihr) Brooks *(brooksk@madison.k12.ct.us),* Walter C. Polson Middle School, Madison, Conn.

Join me as I share strategies for science and special education teachers to use in science classes for the success of all.

SESSION 4

Differentiation in the Science Classroom (Gen)

(General) *B218, GWCC*

Donna Barrett *(donna.barrett@mresa.org),* Metropolitan Regional Educational Service Agency, Smyrna, Ga.

Presider: Amy V. McDowell, Turner Middle School, Lithia Springs, Ga.

Process, Products, Centers, Stations, RAFTS, and Tiers, oh my! This session will focus on how to make differentiation part of the classroom routine in science.

SESSION 5

AAPT Session: Modeling Physics and Modeling Chemistry Curricula (Phys)

(High School) *B301, GWCC*

Frank Lock *(fasterlock@att.net),* Gainesville, Ga.

Presider: Bob Powell *(bpowell@westga.edu),* University of West Georgia, Carrollton

Walk away with strategies used in modeling pedagogy to develop mathematical models (equations) that enable students to make predictions about how nature works.

SESSION 6

NSTA Student Chapter Share-a-Thon (Gen)

(General) *B304, GWCC*

Howard Wahlberg *(hwahlberg@nsta.org),* Assistant Executive Director, Membership, NSTA, Arlington, Va.

Howard Wahlberg will moderate this interactive session for student chapter leaders, faculty advisors, and members. If you are planning to start a student chapter, this is the session for you.

SESSION 7

Teaching Biological Processes Using Modules Based on 3-D Computer Animations (Bio)

(High School–College) *B316, GWCC*

J. Steve Oliver *(soliver@uga.edu)* and **Georgia W. Hodges** *(georgia.hodges@gmail.com),* The University of Georgia, Athens

Join us for demonstrations of case study modules combining dynamic 3-D animations and inquiry-based learning of biology.

SESSION 8

Demos for the Holidays! Excite Students with Chemical Demonstrations (Chem)

(Middle Level–High School) *B403, GWCC*

Sherri Conn Rukes *(sherri.rukes@d128.org),* Libertyville High School, Libertyville, Ill.

Get ideas for demonstrations that can spice up your classroom—especially around the holidays. Handouts!

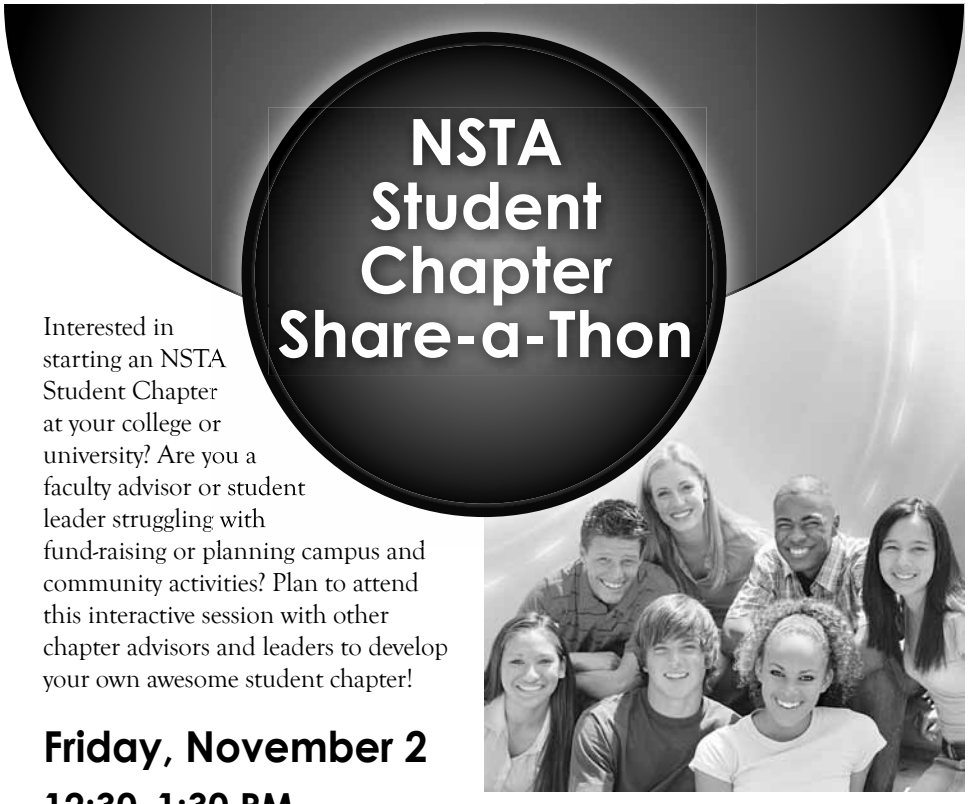
SESSION 9

Using Interactive Science Notebooks in the Middle School Classroom (Gen)

(Middle Level) *B408, GWCC*

Katherine L. Bryant *(kbryant@effingham.k12.ga.us),* South Effingham Middle School, Guyton, Ga.

Interactive science notebooks are fun, motivating, and effective research-based tools that increase student mastery of content. Implementation through student samples will be modeled.



12:30–1:30 PM Workshops

How Does Your Garden Grow? (Env)
(Preschool–Middle Level) *B213, GWCC*
Juliana Texley, Palm Beach State College, Boca Raton, Fla.
Steve A. Rich *(bflywriter@comcast.net),* Chairperson, NSTA Atlanta Area Conference; NSTA Director, Professional Development; and West GYSTC, Carrollton, Ga.
A school or community garden represents an ideal way to integrate across the elementary curriculum. Come discover lessons, plans, and trade books for any space or any school. Materials provided by Georgia Cooperative Extension Master Gardeners.

Nature in Rhyme (Gen)
(Elementary/Informal Ed) *B215, GWCC*
Cynthia C. Gardner *(cgardner@lander.edu),* Lander University, Greenwood, S.C.
Heather R. Coker *(hcoker@lexington1.net),* Rocky Creek Elementary School, Lexington, S.C.
Discover how nature can provide the inspiration for creative writing as you create poetry, observation booklets, and nature journals.

ACS Middle Level Session: The Periodic Table, Energy Levels, and Bonding (Chem)
(Middle Level) *B302, GWCC*
James H. Kessler *(jhkessler@acs.org),* American Chemical Society, Washington, D.C.
Do an activity to explore the first 20 elements of the periodic table and take a fresh look at covalent and ionic bonding.

ACS Session Four: Catalysis (Chem)
(High School) *B303, GWCC*
Jerry Bell *(j_bell@acs.org),* American Chemical Society, Washington, D.C.
Your body is loaded with catalysts that speed up the chemical reactions necessary for life without themselves being used up in the reactions. As we explore the nature of catalysis, keep in mind that one goal of chemistry is creating catalysts to increase the efficiency of the processes involved in producing the goods that help make our lives longer and more pleasant. Bring your USB flash drive and take away the presentation and activities to use in your classroom.

ASEE Session: NASA's BEST Students (Beginning Engineering, Science and Technology): Build a Buggy to Explore Mars! (Gen)
(General) *B306, GWCC*
Laurie Cook *(lcook@umbc.edu),* Joint Center for Earth Systems Technology, University of Maryland Baltimore County, Catonsville
Presider: Felicia Benton-Johnson, Georgia Institute of Technology, Atlanta
Participants design and build a buggy to NASA's specifications. Activity includes the engineering design process, measurement skills, and data representation.

Communicate, Collaborate, and Create—Changing Your Classroom and the World (Env)
(General) *B308, GWCC*
Lance Rougeux, Discovery Education, Silver Spring, Md.
Transform your teaching with Project Based Learning (PBL) using programs like the Siemens We Can Change the World Challenge *(www.wecanchange.com),* a national K–12 student sustainability competition.

From Germs to Genes—Life Science Activities for the Elementary Classroom (Bio)
(Elementary) *B313, GWCC*
David C. Taube *(dtaube@csdecatur.net),* 4/5 Academy at Fifth Avenue, Decatur, Ga.
Tracy M. Hammer *(tracy_m_hammer@fc.dekalb.k12.ga.us),* Laurel Ridge School, Decatur, Ga.
Brian Hammer, Georgia Institute of Technology, Atlanta
Presider: David C. Taube.
Join us for hands-on life science activities developed in collaboration among Georgia Tech biologists and Atlanta area teachers.

PreK and Kindergarten Science Activities That Encourage Critical Thinking (Gen)
(Preschool–Elementary) *B314, GWCC*
John Payne *(payne_jw@mercer.edu),* Mercer University, Lithia Springs, Ga.
Experience hands-on engaging activities that can be used to encourage critical-thinking and problem-solving skills while introducing preK–K students to important science concepts.

Our Changing Planet **(Earth)**
(Middle Level–High School) *B401/B402, GWCC*
Roberta M. Johnson *(rmjohnsn@nestanet.org),* National Earth Science Teachers Association, Boulder, Colo.
Ardis Herrold, National Earth Science Teachers Association, Plymouth, Mich.
This NESTA workshop introduces 18 free online activities and videos about changes in the Earth system, including three activities we will do together. Handouts!

Be Prepared—Move from Cookbook to Inquiry! **(Chem)**
(Middle Level–High School) *B404, GWCC*
Greg Dodd *(gbdodd@gmail.com),* George Washington High School, Charleston, W.Va.
Join me for a hands-on inquiry activity modeling the inquiry approach to science instruction.

Improving Science Instruction Through a Curriculum Topic Study on Inquiry **(Gen)**
(General) *B405, GWCC*
April A. Nelms *(anelms@northgeorgia.edu),* North Georgia College and State University, Dahlonega
Amy Murphy *(amykfmurphy@gmail.com),* Alabama Math, Science and Technology Initiative, Montevallo
Learn how to bridge the gap between research and practice in the areas of pedagogical content knowledge and inquiry through curriculum topic study.

Clean Up or Pay Up! **(Gen)**
(Supervision/Administration) *B406, GWCC*
Terri G. George *(terrigeorge1@gmail.com),* Metro RESA, Smyrna, Ga.
Nancy E. Adgate *(nadgate@henry.k12.ga.us),* Dutchtown High School, Hampton, Ga.
Terry Belflower *(theresa.belflower@henry.k12.ga.us),* Ola Middle School, McDonough, Ga.
This activity-based workshop involves government, economics, math, Earth science, chemistry, ecology, and environmental science. Come clean up or pay up!

Making Superfund Relevant to Your Students **(Env)**
(Middle Level–High School) *B407, GWCC*
Dana Haine *(dhaine@unc.edu),* The University of North Carolina at Chapel Hill
Gain an understanding of EPA' Superfund program and learn inquiry-based strategies for introducing students to the causes and the consequences of hazardous waste sites.

12:30–2:30 PM NSTA ESP Symposium

ESP: Unique Features of Programs That Meet "More Emphasis" Features in the NSES **(Gen)**
(General) *B305, GWCC*

The National Science Education Standards offered Four Goals/Justifications for Science in K–6 Settings, namely that all students would: 1) Experience the richness and excitement of knowing about and understanding the natural world; 2) Use appropriate scientific processes and principles in making personal decisions; 3) Engage intelligently in public discourse and debate about matters of scientific and technological concern; and 4) Increase their economic productivity through the use of the knowledge, understandings, and skills of the scientifically literate person in their careers.

The ESP series identifies people and places where the reforms recommended have emerged. The exemplars 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!

Coordinator: Thomas R. Lord, NSTA Director, College Science Teaching, and Indiana University of Pennsylvania, Indiana

Creating a Pipeline to STEM Careers
Anton Puvirajah *(apuvirajah@gsu.edu)* and **Lisa M. Martin-Hansen** *(lmartinhansen@gsu.edu),* Georgia State University, Atlanta

Bringing School Science to College
Sondra B. Akins *(akinss@wpunj.edu),* William Paterson University, Wayne, N.J.

Revising Majors Biology: A Departmental Journey
Elizabeth Allan *(eallan@uco.edu),* NSELA President, and University of Central Oklahoma, Edmond

1:00–2:15 PM Exhibitor Workshop

Technological Design Standards Meet the STEM Initiative (Env)
(Grades K–6) *B202, GWCC*
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 Mathematics (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 Exhibitor Workshop

Taking Science Outdoors with FOSS K–6 (Gen)
(Grades K–6) *B204, GWCC*
Sponsor: Delta Education/School Specialty Science–FOSS
Erica Beck Spencer and **Joanna Snyder,** The Lawrence Hall of Science, University of California, Berkeley
FOSS now reaches beyond the classroom and into your school yard and local environment. Discover how FOSS, 3rd Edition engages children in meaningful outdoor science learning experiences. Participate in outdoor investigations that can apply, extend, and expand classroom content and concepts to the real world. Take home a copy of *Taking FOSS Outdoors*.

1:00–4:00 PM Workshop

Implication of the NRC *Framework* and the Highly Anticipated NGSS for Teaching and Learning (Gen)
(General) *International A, Omni*
Joseph Krajcik *(krajcik@msu.edu),* Michigan State University, East Lansing
Mary Starr *(mary@starrscience.com),* Starr and Associates, Educational Consultants, Plymouth, Mich.
Science teachers/leaders will be introduced to *A Framework for K–12 Science Education* and provided materials and guidance for replicating the workshop with others.

2:00–3:00 PM Featured Presentation

Build the Scaffolding for Inquiry at K–8 (Gen)
(General) *B206, GWCC*

Karen L. Ostlund *(klostlund@nsta.org),* NSTA President, and Advisory Council, Texas Natural Sciences Center, The University of Texas at Austin

Presider: Sally Creel, GSTA President, and K–5 Science Supervisor, Cobb County Schools, Marietta, Ga.

This session will engage participants in scaffolded inquiry (directed to guided to full) to demonstrate building the foundation for science literacy.

Karen Ostlund is president of NSTA. She began serving her one-year term on June 1, 2012. Karen is retired from the College of Natural Sciences at The University of Texas at Austin where she was the director of Uteach/Dell Center for New Teacher Success. Currently, she serves on the advisory council for the Natural Sciences Center at The University of Texas at Austin and is an adjunct professional developer at the Lawrence Hall of Science, University of California at Berkeley.

A dedicated and passionate member of the science education community, Karen brings more than 40 years of experience teaching at elementary, middle school, and university levels. In 1985, she left The University of Texas at Tyler to accept a position as professor of science education at Texas State University. Before joining the faculty at The University of Texas at Austin in 2002, Karen was the director of the Science Education Center at The University of Texas at Arlington.

An NSTA life member and recipient of the NSTA Distinguished Teaching Award, Karen has contributed extensively to the association. She has served on the advisory board for NSTA's Science & Children *journal, worked on the program committee for the 1998 NSTA Area Conference in Albuquerque, and was the local arrangements coordinator for the 1995 NSTA Area Conference in San Antonio. Additionally, she was a contributor to the 1997 resource book,* NSTA Pathways to the Science Standards, *has presented annually at NSTA conferences since 1984, and was a member of the Children's Book Council. Karen holds a PhD in education from the University of Minnesota, Twin Cities.*

2:00–3:00 PM Presentations

SESSION 1

STEM in Georgia **(Gen)**
(General) *B214, GWCC*
Gilda D. Lyon *(glyon@doe.k12.ga.us),* Georgia Dept. of Education, Atlanta
Walk away with an overview of STEM initiatives that are improving STEM education for students in Georgia.

SESSION 2

Tricks and Tips for Maintaining a Nontraditional Classroom **(Gen)**
(Middle Level–High School) *B217, GWCC*
Marla R. Hines *(hinesmp@vestavia.k12.al.us),* Vestavia Hills High School, Vestavia Hills, Ala.
Amy Murphy *(amykfmurphy@gmail.com),* Alabama Math, Science and Technology Initiative, Montevallo
Walk away with successful tools for creating a student-centered hands-on classroom that assesses authentic learning.

SESSION 3

Inclusive Practices That Engage All Learners **(Gen)**
(General) *B218, GWCC*
Jennifer Richards *(jennifer.richards@utk.edu)* and **Patty Stinger-Barnes** *(pstinger@utk.edu),* University of Tennessee, Knoxville
Presider: Jennifer Richards
Confronting instructional bias is difficult, especially when the biases in question are ours! Come explore ways to improve equity in science instruction in your classroom.

SESSION 4

Authors Needed! Write for an NSTA Journal **(Gen)**
(General) *B304, GWCC*
Ken Roberts, Assistant Executive Director of Journals, NSTA, Arlington, Va.
Meet with journal editors to discuss your article ideas and learn how to prepare and submit an article to an NSTA journal.

SESSION 5

Differentiate! Differentiate! Differentiate! **(Gen)**
(Preschool–Middle Level) *B314, GWCC*
Shawn A. Brown *(sab@reinhardt.edu),* Reinhardt University, Waleska, Ga.
Find out how differentiated science assessment strategies were used in elementary classrooms with all students.

SESSION 6

ASTC Session: The Ideal Solution—Merging the Classroom and Community **(Env)**
(General) *B315, GWCC*
Stacy Graison *(sgraison@zooatlanta.org),* Zoo Atlanta, Ga.
Brian Davis *(bdavis@georgiaaquarium.org),* Georgia Aquarium, Atlanta
Christine Bean *(chris.bean@fernbankmuseum.org),* Fernbank Museum of Natural History, Atlanta, Ga.
Take advantage of the unique resources and expertise provided by informal science centers to support teachers and students in meeting environmental literacy and science needs.

SESSION 7

Chemistry Demos, Labs, and Projects **(Chem)**
(Middle Level–High School) *B403, GWCC*
Nancy H. Brim *(nancy_h_brim@fc.dekalb.k12.ga.us),* Lakeside High School, Atlanta, Ga.
Come see a variety of demonstrations, labs, and projects for chemistry or physical science classes. Handouts!

SESSION 8

The Secret Life of Toys and H_20 Bottles **(Chem)**
(Elementary–High School) *B404, GWCC*
Sherri Conn Rukes *(sherri.rukes@d128.org),* Libertyville High School, Libertyville, Ill.
Learn about the process of how a toy is made and what happens to it after it is discarded. Take home a CD with information and activities.

SESSION 9

The Investigation-Colloquium Method of Doing Science (Phys)

(General) *B405, GWCC*

Thomas H. Lester *(hlhlester@gmail.com),* Retired Educator, New York, N.Y.

Come view a short video of grade 6 students doing science by careful observation, thoughtful discussion, and experimentation to establish common agreement.

SESSION 10

An Unlikely Partnership: A Collaboration Between AP and Special Needs (Phys)

(Middle Level–High School) *B406, GWCC*

Sherrie T. Chovanec *(schovanec@paulding.k12.ga.us),* **Chris Kennedy** *(christopher.l.kennedy@gmail.com),* and **Peter C. Fischer** *(pfischer@paulding.k12.ga.us),* Hiram High School, Hiram, Ga.

Let's discuss the process and benefits for integrating special needs and AP students to provide hands-on inquiry-based experiences.

2:00–3:00 PM Workshops

NSTA Press® Session: Inquiring Scientists, Inquiring Readers: Using Nonfiction to Promote Science Literacy, Grades 3–5 (Gen)

(Elementary) *B216, GWCC*

Terry Shiverdecker *(tshiverdecker.1@gmail.com),* Ohio Resource Center, Columbus

Get to know inquiring scientists, inquiring readers through an inquiry experience integrating science and literacy. Learn how this powerful approach can work in your classroom.

AAPT Session: Analyzing and Modeling Real-World Student Motion Using GPS Units (Phys)

(Middle Level–College) *B301, GWCC*

JB Sharma *(jsharma@gsc.edu),* Gainesville State College, Oakwood, Ga.

Presider: Bob Powell *(bpowell@westga.edu),* University of West Georgia, Carrollton

This workshop describes GPS units and illustrates the study of motion. Bring your laptops for hands-on activities during this workshop if you have them.

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

(Middle Level) *B302, GWCC*

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

Investigate what makes water a polar molecule and explore how water's polarity affects evaporation and dissolving.

ACS Session Five: Light as a Reactant and/or Product (Chem)

(High School) *B303, GWCC*

Jerry Bell *(j_bell@acs.org),* American Chemical Society, Washington, D.C.

Some chemical reactions produce energy and others require energy to proceed. Light is a form of energy, so it is natural to wonder whether and under what conditions reactions might produce light or whether light (perhaps from the Sun) could be harnessed to drive reactions that otherwise would not proceed. Bring your USB flash drive and take away the presentation and activities to use in your classroom.

ASEE Session: Engineering the Future with *TeachEngineering.org* (Gen)

(General) *B306, GWCC*

Elizabeth Parry *(eaparry@ncsu.edu),* North Carolina State University, Raleigh

Presider: Felicia Benton-Johnson, Georgia Institute of Technology, Atlanta

Become acquainted with *TeachEngineering.org,* a free online collection of standards-based engineering lessons and hands-on activities that can help integrate innovative engineering trends into your K–12 classes.

CESI Session: Powerful Paper Projects for Physical Science (Phys)

(Preschool–Middle Level) *B308, GWCC*

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

Julie Thomas *(julie.thomas@okstate.edu),* Oklahoma State University, Stillwater

Dee Mock *(mock@bcm.edu)* and **Michael Vu** *(mv12@bcm.edu),* Baylor College of Medicine, Houston, Tex.

Join us to make flying, spinning, rolling, and floating creations that easily, cheaply, and memorably teach the basic concepts of force and motion. Visit *www.cesiscience.org* for more information.

STEM Activities: Animal Pictures, WebQuest, Boat Constructions, and Pumpkingrams **(Gen)**
(Elementary) *B313, GWCC*
Ava F. Pugh *(apugh@ulm.edu)* and **Dona C. Delgado** *(delgaddc@warhawks.ulm.edu),* The University of Louisiana at Monroe
Presider: Ava F. Pugh
Explore hands-on activities for making science inferences from pictures, creating WebQuests, constructing boats, and recognizing mathematical relations with Pumpkingrams. CDs and handouts!

Forensic Science: CSI ATL **(Bio)**
(High School) *B316, GWCC*
Kenna L. Allen *(kallen@jefcoed.com),* Minor High School, Adamsville, Ala.
Join me for a presentation and hands-on lab techniques on the use of forensic science investigations in the high school classroom.

National Earth Science Teachers Association Earth Science Share-a-Thon **(Earth)**
(Elementary–High School) *B401/B402, GWCC*
Roberta M. Johnson *(rmjohnsn@nestanet.org),* National Earth Science Teachers Association, Boulder, Colo.
Marian Grogan *(marian_grogan@terc.edu),* TERC, Cambridge, Mass.
Teresa Kennedy, The GLOBE Program, The University of Texas at Tyler
H. Michael Mogil *(learning@weatherworks.com),* How The Weatherworks, Naples, Fla.
William D. Witherspoon *(witherspoonb@fc.dekalb.k12.ga.us),* DeKalb County School System, Atlanta, Ga.
Join NESTA members and other education specialists as they share their favorite classroom activities. Lots of free handouts!

Focus on Forests: Project Learning Tree's New Secondary Curriculum **(Env)**
(High School–College/Informal Education) *B407, GWCC*
Jaclyn Stallard *(jstallard@plt.org)* and **Al Stenstrup** *(astenstrup@plt.org),* Project Learning Tree, Washington, D.C.
Carla Rapp *(carla@gfagrow.org),* Georgia Forestry Association, Forsyth
Learn how secondary students can explore the major issues facing forests today—climate change, invasive species, fire, land ownership, management, and more. Participants receive Project Learning Tree's new *Exploring Environmental Issues: Focus on Forests* activity guide and resource materials.

Do. Think. Ink. Writing in Science **(Gen)**
(Middle Level) *B408, GWCC*
Deidre L. Rumph *(drumph@richlandone.org),* Hopkins Middle School, Hopkins, S.C.
How many times have you sat in a meeting discussing writing in science? And yet you're still confused. Come learn about new and interesting ways to incorporate writing—Found Poetry and Picture Scrambling!

2:00–3:15 PM Exhibitor Workshops

Engineering, Technology, and the Application of K–8 Science **(Gen)**
(Grades K–8) *B207, GWCC*
Sponsor: Carolina Biological Supply
Carolina Teaching Partner
Ready to prepare your district's students for STEM careers? Using practical applications of science skills from inquiry-based lessons, you will learn how to collaborate your science resources and translate them into best practice engineering processes.

Investigating Motion: Understanding and Interpreting Graphs **(Phys)**
(Grades 6–12) *B208, GWCC*
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 Dynamics Systems. Your experience will include the use of one of PASCO's standards-based SPARKlabs® to improve student understanding of motion, a foundation topic in the study of physics and physical science. Extensions to other activities will also be demonstrated.

Breeding Critters **(Bio)**
(Grades 6–8) *B209, GWCC*
Sponsor: LAB-AIDS, Inc.
Lisa Kelp and **Jan Finch,** LAB-AIDS, Inc., Ronkonkoma, N.Y.
Make the study of genetics more meaningful for students. Join us for an activity sequence from *Issues & Life Science* by LAB-AIDS 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 Joe about whether to be tested for Marfan's syndrome.

Integrating STEM with the New LEGO Education Elementary Simple Machines **(Phys)**
(Grades 3–5) *B210, GWCC*
Sponsor: LEGO Education
Dawn Hardy, David A. Perdue Primary School, Warner Robins, Ga.
Your students will be solving problems and developing models around a real-world situation to discover the concepts of simple machines such as forces and motion, as well as making them work. The structure of these lessons allows students to practice creative thinking, design, and creating unique solutions as they take an active role in their education!

Science Under Siege? Teaching Evolution in a Climate of Controversy **(Bio)**
(Grades 9–12) *B211, GWCC*
Sponsor: Pearson
Kenneth R. Miller, Brown University, Providence, R.I.
Evolution remains a controversial topic 88 years after the Scopes Trial. As lead witness in the 2005 Dover "Intelligent Design" trial, I will discuss the continuing controversy and suggest how educators can deal with it successfully. I'll identify a series of resources to respond to challenges faced when teaching evolution.

Black Holes and Starry Night(s) **(Earth)**
(Grades 4–12) *B212, GWCC*
Sponsor: Simulation Curriculum Corp.
Herb Koller *(hkoller@simcur.com),* Simulation Curriculum Corp., Minnetonka, Minn.
What are black holes and where do they come from? Come learn how Starry Night Middle School or Starry Night High School can make this difficult concept come alive for your students as well as provide similar guidance for all your astronomy curriculum needs.

Biology—"Biology for Life" **(Bio)**
(Grades 9–12) *B309, GWCC*
Sponsor: Houghton Mifflin Harcourt
Beth Swayze *(elizabeth.swayze@hmhpub.com),* Houghton Mifflin Harcourt, Boston, Mass.
Are you looking for opportunities to help students see the lifetime relevance of biology? Join us and walk away with new ideas and resources, including hands-on, digital, and comprehension support tools.

Cadavers in Your Backpacks **(Bio)**
(Grades 9–College) *B311, GWCC*
Sponsor: A.D.A.M. Education
Scott Schaeffer, Harford Community College, Bel Air, Md.
Do your students struggle with anatomy? Learn best practices from Dr. Scott Schaeffer, of Harford Community College, on how to integrate online dissectible anatomy with lab guide resources. Help your students become more engaged and achieve higher success rates in understanding the human body with a blended learning approach.

***Chemistry in the Community,* 6th Edition—Changing with the Times** **(Chem)**
(Grades 9–College) *B312, GWCC*
Sponsor: American Chemical Society
Michael Mury *(m_mury@acs.org),* American Chemical Society, Washington, D.C.
Think you know ChemCom? Think again. Want your students thinking scientifically and learning how chemistry has an important role in their everyday lives? Learn about the exciting new features in the 6th edition of this engaging and groundbreaking chemistry text. We will perform text activities, share supplemental resources, and give prizes!

2:00–3:30 PM Exhibitor Workshops

Physics and Physical Science with Vernier (Phys)
(Grades 9–College) *B201, GWCC*
Sponsor: Vernier Software & Technology
David Carter *(info@vernier.com)* and **Patti Smith** *(info@vernier.com),* Vernier Software & Technology, Beaverton, Ore.
In this hands-on workshop, we will use our new LabQuest 2 with various sensors to conduct experiments from our popular physics and physical science lab books. LabQuest 2 is our most versatile interface, supporting data collection as a stand-alone device, with a computer, and now with iPad and other mobile technology.

Sound, Waves, and Music (Phys)
(Grades 5–12) *B203, GWCC*
Sponsor: CPO Science/School Specialty Science
Erik Benton, CPO Science/School Specialty Science, Nashua, N.H.
Create standing wave patterns on a vibrating string with CPO's wave machine. Use a synthesizer to explore the wave properties of sound and play some music…and learn how to make your own instruments. Take away STEM activities and an understanding of how to apply the engineering cycle in science classes.

2:00–4:30 PM Exhibitor Workshop

Bio-Rad: Crime Scene Investigator PCR Basics Kit (Bio)
(Grades 10–College) *B310, GWCC*
Sponsor: Bio-Rad Laboratories
Sherri Andrews *(sherri_andrews@bio-rad.com),* Bio-Rad Laboratories, Hercules, Calif.
Which human DNA sequences are used in crime scene investigations, and why? In this hands-on workshop, you will learn to use the polymerase chain reaction (PCR) and gel electrophoresis to identify which suspects can be exonerated—based on DNA evidence. Learn how the statistics of chance are integral to modern DNA fingerprinting.

3:00–4:00 PM Exhibitor Workshop

Fossil Evidence: A Preview of *FOSS Earth History,* 2nd Edition for Middle School (Earth)
(Grades 5–8) *B204, GWCC*
Sponsor: Delta Education/School Specialty Science–FOSS
Jessica Penchos and **Virginia Reid,** The Lawrence Hall of Science, University of California, Berkeley
Explore the concept of index fossils through a brief hands-on activity and multimedia, and identify connections to the NRC *Framework.* Be among the first to preview the newly revised *FOSS Earth History* course, including new features, strategies, content, and materials.

3:30–4:30 PM Presentations

SESSION 1 (two presentations)
(General) *B213, GWCC*
Presider: Sanghee Choi, North Georgia College & State University, Dahlonega

Extended Learning Through Multimodal Technologies for Effective, Engaging Science Education (Chem)
Elizabeth S. Hancock *(elizabethshancock@gmail.com),* Rock Quarry Middle School, Tuscaloosa, Ala.
I'll share examples of electronic posters, science poetry, online graphing, persuasive videos, and smartphone tricks used in an inquiry-based middle school class.

Using Science Notebooks to Develop Scientific Understanding (Gen)
Sanghee Choi *(sc1122@att.net)* and **April A. Nelms** *(anelms@northgeorgia.edu),* North Georgia College & State University, Dahlonega
Come learn how to engage your students in writing the Interactive Science Notebook (ISN) to construct solid understanding in scientific information.

SESSION 2

STEM Internships for High School Students (Gen)
(High School) *B214, GWCC*

Donald A. White *(donald.white@cowetaschools.org),* Coweta County School System, Newnan, Ga.

Martha Milam *(martha.milam@cowetaschools.org),* East Coweta High School, Sharpsburg, Ga.

Kelley Finger *(kelley.finger@cowetaschools.org),* Newnan High School, Newnan, Ga.

Cathy Pugh *(cathy.pugh@cowetaschools.org),* Northgate High School, Newnan, Ga.

Let's discuss a successful approach to creating a school-day STEM internship program for high school students. Resources will be provided.

SESSION 3

NASA CERES S'COOL Project: Cloud Observation Is S'COOL! (Earth)
(Elementary–High School) *B215, GWCC*

Preston M. Lewis, Jr. *(preston.lewis@nasa.gov),* SSAI/NASA Langley Research Center, Hampton, Va.

Engage students in making cloud and weather observations for NASA. Become a S'COOL cloud observer! Plenty of online lessons, activities, and great handouts.

SESSION 4

Get SIMulated! (Gen)
(General) *B217, GWCC*

Diane L. Kasparie *(dkasparie@quincynotredame.org),* Quincy Notre Dame High School, Quincy, Ill.

Online science simulations are research-proven, student-centered, relevant tools that empower great teaching and active learning! They are engaging and effective, and aligned to state/national standards.

SESSION 5

Engaging Strategies to Differentiate Science (Gen)
(General) *B218, GWCC*

Gilda D. Lyon *(glyon@doe.k12.ga.us),* Georgia Dept. of Education, Atlanta

Learn how to use formative assessments to differentiate students.

SESSION 6

Standing on the Shoulders of Giants: Research in the Grades 6–9 Science Classroom (Gen)
(Middle Level–High School) *B304, GWCC*

Brian P. Short *(missioncontrol@ecybermission.com),* Director, Science Education Competitions, NSTA, Arlington, Va.

Question—Can students in grades 6–9 conduct research? Answer—Most certainly! In this session, you will find ways to incorporate research into your science curriculum, see why research is important in a science classroom, and help students to understand how to avoid plagiarism when doing research. Information will also be provided on how the new NSTA competition, eCYBERMISSION, uses research to accomplish missions.

SESSION 7

The Missing Link: Inquiry Helps Religious Students Study Evolution! (Gen)
(Middle Level–High School) *B305, GWCC*

Lee Meadows *(lmeadows@uab.edu),* The University of Alabama at Birmingham

You're teaching in a public school where religious students object to evolution. Hear an approach that engages them in understanding the evidence, but minimizes conflict.

SESSION 8

How to Engage Science Educators in the Public Review of NGSS (Gen)
(General) *B315, GWCC*

Gerry Wheeler *(gwheeler@nsta.org),* NSTA Interim Executive Director, Arlington, Va.

Ted Willard *(twillard@nsta.org),* Program Director, COMPASS, NSTA, Arlington, Va.

Development of the highly anticipated Next Generation Science Standards (NGSS) is well under way. The NGSS are undergoing multiple reviews, including two public drafts, with a final document expected in 2013. NSTA is providing guidance on the project and engaging the science education community in the feedback process. This session will help science educators to become active participants in the review process.

SESSION 9

Redesigning the Laboratory Investigation: Integrating Inquiry into Biology (Gen)
(General) *B405, GWCC*
Alfred Porter *(aporter@atlantapublicschools.us),* Atlanta (Ga.) Public Schools
Learn how tried-and-true biology laboratory activities can be transformed into investigations that engage students while helping them to develop abilities for and understandings about inquiry.

SESSION 10

Increasing Teacher Effectiveness and Student Results in Science Through Professional Learning Communities (Phys)
(Middle Level–High School) *B406, GWCC*
Terri C. Boman, The University of Alabama, Tuscaloosa
Join us as we share how professional learning communities of middle and high school science teachers are refining their collaboration, communication, and relationship skills, as well as strengthening their instructional practices and student learning.

SESSION 11

An Educational Nature Trail for Every School (Env)
(Informal Education) *B407, GWCC*
Sheri Amsel *(sheri@exploringnature.org),* Exploring Nature Educational Resource, Elizabethtown, N.Y.
Learn how to create an educational nature trail on school grounds and develop activities to address environmental science, life science, and technology curricula using the trail.

SESSION 12

Linking Language to Learning (Gen)
(Middle Level) *B408, GWCC*
Zoe O. Evans *(zoeevans@charter.net),* Central Middle School, Carrollton, Ga.
Carol C. Turner *(carol.turner@carrollcountyschools.com),* Whitesburg Elementary School, Whitesburg, Ga.
Experienced classroom teachers share tried-and-true activities that help learners link the language of science to concept mastery.

3:30–4:30 PM Workshops

NSTA Press® Session: A Buyer's Guide…and Gourmet Menu! Selecting and Using Outstanding Trade Books (Gen)
(Preschool–Middle Level) *B216, GWCC*
Juliana Texley *(jtexley@att.net),* Palm Beach State College, Boca Raton, Fla.
NSTA has cooperated with the Children's Book Council for 40 years to select the best in children's trade books. Explore the criteria, hear the surprising results, and learn how to use these exemplars in your classroom.

AAPT Session: Professional Development via the Physics Teacher Resource Agent Program (Phys)
(Middle Level–High School) *B301, GWCC*
Sharon Kirby *(sfkirby@bellsouth.net),* Etowah High School, Woodstock, Ga.
Ann Robinson, David Todd, and **Bob Powell** *(bpowell@westga.edu),* University of West Georgia, Carrollton
Presider: Bob Powell
Exciting hands-on activities and effective teaching strategies are key aspects of the PTRA curriculum developed by high school physics teachers and delivered by teachers.

ACS Middle Level Session: Chemical Change: Breaking and Making Bonds (Chem)
(Middle Level) *B302, GWCC*
James H. Kessler *(jhkessler@acs.org),* American Chemical Society, Washington, D.C.
Explore the production of a gas, a precipitate, and changes in temperature as a result of chemical reactions.

ACS Session Six: Half-Life (Chem)
(High School) *B303, GWCC*
Jerry Bell *(j_bell@acs.org),* American Chemical Society, Washington, D.C.
Half-life is familiar as a way of characterizing the decay of radioactive nuclei and using radioactive isotopes as "clocks" to date past events. The concept of half-life is broader than this and applicable to many changes that are easy to explore safely in the classroom. Bring your USB flash drive and take away activities to use in your classroom.

ASEE Session: Visualizing and Measuring Robot Motion Using Data Logging (Gen)
(Middle Level–High School) *B306, GWCC*
Fred Stillwell, Georgia Institute of Technology, Atlanta
Presider: Felicia Benton-Johnson, Georgia Institute of Technology, Atlanta
Provide a concrete connection between math, science, and engineering for your middle and high school students using LEGO® MINDSTORMS® NXT robots and data logging.

CESI Session: Council for Elementary Science International Share-a-Thon (Gen)
(Preschool–Middle Level) *B308, GWCC*
Barbara Z. Tharp *(btharp@bcm.edu),* CESI President, and Baylor College of Medicine, Houston, Tex.
Peggy Carlisle *(peggy.carlisle1@gmail.com),* NSTA Director, Preschool/Elementary, and Pecan Park Elementary School, Jackson, Miss.
Shawn L. Coskey-Watkins *(scoskey@esu.edu),* East Stroudsburg University, East Stroudsburg, Pa.
Betty Crocker *(crocker@unt.edu),* Retired Educator, Denton, Tex.
Cynthia C.M. Deaton *(cdeaton@clemson.edu),* Clemson University, Clemson, S.C.
Kristen Erica Dodd *(kedodd@greenville.k12.sc.us),* Buena Vista Elementary School and Clemson University, Greer, S.C.
Katherine Drennon *(kdrennon@greenville.k12.sc.us),* Monarch Elementary School, Simpsonville, S.C.
Courtney Re'Anne Mattison *(courtneymattison@anderson5.net),* New Prospect STEM Academy, Anderson, S.C.
Dee Mock *(mock@bcm.edu)* and **Michael Vu,** Baylor College of Medicine, Houston, Tex.
Melissa Sleeper, Sebastian River Middle School, Sebastian, Fla.
Join CESI as we share a wealth of ready-to-use, classroom-tested hands-on activities created just for the K–8 teacher. Handouts and website links!

Facilitating Early Childhood Education with Project Learning Tree (Env)
(Preschool–Middle Level/Informal Education) *B313, GWCC*
Jaclyn Stallard *(jstallard@plt.org)* and **Al Stenstrup** *(astenstrup@plt.org),* Project Learning Tree, Washington, D.C.
Carla Rapp *(carla@gfagrow.org),* Georgia Forestry Association, Forsyth
Learn about and experience effective hands-on activities to introduce science concepts to young children using PLT's new early childhood curriculum. Take home PLT's *Environmental Experiences for Early Childhood* activity guide and accompanying music CD.

Addressing Misconceptions About Light and Color Through "Operation Physics" Activities (Phys)
(Elementary–Middle Level) *B314, GWCC*
John Payne *(payne_jw@mercer.edu),* Mercer University, Lithia Springs, Ga.
Come discover hands-on STEM activities with light and color from the Operation Physics archives for teachers in grades 3–8.

Preparing for the Redesign: Using Student-designed Experiments in AP Biology (Bio)
(High School) *B316, GWCC*
Kristen R. Dotti *(kristen_dotti@yahoo.com),* Christ School, Arden, N.C.
A simple technique can take your students through the laboratory door and into real scientific exploration. Learn a step-by-step process to transition your students from scientific thinkers to scientific "do-ers."

National Earth Science Teachers Association Rock and Mineral Raffle (Earth)
(General) *B401/B402, GWCC*
Roberta M. Johnson *(rmjohnsn@nestanet.org),* National Earth Science Teachers Association, Boulder, Colo.
Ardis Herrold, National Earth Science Teachers Association, Plymouth, Mich.
NESTA offers more than 50 specimens to choose from for a chance to win display-quality specimens of rocks, minerals, fossils, and other Earth science–related materials.

Squeezing GLUE-GOO into the National Science Education Standards (Chem)
(Informal Education) *B403, GWCC*
Sherri Conn Rukes *(sherri.rukes@d128.org),* Libertyville High School, Libertyville, Ill.
Make your own "slime" from grocery store supplies and learn the science behind this popular activity. Strategies for extended inquiry into a cooperative physical science project are modeled.

Simple STEM Activities (Gen)
(Middle Level) *B404, GWCC*
Susan German *(susangermansciencteacher@gmail.com),* Hallsville Middle School, Hallsville, Mo.
Explore four hands-on activities that emphasize the STEM subjects and science practices.

4:00–5:15 PM Exhibitor Workshops

Decoding Human Genetics with *Inquiries in Science*® (Bio)
(Grades 9–12) *B207, GWCC*
Sponsor: Carolina Biological Supply
Carolina Teaching Partner
Help your students solve the mystery of genetics using hands-on guided inquiry learning. Improve students' understanding of abstract concepts such as genetic inheritance, nucleic acids, genetic disorders, and biotechnology. The *Inquiries in Science* Biology series makes teaching challenging topics effortless. Free teacher materials and door prizes!

Exploring Renewable Energy: A Hands-On STEM Investigation (Env)
(Grades 9–12) *B208, GWCC*
Sponsor: PASCO scientific
Presenter to be announced
Experience a hands-on, relevant problem-solving STEM lesson that engages students in scientific and engineering practices included in the NRC *Framework*. In this hands-on workshop featuring the Horizon Renewable Energy SPARKlab® collection, measure energy output from your designed wind turbine under varying environmental conditions. The potential of renewable energy resources is also explored.

Lemons and Light Bulbs: Exploring the Chemistry of Electricity (Chem)
(Grades 9–12) *B209, GWCC*
Sponsor: LAB-AIDS, Inc.
Brandon Watters, Lakes Community High School, Lake Villa, Ill.
The person who comes up with better batteries for electric cars will make oodles. The chemistry of electricity is cutting-edge chemical engineering and technology as well as the chemistry of our nervous system. Learn how to make a lemon light a bulb, electroplate copper, and make a battery from simple chemicals. As teachers, we tell students that electrons make chemistry. This workshop will show you how those same electrons make electricity, too.

33 Strategies for Integrating Science (Gen)
(Grades 1–6) *B210, GWCC*
Sponsor: Wireless Generation
Traci Wierman and **Carrie Strohl,** 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!

Going Green: Economical and Environmentally Friendly Inquiry in Chemistry (Chem)
(Grades 9–12) *B211, GWCC*
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.

See More, Do More, Learn More—Benefits of Using Digital Technology Tools (Gen)
(General) *B212, GWCC*
Sponsor: Ken-A-Vision
Alyse Howell *(ahowell@ken-a-vision.com),* Ken-A-Vision, Kansas City, Mo.
In this hands-on workshop, teaching science topics just got a lot easier with Ken-A-Vision digital technology tools. Develop your digital microscopy skills by learning new techniques as you perform activities using the digital microscope, Applied Vision 4 software, and BYOD to experience our new app EduCam.

Misconception Mania: Exciting and Engaging Ways to Address Common Misunderstandings in K–8 (Gen)
(Grades K–8) *B309, GWCC*
Sponsor: Houghton Mifflin Harcourt
Michael DiSpezio *(icaris@aol.com),*, Science Writer and Educational Consultant, North Falmouth, Mass.
Join Houghton Mifflin Harcourt author Michael DiSpezio for an entertaining and eye-opening survey of common misconceptions in science. Participants will expand their awareness of common science myths through game show–style interactions and engage in several easy-to-repeat and inexpensive activities that effectively address students' misunderstandings.

Sangari Active Science **(Gen)**
(Grades K–5) *B311, GWCC*
Sponsor: Sangari Active Science
John E. Penick *(john.penick@sangariglobaled.com),* 2003–2004 NSTA President, and Sangari Active Science, Miami, Fla.
Come experience a standards-based, exciting, experiential, inquiry-centered 21st-century elementary science program. Participate in grade-level innovative activities and leave with classroom-ready materials. Designed by leading scientists and educators, Sangari Active Science will remind you of all the reasons you love teaching students and science.

High School Biology in a Digital World: Critical Thinking Trumps Information Overload **(Bio)**
(Grades 9–12) *B312, GWCC*
Sponsor: Discovery Education
Wendy Raymond, Williams College, Williamstown, Mass.
Join Wendy Raymond, Discovery Education's senior biology consultant, in exploring the excitement of biology education in a digital world. Learn why some students with the best high school science grades often struggle in college courses and what may be done to provide a stronger high school science foundation.

4:00–5:30 PM Exhibitor Workshop

Chemistry and the Atom: Fun with Atom-building Games! **(Chem)**
(Grades 5–12) *B203, GWCC*
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 into your lessons.

5:00–6:00 PM Meeting

GSTA Annual Meeting
(By Invitation Only) *International B, Omni*
GSTA members are invited to attend the 2012–2013 GSTA Annual Meeting. Visit *www.georgiasciencteacher.org* for more information.

Introducing our self-contained, portable saltwater touch tank!

- Seeing and touching exotic marine animals is a great way to engage your class
- The tank is fully self-contained. All the equipment needed to support marine life is hidden inside the base. Simply plug it in!
- Detailed instruction manual helps you maintain good water quality and healthy animals
- The tank is on casters and fits through typical doorways. Roll it wherever you need it!

74-950 Touch Tank: $6,999

Observing marine life is a fascinating learning experience, but field trips to the local aquarium may be a thing of the past. Introducing a portable touch tank that's the perfect solution!

Specifically designed by our aquarist to recreate a saltwater environment, it's a tiny block of ocean on wheels. Fill it with water, stock it with creatures and wheel it through the door and down the hall, from classroom to classroom.

The reinforced 1/2" thick acrylic corners and sides hold everything in place, while the open top allows students to observe and examine the wonders inside. An extra-wide rim around the edge prevents creatures from escaping. Tank measures 60 x 30 x 14", holds over 100 gallons and stands 44" high from top to wheels. Black ABS plastic base conceals included pumps, UV sterilizer, bioreactors and skimmers that keep the water fresh and pure. Heavy-duty locking casters. Complete instructions with detailed list of recommended animals. *Ships motor freight.*

Never had a saltwater aquarium before? It's easy! Just add water and animals!

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—Photo courtesy of Adam Thompson, Zoo Atlanta

8:00–9:00 AM Presentations

SESSION 1

Teaching Research Skills in Low-Income and Minority Schools (Gen)

(General) *B214, GWCC*

Anne E. Artz *(aartz@ucsd.edu)* and **Shannon Baird** *(s1baird@ucsd.edu),* The Preuss School UCSD, La Jolla, Calif.

Join us as we cover methods and lessons used in teaching students at low-income and predominantly minority schools in which resources may be limited.

SESSION 2

Teaching Climate and Energy with the CLEAN Collection: Peer-reviewed Climate and Energy Resources at Your Fingertips! (Gen)

(Middle Level–College) *B215, GWCC*

Marian Grogan *(marian_grogan@terc.edu)* and **Candace Dunlap** *(candace_dunlap@terc.edu),* TERC, Cambridge, Mass.

The CLEAN collection provides activities, visualizations, and videos that can help you engage your students as you teach climate and energy with confidence.

SESSION 3

NSTA Press® Session: Uncovering Physical Science Core Ideas in the NGSS Using Formative Assessment Probes (Phys)

(General) *B216, GWCC*

Page Keeley *(pagekeeley@gmail.com),* 2008–2009 NSTA President, and Author/Consultant, Jefferson, Maine

Learn how the *Uncovering Student Ideas in Science* probes can be used as diagnostic and formative assessments of students' thinking related to the physical science core ideas in the highly anticipated Next Generation Science Standards and how use of these probes supports science practices.

SESSION 4

Forget the Rain Forest—SAVE My Campus! (Gen)

(General) *B218, GWCC*

Lisa N. Hinson *(lisahinson@timetoteach.com),* Center for Teacher Effectiveness, Fayetteville, Ga.

Educators on average are losing 5–9 hours a week on lower-level discipline challenges. Academics and discipline go hand in hand. Learn how to increase academics, decrease discipline challenges, and empower all educators.

SESSION 5

What Do You Need to Begin Benchmark Testing? (Bio)

(General) *B303, GWCC*

Leann F. Iacuone *(liacuone@gmail.com),* Laurens County School District 55, Laurens, S.C.

As schools and districts develop and use assessment programs to monitor student progress, it can be costly and expensive. Laurens County School District 55 uses its teachers to create a districtwide science benchmark process to monitor student progress and address student needs. Districts, teachers, and schools who are considering their own benchmarking process should attend to gain background knowledge on pitfalls and successes of this valuable tool.

SESSION 6

Bioplastic—Going from Synthetic to Natural Polymers (Chem)

(Middle Level–High School) *B308, GWCC*

Sherri Conn Rukes *(sherri.rukes@d128.org),* Libertyville High School, Libertyville, Ill.

Many of the items that we use today are becoming more Earth friendly. Learn how a bioplastic is made and what plant materials are used. Take home a CD with information and activities.

SESSION 7

Student Movie-making to Enhance the Science Curriculum: Examples and Lessons Learned from an Elementary School (Gen)

(Elementary–Middle Level) *B314, GWCC*

Nicholas F. Bourke *(nbourke@aum.edu),* Auburn University at Montgomery, Ala.

Ruth Glenboski *(rglenboski@montgomerycatholic.org),* Montgomery Catholic Preparatory School, Montgomery, Ala.

View examples of movie projects shot and edited by students. We'll share our lessons learned to help you implement these creative projects in your classroom.

SESSION 8

Science Is STEMtastic (Gen)

(General) *B315, GWCC*

Patti Grammens *(pgrammens@forsyth.k12.ga.us),* Lakeside Middle School, Cumming, Ga.

Dynamic teachers show you easy ways to incorporate STEM into your teaching. Leave with an activity that can be used in your class on Monday!

SESSION 9

The Physics Experience **(Phys)**
(High School) *B403, GWCC*
Nancy G. Caldwell *(ncaldwel@bbschool.org)* and **Jason Owens** *(jowens@bbschool.org),* Boyd-Buchanan School, Chattanooga, Tenn.
An especially important component of the physics experience is the use of projects and themes. We will share our favorites and the resulting adventures.

SESSION 10

Getting to Know You: Respectful and Impactful Teaching Practices **(Gen)**
(High School) *B405, GWCC*
Melisa R. Guthrie *(meguthrie@hoover.k12.al.us)* and **Pamela E. Harman** *(pharman@hoover.k12.al.us),* Spain Park High School, Hoover, Ala.
Learn how to assess your students' personality and learning modalities in order to increase student learning and participation. This knowledge will then be applied in effective teaching strategies, including sorting cards, group work, and starters.

8:00–9:00 AM Workshops

How to Make Time to Teach Science in Grades 3–5—Integrate! **(Phys)**
(Elementary) *B213, GWCC*
Pamela S. Parks *(pparks@oglethorpe.k12.ga.us),* Oglethorpe County Elementary School, Lexington, Ga.
Lynn P. Larsen *(lynn.larsen@gsw.edu),* Georgia Southwestern State University, Americus
Come participate in fun hands-on activities related to adaptation, light and color, and electricity. Integrated lesson plans for all three units will be provided.

Digital Media Supporting Science Teaching and Learning **(Gen)**
(General) *B217, GWCC*
Mark D. Greenman *(mgreenman2@verizon.net),* Marblehead Science Matters, Swampscott, Mass.
Leave with a suite of free high-quality, content-rich, and high-interest digital media resources to engage and prepare science students. Bring your laptop.

Ice Core Records—From Volcanoes to Supernovas **(Earth)**
(General) *B301, GWCC*
Donna L. Young *(donna@aavso.org),* NASA/Chandra EPO Office, Cambridge, Mass.
Use absolute and relative dating techniques with high-resolution ice core data and historic volcanic eruptions to correlate and date supernova events with nitrate anomalies.

Solving the Mysteries in the Heart of a Supernova Explosion **(Earth)**
(Middle Level–High School) *B302, GWCC*
Tyson H. Harty *(tysonharty@gmail.com),* Sonoma State University, Rohnert Park, Calif.
Using ordinary supplies, you'll learn to use scientific investigation to teach students about star life cycles and magnetic field properties of pulsars. Free NASA materials!

WonderWorks in the Classroom **(Chem)**
(General) *B304, GWCC*
CANCELED
Andrea R. Wilson, WonderWorks, Pigeon Forge, Tenn.
Turn fun upside down as you learn hands-on and creative ideas to implement science in your classroom that will leave you laughing and learning!

Teaching Younger Students About Energy Outside the Science Classroom **(Gen)**
(Preschool–Elementary) *B313, GWCC*
Karen Reagor *(kreagor@need.org),* The NEED Project, Manassas, Va.
Use language arts, math, and presentation skills to teach K–3 students about the energy resources we use. Activities can be implemented today with no special materials.

8:00–9:15 AM Exhibitor Workshop

O_2 Understand Photosynthesis and Cellular Respiration! (Bio)

(Grades 9–12) *B209, GWCC*

Sponsor: LAB-AIDS, Inc.

Barbara Nagle, The Lawrence Hall of Science, University of California, Berkeley

Students have major misconceptions about photosynthesis and cellular respiration, but this content is essential for understanding how matter and energy flows, both at the micro (cellular) and macro (ecosystem) levels. Using a computer simulation, participants will learn to use notebooking and discussion strategies to expose student thinking. . .all from SEPUP's new *Science & Global Issues* Biology program by LAB-AIDS.

8:00–9:30 AM Exhibitor Workshop

Bio-Rad: Implementing a Skills-based Biotech Program with Author Kirk Brown (Bio)

(Grades 9–College) *B310, GWCC*

Sponsor: Bio-Rad Laboratories

Sherri Andrews *(sherri_andrews@bio-rad.com),* Bio-Rad Laboratories, Hercules, Calif.

Empower your students to become tomorrow's leaders by giving them the skills they need to become independent thinkers. Learn how to set the foundation of your program with equipment, supplies, Bio-Rad's new biotechnology lab textbook *Biotechnology—A Laboratory Skills Course,* and supplemental materials such as videos and presentations. Hear the words of wisdom from Tracy High School's model biotech program and inspire your students with real-world lab experiences.

8:00–11:00 AM Short Course

Be a Winner! Get a Grant and Your Students Win, Too! (SC-3)

(Elementary–High School) *B401, GWCC*

Tickets Required: $25

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

Patty McGinnis *(pmcginnis@methacton.org),* NSTA Director, Middle Level Science Teaching, and Arcola Intermediate School, Eagleville, Pa.

For description, see page 34.

8:30–10:30 AM CESI Breakfast

A Picture Book Approach: Ten Ways to Include Science During Language Arts Time (M-1)

(Tickets Required; $36) *B402, GWCC*

Lee and Donna German, Co-owners, Sylvan Dell Publishing: Mount Pleasant, S.C.

Using Core Language Arts standards and picture books, learn more than 10 simple techniques to introduce and supplement science learning during language arts in elementary classrooms. Whether using technology to project eBooks or using traditional books, integrate Core and state language arts, science, and math standards into simple techniques, to introduce or supplement science concepts during languages arts time. Techniques include cover questions, KWL, comprehension and writing prompts, "Boggle" vocabulary for word wall, antonyms/synonyms, silly sentences, sequencing sentence strips, shades of meaning, and comparing stories. The perfect way to engage and reach young children, picture books are nonthreatening to getting parents involved in their children's learning.

Lee and Donna German are co-owners of Sylvan Dell Publishing, which started in 2005 with a mission to create picture books that integrate science, math, and geography. Lee is the publisher and a retired U.S. Navy Commander with five overseas deployments on surface combatants and with embarked staff aboard USS George Washington *(CVN 73). He received an MBA in finance from the Naval Postgraduate School, was a math instructor at the U.S. Naval Academy, and division head for Advance Concept War Gaming at the U.S. Naval War College. Donna is the editor, author of two of Sylvan Dell's 76 titles (*Carolina's Story: Sea Turtles Get Sick Too! *and* Octavia and Her Purple Ink Cloud), *and in a prior life,* New York Times *Best Seller author of* The Bread Machine Cookbook *series.*

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

9:00 AM–12 Noon Exhibits

Exhibit Hall B2, GWCC

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

9:00 AM–12 Noon Short Course

Exploring Planetary Science and Astronomy: What Would Galileo Do? (SC-4)

(Elementary–High School) *B404, GWCC*

Tickets Required: $60

Roberta M. Johnson *(rmjohnsn@nestanet.org),* National Earth Science Teachers Association, Boulder, Colo.

Ardis Herrold, National Earth Science Teachers Association, Plymouth, Mich.

For description, see page 34.

9:30–10:30 AM Presentations

SESSION 1 (two presentations)

(General) *B215, GWCC*

Field Studies as Vehicles for Project Based Learning (PBL) and Service Learning (Env)

Renee Andrews *(randrews@pky.ufl.edu),* P.K. Yonge Developmental Research School, Gainesville, Fla.

This presentation includes practical ideas for PBL and service learning field studies. Tips for grant funding and successful community interactions are included.

Regular People, Real Science: Discover Why Citizen Science Is the Wave of the Future for Natural Science Education (Env)

Tiffany Beachy *(tiffany@gsmit.org),* Great Smoky Mountains Institute at Tremont, Townsend, Tenn.

Citizen science—fun, hands on, engaging, inspiring. Explore the world of citizen science and gain tips for beginning a phenology project at your school.

SESSION 2

The Use of Wikis in the Classroom (Gen)

(Middle Level–High School/Informal Ed) *B217, GWCC*

Emily N. Menard *(emenard@homewood.k12.al.us)* and **Kelly R. Reaves** *(kreaves@homewood.k12.al.us),* Homewood High School, Homewood, Ala.

Come learn how to use a wiki to upload videos of class, assignments, and answer keys to provide additional resources to students outside the classroom. This is useful for all students, especially when absent from class for any reason.

SESSION 3

The Essential Keys to Improving Learning in Science (Gen)

(General) *B218, GWCC*

Jeff C. Marshall *(marsha9@clemson.edu),* Clemson University, Clemson, S.C.

Begin transforming your classroom today! Come learn what you can do to improve instruction so that student achievement is maximized in K–12 science classrooms.

SESSION 4

Improving Teacher Quality Through Teacher Quality Enhancement Grants (TQE) (Bio)

(General) *B303, GWCC*

Michael P. Mahan *(mmahan@gdn.edu),* Gordon College, Barnesville, Ga.

Join me for a detailed overview of how TQE grants can help classroom teachers learn and then use better science techniques in the classroom.

SESSION 5

Differentiating K–6 Science Instruction to Enable All Students to Inquire, Explore, Participate, and Achieve Success (Gen)

(Elementary) *B304, GWCC*

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

I'll provide an overview of the components of differentiation in the K–6 science classroom, and suggest ways to differentiate effectively, to maximize student participation and learning. Handouts!

SESSION 6

Teaching Online in Real Time (Phys)

(High School–College) *B403, GWCC*

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

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

9:30–10:30 AM Workshops

STEM—Now or Never! **(Chem)**
(Middle Level–High School) *B301, GWCC*
Greg Dodd *(gbdodd@gmail.com),* George Washington High School, Charleston, W.Va.
The use of appropriate technology in the classroom makes STEM instruction the best means to integrate science, math, and engineering instruction.

Journey to the Edge of the Solar System **(Earth)**
(General) *B302, GWCC*
Jayma Koval *(jaymaolivia@yahoo.com),* East Cobb Middle School, Marietta, Ga.
Lauren Parker *(parker.laurenb@yahoo.com),* Thornton Elementary School, Arlington, Tex.
Come learn how you can incorporate space weather topics and NASA missions into your physical science or astronomy class. NASA giveaways!

Neuroscience for Your Biology Classroom **(Bio)**
(Middle Level–High School) *B308, GWCC*
Shaw-Ree Chen *(shawree_chen@urmc.rochester.edu),* University of Rochester Medical Center, Rochester, N.Y.
Liam Casey *(liam_casey@urmc.rochester.edu),* University of Rochester, N.Y.
Would you like to use simple hands-on active learning lessons to introduce neuroscience concepts into your biology curriculum? Join us and experience two sample neuroscience activities from the University of Rochester's Life Sciences Learning Center. Take home handouts and information on support for field testing in your classroom.

***Science* & *Children*—A Year of Inquiry** **(Gen)**
(Preschool–Elementary) *B313, GWCC*
Linda Froschauer *(fro2@mac.com),* 2006–2007 NSTA President, and Field Editor, *Science* & *Children,* Westport, Conn.
The highly anticipated Next Generation Science Standards are explicit—inquiry remains an important strategy to use in the classroom. Come learn ways to infuse components of inquiry into your curricula.

Fun Activities with Gel Polymers to Enhance Any Science Class **(Gen)**
CANCELED
(Elementary–Middle Level) *B314, GWCC*
Cora S. Salumbides, Jefferson Union High School District, Daly City, Calif.
Enjoy fun activities with gel polymers while teaching basic science concepts. Come learn how common household chemicals that are environmentally friendly can motivate students' interest in science.

Finally! Science Notebooking for High Schoolers! **(Gen)**
(Middle Level–College) *B405, GWCC*
Amanda H. Rylant *(arylant@alsde.edu),* Alabama Math, Science, and Technology Initiative, Montgomery
Rochelle M. Biffle *(melissa.biffle@athens.edu),* Alabama Science in Motion, Athens
Can keeping a science notebook benefit high schoolers? You bet it can! Learn how to incorporate science notebooking into any level high school course to improve student achievement and advance science literacy.

9:30–11:30 AM Meeting

AMSE Board Meeting
(By Invitation Only) *Willow Boardroom, Omni*
Visit *www.amsek16.org* for more information.

10:00–11:15 AM Exhibitor Workshop

O_2 Understand Photosynthesis and Cellular Respiration! (Bio)
(Grades 9–12) *B209, GWCC*
Sponsor: LAB-AIDS, Inc.
Barbara Nagle, The Lawrence Hall of Science, University of California, Berkeley
Students have major misconceptions about photosynthesis and cellular respiration, but this content is essential for understanding how matter and energy flows, both at the micro (cellular) and macro (ecosystem) levels. Using a computer simulation, participants will learn to use notebooking and discussion strategies to expose student thinking…all from SEPUP's new *Science & Global Issues* Biology program by LAB-AIDS.

10:30–11:30 AM Exhibitor Workshop

Bio-Rad: Genes in a Bottle™ Kit (Bio)
(Grades 5–College) *B310, GWCC*
Sponsor: Bio-Rad Laboratories
Sherri Andrews *(sherri_andrews@bio-rad.com),* Bio-Rad Laboratories, Hercules, Calif.
How do you fit a person in a bottle? Your DNA contains all of the information that makes you who you are. Isolate your own DNA and capture your unique essence in a stylish glass necklace!

11:00 AM–12 Noon Presentations

SESSION 1
Oceans of Professional Development Opportunities Through NOAA (Gen)
(General) *B215, GWCC*
Britta Culbertson *(britta.culbertson@noaa.gov),* Einstein Fellow, NOAA Office of Education, Washington, D.C.
Are you looking for professional development opportunities for STEM, oceans, climate, or weather? NOAA has several opportunities varying from a weekend to an entire year.

SESSION 2
Science Writing and Publishing for Grades 6–12 (Bio)
(General) *B218, GWCC*
Paula Paglioni, St. Catherine of Siena Catholic School, Kennesaw, Ga.
Understand the process of science writing and publishing to help your students publish in the Harvard Graduate School of Arts and Sciences (GSAS) *Journal of Emerging Investigators.*

SESSION 3
Using Problem-Based Learning (PBL) and Other Strategies to Improve Academic Performance in a Grade 8 Physical Science Classroom (Phys)
CANCELED
(Middle Level) *B301, GWCC*
Larry K. Hampton, The University of Georgia, Athens
Let's discuss the impact of implementing PBL and online assessment systems with students' performance on high-stakes testing.

SESSION 4
MY NASA DATA: Earth Systems Data Visualization Tool for Students (Earth)
(Elementary–High School) *B302, GWCC*
Preston M. Lewis, Jr. *(preston.lewis@nasa.gov),* SSAI/NASA Langley Research Center, Hampton, Va.
Engage your students in using MY NASA DATA as a visualization tool for NASA Earth systems satellite data. Plenty of online lessons and great handouts!

SESSION 5
Science Enrichment for Saturdays and After School (Gen)
(Elementary) *B313, GWCC*
Steve A. Rich *(bflywriter@comcast.net),* Chairperson, NSTA Atlanta Area Conference; NSTA Director, Professional Development; and West GYSTC, Carrollton, Ga.
Shadra Tomei *(shadra.tomei@douglas.k12.ga.us),* Douglas County School System, Douglasville, Ga.
Find out how to put together thematic science enrichment events for elementary students and get several successful, proven examples. Handouts and door prizes!

SESSION 6

OMG! Staring Down the Barrel of the Biology EOC **(Bio)**

(High School) *B316, GWCC*

Mickey MacDonald *(mmacdonald@pky.ufl.edu)* and **Julie Henderson** *(jhenderson@pky.ufl.edu),* P.K. Yonge Developmental Research School, Gainesville, Fla.

Learn how to use student-created digital content, technology-based self and formative assessments, and blended learning to differentiate instruction for students in your biology course.

SESSION 7 (two presentations)

(High School) *B403, GWCC*

"Emergency Lesson Plans" for Teaching Chemistry Across Curricula **(Chem)**

Keith Lindblom *(k_lindblom@acs.org)* and **Marta U. Gmurczyk** *(m_gmurczyk@acs.org),* American Chemical Society, Washington, D.C.

"Emergency lesson plans" have been designed to supplement high school chemistry and history. Topics include nomenclature, measurement, formula writing, allotropes, and polymers; within historical themes such as the interdependence of scientific development and industrialization and historical eras as defined by the technologies of their time. The lesson plans use reading material, videos, and a variety of activities (available online) that can be used in combination or separately, and are easily implemented by a substitute teacher.

Teaching and Learning in the Digital Age: Chemistry Resources Teachers and Students Can Rely On **(Chem)**

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

Learn about the American Chemical Society innovative and FREE collection of reliable digital resources for high school teachers, including ChemEd Digital Library with Models 360, ChemTeacher, and the award-winning Periodic Table Live as well as *ChemMatters* videopodcasts and ChemClub collection of activities.

11:00 AM–12 Noon Workshops

Teaching Nature of Science in the Physical Sciences for Grades K–8 **(Phys)**

(Elementary–Middle Level) *B213, GWCC*

Amy V. McDowell *(amy.mcdowell@douglas.k12.ga.us),* Turner Middle School, Lithia Springs, Ga.

Patricia Moody, Annette Winn Elementary School, Lithia Springs, Ga.

Join us as we delve into nature of science standards with firsthand experiences coupled with take-home models of instructional sequences consistent with research-based best practices.

Integrating Food Science and Nutrition into Your Science Curriculum **(Bio)**

(Middle Level–High School/Informal Ed) *B308, GWCC*

Laurie A. Hayes *(lhayes@cart.org),* Center for Advanced Research and Technology, Clovis, Calif.

Join me in a hands-on workshop that explores FDA's free food safety and nutrition curriculum that you can take back to your classroom.

Reading and Writing Science Using Polymer Activities **(Gen)**

CANCELED

(Elementary–Middle Level) *B314, GWCC*

Cora S. Salumbides, Jefferson Union High School District, Daly City, Calif.

A series of interesting hands-on activities using polymeric materials will be presented. Writing and reading strategies will be introduced and connected to children's literature.

The Carbon Cycle and Bioenergy: Quantitative Modeling with Poker Chips and Student Monitoring of CO_2 **(Earth)**

(Informal Education) *B407, GWCC*

D. Leith Nye, University of Wisconsin–Madison

Understanding the carbon cycle is key to addressing climate change and developing sustainable energy systems, including biofuels. This workshop will involve dynamic active-learning activities.

1:00–5:00 PM Meeting

SEPA Fall Board Meeting

(By Invitation Only) *Willow Boardroom, Omni*

Some exhibitors have classified their products by grade level and subject area. Subject areas are abbreviated here as follows:

Biology/Life Science	B
Chemistry/Physical Science	C
Earth/Space Science	EA
Environmental Science	EN
Integrated/General Science	G
Physics/Physical Science	PH
Professional Development	PD
Technology Education	T

Look for a map display of the exhibit hall.

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The American Chemical Society (ACS) is the world's largest scientific society. ACS will exhibit textbooks, reference materials, videos, and other materials to supplement the K–12 and college curricula. ACS will also provide information on programs for students and teachers.

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The American Nuclear Society exhibit offers teachers free, classroom-ready resources for teaching about nuclear science and technology. Educators may preview teacher handbooks offered through ANS workshops and receive sample copies of the ANS teacher newsletter *ReActions*.

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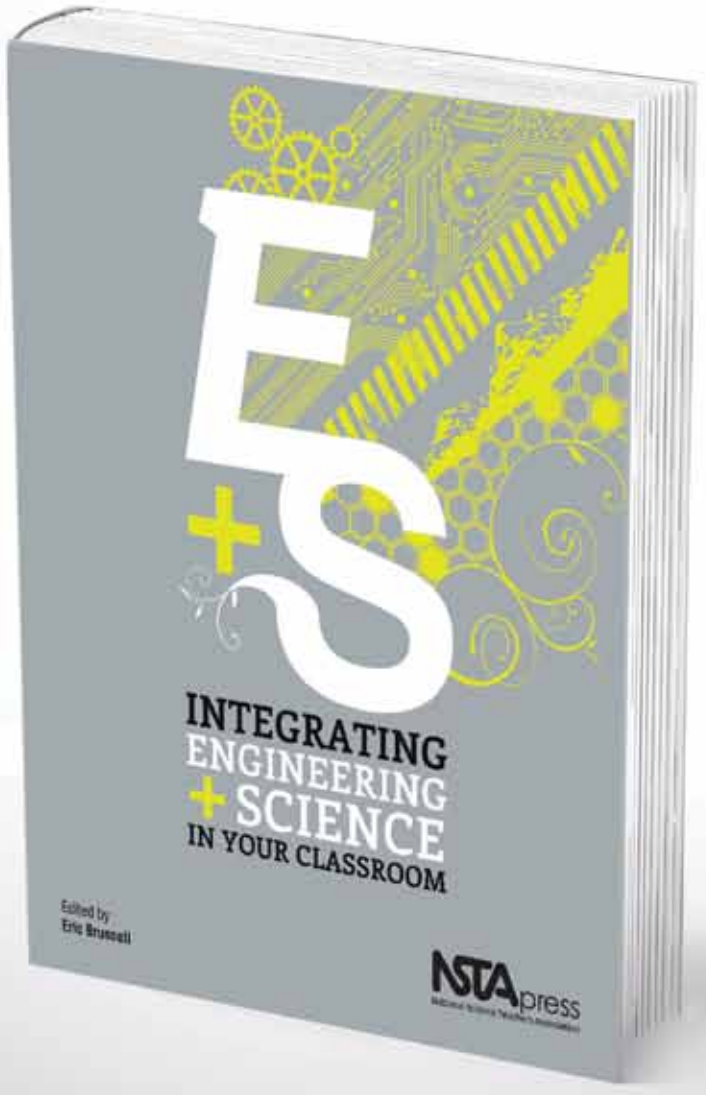

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ExploreLearning Gizmos are the world's largest library of interactive online simulations for math and science, driving deep conceptual understanding for students in grades 3–12. Teachers supplement and enhance instruction with powerful interactive visualizations of mathematics and science concepts. Students manipulate key variables, generate and test hypotheses, and engage in extensive "what-if" experimentation.

Exploring Nature Educational Resource **#1244**
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PO Box 84 PreK–12
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E-mail: *sheri@exploringnature.org*
Website: *www.exploringnature.org*

Exploring Nature Educational Resource features an extensive life science website *(Exploringnature.org)* with more than 5,000 pages of illustrated resources along with books, school programs, field trips, and professional development to engage, inform, and inspire learning about life science, natural habitats, conservation, and integrating the outdoors into classroom science.

FDA: Center for Food and Applied Nutrition (CFSAN) **#1433**
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c/o Graduate School USA K–12
600 Maryland Ave. SW, Suite 301
Washington, DC 20024
Phone: 202-314-4713
E-mail: *isabelle.howes@graduateschool.edu*
Website: *www.fda.gov/food*

FDA and NSTA created Science and Our Food Supply, a free, interactive curriculum for middle school and high school teachers. Visit our booth to receive your copy, other free food safety material, and free nutrition materials on using the food label to make nutritious food choices. STEM content is linked to National Science Education Standards.

Fisher Science Education **#1028**
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Website: *www.GYSTC.org*

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GetBiotechSmart.com, created and funded by the United Soybean Board, provides complimentary biotechnology information and tools to teachers and students. *GetBiotechSmart.com* helps teachers address many questions around biotechnology and generates corresponding discussions through customizable lesson plans, teacher presentations, student video podcasts, e-Learning modules, and other resources.

Grand Classroom #1030
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Website: *www.mcwane.org*

McWane Science Center is a nonprofit science museum that complements the mission of schools and educators by offering dynamic hands-on science exhibits and programs for all ages.

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Phone: 303-948-4200
E-mail: *mec@smenet.org*
Website: *www.mineralseducationcoalition.org*

The Minerals Education Coalition reflects the Society for Mining, Metallurgy & Exploration's (SME) commitment to provide accurate and timely K–12 curriculum and activities to teachers. SME volunteers will distribute mineral samples and posters and be available to discuss the importance of mining and minerals to the public's lives and lifestyles.

NSTA Avenue

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- 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.

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NSTA National Science Teachers Association

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Website: *www.dodgelearning.com*

National Geographic Learning provides a portfolio of quality materials for preK–12, academic, and adult education in the areas of ELA, ESL, reading and writing, science, social studies, and professional development.

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791 Atlantic Dr.
Atlanta, GA 30332
Phone: 404-385-4307
E-mail: *nancy.healy@mirc.gatech.edu*
Website: *www.education.nnin.org*

The National Nanotechnology Infrastructure Network is an NSF-funded network of 14 universities that offer a variety of programs for K–12 and college communities, including hands-on activities, demonstrations, summer research experiences, workshops, instructional materials, and a website. In addition, we publish (print and online) *Nanooze,* a magazine about nanotechnology for grades 5–8.

The NEED Project **#1040**
8408 Kao Circle C, EN, G, PH, PD
Manassas, VA 20110 K–12
Phone: 800-875-5029
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The NEED Project is a nonprofit organization that provides K–12 energy education resources. Stop by the booth for free samples of materials!

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Create, collaborate, and compete* through the Ten80 Student Racing Challenge: NASCAR STEM Initiative. This curriculum is aligned to core content, science and engineering benchmarks, and ELA standards and is implemented as an out-of-school activity or yearlong science and engineering course. Middle and high school students mirror business and marketing executives, engineers, programmers, technicians, sustainable transportation designers, and professional motorsports teams. Visit our booth to sign up for the new Monthly Creative Engineering Challenge sponsored by the U.S. Army.

**Competition is optional.*

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Website: *education.ti.com*

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Exhibitors

Toshiba/NSTA ExploraVision® **#1439**
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Arlington, VA 22201 K–12
Phone: 800-EXPLOR9
E-mail: *exploravision@nsta.org*
Website: *www.exploravision.org*

The Toshiba/NSTA ExploraVision science competition encourages K–12 students to imagine what technology might be like in the future. ExploraVision helps teacher sponsors meet many of the National Science Education Standards while letting students experience scientific process and discovery in an engaging, hands-on way.

Toyops **#1027**
PO Box 11369 B, G
Pensacola, FL 32524 3–7
Phone: 850-479-4415
E-mail: *ehull@toyops.com*
Website: *www.toyops.com*

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Tybee Island Marine Science Center **#1639**
B, EN
PO Box 1879 PreK–12, College
Tybee Island, GA 31328
Phone: 912-786-5917
E-mail: *cody@tybeemarinescience.org*
Website: *www.tybeemarinescience.org*

We provide year-round programs for island visitors, scouts, and school groups on the beach, on the water, in the classroom, and at the Coastal Georgia Gallery.

UGA–Georgia 4-H **#1631**
Hoke Smith Annex B, EN, G
Athens, GA 30602 K–12
Phone: 706-542-4H4H
Website: *www.georgia4h.org*

Science is interwoven throughout many of the programs offered by Georgia 4-H in addition to valuable science content that is gained through the exploration of sciences. 4-H'ers also develop critical-thinking skills, heighten process skills, and enhance analytical and reasoning skills.

UGA College of Agricultural and Environmental Sciences **#1629**
B, EN, G
102 Conner Hall 9–12, College
Athens, GA 30602
Phone: 706-542-1611
E-mail: *discover@uga.edu*
Website: *students.caes.uga.edu*

We have science opportunities for students pertaining to entomology, food, plants, animals, and the environment. Located in Athens, the University of Georgia College of Agricultural and Environmental Sciences invites students to participate in summer educational and enrichment precollegiate programs. We have 22 majors for students interested in applied-science majors leading to rewarding careers.

Valdosta State University & Georgia Teacher Quality **#1635**
EA, PD
c/o Leslie S Jones K–12
VSU Dept. of Biology
Valdosta, GA 31698
Phone: 229-834-1802
E-mail: *lesliesj@valdosta.edu*
Website: *http://teacherquality.coe.uga.edu*

We will share information on the Natural History of Georgia from our trip around the state and demonstrate activities that teachers of various grades are using in their classrooms after our program last year.

Vernier Software & Technology **#1331**
13979 S.W. Millikan Way All
Beaverton, OR 97005 3–12, College
Phone: 888-837-6437
E-mail: *info@vernier.com*
Website: *www.vernier.com*

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Walden University **#1450**
4732 Redbranch Dr. PD
Decatur, GA 30035 PreK–12, College
Phone: 678-575-8872
E-mail: *charity.adams@waldenu.edu*
Website: *www.waldenu.edu/local*

Walden University is an accredited institution that has been serving the higher education needs of professionals for more than 40 years. Offered online, areas of study range from health and education to management and public administration. Walden programs help students achieve their goals so that, as graduates, they can help advance the lives of others.

Wavefunction, Inc. **#1032**
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Irvine, CA 92612 7–12, College
Phone: 949-955-2120
E-mails: *michelle@wavefun.com; sales@wavefun.com*
Website: *www.wavefun.com*

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E-mail: *jpink@wgu.edu*
Website: *www.wgu.edu*

The Teachers College at Western Governors University offers regionally, nationally, and NCATE-accredited online competency-based master's degree programs in science education with specializations in chemistry, physics, biology, and geosciences. As a student, you'll enjoy modest tuition rates, unbelievable flexibility, and unmatched student support. Scholarships and financial aid are available.

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W.H. Freeman of Bedford, Freeman & Worth (BFW) Publishers is the prestigious publisher of several groundbreaking resources, including many materials aligned to the highly anticipated Next Generation Science Standards. Please visit our booth to preview these resources and receive correlations. You can visit *www.bfwpub.com/highschool* to request complimentary consideration copies.

WhiteBox Learning #1431
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Louisville, KY 40245 5–12
Phone: 800-592-3460, x1
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Website: *www.whiteboxlearning.com*

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Brooklyn, NY 11201-1071 K–8
Phone: 800-823-1969, x1
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Website: *www.wirelessgeneration.com/seeds*

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Zoo Atlanta **#1034**
800 Cherokee Ave. SE B, EN, G, PD, T
Atlanta, GA 30315 PreK–12, College
Phone: 404-624-WILD
E-mail: *education@zooatlanta.org*
Website: *www.zooatlanta.org*

One of four zoos in the U.S. with giant pandas, Zoo Atlanta has a nationally recognized collection of great apes and is a global center of excellence for the preservation of amphibians and reptiles. Award-winning education programs provide unique opportunities for hands-on learning and wildlife exploration in a variety of disciplines.

A.D.A.M. Education (Booth #1530)

Friday, November 2	2:00–3:15 PM	B311, GWCC	Cadavers in Your Backpacks (p. 94)

Achieve3000 (Booth #1247)

Friday, November 2	12 Noon–1:15 PM	B311, GWCC	Experience the Future of Digital Science from National Geographic and Achieve3000® (p. 85)

American Chemical Society (Booth #1249)

Friday, November 2	2:00–3:15 PM	B312, GWCC	*Chemistry in the Community,* 6th Edition—Changing with the Times (p. 94)

American Nuclear Society (Booth #1245)

Friday, November 2	10:00–11:15 AM	B210, GWCC	Detecting Radiation in Our Radioactive World (p. 78)

Anatomy in Clay® Learning System (Booth #1546)

Friday, November 2	12 Noon–1:15 PM	B212, GWCC	Teaching and Learning Anatomy: Hands-On Method (p. 85)

Bio-Rad Laboratories (Booth #1324)

Friday, November 2	8:00–9:30 AM	B310, GWCC	Bio-Rad: Explore Inquiry and Ecology with Biofuel Enzymes (AP Big Idea 4) (p. 73)
Friday, November 2	10:30 AM–12 Noon	B310, GWCC	Bio-Rad: Engineer the Tools for Inquiry of Candy Food Dyes (p. 80)
Friday, November 2	2:00–4:30 PM	B310, GWCC	Bio-Rad: Crime Scene Investigator PCR Basics Kit (p. 95)
Saturday, November 3	8:00–9:30 AM	B310, GWCC	Bio-Rad: Implementing a Skills-based Biotech Program with Author Kirk Brown (p. 105)
Saturday, November 3	10:30–11:30 AM	B310, GWCC	Bio-Rad: Genes in a Bottle™ Kit (p. 108)

Carolina Biological Supply (Booth #1125)

Thursday, November 1	8:00–9:15 AM	B207, GWCC	AUTOPSY: Forensic Dissection Featuring Carolina's Perfect Solution® Pigs (p. 45)
Thursday, November 1	10:00–11:15 AM	B207, GWCC	Hands-On Activities to Explore Environmental Change (p. 47)
Thursday, November 1	12:30–1:45 PM	B207, GWCC	What Quality Science Instruction Has to Do with Raising Achievement Scores K–8 (p. 54)
Thursday, November 1	2:15–3:30 PM	B207, GWCC	Hands-On Science with Classroom Critters (p. 59)
Thursday, November 1	4:00–5:15 PM	B207, GWCC	Carolina Chemistry Investigations (p. 66)
Friday, November 2	8:00–9:15 AM	B207, GWCC	Comparative Vertebrate Anatomy Featuring Carolina's Perfect Solution® Specimens (p. 72)
Friday, November 2	10:00–11:15 AM	B207, GWCC	Introduction to Wisconsin Fast Plants® (p. 78)
Friday, November 2	12 Noon–1:15 PM	B207, GWCC	Carolina Beyond the Tape: Forensic Science for Every Discipline (p. 84)
Friday, November 2	2:00–3:15 PM	B207, GWCC	Engineering, Technology, and the Application of K–8 Science (p. 93)
Friday, November 2	4:00–5:15 PM	B207, GWCC	Decoding Human Genetics with *Inquiries in Science*® (p. 99)

CPO Science/School Specialty Science (Booth #1424)

Thursday, November 1	8:00–9:30 AM	B203, GWCC	Chemistry and the Atom: Fun with Atom-building Games! (p. 45)
Thursday, November 1	10:00–11:30 AM	B203, GWCC	Genetics: Crazy Traits and Adaptation Survivor (p. 48)
Thursday, November 1	12 Noon–1:30 PM	B203, GWCC	STEM Approach to Teaching Electricity and Magnetism (p. 50)
Thursday, November 1	2:00–3:30 PM	B203, GWCC	Light and Optics: A Series of EnLIGHTening Experiments! (p. 59)
Thursday, November 1	4:00–5:30 PM	B203, GWCC	Sound, Waves, and Music (p. 67)
Friday, November 2	8:00–9:30 AM	B203, GWCC	Genetics: Crazy Traits and Adaptation Survivor (p. 73)

CPO Science/School Specialty Science, cont.

Friday, November 2	10:00–11:30 AM	B203, GWCC	Chemistry and the Atom: Fun with Atom-building Games! (p. 79)
Friday, November 2	12 Noon–1:30 PM	B203, GWCC	Light and Optics: A Series of EnLIGHTening Experiments! (p. 85)
Friday, November 2	2:00–3:30 PM	B203, GWCC	Sound, Waves, and Music (p. 95)
Friday, November 2	4:00–5:30 PM	B203, GWCC	Chemistry and the Atom: Fun with Atom-building Games! (p. 100)

Delta Education/School Specialty Science (Booth #1325)

Thursday, November 1	8:00–9:15 AM	B202, GWCC	Inquiring Minds Provide Spark for Science Lessons (p. 45)
Thursday, November 1	10:00–11:15 AM	B202, GWCC	DSM and STEM: Challenges for the Elementary Student (p. 46)
Thursday, November 1	12:30–2:00 PM	B202, GWCC	Laurel and Hardy and the Laws of Science (p. 56)
Thursday, November 1	3:00–4:30 PM	B202, GWCC	What's Going on in There? NGSS Inquiry Science for Supervisors, Trainers, and Teachers (p. 61)
Friday, November 2	8:00–9:15 AM	B202, GWCC	Science: The Literacy Connection and the Core Curriculum (p. 72)
Friday, November 2	10:00–11:15 AM	B202, GWCC	Identifying, Clarifying, and Designing Experiments (p. 78)
Friday, November 2	1:00–2:15 PM	B202, GWCC	Technological Design Standards Meet the STEM Initiative (p. 90)

Delta Education/School Specialty Science–FOSS (Booth #1325)

Thursday, November 1	8:00–10:00 AM	B204, GWCC	Science-centered Language Development with FOSS (p. 45)
Thursday, November 1	10:30–11:30 AM	B204, GWCC	Asteroid! Will Earth Be Hit Again? Planetary Science for Middle School (p. 48)
Thursday, November 1	12 Noon–1:00 PM	B204, GWCC	NASA's Kepler Mission and the Hunt for Exoplanets: Planetary Science for Middle School (p. 49)
Thursday, November 1	1:30–3:00 PM	B204, GWCC	Engage Students with Active Learning Through the FOSS, 3rd Edition Program (p. 56)
Thursday, November 1	3:30–4:30 PM	B204, GWCC	Materials in Our World: STEM for Early Childhood (p. 65)
Friday, November 2	8:00–10:00 AM	B204, GWCC	Using Science Notebooks to Impact Student Learning with FOSS (p. 74)
Friday, November 2	10:30 AM–12:30 PM	B204, GWCC	FOSS Formative Assessment: Making Student Thinking Visible (p. 80)
Friday, November 2	1:00–2:30 PM	B204, GWCC	Taking Science Outdoors with FOSS K–6 (p. 90)
Friday, November 2	3:00–4:00 PM	B204, GWCC	Fossil Evidence: A Preview of *FOSS Earth History,* 2nd Edition for Middle School (p. 95)

Dinah-Might Adventures, LP (Booth #1043)

Thursday, November 1	4:00–5:15 PM	B312, GWCC	Science Projects and Notebooking (p. 67)
Friday, November 2	8:00–9:15 AM	B312, GWCC	Building and Assessing Academic Vocabulary Using Notebook Foldables® (p. 73)

Discovery Education (Booth #1335)

Thursday, November 1	12:30–1:45 PM	B312, GWCC	Stand Back! We're Using Discovery Education Science Techbook for Grades K–12 (p. 55)
Friday, November 2	4:00–5:15 PM	B312, GWCC	High School Biology in a Digital World: Critical Thinking Trumps Information Overload (p. 100)

eCYBERMISSION (Booth #1448)

Thursday, November 1	12:30–1:45 PM	B208, GWCC	Environmental Issues—What Can Students Really Do to Help? (p. 54)
Friday, November 2	8:00–9:15 AM	B309, GWCC	"Hard" Doesn't Mean "Bad"—Helping Students Understand That Facing Challenges Is a Good Thing (p. 73)

Educational Innovations, Inc. (Booth #1339)

Friday, November 2	10:00–11:15 AM	B309, GWCC	What the Heck Happened?! (p. 79)

Edvotek Inc. (Booth #1526)

Thursday, November 1	10:00–11:15 AM	B310, GWCC	Wait! The Chips I Ate Were a Genetically Modified Organism (GMO)? (p. 47)
Thursday, November 1	12:30–1:45 PM	B310, GWCC	Water Contaminants! Biotechnology Can Help Save the Marine Environment (p. 55)
Thursday, November 1	2:15–3:30 PM	B310, GWCC	The Case of the Missing Archive: Crime Scene and DNA Fingerprinting Investigation (p. 60)
Thursday, November 1	4:00–5:15 PM	B310, GWCC	How Is HIV Detected in Humans? Welcome to the Exciting World of Immunobiotechnology! (p. 66)

Fisher Science Education (Booth #1028)

Thursday, November 1	2:15–3:30 PM	B208, GWCC	Exploring STEM Careers: Water and Our Environment (p. 59)

Flinn Scientific, Inc. (Booth #1234)

Thursday, November 1	10:00–11:15 AM	B312, GWCC	Best Practices for Teaching Chemistry (p. 48)
Thursday, November 1	2:15–3:30 PM	B312, GWCC	Fantastic Physical Science Demonstrations (p. 60)
Friday, November 2	10:00–11:15 AM	B312, GWCC	Promote Inquiry Using Chemistry Demonstrations (p. 79)

Frey Scientific/School Specialty Science (Booth #1425)

Thursday, November 1	8:00–9:15 AM	B201, GWCC	A Simple Connection Between STEM and Data Logging (p. 44)
Thursday, November 1	10:00–11:15 AM	B201, GWCC	Solving the Mystery of STEM Using Forensic Science (p. 46)
Thursday, November 1	12 Noon–1:15 PM	B201, GWCC	STEM: The Game Changer in Science Lab Design (p. 50)

Houghton Mifflin Harcourt (Booth #1348)

Thursday, November 1	10:00–11:15 AM	B309, GWCC	That's Amazing! Explore the Bizarre, Cool, and Exciting World of Project-based Biology (p. 47)
Thursday, November 1	12:30–1:45 PM	B309, GWCC	Ecology Adventures: Motivating Students Through Project Based Learning (PBL) (p. 54)
Thursday, November 1	2:15–3:30 PM	B309, GWCC	Connecting to Chemistry: Igniting Student Motivation with STEM Examples and Ideas (p. 60)
Thursday, November 1	4:00–5:15 PM	B309, GWCC	New Physics for New Students: Guiding Them as They See It for the First Time (p. 66)
Friday, November 2	12 Noon–1:15 PM	B309, GWCC	Effective STEM Challenges for the Classroom (p. 85)
Friday, November 2	2:00–3:15 PM	B309, GWCC	Biology—"Biology for Life" (p. 94)
Friday, November 2	4:00–5:15 PM	B309, GWCC	Misconception Mania: Exciting and Engaging Ways to Address Common Misunderstandings in K–8 (p. 99)

It's About Time (Booth #1024)

Thursday, November 1	8:00–9:00 AM	B211, GWCC	Active Chemistry—Ahead of Its Time in Capturing the Essence of NGSS and STEM (p. 44)
Thursday, November 1	9:30–10:30 AM	B211, GWCC	Active Physics—Ahead of Its Time in Capturing the Essence of NGSS and STEM (p. 45)
Thursday, November 1	11:00 AM–12 Noon	B211, GWCC	Engineering the Future: A Practical Approach to STEM for High School (p. 49)
Thursday, November 1	12:30–1:30 PM	B211, GWCC	Your Technology Solution for STEM and the Highly Anticipated Next Generation Science Standards (p. 53)

It's About Time, cont.

Thursday, November 1	2:00–3:00 PM	B211, GWCC	How Do Scientists Work Together to Answer Big Questions and Solve Big Problems in *PBIS*™? (p. 59)
Thursday, November 1	3:30–4:30 PM	B211, GWCC	*PBIS*™—Moving Beyond "What Is Science?" to Being Scientists Through Science and Engineering Practices (p. 65)

Ken-A-Vision (Booth #1326)

Friday, November 2	4:00–5:15 PM	B212, GWCC	See More, Do More, Learn More—Benefits of Using Digital Technology Tools (p. 99)

LAB-AIDS, Inc. (Booth #1231)

Thursday, November 1	8:00–9:15 AM	B209, GWCC	I Think There's a Genetically Engineered Fly in My Genetically Modified Pea Soup! (p. 45)
Thursday, November 1	10:00–11:15 AM	B209, GWCC	I Think There's a Genetically Engineered Fly in My Genetically Modified Pea Soup! (p. 47)
Thursday, November 1	12:30–1:45 PM	B209, GWCC	Investigating a Cliff Model (p. 54)
Thursday, November 1	2:15–3:30 PM	B209, GWCC	Mastering the Chemical Formula: An Exceptionally Effective Way to Teach Subscripts and Coefficients (p. 60)
Thursday, November 1	4:00–5:15 PM	B209, GWCC	An Absorbing Misconception About Waves and the "Power" of Colors (p. 66)
Friday, November 2	8:00–9:15 AM	B209, GWCC	Distillation: Simple and Fascinating Experiments in the Chemistry of Aromas and Smells (p. 72)
Friday, November 2	10:00–11:15 AM	B209, GWCC	Color, Spectrophotometry, and Teaching the Structure of the Atom (p. 78)
Friday, November 2	12 Noon–1:15 PM	B209, GWCC	Power Up! Investigating Electric Motors (p. 84)
Friday, November 2	2:00–3:15 PM	B209, GWCC	Breeding Critters (p. 94)
Friday, November 2	4:00–5:15 PM	B209, GWCC	Lemons and Light Bulbs: Exploring the Chemistry of Electricity (p. 99)
Saturday, November 3	8:00–9:15 AM	B209, GWCC	O_2 Understand Photosynthesis and Cellular Respiration! (p. 105)
Saturday, November 3	10:00–11:15 AM	B209, GWCC	O_2 Understand Photosynthesis and Cellular Respiration! (p. 108)

LaMotte Co. (Booth #1430)

Thursday, November 1	2:15–3:30 PM	B210, GWCC	Stream Ecology: Slimy Leaves for Clean Streams (p. 60)
Friday, November 2	8:00–9:15 AM	B210, GWCC	Take a Swipe at Microbes! (p. 72)

LEGO Education (Booth #1529)

Thursday, November 1	4:00–5:15 PM	B210, GWCC	Math and Science Come to Life with LEGO® Engineering! (p. 66)
Friday, November 2	12 Noon–1:15 PM	B210, GWCC	Integrating 21st-Century Learning Skills and STEM with LEGO® Robotics! (p. 85)
Friday, November 2	2:00–3:15 PM	B210, GWCC	Integrating STEM with the New LEGO Education Elementary Simple Machines (p. 94)

Mississippi State University (Booth #1332)

Thursday, November 1	12:30–1:45 PM	B212, GWCC	Master of Science Degree in Geosciences Available Online Through the Teachers in Geosciences Program (p. 54)

PASCO scientific (Booth #1133)

Friday, November 2	8:00–9:15 AM	B208, GWCC	Equip Your iPad for Science with SPARKvue® HD, a Full-featured Science Application for the iPad (p. 72)
Friday, November 2	10:00–11:15 AM	B208, GWCC	Achievable Inquiry in AP* Biology and Chemistry (p. 78)
Friday, November 2	12 Noon–1:15 PM	B208, GWCC	STEM: Meeting the Standards in Your Classroom (p. 84)

PASCO scientific, cont.

Friday, November 2	2:00–3:15 PM	B208, GWCC	Investigating Motion: Understanding and Interpreting Graphs (p. 93)
Friday, November 2	4:00–5:15 PM	B208, GWCC	Exploring Renewable Energy: A Hands-On STEM Investigation (p. 99)

Pearson (Booth #1225)

Friday, November 2	8:00–9:15 AM	B211, GWCC	Inquiry and Scientific Practices: Keys to Getting Students to Think (p. 72)
Friday, November 2	10:00–11:15 AM	B211, GWCC	What NGSS Means for Earth Science: A Message from the Authors (p. 78)
Friday, November 2	12 Noon–1:15 PM	B211, GWCC	The Next Generation of Science Virtual Labs for the Entire Science Curriculum! No Cleanup (p. 85)
Friday, November 2	2:00–3:15 PM	B211, GWCC	Science Under Siege? Teaching Evolution in a Climate of Controversy (p. 94)
Friday, November 2	4:00–5:15 PM	B211, GWCC	Going Green: Economical and Environmentally Friendly Inquiry in Chemistry (p. 99)

Sangari Active Science (Booth #1250)

Thursday, November 1	10:00–11:15 AM	B208, GWCC	NGSS and Scientific Practices—More Than Photoshopping Models' Flaws (p. 47)
Friday, November 2	4:00–5:15 PM	B311, GWCC	Sangari Active Science (p. 100)

Science First®/STARLAB® (Booth #1239)

Thursday, November 1	12:30–1:00 PM	Booth #1239, Exhibit Hall	Welcome to the Neighborhood: An Overview of the Solar System (p. 50)
Friday, November 2	11:00–11:30 AM	Booth #1239, Exhibit Hall	Location, Location—Finding Your Way Around the Sky (p. 80)

Simulation Curriculum Corp. (Booth #1149)

Thursday, November 1	10:00–11:15 AM	B212, GWCC	Hurricanes and Volcanoes (p. 47)
Thursday, November 1	2:15–3:30 PM	B212, GWCC	The Sky Through the Ages (p. 60)
Friday, November 2	8:00–9:15 AM	B212, GWCC	Earthquakes and Tornadoes (p. 72)
Friday, November 2	2:00–3:15 PM	B212, GWCC	Black Holes and Starry Night(s) (p. 94)

Swift Optical Instruments, Inc. (Booth #1132)

Thursday, November 1	12:30–1:45 PM	B311, GWCC	Forensic Digital Microscopy and Inquiry Learning (p. 55)
Thursday, November 1	2:15–3:30 PM	B311, GWCC	Create a Digital Classroom Using 21st-Century STEM Initiatives! (p. 60)
Thursday, November 1	4:00–5:15 PM	B311, GWCC	Creating a Digital Strategy for STEM (p. 66)

Vernier Software & Technology (Booth #1331)

Friday, November 2	8:00–9:30 AM	B201, GWCC	Integrating Your iPad or Mobile Device with Vernier Technology (p. 73)
Friday, November 2	10:00–11:30 AM	B201, GWCC	Introducing the Vernier LabQuest 2! (p. 79)
Friday, November 2	12 Noon–1:30 PM	B201, GWCC	Chemistry and Biology with Vernier (p. 85)
Friday, November 2	2:00–3:30 PM	B201, GWCC	Physics and Physical Science with Vernier (p. 95)

Index of Exhibitor Workshops

Wavefunction Education Labs (Booth #1032)

Thursday, November 1	10:00–11:15 AM	B311, GWCC	Getting the Most Out of Molecular-Level Visualization and Simulation Tools (p. 48)
Friday, November 2	8:00–9:15 AM	B311, GWCC	Using Molecular-level Visualization to Engage Middle School and High School Science Students (p. 73)
Friday, November 2	10:00–11:15 AM	B311, GWCC	Nailing Molecular Concepts with Scientifically Accurate Visualization and Simulation Tools (p. 79)

WhiteBox Learning (Booth #1431)

Friday, November 2	10:00–11:15 AM	B212, GWCC	STEM Engineering for Science (p. 79)

Wireless Generation (Booth #1029)

Thursday, November 1	12:30–1:45 PM	B210, GWCC	Integrate! A Better Way to Teach and Learn (p. 54)
Friday, November 2	4:00–5:15 PM	B210, GWCC	33 Strategies for Integrating Science (p. 99)

G = General
P = Preschool
C = College
M = Middle School
H = High School
R = Research
S = Supervision/Administration
I = Informal Education
T = Teacher Preparation
E = Elementary

Biology/Life Science

THU

8:00–9:00 AM	M–H	B215, GWCC	Sustainability and Service Learning: Supporting Your Local Community Through Gardening (p. 41)
8:00–9:00 AM	M–H	B308, GWCC	Integrating Bioethical Case Studies into the Science Curriculum (p. 42)
8:00–9:00 AM	E	B313, GWCC	Science Is Pure Poetry! (p. 42)
8:00–9:15 AM	6–12	B207, GWCC	AUTOPSY: Forensic Dissection Featuring Carolina's Perfect Solution® Pigs (p. 45)
8:00–9:15 AM	9–12	B209, GWCC	I Think There's a Genetically Engineered Fly in My Genetically Modified Pea Soup! (p. 45)
10:00–11:15 AM	9–12	B201, GWCC	Solving the Mystery of STEM Using Forensic Science (p. 46)
10:00–11:15 AM	9–12	B209, GWCC	I Think There's a Genetically Engineered Fly in My Genetically Modified Pea Soup! (p. 47)
10:00–11:15 AM	K–12	B309, GWCC	That's Amazing! Explore the Bizarre, Cool, and Exciting World of Project-based Biology (p. 47)
10:00–11:15 AM	8–C	B310, GWCC	Wait! The Chips I Ate Were a Genetically Modified Organism (GMO)? (p. 47)
10:00–11:30 AM	5–12	B203, GWCC	Genetics: Crazy Traits and Adaptation Survivor (p. 48)
12:30–1:30 PM	M–H	B308, GWCC	Evaluating the Routes of Influenza Vaccine Immunization (p. 53)
12:30–1:30 PM	H	B316, GWCC	Marine Ecology, Human Impacts, and Conservation: A High School Ecology Unit from National Geographic (p. 53)
12:30–1:45 PM	8–C	B310, GWCC	Water Contaminants! Biotechnology Can Help Save the Marine Environment (p. 55)
2:00–3:00 PM	C	B303, GWCC	Assessing the AAAS Document Through Action: Vision and Change in Undergraduate Biology Education (p. 57)
2:00–3:00 PM	M–H	B308, GWCC	Life Science Activities You Will Love Forever (p. 58)
2:00–3:00 PM	H	B316, GWCC	Creatively Conceptualizing the Central Dogma of Molecular Biology (p. 59)
2:00–3:00 PM	H–C	B408, GWCC	Genetics Gets Personal: Teaching the Ethical, Legal, and Social Issues in Personal Genetics (p. 57)
2:15–3:30 PM	3–8	B207, GWCC	Hands-On Science with Classroom Critters (p. 59)
2:15–3:30 PM	8–12	B310, GWCC	The Case of the Missing Archive: Crime Scene and DNA Fingerprinting Investigation (p. 60)
3:30–4:00 PM	G	B218, GWCC	Improving Science Achievement Among High-Risk Students in the Urban South (p. 62)
3:30–4:30 PM	I	B213, GWCC	Engage Your Students with NOAA's Coral Reef Resources (p. 63)
3:30–4:30 PM	G	B303, GWCC	Batty About Bats (p. 64)
3:30–4:30 PM	M–C	B308, GWCC	Red Algae Is Growing in My Classroom! (p. 64)
3:30–4:30 PM	H–C	B316, GWCC	Lost in Translation: Exploring Protein Synthesis with Interactive Physical Models (p. 64)
4:00–5:15 PM	8–C	B310, GWCC	How Is HIV Detected in Humans? Welcome to the Exciting World of Immunobiotechnology! (p. 66)
4:00–5:15 PM	7–C	B311, GWCC	Creating a Digital Strategy for STEM (p. 66)

FRI

8:00–8:30 AM	G	B308, GWCC	NARST Session: The Influence of Students' Acceptance of Evolution on SSI Negotiation (p. 69)
8:00–9:00 AM	G	B216, GWCC	NSTA Press® Session: Uncovering Life Science Core Ideas in the NGSS Using Formative Assessment Probes (p. 69)
8:00–9:00 AM	H–C	B316, GWCC	Epigenetics: Integrating This Emerging Field into Your Biology Curriculum (p. 71)
8:00–9:15 AM	9–12	B207, GWCC	Comparative Vertebrate Anatomy Featuring Carolina's Perfect Solution® Specimens (p. 72)
8:00–9:15 AM	7–12	B210, GWCC	Take a Swipe at Microbes! (p. 72)
8:00–9:30 AM	5–12	B203, GWCC	Genetics: Crazy Traits and Adaptation Survivor (p. 73)
8:00–9:30 AM	9–C	B310, GWCC	Bio-Rad: Explore Inquiry and Ecology with Biofuel Enzymes (AP Big Idea 4) (p. 73)
8:30–9:00 AM	M–H	B308, GWCC	NARST Session: Argument-driven Inquiry as a Way to Help Students Learn How to Engage in Scientific Inquiry and Understand the Nature of Scientific Inquiry (p. 69)
9:30–10:30 AM	H–C	B316, GWCC	Let's Get Helical: Exploring DNA Structure/Function with Interactive Physical Models (p. 77)
9:30–10:30 AM	G	B405, GWCC	Cell Models: Exploration of Practices Used in Science Teaching (p. 77)
10:00–11:15 AM	3–12	B207, GWCC	Introduction to Wisconsin Fast Plants® (p. 78)
10:00–11:15 AM	7–C	B311, GWCC	Nailing Molecular Concepts with Scientifically Accurate Visualization and Simulation Tools (p. 79)
10:30 AM–12 Noon	6–C	B310, GWCC	Bio-Rad: Engineer the Tools for Inquiry of Candy Food Dyes (p. 80)
11:00 AM–12 Noon	E–H	B215, GWCC	Sci-Casting: Using Technology to Connect Field Trip Science and School Science (p. 81)
11:00 AM–12 Noon	H–C	B316, GWCC	Understanding the New AP Biology Course: Curriculum, Science Practices, and Instructional Design (p. 81)
12 Noon–1:15 PM	9–12	B207, GWCC	Carolina Beyond the Tape: Forensic Science for Every Discipline (p. 84)
12 Noon–1:15 PM	G	B212, GWCC	Teaching and Learning Anatomy: Hands-On Method (p. 85)
12:30–1:30 PM	M–H	B216, GWCC	NSTA Press® Session: Teaching and Learning Biology Through Scientific Argumentation (p. 86)
12:30–1:30 PM	E	B313, GWCC	From Germs to Genes—Life Science Activities for the Elementary Classroom (p. 88)
12:30–1:30 PM	H–C	B316, GWCC	Teaching Biological Processes Using Modules Based on 3-D Computer Animations (p. 87)
2:00–3:00 PM	H	B316, GWCC	Forensic Science: CSI ATL (p. 93)
2:00–3:15 PM	6–8	B209, GWCC	Breeding Critters (p. 94)
2:00–3:15 PM	9–12	B211, GWCC	Science Under Siege? Teaching Evolution in a Climate of Controversy (p. 94)
2:00–3:15 PM	9–12	B309, GWCC	Biology—"Biology for Life" (p. 94)
2:00–3:15 PM	9–C	B311, GWCC	Cadavers in Your Backpacks (p. 94)
2:00–4:30 PM	10–C	B310, GWCC	Bio-Rad: Crime Scene Investigator PCR Basics Kit (p. 95)
3:30–4:30 PM	H	B316, GWCC	Preparing for the Redesign: Using Student-designed Experiments in AP Biology (p. 98)
4:00–5:15 PM	9–12	B207, GWCC	Decoding Human Genetics with Inquiries in Science® (p. 99)
4:00–5:15 PM	9–12	B312, GWCC	High School Biology in a Digital World: Critical Thinking Trumps Information Overload (p. 100)

SAT

8:00–9:00 AM	G	B303, GWCC	What Do You Need to Begin Benchmark Testing? (p. 103)
8:00–9:15 AM	9–12	B209, GWCC	O_2 Understand Photosynthesis and Cellular Respiration! (p. 105)
8:00–9:30 AM	9–C	B310, GWCC	Bio-Rad: Implementing a Skills-based Biotech Program with Author Kirk Brown (p. 105)

9:30–10:30 AM	G	B303, GWCC	Improving Teacher Quality Through Teacher Quality Enhancement Grants (TQE) (p. 106)
9:30–10:30 AM	M–H	B308, GWCC	Neuroscience for Your Biology Classroom (p. 107)
10:00–11:15 AM	9–12	B209, GWCC	O_2 Understand Photosynthesis and Cellular Respiration! (p. 108)
10:30–11:30 AM	5–C	B310, GWCC	Bio-Rad: Genes in a Bottle™ Kit (p. 108)
11:00 AM–12 Noon	G	B218, GWCC	Science Writing and Publishing for Grades 6–12 (p. 108)
11:00 AM–12 Noon	M–H/I	B308, GWCC	Integrating Food Science and Nutrition into Your Science Curriculum (p. 109)
11:00 AM–12 Noon	H	B316, GWCC	OMG! Staring Down the Barrel of the Biology EOC (p. 109)

Chemistry/Physical Science

THU

8:00–9:00 AM	E	B314, GWCC	Inquiry in Action: Investigating Matter Through Inquiry (p. 42)
8:00–9:00 AM	H	B404, GWCC	What Is Your Cosmic Connection to the Elements? (p. 43)
8:00–9:30 AM	5–12	B203, GWCC	Chemistry and the Atom: Fun with Atom-building Games! (p. 45)
10:00–11:15 AM	7–C	B311, GWCC	Getting the Most Out of Molecular-Level Visualization and Simulation Tools (p. 48)
10:00–11:15 AM	9–12	B312, GWCC	Best Practices for Teaching Chemistry (p. 58)
12:30–1:30 PM	H–C	B404, GWCC	True Science Practices in the New AP Chemistry Course (p. 51)
2:15–3:30 PM	9–12	B209, GWCC	Mastering the Chemical Formula: An Exceptionally Effective Way to Teach Subscripts and Coefficients (p. 60)
2:15–3:30 PM	9–12	B309, GWCC	Connecting to Chemistry: Igniting Student Motivation with STEM Examples and Ideas (p. 60)
3:30–4:30 PM	E–H	B216, GWCC	NSTA Press® Session: *Stop Faking It!* Finally Understand Chemistry Basics So You Can Teach Them (p. 64)
4:00–5:15 PM	9–12	B207, GWCC	Carolina Chemistry Investigations (p. 66)
4:00–5:15 PM	6–8	B209, GWCC	An Absorbing Misconception About Waves and the "Power" of Colors (p. 66)

FRI

8:00–9:00 AM	M	B302, GWCC	ACS Middle Level Session: Solids, Liquids, and Gases: The Kinetic-molecular Theory of Matter (p. 70)
8:00–9:00 AM	H	B303, GWCC	ACS Session One: Equilibrium and Concentration (p. 70)
8:00–9:00 AM	H/S	B406, GWCC	Exploring the *2012 ACS Guidelines and Recommendations for Teaching High School Chemistry* (p. 70)
8:00–9:15 AM	9–12	B209, GWCC	Distillation: Simple and Fascinating Experiments in the Chemistry of Aromas and Smells (p. 72)
8:00–9:15 AM	7–C	B311, GWCC	Using Molecular-Level Visualization to Engage Middle School and High School Science Students (p. 73)
9:30–10:30 AM	M	B302, GWCC	ACS Middle Level Session: Changes of State: Evaporation and Condensation (p. 76)
9:30–10:30 AM	H	B303, GWCC	ACS Session Two: Equilibrium and Energy (p. 77)
9:30–10:30 AM	M–H	B403, GWCC	Candy Analysis (p. 77)
10:00–11:15 AM	9–12	B209, GWCC	Color, Spectrophotometry, and Teaching the Structure of the Atom (p. 78)
10:00–11:15 AM	9–12	B312, GWCC	Promote Inquiry Using Chemistry Demonstrations (p. 79)
10:00–11:30 AM	5–12	B203, GWCC	Chemistry and the Atom: Fun with Atom-building Games! (p. 79)
11:00 AM–12 Noon	M	B302, GWCC	ACS Middle Level Session: Density: A Molecular View (p. 82)
11:00 AM–12 Noon	H	B303, GWCC	ACS Session Three: Rate (p. 83)
11:00 AM–12 Noon	M–H	B403, GWCC	Chemical Nomenclature Rummy: Naming Compounds and Ion Combination Rules (p. 83)
12 Noon–1:15 PM	6–8	B209, GWCC	Power Up! Investigating Electric Motors (p. 84)

12 Noon–1:30 PM	9–C	B201, GWCC	Chemistry and Biology with Vernier (p. 85)
12:30–1:30 PM	M	B302, GWCC	ACS Middle Level Session: The Periodic Table, Energy Levels, and Bonding (p. 88)
12:30–1:30 PM	H	B303, GWCC	ACS Session Four: Catalysis (p. 88)
12:30–1:30 PM	M–H	B403, GWCC	Demos for the Holidays! Excite Students with Chemical Demonstrations (p. 87)
12:30–1:30 PM	M–H	B404, GWCC	Be Prepared—Move from Cookbook to Inquiry! (p. 89)
2:00–3:00 PM	M	B302, GWCC	ACS Middle Level Session: Polarity of the Water Molecule and Its Consequences (p. 92)
2:00–3:00 PM	H	B303, GWCC	ACS Session Five: Light as a Reactant and/or Product (p. 92)
2:00–3:00 PM	M–H	B403, GWCC	Chemistry Demos, Labs, and Projects (p. 91)
2:00–3:00 PM	E–H	B404, GWCC	The Secret Life of Toys and H_20 Bottles (p. 91)
2:00–3:15 PM	9–C	B312, GWCC	*Chemistry in the Community,* 6th Edition—Changing with the Times (p. 94)
3:30–4:00 PM	G	B213, GWCC	Extended Learning Through Multimodal Technologies for Effective, Engaging Science Education (p. 95)
3:30–4:30 PM	M	B302, GWCC	ACS Middle Level Session: Chemical Change: Breaking and Making Bonds (p. 97)
3:30–4:30 PM	H	B303, GWCC	ACS Session Six: Half-Life (p. 97)
3:30–4:30 PM	I	B403, GWCC	Squeezing GLUE-GOO into the National Science Education Standards (p. 98)
4:00–5:15 PM	9–12	B209, GWCC	Lemons and Light Bulbs: Exploring the Chemistry of Electricity (p. 99)
4:00–5:15 PM	9–12	B211, GWCC	Going Green: Economical and Environmentally Friendly Inquiry in Chemistry (p. 99)
4:00–5:30 PM	5–12	B203, GWCC	Chemistry and the Atom: Fun with Atom-building Games! (p. 100)

SAT

8:00–9:00 AM	M–H	B308, GWCC	Bioplastic—Going from Synthetic to Natural Polymers (p. 103)
9:30–10:30 AM	M–H	B301, GWCC	STEM—Now or Never! (p. 107)
11:00–11:30 AM	H	B403, GWCC	"Emergency Lesson Plans" for Teaching Chemistry Across Curricula (p. 109)
11:30 AM–12 Noon	H	B403, GWCC	Teaching and Learning in the Digital Age: Chemistry Resources Teachers and Students Can Rely On (p. 109)

Earth/Space Science

THU

8:00–9:00 AM	G	B216, GWCC	NSTA Press® Session: Uncovering Earth and Space Core Ideas in the NGSS Using Formative Assessment Probes (p. 41)
10:00–11:15 AM	4–12	B212, GWCC	Hurricanes and Volcanoes (p. 47)
10:30–11:30 AM	5–8	B204, GWCC	Asteroid! Will Earth Be Hit Again? Planetary Science for Middle School (p. 48)
12 Noon–1:00 PM	5–8	B204, GWCC	NASA's Kepler Mission and the Hunt for Exoplanets: Planetary Science for Middle School (p. 49)
12:30–1:00 PM	5–8	Booth #1239, Exhibit Hall	Welcome to the Neighborhood: An Overview of the Solar System (p. 50)
12:30–1:30 PM	M–H	B302, GWCC	Beyond Our Solar System with NASA's Education Resources (p. 52)
12:30–1:30 PM	H	B403, GWCC	Carbon Capture and Storage (p. 53)
12:30–1:30 PM	G	B408, GWCC	The Scale of the Universe (p. 52)
12:30–1:45 PM	6–8	B209, GWCC	Investigating a Cliff Model (p. 54)
12:30–1:45 PM	K–12	B212, GWCC	Master of Science Degree in Geosciences Available Online Through the Teachers in Geosciences Program (p. 54)
2:00–3:00 PM	M–H	B302, GWCC	I'm Too Wise to Believe My Eyes (p. 60)
2:00–3:00 PM	P–M/I	B314, GWCC	Science in a Grain of Sand (p. 58)

2:15–3:30 PM	4–12	B212, GWCC	The Sky Through the Ages (p. 60)
3:30–4:30 PM	G	B302, GWCC	NASA's High-Energy Vision: Chandra and the X-Ray Universe (p. 62)

FRI

8:00–9:00 AM	M–H	B213, GWCC	"Astro"nishing Astronomy: The Electromagnetic Spectrum (p. 70)
8:00–9:00 AM	E–H	B401/B402, GWCC	Climate Change Classroom Tool Kit (p. 71)
8:00–9:15 AM	4–12	B212, GWCC	Earthquakes and Tornadoes (p. 72)
9:30–10:00 AM	G	B308, GWCC	NARST Session: An Effective Teacher Professional Development Model Focused on Authentic Science Practices in the Classroom (p. 74)
9:30–10:30 AM	M–H	B315, GWCC	Black Holes in a Different Light (p. 77)
9:30–10:30 AM	E–H	B401/B402, GWCC	Let's Get Well Grounded! (p. 77)
10:00–11:15 AM	K–12	B211, GWCC	What NGSS Means for Earth Science: A Message from the Authors (p. 78)
11:00–11:30 AM	K–4	Booth #1239, Exhibit Hall	Location, Location—Finding Your Way Around the Sky (p. 80)
11:00 AM–12 Noon	P	B314, GWCC	Rocks, Water, and Erosion (p. 82)
11:00 AM–12 Noon	E–H	B401/B402, GWCC	Activities from Across the Earth System (p. 83)
12:30–1:30 PM	M–H	B401/B402, GWCC	Our Changing Planet (p. 89)
2:00–3:00 PM	E–H	B401/B402, GWCC	National Earth Science Teachers Association Earth Science Share-a-Thon (p. 93)
2:00–3:15 PM	4–12	B212, GWCC	Black Holes and Starry Night(s) (p. 94)
3:00–4:00 PM	5–8	B204, GWCC	Fossil Evidence: A Preview of *FOSS Earth History,* 2nd Edition for Middle School (p. 95)
3:30–4:30 PM	E–H	B215, GWCC	NASA CERES S'COOL Project: Cloud Observation Is S'COOL! (p. 96)
3:30–4:30 PM	G	B401/B402, GWCC	National Earth Science Teachers Association Rock and Mineral Raffle (p. 98)

SAT

8:00–9:00 AM	G	B301, GWCC	Ice Core Records—From Volcanoes to Supernovae (p. 104)
8:00–9:00 AM	M–H	B302, GWCC	Solving the Mysteries in the Heart of a Supernova Explosion (p. 104)
9:30–10:30 AM	G	B302, GWCC	Journey to the Edge of the Solar System (p. 107)
11:00 AM–12 Noon	E–H	B302, GWCC	MY NASA DATA: Earth Systems Data Visualization Tool for Students (p. 108)
11:00 AM–12 Noon	I	B407, GWCC	The Carbon Cycle and Bioenergy: Quantitative Modeling with Poker Chips and Student Monitoring of CO_2 (p. 109)

Environmental Science

THU

8:00–9:00 AM	H	B407, GWCC	Playing Games to Learn Complex Environmental Science Concepts (p. 43)
10:00–11:15 AM	9–12	B207, GWCC	Hands-On Activities to Explore Environmental Change (p. 47)
12:30–1:30 PM	G	B215, GWCC	Developing an Effective Outdoor Classroom (p. 51)
12:30–1:30 PM	G	B407, GWCC	Ecosystems and Biodiversity Field Study: Environmental Science Coursework That Jumps into Your Lap! (p. 52)
12:30–1:45 PM	6–9	B208, GWCC	Environmental Issues—What Can Students Really Do to Help? (p. 54)
2:00–3:00 PM	G	B304, GWCC	Siemens We Can Change the World Challenge: Top Free STEM Resources for Your Classroom (p. 57)
2:00–3:00 PM	I	B407, GWCC	Water, Water Everywhere (p. 59)
2:15–3:30 PM	6–12	B208, GWCC	Exploring STEM Careers: Water and Our Environment (p. 59)
2:15–3:30 PM	5–C	B210, GWCC	Stream Ecology: Slimy Leaves for Clean Streams (p. 60)
3:30–4:30 PM	M	B301, GWCC	Math/Science Integration for Earth's Sake (p. 64)
3:30–4:30 PM	I	B407, GWCC	GreenSchools! (p. 64)

FRI

8:00–9:00 AM	E	B214, GWCC	Mission Discovery: Exploring a Pathway to Renewable Energy Education (p. 69)
8:00–9:00 AM	G	B407, GWCC	Ruffner Mountain: The Nature of the City (p. 71)
9:30–10:30 AM	I	B215, GWCC	Can We Go to Tree-town? (p. 76)
9:30–10:30 AM	E	B407, GWCC	Cosmetics, OTC Drugs, Environmental Issues, and the BP Oil Spill—Let's Go Green (p. 78)
12:30–1:30 PM	P–M	B213, GWCC	How Does Your Garden Grow? (p. 88)
12:30–1:30 PM	G	B308, GWCC	Communicate, Collaborate, and Create—Changing Your Classroom and the World (p. 88)
12:30–1:30 PM	M–H	B407, GWCC	Making Superfund Relevant to Your Students (p. 89)
1:00–2:15 PM	K–6	B202, GWCC	Technological Design Standards Meet the STEM Initiative (p. 90)
2:00–3:00 PM	G	B315, GWCC	ASTC Session: The Ideal Solution—Merging the Classroom and Community (p. 91)
2:00–3:00 PM	H–C/I	B407, GWCC	Focus on Forests: Project Learning Tree's New Secondary Curriculum (p. 93)
3:30–4:30 PM	P–M/I	B313, GWCC	Facilitating Early Childhood Education with Project Learning Tree (p. 98)
3:30–4:30 PM	I	B407, GWCC	An Educational Nature Trail for Every School (p. 97)
4:00–5:15 PM	9–12	B208, GWCC	Exploring Renewable Energy: A Hands-On STEM Investigation (p. 99)

SAT

9:30–10:00 AM	H	B215, GWCC	Field Studies as Vehicles for Project Based Learning (PBL) and Service Learning (p. 106)
10:00–10:30 AM	G	B215, GWCC	Regular People, Real Science: Discover Why Citizen Science Is the Wave of the Future for Natural Science Education (p. 106)

Integrated/General

THU

8:00–8:30 AM	G	B303, GWCC	Crime Scene Portfolios (p. 42)
8:00–9:00 AM	9–12	B211, GWCC	Active Chemistry—Ahead of Its Time in Capturing the Essence of NGSS and STEM (p. 44)
8:00–9:00 AM	P–M	B213, GWCC	Science Inquiry Through Toys (p. 42)
8:00–9:00 AM	M–H	B214, GWCC	Iteration in Engineering (p. 42)
8:00–9:00 AM	G	B217, GWCC	How to Integrate Technology into Your Classroom (p. 41)
8:00–9:00 AM	G	B301, GWCC	Data: It's Not a Four-Letter Word (p. 41)
8:00–9:00 AM	G	B304, GWCC	Before and After Retirement: Practicalities and Possibilities (p. 42)
8:00–9:00 AM	E	B306, GWCC	Integrating the Dimensions at the Elementary Level: Practices, Concepts, and Core Ideas (p. 42)
8:00–9:00 AM	G	B401/B402, GWCC	Is This Your First NSTA Conference? (p. 43)
8:00–9:15 AM	9–12	B201, GWCC	A Simple Connection Between STEM and Data Logging (p. 44)
8:00–9:15 AM	K–6	B202, GWCC	Inquiring Minds Provide Spark for Science Lessons (p. 45)
8:00–10:00 AM	K–8	B204, GWCC	Science-centered Language Development with FOSS (p. 45)
8:30–9:00 AM	G	B303, GWCC	Incorporating Reading into Forensic Science (p. 42)
9:30–10:30 AM	9–12	B211, GWCC	Active Physics—Ahead of Its Time in Capturing the Essence of NGSS and STEM (p. 45)
9:30–10:45 AM	G	Thomas Murphy 2/3, GWCC	General Session: Kids and Nature—Reconnecting Youth to the Outdoors (Speaker: David Mizejewski) (p. 46)
10:00–11:15 AM	K–6	B202, GWCC	DSM and STEM: Challenges for the Elementary Student (p. 46)

10:00–11:15 AM	5–8	B208, GWCC	NGSS and Scientific Practices—More Than Photoshopping Models' Flaws (p. 47)
11:00 AM–12 Noon	9–12	B211, GWCC	Engineering the Future: A Practical Approach to STEM for High School (p. 49)
12 Noon–1:15 PM	9–12	B201, GWCC	STEM: The Game Changer in Science Lab Design (p. 50)
12:30–1:30 PM	6–12	B211, GWCC	Your Technology Solution for STEM and the Highly Anticipated Next Generation Science Standards (p. 53)
12:30–1:30 PM	G	B214, GWCC	Teaching Problem-solving Strategies in the Elementary Classroom: Helping Students See the Interconnectedness of Science, Technology, Engineering, and Mathematics (p. 51)
12:30–1:30 PM	E–H	B217, GWCC	Give Science a Voice! Digital Storytelling in the Science Classroom (p. 51)
12:30–1:30 PM	G	B218, GWCC	Less Stress in the Classroom Means Academic Achievement Increases (p. 51)
12:30–1:30 PM	M–H	B301, GWCC	Powers of 10: Scaling the Universe with NASA (p. 52)
12:30–1:30 PM	G	B304, GWCC	AMSE Session: Strategies and Resources That Enhance the Learning of Students from Underrepresented Groups in the Sciences (p. 51)
12:30–1:30 PM	I	B305, GWCC	Fueling the Future: Energy Interconnections and Sustainable Choices (p. 52)
12:30–1:30 PM	G	B306, GWCC	NSELA Session: Tools for Leaders, Part I (p. 51)
12:30–1:30 PM	P–E	B313, GWCC	Teaching Forms of Energy to Younger Students (p. 53)
12:30–1:30 PM	E	B314, GWCC	Excite Elementary Students with Science Olympiad (p. 53)
12:30–1:30 PM	H	B405, GWCC	Making the Leap to a Textbook-less Course (p. 51)
12:30–1:30 PM	G	B406, GWCC	Dazzling Deceptions: Discrepant Events That Delight and Mystify! (p. 52)
12:30–1:45 PM	K–8	B207, GWCC	What Quality Science Instruction Has to Do with Raising Achievement Scores K–8 (p. 54)
12:30–1:45 PM	2–6	B210, GWCC	Integrate! A Better Way to Teach and Learn (p. 54)
12:30–1:45 PM	3–8	B309, GWCC	Ecology Adventures: Motivating Students Through Project Based Learning (PBL) (p. 54)
12:30–1:45 PM	7–C	B311, GWCC	Forensic Digital Microscopy and Inquiry Learning (p. 55)
12:30–1:45 PM	K–12	B312, GWCC	Stand Back! We're Using Discovery Education Science Techbook for Grades K–12 (p. 55)
12:30–2:00 PM	K–8	B202, GWCC	Laurel and Hardy and the Laws of Science (p. 56)
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