Experience science like never before with K–12 Inspire Science™. Built to the NGSS®, it inspires students with hands-on learning, compelling phenomena, and real-world explorations. Join us for:

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Registration Hall B

Offering the latest resources for science teachers, including new releases and bestsellers!

- Fun NSTA-branded gear—unique hats, shirts, mugs, and more
- Everyone enjoys member pricing: 20% off bestseller NSTA Press® titles
- Ask about our NSTA gift cards—great gift ideas!

Download the conference app or follow #NSTA18 for special giveaways, contests, and more throughout the conference!

Visit www.nsta.org/store to make a purchase today, or call 800-277-5300.
Volume 1  Wed., March 14/Thu., March 15

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NSTA 66th National Conference
on Science Education
Science on My Mind
Atlanta, Georgia • March 15–18, 2018
Although advertisers work hard to follow strict safety procedures, guidelines are constantly evolving. It is important to note that all ad images are simulations, not actual experiments—any safety lapses are extremely unlikely to endanger the participants, who are models rather than actual teachers and students. Therefore, NSTA assumes no responsibility for nor guarantees the accuracy of safety information presented in ads.

Volume 2 Fri., March 16

Elementary Extravaganza
Meet Me in the Middle Day
NGSS@NSTA Forum
Global Initiative Enhancing Science Education:
  An International Share-a-Thon and Poster Session
Featured Presentation: Jo Anne Vasquez
Featured Presentation: Jeffrey Vinokur
Featured Presentation: Okhee Lee
AGU-NESTA Sponsored Lecture: C. Mark Eakin
Featured Presentation: Mike Kincaid and Scott Tingle
“Meet and Greet” the Presidents and Board/Council
Community Connections Featured Presentation and Panel:
  Opening Speaker: Fredi Lajvardi
Community Connections Share-a-Thon
Robert H. Carleton Lecture: Edward Ortleb
NSTA Teacher Awards Gala (M-1)
Friday Daily Program

Volume 3 Sat., March 17 /Sun., March 18

NGSS@NSTA Share-a-Thon
The Horizon Educational Drone Competition (HEDC)
Featured Presentation: Stephen Pruitt
Paul F-Brandwein Lecture: Caren Cooper
NSTA/ASE Honors Exchange Lecture: Linda Needham
Community Connections Featured Forum: Learn How to
  Better Advocate for Science and Science Education
Saturday Daily Program
Sunday Daily Program

Volume 4 Exhibitors

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

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

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.

The environment is important to science educators. These programs are recyclable and were printed on recycled paper.
Sponsors and Contributors to the Atlanta National Conference

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

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Lab-Aids, Inc.
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Northrop Grumman Foundation
Pitsco Education
School Specialty Science
Shape of Life
Shell
Southwest Airlines
UBTECH Education
Vernier Software & Technology

Contributors
American Geophysical Union and
the National Earth Science Teachers Association
The Association for Science Education (ASE)
Atlanta Botanical Garden
Brandwein Institute
Fernbank Science Center

We at NSTA wish to express our heartfelt thanks to the members of the Georgia Science Teachers Association (GSTA) for the many hours of time they volunteered in planning this conference.
Welcome to Atlanta, the capital city of Georgia, known for its rich history and as a leader in innovation. The NSTA National Conference team has worked hard to bring you great speakers and sessions! The conference theme, based upon the classic song from Ray Charles, is Science on My Mind. Along with this theme, the conference committee has planned the conference around four strands that explore topics of current significance.

The strand Focusing On Evidence of 3-D Learning calls on students to use disciplinary core ideas, science and engineering practices, and crosscutting concepts to explain real-world phenomena and solve authentic problems. This strand will help teachers, whether they are 3-D novices or experts, expand their understanding of three dimensional teaching, learning, and assessment.

The goal of the Imagining Science as the Foundation for STEM strand is to provide students with opportunities that equip them to make sense of the world in which they live, hone their critical-thinking skills, and spark their sense of innovation.

The strand Reflecting On Access for All Students is very appropriate for this historical town. Cultivating a culture of equity and inclusion for all students not only aligns with the NSTA mission statement and the vision put forth by A Framework for K–12 Science Education, but also prepares students for future career opportunities in a global society.

The strand Comprehending the Role of Literacy in Science will allow educators to become advocates of literacy in preK–12 science and engineering, to see the connections between science and literacy, and to learn literacy strategies that encompass active student engagement. Science core ideas can be developed by using current technology and media to create, refine, and collaborate through reading, writing, listening, and speaking.

I encourage you to take full advantage of this national conference to improve your knowledge of making science accessible for all students, not only through these selected strands, but also through the featured speakers, sessions, professional learning opportunities, as well as the exhibit hall. Take time to find new colleagues and share ideas that you bring to this conference. I am sure that you will agree with me that NSTA provides a unique and exciting opportunity to hone your teaching craft and create new ideas to use with your students. I look forward to seeing you here in Atlanta!

David T. Crowther
2017–2018 NSTA President

Enjoy a fabulous evening celebrating with this year’s teacher award recipients! ALL of the teacher awards will be presented in one grand evening. Join your colleagues in recognition of this year’s winners.

Friday, March 16, 6:00–8:45 PM
Grand Ballroom E, Omni Hotel at CNN Center
Cost: $80

President’s Welcome
HHMI Movie Night
The Farthest Voyager in Space

Friday March 16th 6:00PM
Sidney J. Marcus Auditorium at the World Congress Center

Complimentary Food and Drinks served promptly at 6:00PM followed by Film Screening and Panel Discussion with Original Voyager Team Members at 6:30PM
Reserve your free ticket at hhmi.org/farthest

HHMI BioInteractive Workshops
All workshops held in Georgia World Congress Center B308

Thursday
8:00–9:30AM: How Do Species Coexist? Niche Partitioning with HHMI BioInteractive
10:00–11:30AM: The Central Dogma, CRISPR, and Genetic Medicine
12:00–1:30PM: Making Evolutionary Connections Within an NGSS Storyline
2:00–3:30PM: Using HHMI Resources as Phenomena: The Earth/Life Science NGSS Crosswalk
4:00–5:30PM: Modeling Population Dynamics in Gorongosa National Park
4:00–5:30PM, Room B213: Building Knowledge with BioInteractive and Understanding Global Change

Friday
8:00–9:30AM: Scientists at Work: Bringing Science to Life with HHMI BioInteractive
10:00–11:30AM: Biology and Geology: Co-Evolving Over Time
12:00–1:30PM: Alzheimer’s to Zoonosis: Using Disease to Teach Data Analysis
2:00–3:30PM: BioInteractive Scientists at Work Integrates NGSS Practices!
4:00–5:30PM: Exploring Trophic Cascades with HHMI BioInteractive Resources

Saturday
8:00–9:30AM: Connecting Biological Concepts Through Phenomena: Sickle Cell and Malaria
10:00–11:30AM: Explore Our Changing Planet and Mass Extinctions with HHMI BioInteractive
Welcome to Atlanta: Science on My Mind

Welcome to Atlanta! From its earliest days, Atlanta has established itself as a leader within the region and the nation by keeping an eye on the future while honoring the traditions of its past. We believe the 2018 National Science Teachers Association Conference on Science Education honors that rich tradition as we seek to advance science and science education by keeping “Science on Our Minds.” The Atlanta Conference Committee has worked diligently to craft a program that will allow you to advance your understanding of issues related to our field, grow your professional learning community, and continue to hone your craft. We feel that these four conference strands will provide you with opportunities to meet your personal and professional needs:

- Focusing On Evidence of 3-D Learning
- Imagining Science as the Foundation for STEM
- Reflecting On Access for All Students
- Comprehending the Role of Literacy in Science

While in Atlanta, we hope you attend sessions that push your thinking around advocacy, assessment, and implementation of three-dimensional science instruction. We hope you channel the rich history of our city and seek ways to provide access to high-quality science education to all students. We invite you to visit the exhibit hall, exchange contact information with peers from around the nation, and ask the questions that will allow you to be the best science educator you can be. We encourage you to fill your days with networking and professional growth and your nights with our special brand of Southern hospitality.

Most importantly, we hope you will leave Atlanta invigorated, empowered, and motivated to keep “Science on Your Mind” long after the conference is over.

2018 Atlanta Conference Committee Leaders
Zoe Evans, Jeremy Peacock, and Rabieh Hafza
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 App**
All conference preregistrants are sent an electronic version (PDF) of the final conference program by e-mail approximately one week prior to the conference, further reducing print and shipping requirements. Also, attendees are encouraged to use the NSTA Conference app, which provides all the tools necessary for a successful conference experience.

**Recycled Paper and Sustainable Print Services**
Conference previews and final conference programs are now printed on recycled paper. In addition, Walsworth Inc., the printer for our conference materials, is in strict compliance with all environmental laws and exceeds these standards in many areas. Wherever possible, Walsworth works to reduce and recycle waste, use reduced- or low-VOC chemicals, increase the recycled content of raw materials, and use soy- or vegetable-based inks. Walsworth has also obtained certifications with the Sustainable Forest Initiative (SFI) and the Forest Stewardship Council® (FSC) to ensure paper products are being harvested from environmentally responsible sources.

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

**Green Initiatives at the Georgia World Congress Center**
Stewardship is a core value of the Georgia World Congress Center Authority (GWCCA). As one of the first convention, sports, and entertainment destinations in the country to incorporate green building practices in 2005, environmental sustainability is not new to the organization.

• In 2017, the U.S. Green Building Council awarded LEED Gold certification to the 3.9-million-square-foot Georgia World Congress Center (GWCC), the largest convention center in the world to achieve this status. LEED, an acronym for Leadership in Energy and Environmental Design, is an internationally recognized green building certification awarded to facilities that employ sustainability strategies.

• The GWCCA campus has diverted more than 14 million pounds of material from landfills since 2010 through recycling, composting, donations, and reuse.

• Energy-efficiency upgrades to the GWCCA campus have resulted in a minimum of 39% savings on utilities.

• Plumbing fixture upgrades have resulted in saving 32% more water than required by building code.

• The 1.6 megawatts of solar panels on the GWCCA campus generate enough electricity to power 160 homes in Georgia annually.

“Go Green” at the Atlanta Conference!

• Recycle your conference programs in the clearly marked recycle bins located throughout the GWCC.

• 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 online.
Meeting Location and Times

The conference headquarters hotel is the Omni Atlanta Hotel at CNN Center. Conference registration, the exhibits, and the NSTA Science Store will be located at the Georgia World Congress Center (GWCC). Most sessions will be held at the GWCC and the Omni. The majority of short courses will be held at The Westin Peachtree Plaza (SC-4 will be held off-site at Clarkston High School).

The conference will begin on Thursday, March 15, at 8:00 AM and end on Sunday, March 18, at 12 Noon.

Registration

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

The NSTA Registration Area in GWCC will be open during the following hours:

In conjunction with the Fun Lab, Wednesday registration is located at Registration Hall A.

Wed., March 14 4:00–7:00 PM

On Thursday through Saturday, registration is located at Exhibit Hall B-2.

Thu., March 15 7:00 AM–6:00 PM
Fri., March 16 7:00 AM–5:00 PM
Sat., March 17 7:00 AM–5:00 PM

On Sunday, registration is located at Level 2 Concourse at the top of Halls B-1/B-2 escalators.

Sun., March 18 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 Conference Committee has scheduled a variety of ticketed events (e.g., professional learning institutes, short courses, educational trips, and networking events). Each of these events requires a separate fee and ticket. You may purchase tickets, space permitting, in the NSTA Registration Area. See the Conference Program section (starting on page 54) for details. Note that some events may have required advance registration.

Discounted Rental Cars

NSTA-designated car rental companies are:

- **Alamo Car Rentals**—Receive discounts by booking online at www.alamo.com and providing the Discount Code number CD#LEADERS or calling Alamo at 844-354-6962 and providing the Discount Code number.
- **Enterprise Rent-A-Car**—5% discounts on rental cars either online or by phone. Go to www.enterprise.com and enter the pick-up location, arrival, and departure dates, and 16AH230 in the “Optional: Coupon, Customer or Corporate Number” box. Click on “search” and enter PIN “NST.” Or, call 800-593-0505 and use NSTA code 16AH230. There are no fees for online or phone reservations.
- **Hertz Car Rentals**—Receive discounts by booking online at www.hertz.com and providing the Discount Code number #1170024 or calling Hertz at 800-654-3131 and providing the Discount Code number.
Airlines/Amtrak
NSTA has made arrangements with several major airlines and Amtrak to offer discounted fares to Atlanta national conference attendees. Visit www.nsta.org/Atlantatravel for details.

Ground Transportation to/from Airport and Around Town
Getting from the Hartsfield-Jackson Atlanta International Airport (ATL) to downtown Atlanta is a breeze. Hop on MARTA just steps away from baggage claim and be quickly transported into the heart of Atlanta in just 10 to 15 minutes. The Dome/GWCC/Philips Arena/CNN Center Transit Station, 100 Centennial Olympic Park Drive NW, is conveniently located a block away from GWCC. For more information about rates and MARTA links, visit bit.ly/2Bvdkb8.

In addition, Dart Transportation, the premier shuttle service to and from Hartsfield-Jackson Atlanta International Airport, is offering a special rate to Atlanta conference attendees. Visit http://pickmeupdart.com/NSTA18/ for details on booking with custom code NSTA18 to receive the discounted rates below:

- **Airport Shuttle Service:**
  - $14 one way ($2.50 off)
  - $28 round trip ($5 off)

Parking
NSTA has negotiated a discount parking rate at GWCC—only $10 per day if you prepay for each day via the Parkmobile app!

- Click on the National Science Teachers Association link for each day you want to purchase a parking pass, and then

- Enter Access Code NSTA to get the discount ($10 plus taxes/fees). Select one of the parking garages around GWCC and complete the transaction. Discount parking will be offered from Wednesday, March 14, through Sunday, March 18.

For directions and a map of GWCC parking options, visit bit.ly/2DqEwp4. To access a Downtown Atlanta parking map, visit bit.ly/2Ds885u. You may also contact your hotel about guest parking. To view Atlanta Convention & Visitor Bureau parking maps and transit information, visit bit.ly/2Ds885u.

**NSTA Shuttle**
Shuttle service will be provided to the majority of official NSTA hotels that are not within walking distance of GWCC. See facing page for Shuttle Schedule.
Shuttle service is provided between the Georgia World Congress Center (GWCC) and the official NSTA hotels listed on this flyer. Please refer to the sign in your hotel lobby for additional information and changes. For questions regarding the shuttle or to make an advance reservation for a wheelchair lift–equipped vehicle, please call the shuttle supervisor with Kushner & Associates at (310) 425-2443 during shuttle hours.

### Hotels and Boarding Locations

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<thead>
<tr>
<th>ROUTE 1</th>
<th>Boarding Location</th>
<th>ROUTE 2</th>
<th>Boarding Location</th>
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</thead>
<tbody>
<tr>
<td>AC Hotel Atlanta Downtown</td>
<td>At Westin Peachtree Plaza</td>
<td>Hyatt Regency Atlanta</td>
<td>Curbside on Baker St.,</td>
</tr>
<tr>
<td>Courtyard Atlanta Downtown</td>
<td>At Westin Peachtree Plaza</td>
<td></td>
<td>across street</td>
</tr>
<tr>
<td>DoubleTree by Hilton – The American</td>
<td>At Westin Peachtree Plaza</td>
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<td>On International Blvd.,</td>
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<tr>
<td>Hampton Inn &amp; Suites Atlanta Downtown</td>
<td>At Westin Peachtree Plaza</td>
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<td>across street</td>
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<tr>
<td>Holiday Inn Express &amp; Suites Atlanta DT</td>
<td>At Westin Peachtree Plaza</td>
<td></td>
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<tr>
<td>Westin Peachtree Plaza</td>
<td>At Westin Peachtree Plaza</td>
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<tr>
<td>COURSES AT Westin Peachtree Plaza</td>
<td>Curbside on Ted Turner Dr.</td>
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<th>ROUTE 3</th>
<th>Boarding Location</th>
<th>Walk Hotels</th>
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<tr>
<td>Atlanta Marriott Marquis</td>
<td>Curbside on Peachtree Center Ave</td>
<td>Embassy Suites Atlanta Centennial Olympic Park</td>
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<tr>
<td>Hilton Atlanta</td>
<td>At Atlanta Marriott Marquis</td>
<td>Glenn Hotel</td>
<td></td>
</tr>
</tbody>
</table>

### Hours of Shuttle Operation

**Peak Service**: Shuttles depart every 15–20 minutes  
**Off-Peak Service**: Shuttles depart every 20–30 minutes

#### Wednesday, March 14
- **Professional Learning Institutes Shuttle** between Route Hotels and Georgia World Congress Center: Every 30 minutes: 7:00 – 10:00 AM (No shuttle service: 10:00 AM – 3:30 PM)
- **Conference Shuttle** between Georgia World Congress Center and Route Hotels: Fun Lab at GWCC 4:00 – 7:00pm

#### Thursday, March 15
- **Conference Shuttle** between Route Hotels and Georgia World Congress Center: Peak: 6:30 – 10:30 AM (No shuttle service: 10:30 AM – 4:00 PM)
- **Conference Shuttle** between Georgia World Congress Center and Route Hotels: Peak: 4:00 – 8:00 PM
- **Google Event at GWCC 6:00 – 7:00pm**

#### Friday, March 16
- **Conference Shuttle** between Route Hotels and Georgia World Congress Center: Peak: 6:30 – 10:30 AM (No shuttle service: 10:30 AM – 3:00 PM)
- **Conference Shuttle** between Georgia World Congress Center and Route Hotels: Peak: 3:00 – 7:00 PM
- **Short Course Shuttle** between Georgia World Congress Center and Westin Peachtree Plaza: Off-peak: 10:00 – 11:00 AM
- **HHMI Movie Night at GWCC 6:00-9:00pm**

#### Saturday, March 17
- **Conference Shuttle** between Route Hotels and Georgia World Congress Center: Peak: 6:30 – 10:30 AM (No shuttle service: 10:30 AM – 3:00 PM)
- **Conference Shuttle** between Georgia World Congress Center and Route Hotels: Peak: 3:00 – 7:00 PM
- **Short Course Shuttle** between Georgia World Congress Center and Westin Peachtree Plaza: Off-peak: 10:30 – 11:30 AM

#### Sunday, March 18
- **Conference Shuttle** between Route Hotels and Georgia World Congress Center: Off-Peak: 7:30 AM – 12:30 PM

* This is the time the last shuttle from Georgia World Congress Center departs for Route Hotels.  
Last shuttle from hotels depart one-hour prior.

◆ This is the time the last Short Course shuttle from Westin Peachtree Plaza departs for Georgia World Congress Center.

◆◆ This is the time the last HHMI Movie Night shuttle departs from GWCC to Route Hotels.
### NSTA Conference Hotels

Numbers correspond to map on facing page.

<table>
<thead>
<tr>
<th>Number</th>
<th>Hotel Name</th>
<th>Address</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>AC Hotel by Marriott Atlanta Downtown</td>
<td>101 Andrew Young International Blvd. NW</td>
<td>404-604-2030</td>
</tr>
<tr>
<td>2</td>
<td>Atlantic Marriott Marquis</td>
<td>265 Peachtree Center Ave. NE</td>
<td>404-521-0000</td>
</tr>
<tr>
<td>3</td>
<td>Courtyard Atlanta Downtown</td>
<td>133 Carnegie Way NW</td>
<td>404-222-2416</td>
</tr>
<tr>
<td>4</td>
<td>DoubleTree by Hilton: The American Hotel Atlanta Downtown</td>
<td>160 Ted Turner Dr. NW</td>
<td>404-688-8600</td>
</tr>
<tr>
<td>5</td>
<td>Embassy Suites by Hilton Atlanta at Centennial Olympic Park</td>
<td>267 Marietta St. NW</td>
<td>404-223-2300</td>
</tr>
<tr>
<td>6</td>
<td>Glenn Hotel, Autograph Collection</td>
<td>110 Marietta St. NW</td>
<td>404-521-2250</td>
</tr>
<tr>
<td>7</td>
<td>Hampton Inn &amp; Suites Atlanta–Downtown</td>
<td>161 Ted Turner Dr. NW</td>
<td>404-589-1111</td>
</tr>
<tr>
<td>8</td>
<td>Hilton Atlanta</td>
<td>255 Courtland St. NE</td>
<td>404-659-2000</td>
</tr>
<tr>
<td>9</td>
<td>Hilton Garden Inn Atlanta Downtown</td>
<td>275 Baker St.</td>
<td>404-577-2001</td>
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<tr>
<td>10</td>
<td>Holiday Inn Express &amp; Suites Atlanta Downtown</td>
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<td>404-524-7000</td>
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<td>11</td>
<td>Hyatt Regency Atlanta</td>
<td>265 Peachtree St. NE</td>
<td>404-577-1234</td>
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<tr>
<td>12</td>
<td>Omni Atlanta Hotel at CNN Center <em>(Headquarters Hotel)</em></td>
<td>100 CNN Center NW</td>
<td>404-659-0000</td>
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<td>13</td>
<td>Sheraton Atlanta Hotel</td>
<td>165 Courtland St. NE</td>
<td>404-659-6500</td>
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<tr>
<td>14</td>
<td>The Westin Peachtree Plaza</td>
<td>210 Peachtree St. NW</td>
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If you have questions or concerns regarding your housing, please stop by the Orchid.Events counter at Bldg. B, Level 2 Concourse (top of escalators for Exhibit Halls B1/B2) in GWCC during the following hours:

- Wed. 4:00–7:00 PM
- Thur. 9:00 AM–6:00 PM
- Fri. 9:00 AM–5:00 PM
- Sat. 9:00 AM–5:00 PM

Or contact Orchid.Events (during business hours) Monday through Friday, 9:00 AM–8:00 PM ET at 877-352-6710 (toll-free) or 801-505-4611, or e-mail help@orchid.events. Available Monday through Friday, 9:00 AM–8:00 PM ET. After hours and on Saturday, call 801-243-4476.
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 e-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. Maps of the Exhibit Hall and other meeting rooms will be accessible via our Conference app (see pages 16). See Vol. 4 for a complete list of exhibitors and contact information.

Ribbon Cutting. An opening ceremony is scheduled on Thursday at 10:55 AM at the entrance to Hall B-2 in GWCC.

Exhibit Hall Hours. Located in Hall B-2 of GWCC, exhibits will be open for viewing during the following hours:

- Thu., March 15 11:00 AM–6:00 PM
- Fri., March 16 9:00 AM–5:00 PM
- Sat., March 17 9:00 AM–3:00 PM

Did you know that NSTA offers Exclusive Exhibit Hall and exhibitor workshop hours—Thursday, 11:00 AM–12:30 PM? It’s a perfect time to visit the exhibits and discover all the products and services companies and organizations have to offer.

Lead Retrieval. NSTA exhibitors use lead retrieval, a paperless tracking system that allows them to receive fast, accurate information about conference attendees who have visited their booths. With the lead 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 Vol. 4 for a complete list of exhibitor workshops. An index of exhibitor workshops scheduled on Thursday begins on page 165.

NCASE and the Air & Space Education Pavilion!

NCASE, the National Coalition for Aviation and Space Education, is here for you—providing a one-stop clearinghouse with an incredible range of resources and information to inspire and challenge your students, leading them to superior achievement in all the STEAM subjects and related careers.

NCASE is a membership organization formed by national aerospace associations, firms, educational groups, and agencies, including the FAA and NASA. Enjoy the website, newsletter, and NCASE GUIDE—the single, most comprehensive source of information regarding the wealth of educational materials for educators and students available from over 50 aviation and space organizations.

For more information about NCASE’s organizational or free educator memberships, visit www.aviationeducation.org. See Vol. 4 for a listing of participating organizations at the Air & Space Education Pavilion.

NSTA Science Store

Visit us at the NSTA Science Store to explore a wide selection of resources and gear you’ll love! You’ll find hundreds of books that uniquely blend accurate science content with sound teaching strategies for science educators of all grade ranges and disciplines. Not only do we have books covering a wide range of topics to help you sharpen your content knowledge and hone your teaching methods, but we also carry a complete line of NSTA gear you can’t find anywhere else—such as T-shirts, mugs, and classroom supplies. We offer convenient free shipping for book purchases to addresses within the United States when you place your order on-site at the conference. *Note: Free shipping is not offered to international addresses or for NSTA gear purchases.

We’ve lined up a number of unique opportunities for conference-goers:

- Exclusive author signings and meet-and-greet opportunities
- Our latest books—including Uncovering Student Ideas in Science, Volume 1, 2nd ed.; A Head Start on Life Science; Argument-Driven Inquiry in Earth and Space Science; Problem-Based Learning in the Physical Science Classroom, K–12; Preparing Teachers for Three-Dimensional Instruction; and Beyond the Egg Drop: Infusing Engineering Into High School Physics—and our newest children’s books from NSTA Kids, such as Animal Adaptations and When the Sun Goes Dark.
- “I Love Science” and NSTA gear product lines to show your love of science and pride in teaching
- Member discounts of 20% on NSTA Press items and 10% on books from other publishers
- Daily book and gear specials, product giveaways, and more.

—Photo courtesy of Jacob Slaton

For more information about NCASE’s organizational or free educator memberships, visit www.aviationeducation.org. See Vol. 4 for a listing of participating organizations at the Air & Space Education Pavilion.
NSTA Atlanta National Conference on Science Education

Conference Resources

Presenters and Presiders Check-In
If you are presenting or presiding at a session, please check in at the Presenters/Presiders counter in the Registration Area.

NSTA Community Hub
Be sure to stop by the NSTA Community Hub, located in the Exhibit Hall at Booth #1909. While you’re there, practice your short game and cornhole skills to win prizes. Meet up with your peers in our Networking Lounge and exchange teaching ideas or session notes. Relax and charge your devices while you experience what NSTA has to offer.

The NSTA Community Hub will be open during the following hours
• Thursday 11:00 AM–6:00 PM
• Friday 9:00 AM–5:00 PM
• Saturday 9:00 AM–3:00 PM

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

GSTA Counter
The Georgia Science Teachers Association (GSTA) counter is located in the lobby of Exhibit Halls B1/B2 of GWCC. (Note: For Sunday only, the counter will be relocated to the bottom of the Thomas B. Murphy Ballroom stairs on Level L of Building B.) Stop by for information on the benefits of becoming a member of this organization. Have your picture taken with science props. Membership forms and information on association activities will be available. Stop by the counter to update your information, renew your membership, or become a member!

ASTA Counter
The Alabama Science Teachers Association (ASTA) counter is located at Exhibit Hall B-2 of GWCC. (Note: For Sunday only, the counter will be relocated to the bottom of the Thomas B. Murphy Ballroom stairs on Level L of Building B.) Stop by for information on the benefits of becoming a member of this organization. Have your picture taken with science props. Membership forms and information on association activities will be available. Stop by the counter to update your information, renew your membership, or become a member!

Lost and Found
All lost-and-found items at GWCC will be turned in at the Exhibitor Registration counter. Lost-and-found items at other facilities will be turned in at the facilities’ security offices.

Help us with your feedback...and get a chance for a free Apple iPad mini 2
We’re giving you one more reason to evaluate conference sessions.

When you log on to www.nsta.org/atlantabrowser and fill out an evaluation by clicking on the “evaluate session” button below the session you attended, you get entered into a drawing for a chance to win an Apple iPad mini 2 Wi-Fi tablet courtesy of the NSTA Conference Department.

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

• WE’RE GIVING AWAY an APPLE iPad MINI 2 Wi-Fi TABLET

www.nsta.org/conferenceapp

• CONFERENCE APP
Data Table: Conference Resources

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<thead>
<tr>
<th><strong>NSTA Coordinating Center for People with Special Needs</strong></th>
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<tr>
<td>NSTA makes an effort to provide convenience and accessibility for all persons attending conferences. A Center for Services for People with Special Needs, staffed by local committee volunteers, is located in Bldg. B, Level L of GWCC (behind the Thomas Murphy Ballroom escalators). If you need assistance, visit this table during registration hours. NSTA cannot guarantee services for requests not made in advance of the conference.</td>
</tr>
</tbody>
</table>

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<tr>
<th><strong>First Aid Services</strong></th>
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<tr>
<td>The B1 First Aid Office at GWCC’s Building B is located on Level 1 in Hall B-1. Attendees in need of first aid can use any house phone to dial 4911 or call 404-223-4911.</td>
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</table>

**Wi-Fi at the Convention Center**

Free wireless for attendees is available in most of the GWCC lobbies by connecting to the “GWCC Free Wi-Fi” network. This limited service is for light web browsing.

**Mothers/Lactation Room**

A mothers/lactation room will be available during conference hours. You may request a key to this room at the Attendee Registration counters in Hall B-2 of GWCC.

**NSTA Conference App**

Navigate the conference from the palm of your hand! Sponsored by HHMI Tangled Web Studios, the NSTA Conference app provides all the tools necessary for a successful conference experience. Features include the ability to view session and workshop listings by time and presenter; maps of GWCC, hotels, and the Exhibit Hall; social media plug-ins; and a note-taking tool. Visit www.nsta.org/conferenceapp to download the app. Note: Make sure to create a CrowdCompass account when logging in to be able to export any notes taken with the app.

**Friday “Meet and Greet”**

Be sure to stop by Friday from 12:45 to 1:30 PM at the entrance to the Exhibit Hall at Hall B-2 of GWCC 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! One lucky person who attends this event will be eligible to win a $100 gift certificate to the NSTA Science Store. Must be present to win. Drawing will take place at 1:20 PM.

---

**Graduate Credit Opportunity**

Atlanta conference attendees can earn one or two graduate-level credit/s in professional development through Dominican University of California (dominicancaonline.com) course EUDO 8018. Participants must attend the conference, complete the required assignments, and pay a fee of $95 for one credit or $190 for two credits. To learn more about the assignment requirements and registration, visit bit.ly/2ywjeff or stop by the Graduate Credit counter located at Bldg. B, Level 2 Concourse in GWCC during the following hours:

- Thursday 12 Noon–6:00 PM
- Fri.–Sat. 8:00 AM–5:00 PM

Register within three weeks of the conference ending date.

Deadline is April 30, 2018.

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NSTA TV

The National Science Teachers Association is partnering with WebsEdge, the international film and broadcasting company, to bring NSTA TV to this year’s National Conference on Science Education in Atlanta.

NSTA TV is an on-site conference television channel featuring a new episode daily, screened around GWCC, as well as on a dedicated television channel in selected guest hotel rooms and online.

The TV segments will profile prominent science educators and scientists, highlight the hard work of teachers and organizations committed to elevating the quality of science education in the United States, and provide an opportunity to learn about new teaching strategies and techniques, as well as innovative programs and initiatives that are helping to transform science education and learning.

You can access NSTA TV at the following hotels:
- Atlanta Marriott Marquis – channel 76
- DoubleTree by Hilton – channel 3
- The American Hotel
- Embassy Suites by Hilton – channel 81
- Atlanta at Centennial Olympic Park

Hilton Atlanta………………….channel 3
Omni Atlanta Hotel at CNN, channel 65 Center
You can also watch NSTA TV online at www.websedge.com/videos/nsta_tv on social media or the NSTA website.

Online Session Evaluations and Tracking Professional Development

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

Help NSTA’s GREEN efforts by completing session evaluations online March 14–27, 2018, while the session is fresh in your mind! During the conference, session evaluations can be completed on the computers at the Presenters/Presiders booth in the Registration Area. And this year, we’re giving away an Apple iPad mini 2 Wi-Fi tablet to two lucky attendees who complete a session evaluation! Remember, the more sessions you attend and evaluate, the more chances you have to win!

To evaluate a session, attendees should follow these steps:

- Visit the conference session browser and search for part of the session title or presenter’s name using the Find Keyword search option. Note: Our session evaluation system is designed to work from a computer and while it may work on smartphones/tablets, it is not really designed for them.
- Once you find the session you wish to evaluate, simply click the Evaluate Session button.
- Enter badge number (if you don’t remember your badge number, click “help me find my badge number”).
- When finished evaluating the session, click the Submit Evaluation button.
- Repeat this process for each session attended.

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

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

Beginning April 6, 2018, an attendee can view his or her transcript at the NSTA Learning Center (learningcenter.nsta.org) by first logging on and then clicking “My Profile” under the Welcome. Here you’ll find a “My Certificates” tab, which you can use to access your transcript. Attendees can also document credit for activities that are not being evaluated (e.g., Exhibit Hall visits, etc.). In addition, the NSTA Learning Center offers professional development experiences (online and face to face) for your long-term growth and professionalism.

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.
Conference Resources

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 the conference. 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 scanning
- Free-standing computer terminals with high-speed internet access
- Secretarial services
- UPS shipping services

Guest Services Desk and Atlanta CVB Counter
Located in the GWCC Building B lobby, the Guest Services desk has information about Atlanta attractions and can assist with booking non-NSTA tours and making restaurant reservations. In addition, the Atlanta Convention & Visitors Bureau will have an information counter to assist conference-goers located at Bldg. B, Level L, staffed during conference hours.*
*Note: Will not be staffed Sunday.

Generation Genius
Generation Genius is a new classroom tool that brings the Next Generation Science Standards (NGSS) to life through fun, funny, entertaining, and educational videos. The videos are produced in partnership with NSTA and are premiering at the national conference in Atlanta. Each 11-minute video comes with a lesson plan, teacher guide, discussion questions, and instructions for a DIY classroom activity. Join Generation Genius founder Jeffrey Vinokur on Friday from 2:00 to 3:00 PM, B206, GWCC, to learn more about this new streaming video library.

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. Audio Visual Production Solutions, the designated AV company on-site, will be located at:

- GWCC, Bldg. A, Level 4 …….. A406
- GWCC, Bldg. B, Level 3 …….. B317
- GWCC, Bldg. C, Level 2 …….. C208
- Omni .......................... Pecan
- Westin ......................... Chastain A

Advice for First-Time Conference Attendees

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

(Submitted by William Peltz)
“This online master’s in biology program was perfect for me. It opened up opportunities and also moved me on the pay scale.”

Curtis Reese, MS in Biology, Graduate

Online Biology, MS
University of Nebraska at Kearney
• Non-Thesis Online Option
• Master’s of Science Program
• Low Student to Faculty Ratio

online.nebraska.edu

Sign up to win a science teaching kit and learn more about the University of Nebraska at Kearney’s online MS in Biology program: BOOTH 1414.
Building C, Level Two
CNN North Tower M3 Meeting Level
at CNN Center

CNN South Tower Hotel Lobby Level

at CNN Center

NSTA Atlanta National Conference on Science Education

31
This form is for planning purposes only. Do NOT submit to NSTA.

NSTA 2018 Atlanta National Conference
Professional Learning Documentation Form

All attendees can evaluate concurrent teacher and exhibitor sessions online while simultaneously tracking professional learning certification (based on clock hours). Use this form to keep track of all sessions/events attended during the Atlanta conference. Sessions/events such as exhibit hall visits may not be available for online evaluation. However, these events still qualify for professional learning.

Beginning April 6, 2018, Atlanta transcripts can be accessed at the NSTA Learning Center (learning center.nsta.org) by logging on with your Atlanta Badge ID# and first clicking on “My Profile” under the “Welcome.” Here you’ll find a “Certificates” tab to access your transcript. 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# ___________________

Evaluate sessions by accessing the conference session browser: www.nsta.org/atlantabrowser. You will need your badge number to evaluate sessions. See page 17 of the Vol. 1 conference program for instructions. Note: Our session evaluation system is designed to work from a computer and while it may work on smartphones/tablets, it is not really designed for them. And don’t forget, the more sessions you attend and evaluate, the more chances you have to win an Apple iPad mini 2!

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

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

Wednesday, March 14  7:00 AM–7:00 PM
Start Time  End Time  Activity/Event Title

Thursday, March 15  8:00 AM–10:00 PM
Start Time  End Time  Activity/Event Title

We’re giving an Apple iPad mini 2 to lucky attendees who evaluate sessions that they attend. The more sessions you attend and evaluate, the more chances you have to win!
### Friday, March 16,  7:15 AM–9:00 PM

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### Saturday, March 17,  8:00 AM–8:00 PM

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### Sunday, March 18  8:00 AM–12 Noon

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Plaza

Tenth Floor

SAVANNAH C

SAVANNAH BALLROOM

SAVANNAH B

SAVANNAH A

FITNESS CENTER
Conference Resources • NSTA Officers, Board, Council, and Alliance of Affiliates

NSTA Mission Statement

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

Officers and Board of Directors
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Christine Anne Royce, President-Elect
Mary Gromko, Retiring President
Jennifer S. Thompson, Preschool/Elementary
Kenneth L. Huff, Middle Level
Carrie Jones, High School Science Teaching
Elizabeth Allan, College Science Teaching
John Olson, Coordination and Supervision of Science Teaching
Dennis Schatz, Informal Science
Natacia Campbell, Multicultural/Equity
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Nicole Vick, District XII
Deb Novak, District XIII
Jennifer Gutierrez, District XIV
Tom Cubbage, District XV
Camille T. Stegman, District XVI
Midge Yergen, District XVII
Gabe Kraljevic, District XVIII

Alliance of Affiliates
James McDonald, CESI Chairperson and Affiliate Representative
Sharon Delesbore, AMSE Affiliate Representative
Margaret Glass, ASTC Affiliate Representative
Patricia D. Morrell, ASTE Affiliate Representative
Tiffany Neil, CSSS Affiliate Representative
Deborah Hanuscin, NARST Affiliate Representative
Mary Lou Lipscomb, NMLSTA Affiliate Representative
Bob Sotak, NSELA Affiliate Representative
Brian Shmaefsky, SCST Affiliate Representative
Northrop Grumman and the Northrop Grumman Foundation are committed to supporting students and teachers focused on increasing STEM awareness, interest, & engagement.

www.northropgrumman.com
Conference Resources • Future Conferences

All cities are subject to change pending final negotiation.

National Conferences on Science Education

St. Louis, Missouri
April 11–14, 2019

Boston, Massachusetts
April 2–5, 2020

Chicago, Illinois
April 8–11, 2021

Houston, Texas
March 31–April 3, 2022

7th Annual STEM Forum & Expo, hosted by NSTA
Philadelphia, Pennsylvania—July 11–13, 2018

8th Annual STEM Forum & Expo, hosted by NSTA
San Francisco, California—July 24–26, 2019

2018 Area Conferences
Reno, Nevada—October 11–13
National Harbor, Maryland—November 15–17
Charlotte, North Carolina—November 29–December 1

2019 Area Conferences
Salt Lake City, Utah—October 24–26
Cincinnati, Ohio—November 14–16
Seattle, Washington—December 12–14

2020 Area Conferences
Pittsburgh, Pennsylvania—October 29–31
New Orleans, Louisiana—November 19–21
Phoenix, Arizona—December 10–12

2021 Area Conferences
Portland, Oregon—October 28–30
National Harbor, Maryland—November 11–13
Los Angeles, California—December 9–11

To submit a proposal, visit
www.nsta.org/conferenceproposals

NSTA Atlanta National Conference on Science Education

St. Louis, MO • April 11–14, 2019

SHARE YOUR IDEAS!

Have an idea for an inspiring presentation or workshop on science education?
Submit a session proposal today.

Proposal Deadline:
4/16/2018

To submit a proposal, visit
www.nsta.org/conferenceproposals
NSTA NATIONAL CONFERENCE ON SCIENCE EDUCATION

SAVE THE DATE

ST. LOUIS

MISSOURI

APRIL 11-14, 2019

OVER 1,200 SESSIONS
NETWORK WITH MORE THAN 10,000 EDUCATORS
350+ EXHIBITORS WITH CUTTING-EDGE RESOURCES
AND MUCH MORE!

See the big picture and plot your next move at our National Conference on Science Education, the premier conference that offers the latest in science content, teaching strategy, and research to enhance and expand your professional growth.

For more information, please visit www.nsta.org/conferences #NSTA19
National Science Teachers Association

Robert H. Carleton Award
for National Leadership in the Field of Science Education
Sponsored by ExxonMobil

Cary Sneider
Associate Research Professor
Portland State University
Portland, OR

Presidential Citation

Duane Jeffery
Biology Professor Emeritus
Brigham Young University
Provo, UT

Fellow Award

Kathryn Scantlebury
Science Educator
University of Delaware
Wilmington, DE

Angela Award

Alyssa Ho
Science Student
Northview Middle School
Pasadena, CA

National Science Teachers Association

Distinguished Teaching Award
Sponsored in part by U.S. Army Educational Outreach Programs (AEOP)

Kristin Rademaker
Science Teacher
Harlem High School
Machesney Park, IL

Fellow Award

Andrew Hipp
Senior Scientist and Herbarium Curator
The Morton Arboretum
Lisle, IL

Angela Award

Carlos R. Villa
K–12 Education Outreach Coordinator
Center for Integrating Research, National High Magnetic Field Laboratory
Tallahassee, FL

National Science Teachers Association

Distinguished Informal Science Education Award
Sponsored in part by U.S. Army Educational Outreach Programs (AEOP)

Claire Lannoye-Hall
Curator
Detroit Zoological Society
Royal Oak, MI
National Science Teachers Association

Distinguished Service to Science Award
Sponsored in part by U.S. Army Educational Outreach Programs (AEOP)

Page Keeley
2008–2009 NSTA President, and Consultant and Author
The Keeley Group
Fort Myers, FL

Brett Moulding
Director
Partnership for Effective Science Teaching and Learning
Ogden, UT

Juliana Texley
2014–2015 NSTA President, and Professor
Central Michigan University
Mount Pleasant, MI

The Maitland P. Simmons Memorial Award for New Teachers

<table>
<thead>
<tr>
<th>Grade</th>
<th>Teacher Name</th>
<th>School</th>
<th>City</th>
</tr>
</thead>
<tbody>
<tr>
<td>6th Grade</td>
<td>Ramu Ramachandran</td>
<td>Kennedy Junior High School</td>
<td>Lisle, IL</td>
</tr>
<tr>
<td>7th Grade</td>
<td>Kathy Dinman</td>
<td>Kailua Intermediate School</td>
<td>Kailua, HI</td>
</tr>
<tr>
<td>8th Grade</td>
<td>Gretchen Hein</td>
<td>Lake Linden-Hubbell School</td>
<td>Lake Linden, MI</td>
</tr>
<tr>
<td>9th Grade</td>
<td>Nixon Xavier</td>
<td>STEM 4 Girls</td>
<td>Portland, OR</td>
</tr>
</tbody>
</table>

eCYBERMISSION Team Advisor National Recognition
Sponsored by U.S. Army Educational Outreach Program (AEOP)
NSTA Teacher Awards Gala
ALL of the teacher awards will be presented in one grand evening. See page 5 for details about this ticketed event.

Faraday Science Communicator Award
Neil Lamb
Vice President for Educational Outreach
HudsonAlpha Institute for Biotechnology
Huntsville, AL

Wendell G. Mohling Outstanding Aerospace Educator Award
George Charles Allen
President/CEO
AeroVenture
Mansfield, MA

Vernier Technology Awards
Sponsored by Vernier Software & Technology

Elementary Level
Rachel Hallett-Njuguna
Science Teacher
Goldboro Elementary Magnet School
Sanford, FL

Middle Level
Robert Hodgdon
Science Teacher
Bryan County School District
Richmond, GA

High School Level
Georgia Hademenos
Science Teacher
Richardson High School
Richardson, TX

College Level
Misty Heredia
Science Teacher
Los Fresnos High School
Los Fresnos, TX

Bob Talbitzer
Science Teacher
Kearney High School
Kearney, NE

Marielle Postava-Davignon
Science Teacher
Southern Vermont College
Bennington, VT

All of the teacher awards will be presented in one grand evening. See page 5 for details about this ticketed event.
Conference Program • NSTA Award Winners

Shell Science Teaching Award
Sponsored by Shell

Awardee

Richard Embrick
Science Teacher
David Crockett Middle School
Richmond, TX

John Gensic
Science Teacher
Penn High School
Mishawaka, IN

Annette Simpson
Science Teacher
McCleskey Middle School
Marietta, GA

Finalist

Chelsea Reyes
Science Teacher
John Jay High School
San Antonio, TX

Crystal L. Velez
Science Teacher
Hartford Magnet Trinity College Academy
Hartford, CT

Aide Villalobos
Science Teacher
Evergreen Elementary School
Shelton, WA

Finalist

Julio Mendez
Science Teacher
Perspectives Charter School
Chicago, IL

Chander Jenkins
Science Teacher
South Pike High School
Magnolia, MS

Eleanor Williamson
Science/Teacher
Urban Assembly School of Design and Construction
New York, NY

Sylvia Shugrue Award for Elementary School Teachers

Rubi deHoyos
Science Teacher
Jim G. Martin Elementary School
San Antonio, TX

Annette Simpson
Science Teacher
McCleskey Middle School
Marietta, GA

Jayda Pugliese
Science Teacher
Andrew Jackson Elementary School
Philadelphia, PA

Shell Urban Science Educators Development Award
Sponsored by Shell

Rubi deHoyos
Science Teacher
Jim G. Martin Elementary School
San Antonio, TX

Chander Jenkins
Science Teacher
South Pike High School
Magnolia, MS

Julio Mendez
Science Teacher
Perspectives Charter School
Chicago, IL

Finalist

Annette Simpson
Science Teacher
McCleskey Middle School
Marietta, GA

Aide Villalobos
Science Teacher
Evergreen Elementary School
Shelton, WA

Finalist

Chelsea Reyes
Science Teacher
John Jay High School
San Antonio, TX

Crystal L. Velez
Science Teacher
Hartford Magnet Trinity College Academy
Hartford, CT

Eleanor Williamson
Science/Teacher
Urban Assembly School of Design and Construction
New York, NY
Northrop Grumman Foundation Excellence in Engineering Education Award

Sheri Caine
Science Teacher
H.L. Richard High School
Oak Forest, IL

SeaWorld Parks & Entertainment Environmental Educator of the Year

Charlene Mauro
Teacher on Special Assignment–Santa Rosa Schools
Navarre Beach Marine Science Station
Navarre Beach, FL

Ron Mardigian Memorial Biotechnology Explorer Award

Ray Cinti
Science Teacher
Green Mountain Valley School
South Burlington, VT

DuPont Pioneer Excellence in Agricultural Science Education Awards

Middle Level

Cindy Isaacs
Science Teacher
Indian River School District
Georgetown, DE

High School Level

Wendy Smith
Science Instructor
Powell High School
Powell, WY

Robert E. Yager Excellence in Teaching Awards

NSTA District IV
(NJ, NY, PA)

James Brown
Science Teacher
Sand Creek Middle School
Albany, NY

NSTA District VIII
(KY, VA, WV)

Brian McDowell
Science Teacher
Mason County Schools
Maysville, KY

NSTA District X
(IN, MI, OH)

Kristen Poindexter
Science Teacher
Spring Mill Elementary School
Indianapolis, IN

NSTA District XIV
(AZ, CO, UT)

Deepa Iyer
Science Teacher
Knox Gifted Academy
Chandler, AZ

NSTA District XVI
(CA, HI, NV, Samoa, GU, Terr. of Pacific Islands)

Jose Rivas
Science Teacher
Lennox Math, Science and Technology Academy
Inglewood, CA
2017–2018 Shell Science Lab Challenge, sponsored by Shell
Outfitted by Carolina Biological Supply Co.

The Shell Science Lab Challenge, sponsored by Shell and administered by NSTA, encourages teachers (grades 6–12) in the United States and Canada, who have found innovative ways to deliver quality lab experiences with limited school and laboratory resources, to share their approaches for a chance to win prizes, including a grand prize school science lab makeover.

To learn how to win a Shell Science Lab Makeover at your school, see Volume 2 for the “Shell Science Teaching Award: Fueling Success with Students $10K” and “Do You Need a New Science Lab? Win $20K!” Friday sessions.

2017–2018 Shell Science Lab Challenge Winners

District I
(CT, MA, RI)
Susan McConnell and Tim DeJulio
Newtown High School
Sandy Hook, CT

District II
(ME, NH, VT)
Christine Caputo
RSU14 Katahdin Program
Raymond, ME

District III
(DE, DC, MD)
Angela Kuzma
Parkside High School
Gaithersburg, MD

District IV
(NJ, NY, PA)
Rebecca Grelle and co-teachers
Jennifer Costa and Jacob Mulderig
Brentwood Sonderling High School
Brentwood, NY

District V
(AL, FL, GA, PR, VI)
Johnathan Rodriguez and
Yvette Areizaqa Perez
San Carlos College High School
Aguadilla, PR

District VI
(NC, SC, TN)
Melissa Altemose
W.A. Pattillo Middle School
Tarboro, NC

District VII
(AR, LA, MS)
Melissa Donham
Central High School
Little Rock, AR

District VIII
(KY, VA, WV)
Paula Labbe
Deep Creek Middle School
Chesapeake, VA

District IX
(MN, ND, SD)
Jason Lee
Swanville Public Schools
Swanville, MN

District X
(IN, MI, OH)
Linda Kennedy
Centennial High School
Columbus, OH

District XI
(KS, MO, NE)
Thomas Laybourn
Woodridge Middle School
High Ridge, MO

District XII
(IL, IA, WI)
Mauree Haage
Twin Cedars Junior/Senior High School
Bussey, IA

District XIII
(NM, OK, TX)
Sherry Christopher
Muldrow High School
Muldrow, OK

District XIV
(AZ, CO, UT)
Toni Cascioli and Stacy Weiss
Phoenix Day School for the Deaf
Phoenix, AZ

District XV
(ID, MT, WY)
Lisa Washburn
Coeur d’Alene Tribal School
DeSmet, ID

Grand Prize Winner
District XVI
(CA, HI, NV, Samoa, GU, Terr. of Pacific Islands)
Lauren Brown
Madison Park Academy
Oakland, CA

District: XVII
(CANADA)
Nicole Anthony
John Polanyi Collegiate Institute
Toronto, ON, Canada

District XVIII
(4K, OR, WA)
Carly Boyd
Emerson High School
Mount Vernon, WA
General Session
Teaching Through Adversity: Facing Challenges and Making a Difference
Thursday, March 15, 9:15–10:30 AM

Ron Clark
Award-winning Educator, Author, and Founder of The Ron Clark Academy

Ron shares his journey from teaching in a rural area in North Carolina to the inner-city streets of Harlem in New York City with inspirational stories on how his students made outstanding growth in test scores and conducted projects that garnered worldwide attention.

Also, be sure to join author Ron Clark after his talk, starting at 11:00 AM until 12:15 PM at Booth #603 in the Exhibit Hall, where he will be signing copies of his books. The books will be available for purchase at the booth while supplies last.

(See page 98 for details.)

Is This Your First NSTA Conference?
Yes, you say? Then you are invited to attend a Thursday morning session specifically intended for first-time conference attendees. This session will help you make the most of your first-time conference experience.

See page 84 for details.

Fun Lab
That’s what you’ll find in GWCC on Wednesday evening, March 14 (Registration Hall B). You won’t need to be a physicist to win the putt-putt competition, but it might help you line up your shots! If you’re ready to experience something completely new with NSTA, we invite you to join us from 4:00 to 7:00 PM for a fun-filled evening of games, picture-taking, giveaways that will be raffled every 15 minutes, and a one-time opportunity to buy your NSTA Press® books for up to 40% off regularly listed prices in the NSTA Science Store. Also, plan to participate in the “Most Creative Lab Coat” contest. A prize will be awarded for the individual who wears the most creative lab coat.

See page 79 for details.

Wednesday, March 14 (Volume 1)
9:00 AM–4:00 PM NSTA Professional Learning Institutes (check in between 8:00 and 9:00 AM) ................. 78
4:00–7:00 PM Fun Lab ........................................... 79

Thursday, March 15 (Volume 1)
8:00–9:00 AM Is This Your First NSTA Conference? First-Timer Conference Attendees’ Orientation .......................... 84
8:30 AM–4:30 PM Teacher Researcher Day ......................... 51
9:15–10:30 AM General Session: Ron Clark ....................... 98
10:55–11:00 AM Ribbon-Cutting Ceremony/Exhibits Opening .......... 105
11:00 AM–6:00 PM Exhibits ...................................... 109
2:00–3:00 PM Mary C. McCurdy Lecture: Carla Zembal-Saul ....... 126
3:30–4:30 PM Featured Presentation: Cynthia Greenleaf ............ 144
3:30–4:30 PM Community Connections Featured Forum: Eric Jolly .... 144
8:30–10:00 PM NGSS Live Chat .................................. 164

Friday, March 16 (Volume 2)
See Conference Highlights, Volume 2, for page numbers.

8:00–10:00 AM Elementary Extravaganza
8:00 AM–4:30 PM NGSS@NSTA Forum
9:00 AM–5:00 PM Exhibits
9:30–11:00 AM Featured Presentation: NASA Your STEM Connection: Mike Kincaid and Scott Tingle
9:30–11:00 AM Global Initiatives Enhancing Science Education: An International Share-a-Thon and Poster Session
9:45 AM–4:30 PM Meet Me in the Middle Day
10:00 AM–12 Noon Community Connections Featured Presentation and Panel: Speaker: Faridodin “Fredi” Lajvardi
11:00 AM–12 Noon Featured Presentation: Jo Anne Vasquez
12:30–2:30 PM Community Connections Share-a-Thon
12:45–1:30 PM “Meet and Greet” the NSTA Presidents and Board/Council
2:00–3:00 PM AGU-NESTA Sponsored Lecture: C. Mark Eakin
2:00–3:00 PM Featured Presentation: Jeffrey Vinokur
3:30–4:30 PM Featured Presentation: Okhee Lee
6:00–8:45 PM NSTA Teacher Awards Gala (M-1)
Drone Competition, sponsored by Horizon Educational

Stop by Booth #2000 for The Horizon Educational Drone Competition (HEDC). The Horizon Educational Drone Competition (HEDC) is a STEM program in which students learn the history and current uses of drones in society and build, modify, and improve their own battery-powered drones to compete in three separate challenges: Drone Racing, Package Delivery, and FPV Surveillance Mission. Visit the competition area on Thursday and Friday to see the course layout and technology used in the challenge. The live competition will start on Saturday at 9:30 AM. Stop by and cheer on the teams!

Saturday, March 17 (Volume 3)
See Conference Highlights, Volume 3, for page numbers.

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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</thead>
<tbody>
<tr>
<td>8:00–9:00 AM</td>
<td>Featured Presentation: Stephen Pruitt</td>
</tr>
<tr>
<td>9:00 AM–3:00 PM</td>
<td>Exhibits</td>
</tr>
<tr>
<td>9:30–10:30 AM</td>
<td>NGSS@NSTA Share-a-Thon</td>
</tr>
<tr>
<td>9:30 AM–1:30 PM</td>
<td>The Horizon Educational Drone Competition (HEDC)</td>
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<tr>
<td>11:00 AM–12 Noon</td>
<td>Paul F-Brandwein Lecture: Caren Cooper</td>
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<tr>
<td>11:00 AM–12:30 PM</td>
<td>High School Share-a-Thon: Set Your Sights Higher!</td>
</tr>
<tr>
<td>12:30–2:30 PM</td>
<td>Community Connections Featured Forum: Learn How to Better Advocate for Science and Science Education</td>
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<tr>
<td>12:30–2:30 PM</td>
<td>Multicultural/Equity Share-a-Thon</td>
</tr>
<tr>
<td>2:00–3:00 PM</td>
<td>NSTA/ASE Honors Exchange Lecture: Linda Needham</td>
</tr>
</tbody>
</table>

MATERIALS CAMP FOR TEACHERS!

Learn to engage your STEM students with low-cost demonstrations that link science principles to the materials of tomorrow!

Ideal for middle and high school physical science, chemistry, and physics teachers.

JUNE 4-8, 2018

Free registration and free on-campus housing to participants.

Space is limited!

Learn more and sign up by visiting: asmmaterialscamp.ua.edu

Hosted by ASM International on the campus of The University of Alabama with other camp locations found at asminternational.org
The Atlanta Conference Committee has planned the conference around these four strands, enabling you to focus on a specific area of interest or need. Strand events are identified by icons throughout the daily program.

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

### 3D Focusing On Evidence of 3-D Learning

States continue to develop and adopt standards that build on a three-dimensional approach, which calls on students to use disciplinary core ideas, science and engineering practices, and crosscutting concepts to explain real-world phenomena and solve authentic problems. Three-dimensional learning allows students to connect science to their everyday lives and helps prepare them for future careers. This approach is fully realized only when instruction leads to tangible evidence of three-dimensional learning through authentic student products. This strand will help teachers, whether they are 3-D novices or experts, expand their understanding of three-dimensional teaching, learning, and assessment. Sessions in this strand will target participants with a beginning, intermediate, or advanced level of familiarity with three-dimensional learning.

### Imagining Science as the Foundation for STEM

STEM education has become a priority for many states as we seek to provide today’s students with the real-world, innovative skills that they will need to be successful in tomorrow’s world. STEM instruction that builds on the foundation of core science ideas provides students with opportunities that equip them to make sense of the world in which they live, hone their critical-thinking skills, and spark their sense of innovation. Sessions in this strand will allow participants to develop their understanding of how to plan and teach collaboratively within these integrated learning environments.

### Reflecting On Access for All Students

Just as science encompasses diverse fields of learning from astronomy to zoology, science educators are called upon to equitably meet the needs of and engage ALL learners. Research has identified the unique challenges of a number of underserved groups, including students from urban areas, rural areas, English language learners, students with low socioeconomic status, those with special needs, gifted and talented students, and students from diverse cultural backgrounds. Cultivating a culture of equity and inclusion for all students not only aligns with the NSTA mission statement and the vision put forth by A Framework for K–12 Science Education but also prepares students for future career opportunities in a global society. This strand increases participants’ understanding of the unique needs of various types of learners and helps them reduce barriers to full participation in science.

### Comprehending the Role of Literacy in Science

A great number of personal and societal issues require citizens to draw upon a foundation of scientific knowledge, technological understanding of problem solving, and the ability to design scientific solutions to obtain, evaluate, and communicate information in order to make informed decisions. Engaging ALL students in science, beginning in the early years, is the way to develop students’ skills in thinking creatively, expressing themselves, and investigating their world. As college- and career-ready students investigate natural phenomena, they should be able to communicate their argument-driven claims based on data-driven evidences. Science core ideas can be developed by using current technology and media to create, refine, and collaborate through reading, writing, listening, and speaking. This strand will allow educators to become advocates of literacy in preK–12 science and engineering, to see the connections between science and literacy, and to learn literacy strategies that encompass active student engagement.
**Thursday, March 15**

8:00–9:00 AM  
Get Inspired with a Phenomena Walk

12:30–1:30 PM  
The Copper Conundrum: Using Claim, Evidence, and Reasoning as Evidence of 3-D Learning

2:00–3:00 PM  
Modeling and the Three Dimensions of the NGSS in Middle School Genetics

5:00–6:00 PM  
Using Storylines to Support 3-D Learning: Why Don’t Antibiotics Work Like They Used To?

Can You Hear Me Now? An Elementary Storyline Approach to 3-D Learning

Start Big, Go Small…with Life Science Storylines

**Friday, March 16**

8:00–9:00 AM  
Three Dimensionality in Middle School Science Through the Use of a 6Es Instructional Model

8:00–11:00 AM  
Short Course: Designing and Using Three-Dimensional Assessments in Your Classroom  
(By Ticket: SC-5)

9:30–10:30 AM  
Phenomenon? Bring It On!

**Saturday, March 17**

8:00–9:00 AM  
Featured Presentation: 3-D Science Assessment: How Do You Still Make Construction a Priority?  
(Speaker: Stephen Pruitt)

Building 3-D, NGSS-Based Chemistry and Physics Courses from the Ground Up

8:00–11:00 AM  
Short Course: Using NGSS Storylines to Support Students in Meaningful Engagement in Science and Engineering Practices  
(By Ticket: SC-11)

**Sunday, March 18**

11:00 AM–12 Noon  
Coaching Teachers Through Backward Planning for 3-D Lessons and Units
Conference Program • Conference Strands

Imagining Science as the Foundation for STEM

Thursday, March 15
12:30–1:30 PM
STEM Escapes: Bringing the Escape Room to the Classroom!

2:00–3:00 PM
Using Tiny Homes to Connect with STEM

3:30–4:30 PM
Lots of Bots: Using Robots to Teach the NGSS in Elementary School

5:00–6:00 PM
Activating Creative Thinking and Problem Solving Through STEM Activities and Lessons for Primary-Age Students

Friday, March 16
8:00–9:00 AM
PlantingScience: Growing Students’ Science Understanding Through Independent Investigations and Online Mentoring

8:00–11:00 AM
Short Course: Citizen Science Projects That Transform Schoolyards into STEM Labs and Help K–12 Students Make Sense of Phenomena in Nature
(By Ticket: SC-6)

9:30–10:30 AM
National Marine Sanctuaries: Bringing Ocean Technology into Your Classroom

10:00 AM–4:00 PM
Short Course: The World Ender: A STEAM PBL Unit
(By Ticket: SC-7)

11:00 AM–12 Noon
Featured Presentation: Science Is to STEM as Coffee Is to Starbucks: Real-World, Relevant, and Grounds for the Perfect Integration
(Speaker: Jo Anne Vasquez)

Developing a Culturally Relevant Engineering Curriculum

12:30–1:30 PM
The InVenture Challenge: Developing Future Innovators Through Invention and Entrepreneurship Experiences

2:00–3:00 PM
Engaging Your STEM Ecosystem: A Fishy Success Story

3:30–4:30 PM
Sliders, Blocks, Fences, and Mazes: Kindergarten Physics and Engineering

Saturday, March 17
8:00–9:00 AM
Active Learning and Student Data Collection in the Middle School Classroom

8:00–11:00 AM
Short Course: Integrating Engineering into K–8 Life Science Lessons
(By Ticket: SC-10)

9:30–10:30 AM
Social Studies (Put Some STEM in It!): Integrating Social Studies and STEM

11:00 AM–12 Noon
Beyond Earlobes and Tongue Rolling

12:30–1:30 PM
Innovation STEMs from Science…Engage in Engineering!

2:00–3:00 PM
Spaceward Bound: Exploring Life in Extreme Environments

3:30–4:30 PM
What Do You Get When You Cross a Scientist with a Teacher? A True Collaborative Journey!

5:00–6:00 PM
Data Collection in the Elementary Classroom Is…Fun!

Sunday, March 18
8:00–9:00 AM
Get NOS in Your Classroom…Without Starting Over

9:30–10:30 AM
STEMtastic Lessons for Elementary Students

11:00 AM–12 Noon
Snotty Plots and Toilet Splatter: Use the Fluid Dynamics of Disease Transmission to Teach Data Collection and Analysis
Thursday, March 15

8:00–9:00 AM
Using Science Practices to Engage Students: Designing a High School Evolution Curriculum from a Feminist Perspective

12:30–1:30 PM
Teaching About the Intersections of Biology, History, Race, and Racism: Strategies, Curriculum Resources, and Research

2:00–3:00 PM
Girls Rock STEM: Creating a STEM Day for Middle School Girls

3:30–4:30 PM
Earth Match: Making Earth Science Culturally Relevant

5:00–6:00 PM
Using Digital Science Notebooks to Reach Diverse Learners

Friday, March 16

7:15–11:50 AM
Short Course: Science for Everyone: Engaging Diverse Learners Using SIOP Strategies, Visual Literacy, Scaffolding, and Culturally Relevant Pedagogy (By Ticket: SC-4)

8:00–9:00 AM
Translating Research-Based Strategies into Science Enrichment

11:00 AM–12 Noon
Using STEM to Bring Parents and Projects into Title I Schools

“See” Through the Cultural Differences Influencing Student Learning

12:30–1:30 PM
Inclusive STEM Centers—It’s More Than Content: Lessons from My Second Graders

2:00–3:00 PM
STEM Sprouts: STEM for Early Childhood

3:30–4:30 PM
Featured Presentation: Engaging All Students in Science
(Speaker: Okhee Lee)

5:00–6:00 PM
Using Equitable Assessment Tasks to Engage All Students in 3-D Learning

Saturday, March 17

8:00–9:00 AM
¡Anímate, Tú Puedes! Media-Infused and Culturally Responsive STEM Activities for Hispanic Girls

11:00 AM–12 Noon
Science and Language: Natural Partners

12:30–1:30 PM
Making Quality Science Instruction Accessible and Equitable to ALL K–6 Students

3:30–4:30 PM
Science Accessibility: Using Theater to Teach Science to Children on the Autism Spectrum

5:00–6:00 PM
Enhancing Transdisciplinary Learning for Students with Special Needs Through a Modified 3-E Approach
Comprehending the Role of Literacy in Science

Thursday, March 15

8:00–9:00 AM
Exploring the Science of Sound

12:30–1:30 PM
Engineering for the Gingerbread Baby

2:00–3:00 PM
Helping Students Navigate Scientific Literacy: Teaching Students to Read, Speak, and Write Science

3:00–6:00 PM
Short Course: Meaning Making in Science: How Disciplinary Literacy Supports the Development of Scientific Understanding (By Ticket: SC-3)

3:30–4:30 PM
Featured Presentation: Reframing Reading as an Inquiry Practice of Science (Speaker: Cynthia Greenleaf)

Pedagogical Practices in Literacy to Enhance Inquiry-Based Instruction

5:00–6:00 PM
Lessons Learned: Integrating Computer Science into the Elementary Day

Friday, March 16

8:00–8:30 AM
Lab Reports and Expository Writing: Emphasizing the Nature of Science in Practice

8:30–9:00 AM
Flowcharts and Technical Writing: Using Anatomy Diagrams

9:30–10:30 AM
Surviving the Zombie Apocalypse

11:00–11:30 AM
Reading and Using Data to Make Evidence-Based Claims

11:30 AM–12 Noon
Law and Order in the High School Chemistry Classroom: Using a Mock Trial to Discuss Scientific Concepts and Ethics

12:30–1:30 PM
Improving Science Practices Through Evaluating Scientific Journal Articles

2:00–3:00 PM
Engineering Design Notebooks in the Classroom

3:30–4:00 PM
Creating Opportunities to Capitalize on Literacy for Sense-Making in K–5 Science

4:00–4:30 PM
I Want to Notebook, Too! How to Begin from Beginners

5:00–6:00 PM
“The Sheep Are in the Jeep”: Forces and Motion

Saturday, March 17

9:30–10:30 AM
Bringing STEM and Literacy “Out of the Dust”

10:00–11:00 AM
Short Course: Elementary GLOBE Short Course Training (By Ticket: SC-12)

11:00–11:30 AM
Giverny Award–Winning Science Storybooks: Engage Elementary Students in Science Concept Identification and Exploration!

11:30 AM–12 Noon
Pairing Children’s Literature and Science Field Trips to Create Authentic Learning Experiences

1:00–1:30 PM
Lessons in Literacy from The Immortal Life of Henrietta Lacks and Henrietta’s Amazing HeLa Cells

2:00–2:30 PM
You Turn Me On: Books to Teach Bioluminescence

2:30–3:00 PM
Cracking the Case II: Integrating Biology and Engineering in (More) Case Studies

3:30–4:30 PM
Accessing Secondary Data Sets Using Primary Devices

5:00–6:00 PM
Document-Based Questions: They’re Not Just for Social Studies Anymore!

Sunday, March 18

9:30–10:30 AM
Using Literacy and Culturally Responsive Pedagogy to Enhance Science Content

11:00 AM–12 Noon
Developing High School Peer-Reviewed Research Journals
Teacher Researchers are curious about their students' learning and ask questions to try to better understand what is happening in their classrooms. They also share their findings with colleagues in their schools and elsewhere. Teacher Researcher Day is for both new and experienced teacher researchers. The full day of activities includes a poster session and presentations on topical issues. These sessions provide opportunities to meet teacher researchers and learn about their studies in a wide variety of contexts. Teacher Researcher Day events are described throughout the daily program.

8:30–9:30 AM  Poster Session for Teacher Researchers
9:30–11:00 AM  Panel Discussion: The Teacher Researcher
11:00 AM–12 Noon  Concurrent Sessions
12 Noon–12:30 PM  Come Be a Part of the Science Inquiry Group Network
12:30–1:30 PM  Concurrent Sessions
1:30–2:00 PM  Want to Present Next Year?
2:00–3:00 PM  Concurrent Sessions
3:00–3:30 PM  Informal Conversations About Teacher Research
3:30–4:30 PM  Collaborative Leadership Planning Meeting

Meet Me in the Middle Day

Calling all middle school science teachers! Meet Me in the Middle Day is designed just for you. The day will include sessions geared toward middle school and a share-a-thon with a room full of activities that you can take back to your classroom. Join us and re-energize your teaching. You may even be the lucky winner of a variety of incredible door prizes. Meet Me in the Middle Day is organized by the National Middle Level Science Teachers Association (NMLSTA) and sponsored by Activities to Teach; Carolina Biological Supply Co.; Educational Innovations, Google; Lab-Aids, Inc.; and Shape of Life.

Meet Me in the Middle Day events are described throughout Volume 2.

9:45–10:15 AM  Registration and Welcome
10:15–10:45 AM  Concurrent Sessions
11:00–11:30 AM  Concurrent Sessions
1:00–1:30 PM  Concurrent Sessions
1:45–2:15 PM  Concurrent Sessions
2:30–4:30 PM  Middle Level Share-a-Thon

Join the Fun

• Hands-on activities
• Preview science trade books
• Learn about award and grant programs
• Walk away full of ideas and arms filled with materials
• Door prizes and refreshments
• 100+ presenters

Sponsored by:

Conference Program • Special Programs

NGSS@NSTA Forum

NGSS@NSTA

STEM STARTS HERE

The NGSS@NSTA Forum explores resources you can use to implement three-dimensional instruction. Participate in one or more presentations.

(See Vol. 2 for details)

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
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<tbody>
<tr>
<td>8:00–9:00 AM</td>
<td>Looking for NGSS-Focused Instructional Materials?</td>
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<tr>
<td>9:30–10:30 AM</td>
<td>What’s the Matter with Addie, and What Should We Do with CRISPR?</td>
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<td>Next Generation Storylines That Connect Science to Student Interests</td>
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<td>and Concerns</td>
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<td>11:00 AM–12 Noon</td>
<td>A Model-Based Educational Resource for High School Biology</td>
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<td>12:30–1:30 PM</td>
<td>Disruptions in Ecosystems: An NGSS-Designed Middle School Unit and PD</td>
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<td>Model</td>
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<td>2:00–3:00 PM</td>
<td>Interactions: A Free 3-D Science Curriculum for Ninth-Grade Physical</td>
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<td></td>
<td>Science</td>
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<td>3:30–4:30 PM</td>
<td>How Can Light Help Me See and Communicate with Others? A Storyline</td>
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<td></td>
<td>Designed to Support 3-D Learning in an Early Elementary Classroom</td>
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NGSS Live Chat

Thursday, March 15

8:30–10:00 PM

Dogwood A, Omni

Come to the NGSS Live Chat, presented by Ted Willard, Tricia Shelton, and others as they discuss the NGSS. Join in live or via Twitter...#NGSSchat.

NGSS@NSTA Share-a-Thon

Saturday, March 17

9:30–10:30 AM

B102, GWCC

At the NGSS@NSTA Share-a-Thon, get even more tips and tools to implement three-dimensional standards from NSTA’s NGSS Curators, NGSS writers, and other education experts. Leave with plenty of handouts and ideas you can use in your classroom right away! See Vol. 3 for details.

Community Connections Forums

The Community Connections Forums and events build awareness of the abundance of existing high-quality out-of-school (informal) science education methods, resources, and opportunities available to enhance science teaching and learning. Both out-of-school and in-school science educators meet and interact to share best practices in informal science, learn about exciting collaborations happening among informal and formal science organizations, network with colleagues, and dialogue around ideas and innovations. Informal organizations participating in the Community Connections Forums include zoos, museums, media, after-school programs, universities outreach, and others that provide or support out-of-school science education.

Thursday, March 15

3:30–4:30 PM

Featured Forum: Exploring Strategies for Culture-Inclusive Student Engagement

(Speaker: Eric Jolly)

Friday, March 16

10:00 AM–12 Noon

Featured Presentation and Panel: Spare Parts: Reinventing Engineering Education for the 21st Century

(Speaker: Faridodin “Fredi” Lajvardi)

12:30–2:30 PM

Community Connections Share-a-Thon

Saturday, March 17

12:30–2:30 PM

Featured Forum: Learn How to Better Advocate for Science and Science Education
NSTA Press Sessions

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

Thursday, March 15
8:00–9:00 AM
Unlocking the Vision of the NGSS in the Classroom: Implications for K–12 Teachers

12:30–1:30 PM
Creating a STEM Culture for Teaching and Learning

Notable Notebooks in Your Classroom

2:00–3:00 PM
Creative Writing in Science

EUREKA! Grade 3–5 Science Activities and Stories

Once Upon an Earth Science Book

3:30–4:30 PM
Phenomenon-Based Learning: Fun, Hands-On, and Cooperative Learning of Both Science and Language Arts

5:00–6:00 PM
Building the Science Department: Stories of Success

Friday, March 16 (Volume 2)
8:00–9:00 AM
Big Data, Small Devices

9:30–10:30 AM
Building School and District Capacity for Eliciting, Supporting, and Understanding ALL Students’ Ideas in Science

11:00 AM–12 Noon
The Power of Assessing: Guiding Powerful Practices

12:30–1:30 PM
From Flower to Fruit

2:00–3:00 PM
Picture-Perfect STEM Lessons, K–5

3:30–4:30 PM
Everyday Engineering

5:00–6:00 PM
STEM Road Map: Integrated STEM Teaching in Middle School

Saturday, March 17 (Volume 3)
8:00–9:00 AM
Telling Earth Stories—Student-Led Modeling with Real Data and Authentic Experiments

9:30–10:30 AM
Outdoor Science…Literally!

11:00 AM–12 Noon
Need Money? Write a Grant!

Leveling the Playing Field: Unlocking the Vision of the NGSS

2:00–3:00 PM
Argument-Driven Inquiry in the Life, Physical, and Earth/Space Sciences: Lab Investigations for Grades 6–8

3:30–4:30 PM
Solar Science: 3-D Learning Applied to the Study of the Sun’s Daily and Annual Motion

5:00–6:00 PM
Bringing the S-T-E-M Together in Early Childhood Using Science and Engineering Practices

Sunday, March 18 (Volume 3)
8:00–9:00 AM
Next Time You See…

9:30–10:30 AM
Argument-Driven Inquiry in Biology, Chemistry, and Physics: Lab Investigations for Grades 9–12
Professional Learning Institutes (PLIs) are focused, content-based programs that explore key topics in significant depth. PLIs are presented by experts in science/STEM education, professional learning, standards implementation, assessment, curriculum, and resources/materials development. Institutes require conference registration. Check in between 8:30 and 9:00 AM.

District-Level Administrators: You Are the Fourth Dimension in Implementing 3-D Teaching and Learning! (PLI-1)

David Crowther, NSTA President, and University of Nevada, Reno
Christine Anne Royce, NSTA President-Elect, and Shippensburg University, PA
Eric Brunsell, University of Wisconsin Oshkosh
Kelly Price-Colley, Lambert High School, Suwanee, GA
Jodi Peterson, Assistant Executive Director, Legislative & Public Affairs, NSTA, Arlington, VA
Flavio Mendez, Assistant Executive Director, NSTA Learning Center, NSTA, Arlington, VA

Level: Grades K–12
Science Focus: GEN, NGSS
Location: Grand Ballroom A, Omni

Next Generation Analyzing Instructional Materials (NextGen AIM) (PLI-2)

Aneesha Badrinarayan, Achieve, Inc., Washington, DC
Jody Bintz and Audrey Mohan, BSCS, Colorado Springs, CO
Kathy DiRanna, K–12 Alliance/WestEd, Los Alamitos, CA
Jo Topps, K–12 Alliance/WestEd, San Francisco, CA

Level: K–12
Science Focus: GEN, NGSS
Location: Grand Ballroom B, Omni

NextGen AIM is a suite of tools and processes for the evaluation, selection, and implementation of instructional materials designed for the NGSS. NextGen AIM serves as a professional learning opportunity for teachers to deepen their understanding of NGSS as they evaluate instructional materials and helps to prepare teachers to use the materials effectively. Participants will use a common set of instructional materials and work as a “mock” materials selection committee to learn, via active learning experiences, about the five components of the NextGen AIM tools and processes. Emphasis will be placed on the Paper Screen component, which uses visual representations of data collected from the materials and rubrics to assess quality.
Connecting STEM Education to the Workplace (PLI-3)

Mindi Heitland and Holly Showalter, Waukee High School, Waukee, IA

Jeffrey Weld, University of Northern Iowa, Cedar Falls

Michelle Hill, Waukee APEX, Waukee, IA

Level: Grades 6–12

Science Focus: GEN

Location: International Ballroom A/B, Omni

Jeff Weld, author of Creating a STEM Culture for Teaching and Learning, will provide an overview about connecting secondary STEM education to the workplace before attendees take a deep dive in practical applications with one of the most innovative work-based learning programs in the country, Waukee Aspiring Professional Experience (APEX). APEX pairs students with businesses to work on professional and technical skills through value-added learning projects. This interactive PLI will explore and answer your many questions about how to develop and maintain business relationships for an entire work-based learning program and/or to personalize learning in an individual course. Bring your questions as this session will be customized specifically for the attending audience. Participants receive a copy of Creating a STEM Culture for Teaching and Learning.

STEM Curriculum Topic Study: A Process for Linking Standards, Research, and Learning (PLI-4)

Page Keeley, 2008–2009 NSTA President, and The Keeley Group, Fort Myers, FL

Joyce Tugel, Science Education Consultant, Barrington, NH

Level: K–12

Science Focus: GEN, NGSS

Location: International Ballroom D, Omni

Curriculum Topic Study (CTS) is a systematic process that helps STEM educators build a bridge between curricular topics and effective teaching and learning, informed by standards and research on commonly held ideas in science. This PLI will introduce participants to the new, updated CTS tools and processes that can be used with NGSS or any set of curricular or state standards. Participants will be introduced to the CTS process, experience how to use CTS in a collaborative PD setting, and plan how they will use CTS in their own contexts, both individually and with their colleagues. Participants receive a copy of Uncovering Student Ideas in Science, Vol. 1 Second Edition.

Picture-Perfect Powerful Practices: STEM and Literacy Integration (PLI-5)

Karen Ansberry and Emily Morgan, Picture-Perfect Science, West Chester, OH

Julie McGough, Valley Oak Elementary School, Fresno, CA

Lisa Nyberg, California State University, Fresno

Level: Grades K–5

Science Focus: GEN

Location: International Ballroom E, Omni

This PLI is a dynamic blend of two NSTA Press book series: Picture-Perfect STEM and Powerful Practices. Participants learn how using picture books can inspire learning in the STEM disciplines through thoughtfully designed Picture-Perfect STEM lessons, as well as how to customize classroom instruction with specific pedagogical practices to enhance literacy development through engaging three-dimensional STEM units. Focal points include The Power of Questioning, The Power of Investigating, and The Power of Assessing. Participants have opportunities to engage in the instructional strategies as learners through hands-on lessons, videos, and action plan instructional teams. Participants then have the opportunity to apply models of instructional decision-making. Using a framework for developing a unit plan design, participants create a block plan for a customized STEM unit. Participants have an opportunity to brainstorm unit/assessment design in teams and receive feedback from the authors. All participants receive one book from the Picture-Perfect STEM series and one book from the Powerful Practices series.

A Shell One-Day Institute: Embracing an Equitable Mind-set: Developing Culturally Proficient Leaders (PLI-6)

Natacia Campbell, Joliet (IL) Public Schools District 86

Andrea Evans, Northeastern Illinois University, Chicago

Level: Grades K–12

Science Focus: GEN

Location: Grand Ballroom C, Omni

“Powerful leaders are those who have the courage to take the step and embark on the journey” as stated by Blankstein & Noguera in their book Courageous Leadership for District-Wide Success. The persistence of achievement gaps by race, class, and gender continue to challenge our educational system. The explanations for achievement inequities are many, yet it is important for educators to locate within schools and districts, the beliefs, programs, policies, and practices that may in fact perpetuate achievement gaps. This institute brings together individuals who want to further their journey toward becoming culturally proficient leaders, helping to ensure high levels of success for all students. Throughout the day participants will address personal and professional bias, gaps in equitable services, and issues of access. Participants receive Culturally Proficient Leadership: The Personal Journey Begins Within to use as a tool, helping leaders view “personal and professional behaviors in a context of understanding, appreciation, and recognition of difference and diversity.” Attendees will share experiences, learn about tools used in developing cultural proficiency, review data and effective programs, identify possible next steps, as well as create alliances with other science educators.

Educators are encouraged to attend in teams of two to four.
Program Overview

Research Experiences for STEM Educators and Teachers (RESET) provides educators with summer research experience at participating Army Laboratories.

The goal of this enriching program is to reinforce teachers’ content knowledge through research experience and interactions with Army and Department of Defense scientists and engineers. Selected teachers will participate in on-line learning as a cohort, with a subset of the cohort selected to conduct research on-site with a mentor Army scientist or engineer.

At the completion of the program, teachers will be able to translate this knowledge and experience into enhanced science, technology, engineering and math research curricula and enriched learning for their students.

Program Milestones

April 6th: Teacher Application Period Closes

April 13th: Selected teachers notified of Level I and Level II cohort status

April 23rd: Cohort work begins as Level I and Level II cohort members participate in on-line Module 1

June – July: Level II cohort members participate in on-site research (dates vary by site location)

August: Level I and Level II cohort members participate in on-line Module 2, Cohort completed

Apply today: https://tinyurl.com/AEOP-RESET

For program inquiries: RESET@usaeop.com
The need for science, technology, engineering and math (STEM) literacy is growing exponentially. The United States Army has long recognized that a scientifically and technologically literate citizenry is our nation’s best hope for a secure, rewarding and successful future. AEOP continues its long tradition and strong commitment to the advancement of STEM education and literacy by offering an integrated portfolio of K-20 enrichment, competition and apprenticeship experiences for students and high-quality professional development for educators. Effectively engaging our nation’s students and educators—particularly those in underserved communities—in meaningful, real-world STEM experiences is key to AEOP’s success.

STEM ENRICHMENT ACTIVITIES
Camp Invention (Rising 1-6th)
GEMS (5th-12th)
UNITE (Rising 9th-12th)

COMPETITIONS
JSS (5th-8th)
eCYBERMISSION (6th-9th)
JSHS (9th-12th)

APPRENTICESHIPS
SEAP (High School)
HSAP (High School)
REAP (High School)
URAP (Undergraduate)
CQL (Undergraduate)
If You Can Think It, You Can Model It (SC-1)

Steven Roderick (steveroderick@mac.com) and Daniel Damelin (@dandamelin; ddamelin@concord.org), The Concord Consortium, Concord, MA

Tom Bielik (tbielik@msu.edu) and Joseph Krajcik (@krajcikjoe; krajcik@msu.edu), CREATE for STEM Institute, Michigan State University, East Lansing

Science Focus: GEN, CCC4, and SEP2
Level: 5–12
Date/Time: Thursday, March 15, 3:00–6:00 PM
Location: Chastain C, Westin
Ticket Price: $42

This short course will introduce participants to SageModeler, a simple and engaging tool for modeling complexity and examining behavior in complex systems and a variety of contexts. Through explorations and activities using this free web-based software, participants will expand their knowledge of systems and systems thinking, build and simulate visualizations of their own mental models, and explore ways to incorporate computer modeling into curricular activities and units appropriate to both middle school and high school students. Note: Bring a laptop computer or Chromebook with Google Chrome installed. For more information, visit bit.ly/2nyKnjf.

Climate Change Misinformation: Sort Fact from Fiction with Ice Core Science (SC-2)

Louise T. Huffman (louise.t.huffman@dartmouth.edu), Thayer School of Engineering at Dartmouth College, Hanover, NH

Zoe Courville (zoe.r.courville@usace.army.mil), Cold Regions Research and Engineering Lab, Hanover, N.H.

Science Focus: ESS2.C, ESS2.D, ESS3, ETS1, CCC2, CCC7, SEP4, SEP6, SEP8
Level: Grades 5–12
Date/Time: Thursday, March 15, 3:00–6:00 PM
Location: Chastain D, Westin
Ticket Price: $38

Today, climate change is arguably the most urgent global issue, and science educators are under siege by special interest groups intent on misinformation. How do we know what we know about climate change? This short course will provide current information and the tools and resources to teach climate change within NGSS. Interact with an ice core scientist presenting cutting-edge research and climate change information, while a master polar educator leads hands-on activities for engaging and transferring the information to students. Receive stellar resources developed by scientists and educators from the Ice Drilling Program Office (IDPO) with National Science Foundation funding. Bring materials to take notes. For more information, visit www.climate-expeditions.org.

Meaning Making in Science: How Disciplinary Literacy Supports the Development of Scientific Understanding (SC-3)

Pamela M. Pelletier (@BPSSciencePam; ppelletier@bostonpublicschools.org) and Holly Rosa (@BPSScienceHolly; hrosa@bostonpublicschools.org), Boston (MA) Public Schools

Science Focus: GEN, SEP
Level: Grades K–12
Date/Time: Thursday, March 15, 3:00–6:00 PM
Location: Chastain H, Westin
Ticket Price: $38

We are strong advocates for disciplinary literacy—helping students learn to think, act, and communicate like scientists and engineers. During this short course, participants will engage in activities that explore disciplinary literacy in science. We will showcase the critical role that the scientist’s notebook plays in literacy and science content as well as practices development. Strategies and resources built with our teachers and other experts will be shared, including our “Core Actions” and reading and notebook strategies that take students from observation to explanation and argument writing. Opportunities will be provided to explore notebooks as
a meaning-making and formative assessment tool. A laptop/tablet to view resources is recommended.

**Science for Everyone: Engaging Diverse Learners Using SIOP Strategies, Visual Literacy, Scaffolding, and Culturally Relevant Pedagogy (SC-4)**

**Jernita Randolph** (jernita_m_randolph@dekalbschoolsga.org) and **Ashley Mears** (ashley_mears@dekalbschoolsga.org)

Clarkston High School, Clarkston, GA

Science Focus: LS, PS, CCC, SEP

Level: Grades 6–12

Date/Time: Friday, March 16, 7:15–11:50 AM

Location: Off-site, Clarkston High School

Ticket Price: $43

In this off-site short course, come observe teachers and students at Clarkston High School—one of the most culturally diverse schools in the nation. The city of Clarkston has been dubbed the most culturally diverse city per square mile in the United States. Clarkston High School currently has students from over 56 countries who speak over 48 languages and 100% of the students are on free or reduced lunch. Participants will observe biology, environmental science, physical science, and chemistry classrooms with the option of also visiting any of the 19 content-specific sheltered classes (ESOL-ELA, social studies, and mathematics). As small groups, participants will observe the classrooms and then join in later for a large group discussion on teaching strategies, including SIOP (Sheltered Instruction Observation Protocol Model). Teachers and students will share their “Clarkston Experience.” Bring materials to take notes.

Meet your short course leader at the entrance on outside GWCC Building B at least 15 minutes before departure time.

**3D Designing and Using Three-Dimensional Assessments in Your Classroom (SC-5)**

**Katie Van Horne** (@dizzvh; katie.vanhorne@colorado.edu), University of Colorado Boulder

**Tamara Smolek** (smolekt@michigan.gov), Michigan Dept. of Education, Lansing

Science Focus: GEN, NGSS

Level: Grades K–12

Date/Time: Friday, March 16, 8:00–11:00 AM

Location: Chastain E, Westin

Ticket Price: $38

As states adopt three-dimensional science standards, assessment needs to integrate disciplinary core ideas, science and engineering practices, and crosscutting concepts. In this short course, a curriculum designer and a state assessment leader will take participants through a process to consider how assessment can be used to support 3-D teaching and learning. With participants, we explore how to design 3-D instructionally supportive assessments that provide teachers with information to make instructional shifts within their classrooms, plus yield student work that teachers can use to interpret what students know and can do, as well as what they still need to learn.
Citizen Science Projects That Transform Schoolyards into STEM Labs and Help K–12 Students Make Sense of Phenomena in Nature (SC-6)

Karan Wood (karan@captainplanetfdn.org), CPF Institute, Atlanta, GA
Donna Joy Barrett-Williams (@donnascience; donnajbarrett@gmail.com), Fulton County Schools, Atlanta, GA
Science Focus: ESS1, LS2, LS4, CCC1, CCC2, CCC7, SEP3, SEP4, SEP7
Level: Grades K–12
Date/Time: Friday, March 16, 8:00–11:00 AM
Location: Chastain I/J, Westin
Ticket Price: $42

This short course is designed to equip educators with tools, resources, and strategies for facilitating field investigations; providing opportunities for students to make sense of phenomena in nature; and cultivating skills for gathering data, using apps to analyze trends, and arguing from evidence about interpretation of findings. Beyond basic critter counts, we’ll try out citizen science projects that incorporate engineering design challenges, student-led experiments, and microcontroller coding. Featured projects include the search for an endangered species, testing of plants for antibiotic potential, soil sampling, water quality monitoring, observation of pollinator behavior, identification of clouds to calibrate satellite imagery, folding of proteins, and analysis of pollution bio-indicators. Participants will receive links to 3-D Lesson Frameworks, a Foldscope field microscope, window bird feeder, the Citizen Science issue of Natural Inquirer magazine, and seeds, as well as find out how to obtain a Citizen Science ecoSTEM Kit. Be prepared to spend part of the time outdoors, weather permitting.

The World Ender: A STEAM PBL Unit (SC-7)

Cynthia Hall (hallcr@cofc.edu) and Cassandra Runyon (runyon@cofc.edu), College of Charleston, SC
Rhett Nettles (rnettles@s2temsc.org), S2TEM Centers SC, Goose Creek, SC
Elizabeth (Betsy) O’Day (betsy.oday@gmail.com), Hallsville Intermediate School, Hallsville, MO
Maria Royle (mro0303@gmail.com), R. B. Stall High School, North Charleston, SC
Level: Grades 6–8
Date/Time: Friday, March 16, 10:00 AM–4:00 PM
Location: Augusta B/C, Westin
Ticket Price: $58

What would you do if an asteroid hit Earth? Come explore curriculum based on an engineering design challenge in which students must work collaboratively to create a knowledge base of research, inquire and investigate relevant phenomena, and think critically to redirect an asteroid. The World Ender is a problem-based unit that not only will excite your students, but also touches on a many cross-disciplinary areas. Bring your laptop/tablet. Expect a break for lunch on own.

Developing a Reasonable NGSS Transition Plan for My District or School (SC-8)

Nicholas Balisciano (@STEMNick; nbalisciano@ctscience-center.org) and Gail Emilsson, Connecticut Science Center, Hartford
Science Focus: GEN, NGSS
Level: Grades K–12
Date/Time: Friday, March 16, 10:00 AM–5:00 PM
Location: Chastain D, Westin
Ticket Price: $48

In teams, apply tools and processes from a Connecticut NGSS implementation leader that support the development of a goal-oriented district or school plan to address the NGSS. Offered by the Connecticut Science Center, the hub of NGSS implementation in Connecticut, this short course is designed to help vertical district teams (and teams from schools with significant local control over their science program) in crafting a long-term vision for science education; taking stock of own strengths, opportunities, and challenges; setting reasonable goals; and creating a multi-year transition plan that supports achieving the NGSS.

Putting the Pieces Together: Introduction and Implementation of 3-D Learning (SC-9)

Donna Joy Barrett-Williams (@donnascience; williams17@fultonschools.org), Angela Hope Ergle (@ergle_angela; ergle@fultonschools.org), Amy Kilbride (kilbride@fultonschools.org), Chanel Johnson (johnsonc@fultonschools.org), and Nyasha Okor, Fulton County Schools, Atlanta, GA
Nicole Lynn Ford (@STEMSLC; fordn@fultonschools.org), Fulton County Schools South Learning Center, Union City, GA
Science Focus: GEN
Level: Grades K–12/District Leaders and Supervisors
Date/Time: Friday, March 16, 3:00–6:00 PM
Location: Chastain H, Westin
Ticket Price: $25

A large urban district shares their journey to introduce 3-D science and the shifts in best practices for their 4,000 K–12 science teachers. We will introduce a professional learn-
Integrating Engineering into K–8 Life Science Lessons (SC-10)
Michelle Forsythe (mforsythe@txstate.edu), Texas State University, San Marcos
Science Focus: ETS1, LS
Level: Grades K–8
Date/Time: Saturday, March 17, 8:00–11:00 AM
Location: Chastain E, Westin
Ticket Price: $45

Looking to infuse some “life” into your engineering design challenges? Come explore how nature can provide a rich context for students to engage with engineering. We’ll unpack a new framework for transforming traditional 5E life science lessons into “5E+” life science and engineering lessons and experience a “5E+” lesson in action. Then we’ll break into small groups and transform your own lessons into a “5E+” lesson. We’ll end with a gallery walk of each group’s ideas. Come by yourself or as a school team with a lesson you’re interested in adapting and leave with practical ideas, tools, and materials!

Using NGSS Storylines to Support Students in Meaningful Engagement in Science and Engineering Practices (SC-11)
Brian Reiser (@reiserbrianj; reiser@northwestern.edu), Michael Novak (@mnovakccl; mnovak@ccl.northwestern.edu), and Tara McGill (@tarantulamarch; tara.mcgill@northwestern.edu), Northwestern University, Evanston, IL
Science Focus: GEN, NGSS
Level: Grades K–12
Date/Time: Saturday, March 17, 8:00–11:00 AM
Location: Chastain H, Westin
Ticket Price: $69

Explore how to teach with coherent NGSS storylines, in which students help plan and manage investigations rather than simply follow instructions. Investigate how storylines can support students in developing ideas over time, motivated by questions about phenomena in the world, where each step is an attempt to address a question or gap in the current explanatory model. Using example open-source storylines from elementary, middle school, and high school, we’ll analyze lesson designs, classroom video, and student work to investigate how to bring coherent storylines to life in K–12 classrooms. Bring a laptop/tablet to connect to the internet. For more information, visit www.nextgenstorylines.org.

Elementary GLOBE Short Course Training (SC-12)
Kevin Czajkowski (kevin.czajkowski@utoledo.edu) and Janet Struble (janet.struble2@utoledo.edu), The University of Toledo, OH
David Padgett (@TSUGIScLab; dpadgett@tnstate.edu), Tennessee State University, Nashville
Jessica Taylor (jessica.e.taylor@nasa.gov) and Tina Harte (tina.r.harte@nasa.gov), NASA Langley Research Center, Hampton, VA
Science Focus: ESS2.D
Level: Grades K–4
Date/Time: Saturday, March 17, 10:00 AM–5:00 PM
Location: Augusta A, Westin
Ticket Price: $63

Do you teach about weather? Elementary GLOBE storybooks incorporated with NASA resources engage the natural curiosity of students through learning activities and science journaling experiences. You will be trained by our team of scientists in some of GLOBE Atmosphere Protocols, such as data submission to GLOBE website. Support continues when you return to your classroom with eTraining and webinars. Take-home materials include two storybooks: Do You Know that Clouds Have Names? and What’s Up in the Atmosphere?; air and infrared thermometers; cloud chart; learning activities focusing on literacy skills; NGSS-focused implementation guide; as well as NASA and GLOBE materials. It is recommended that you bring a laptop/tablet. Expect a break for lunch on own.
Please join us for our 2018 NSTA Area Conferences on Science Education

Elevating Science
Digging Deeper
RENO, NV
OCT. 11–13

Science Education
A National Priority
NATIONAL HARBOR, MD
NOV. 15–17

Energize Science
Educate and Engage
CHARLOTTE, NC
NOV. 29–DEC. 1

Professional Development Strands

Developing Persistence: The Power of Experience
Advancing Three-Dimensional Classroom Culture
Cultivating Constructive Partnerships

Monumental Challenge: STEM Equity, Diversity, and Advocacy via NGSS
Freedom to Become Scientifically Literate
Cultivating Curiosity in the Capital Region

Illuminate Literacy Through Science
Amp Up Science Instruction
High-Voltage Science Strategies Beyond Standards

For more information and to register, visit www.nsta.org/conferences

#NSTA18
Tickets for educational trips can be purchased (space permitting) at the Ticket Sales Counter in the NSTA Registration Area. Meet your trip leader at the entrance outside GWCC Building B at least 15 minutes prior to departure time.

**Botanical Garden Self-Guided Tours**  
$27

- **T-1** Thursday, March 15  8:30–11:30 AM
- **F-2** Friday, March 16  8:30–11:30 AM
- **S-1** Saturday, March 17  8:30–11:30 AM

Enjoy a self-guided tour at the Atlanta Botanical Garden. In addition to the outdoor gardens, you can explore the Venus flytraps in the Soggy Bog and learn about honeybees in the observation hive. Walk through the treetops on the 600 foot Kendeda Canopy Walk, learn about new plants and discover seasonal edibles in the Edible Garden. Many critters and native birds make their home in the Garden, including various quails that live in the Tropical Rotunda and the rarely seen Saffron Finches. Stop by the Conservatory terrarium and look for the orange poison dart frogs. Light snacks and refreshments are available for purchase, as well as lunch fare at the Longleaf restaurant. Visit bit.ly/2DkF8MA to preplan your trip.

NSTA wishes to thank the Atlanta Botanical Garden for providing complimentary admission for these educational trips.

**Stones and Stories: A City Earth Science Walk**  
$20

- **T-2** Thursday, March 15  9:00 AM–12:30 PM
- **S-2** Saturday, March 17  9:00 AM–12:30 PM

Tag along with two geologists/retired K–12 educators to see the beautiful building stones and folded natural rock layers of Midtown Atlanta, on a tour from Symphony Hall to Rhodes Hall. Bill Witherspoon, co-author of Roadside Geology of Georgia, teams up with Georgia Mineral Society leader Bill Waggener, to interpret the stories that rocks tell. Wear comfortable shoes. Must be able to walk moderate distances.

Meet your educational trip leader at the GWCC main entrance on Andrew Young International Drive 15 minutes before departure time. From there, group will walk to the MARTA rail station. Breeze cards included in ticket price.

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**Global Conversations: Welcome to My Elementary Classroom**  
$25; by preregistration only

**W-1** Wednesday, March 14  8:00 AM–12 Noon

Welcome to My Classroom is a program sponsored by NSTA’s International Advisory Board and is intended primarily for international participants to view science classrooms. This year, trip participants will visit Beecher Hills Elementary School or Benjamin E. Mays High School. Time has been set aside for participants to observe and interact with teachers and students at their selected location.

W-1 participants will visit Beecher Hills Elementary, a preK–5 Authorized IB World School located in the scenic Beecher Hills Community in Southwest Atlanta. Beecher Hills is part of the Atlanta Public School System.

**Global Conversations: Welcome to My High School Classroom**  
$25; by preregistration only

**W-2** Wednesday, March 14  8:00 AM–12 Noon

Welcome to My Classroom is a program sponsored by NSTA’s International Advisory Board and is intended primarily for international participants to view science classrooms. This year, trip participants will visit Beecher Hills Elementary School or Benjamin E. Mays High School. Time has been set aside for participants to observe and interact with teachers and students at their selected location.

W-2 participants will tour visit Benjamin E. Mays High School, a public school located in southwest Atlanta serving grades 9–12. Part of the Atlanta Public School System, the high school is a Georgia School of Excellence.
Watershed Activities at Dunwoody Nature Center

T-3 Thursday, March 15 12:30–5:00 PM
$40

Move through the meadow and trails at Dunwoody Nature Center while led by environmental educators for a hands-on experience that reinforces and brings to life the STEM concepts that are taught in the classroom. Engage in Project WET, Urban Watershed, and Getting Little Feet Wet activities. Dunwoody Nature Center features four distinct habitats—meadow, stream, wetlands, and forest—that are ideally suited to enhance the fundamentals of environmental science in a controlled setting. Dress for the weather and wear comfortable hiking shoes. Must be able to walk moderate distances. For more information on the activities, visit www.projectwet.org. Travel time is approximately one hour each way.

Fernbank Science Center: Where the Stars Shine Over Atlanta

T-4 Thursday, March 15 6:00–9:30 PM
$30

Looking for STARS in Atlanta? Follow us to Fernbank Science Center, Home of the STARS! Join us for a planetarium show on the largest screen in Atlanta, the Jim Cherry Memorial Planetarium, then step outside and be among the stars at the Dr. Ralph L. Buice, Jr. Observatory, the largest telescope in the southeastern United States. See where the stars hang out in Atlanta—Fernbank Science Center. From Appalachia to Asteroids: Exploring a Billion Years of Georgia History

F-1 Friday, March 16 8:00 AM–5:00 PM
$62

From asteroid impacts to the rise of the Appalachian Mountains, the rocks of Georgia feature a record of cataclysms dating back more than a billion years. This educational trip will be led by Fernbank Science Center planetary geologist Scott Harris on behalf of the Georgia Geological Society. On this trip, we will explore ancient coastlines where debris from two major asteroid impacts rained down 35.5 and 65 million years ago. And we will investigate the clues of a large Proterozoic impact more than 900 million years ago. Along the way, we will see dramatic evidence of the tectonic forces that shaped eastern North America during the Paleozoic, massive volcanic eruptions during the Mesozoic, and sea level rise and fall during the Cenozoic. Come dressed ready to explore with rock hammers and collection bags at the ready. Hard hats, rock hammers, and a boxed lunch will be provided. Must be able to walk moderate distances. Trip includes stops at four sites.

Note: If you have steel or composite-toe boots, please bring them. Toe guards will be provided for those who don’t. Hard hats and rock hammers will be provided. Please bring a sturdy bag for collecting.

NSTA wishes to thank Fernbank Science Center for providing complimentary admission and planetarium show tickets for trip participants.
From Gardens to Granite: GSU Perimeter $47
College Native Garden and Arabia Mountain
F-3 Friday, March 16 8:30–11:30 AM
See one of the largest collections of fern taxa and native plants in the country during a tour of the Native Plant Botanical Garden (http://sites.gsu.edu/ncbgarden/) located on Georgia State University’s Perimeter College Decatur Campus. Then hike through one of Georgia’s most fascinating ecosystems at Arabia Mountain National Heritage Area (http://arabiaalliance.org/). Be sure to dress for the weather and wear comfortable walking shoes. It is recommended you bring bottled water for the hike at the Davidson–Arabia Mountain Nature Preserve.

STEM-Themed Guided Tour at Zoo Atlanta $44
F-4 Friday, March 16 9:30 AM–2:30 PM
Explore the Zoo through bio-inspired design! Find out how animals are inspiring solutions to everyday scientific and engineering problems. For example, learn how researchers are studying the drinking behaviors of cats to create technologies that will propel liquid upward, helping to find more efficient ways to clean up oil spills! Time included for lunch on own, as well as self-exploration of the Zoo after STEM-themed guided tour. Note: You are welcome to take photos, but video is not permitted.

Exploring the White Whaleback of Granite— $47
Stone Mountain
F-5 Friday, March 16 12:45–5:00 PM
Tour Stone Mountain and learn about its fascinating geologic history with the authors of the Roadside Geology of Georgia book. Receive an overview of the geology of Stone Mountain, a granite monadnock about 20 miles east of Atlanta, rising about 800 feet above the surrounding terrain. Beginning at the Walk-Up Trail, we will examine granite cut by pegmatite dikes, and observe solution pits with evidence of ecologic succession and early spring wildflowers near the base of the trail. You can see evidence of hand-quarrying of the rock and carvings made by visitors to the mountain, dating back more than 100 years. We will visit the natural history museum in Confederate Hall, where we will learn about the geologic history and formation of Stone Mountain. Then we will board the bus and travel to the outdoor Quarry Exhibit, where the granite was quarried from the 1850s to the 1970s. At the Quarry Exhibit, we will observe evidence of recent exfoliation, clusters of tourmaline crystals or “cat’s paws” in the granite, flow banding, pegmatite dikes, and xenoliths of gneiss that got caught up in the magma as the Stone Mountain granite intruded the surrounding rocks of the Piedmont. Dress for the weather, bring a water bottle, and wear comfortable walking shoes or field boots. Must be able to walk moderate distances. Visit www.georgiarocks.us for more information.

Public Health on Display at the Centers for Disease Control’s Museum $35; by preregistration only
F-6 Friday, March 16 1:15–4:30 PM
Ever wondered how CDC scientists merge old-fashioned detective work with high-tech science to crack the cases of mystery diseases? Get the story as we tour the David J. Sencer CDC Museum at CDC Headquarters. One of 13 major operating components of the Department of Health and Human Services (HHS), the Centers for Disease Control and Prevention in Atlanta is one of the only federal government agencies with headquarters outside of Washington, D.C. The CDC Museum teaches public health, specifically as it relates to CDC’s work. Other tour topics may include microbiology, infectious disease, environmental health, CDC history, or even the art in our exhibits. All guided tours of the CDC Museum exhibits include an introduction using the short stories on the multimedia show, an introduction to the current temporary exhibit, and a tour of the permanent exhibit, The Story of CDC.

Note: Must bring a valid government-issued ID (Driver’s licenses for U.S. citizens; noncitizens must bring passports) for entry on CDC’s campus. No food or beverages allowed. Cameras are allowed) inside the David J. Sencer CDC Museum’s exhibit space, but please refrain from taking any pictures outside of the CDC Museum.

Taste and Explore World of Coca-Cola $16; by preregistration only
S-3 Saturday, March 17 1:45–4:15 PM
An integral part of downtown Atlanta’s fabric for more than 25 years, World of Coca-Cola has welcomed guests from six continents, more than 100 countries, all 50 U.S. states and the District of Columbia. Join over 25 million people who have visited the Atlanta attraction and experience the history of the world’s most famous beverage brand at the dynamic, multimedia home of the 131-year-old secret formula for Coca-Cola. Enjoy an ice-cold, refreshing Coca-Cola, Diet Coke, Coke Zero Sugar or Coke Life in the lobby before beginning your self-guided tour. Get closer than ever before to the vault containing the secret recipe, view more than 1,200 historic artifacts and get a behind-the-scenes look at the bottling process. Take a trip around the world in a thrilling 4-D movie experience, take a photo with the Coca-Cola Polar Bear, and tempt your taste buds with more than 100 beverages from around the globe.
Conference Program • Meetings and Social Functions

Tuesday, March 13

NSELA Board of Directors Meeting
By Invitation Only
Ansley 8 (14th Floor), Westin..............8:00 AM–5:00 PM

Wednesday, March 14

NSELA Leadership Summit Breakfast
By Invitation Only, visit www.NSELA.org
Augusta E-G, Westin....................... 7:00–7:45 AM

NSELA Leadership Summit
By Registration through NSELA. Visit www.NSELA.org
Augusta B-D, Westin....................... 7:00 AM–6:00 PM

Designing Three-Dimensional Lessons and Units Train-the-Trainer Workshop (Level 2)
By Separate Registration Only
Savannah C, Westin....................... 8:00 AM–5:00 PM

Making Sense of Three-Dimensional Teaching and Learning (Level 1)
By Separate Registration Only
Savannah A/B, Westin..................... 8:00 AM–5:00 PM

NSELA Leadership Summit Lunch
By Invitation Only
Augusta E-G, Westin....................... 11:30 AM–1:30 PM

Science Education for Students with Disabilities Preconference Meeting
By Registration Through SESD
Birch, Omni................................. 9:00 AM–12 Noon

Science Education for Students with Disabilities (SESD) Board Meeting
By Invitation Only
Birch, Omni................................. 4:00–6:00 PM

Fun Lab
Registration Hall B, GWCC.................. 4:00–7:00 PM

NSELA Young Professional and New Teacher Reception
Galleria, Level 5 of Bldg. B, GWCC
(lobby to Thomas B. Murphy Ballroom) .... 4:30–6:00 PM

NSELA and CSSS Reception
By Invitation Only
Peachtree Room and Terrace, Westin........ 6:00–9:00 PM

Thursday, March 15

NSELA Membership Breakfast
By Invitation Only, visit www.NSELA.org
Chastain F/G, Westin...................... 7:00–10:00 AM

Designing Three-Dimensional Lessons and Units Train-the-Trainer Workshop (Level 2)
By Separate Registration Only
Savannah C, Westin....................... 8:00 AM–5:00 PM

Making Sense of Three-Dimensional Teaching and Learning (Level 1)
By Separate Registration Only
Savannah A/B, Westin..................... 8:00 AM–5:00 PM

Science Safety Advisory Board Meeting
Willow Brdrm., Omni....................... 8:30–11:00 AM

NSTA International Lounge
Cypress Room, Omni....................... 9:00 AM–5:00 PM

Nominations Committee Meeting
Beechnut, Omni............................. 12:30–2:00 PM

Coordination and Supervision of Science Teaching Committee Meeting
Grand Brm. E/Gr. 6, Omni................. 12:30–2:30 PM

Informal Science Education Committee Meeting
Grand Brm. E/Gr. 7, Omni............... 12:30–2:30 PM

Joint Meeting: Multicultural/Equity, Urban, Rural and AMSE
By Invitation Only
Cottonwood A/B, Omni..................... 12:30–2:30 PM

Journal of College Science Teaching Advisory Board Meeting
Grand Brm. E/Gr. 4, Omni............... 12:30–2:30 PM

NGSS Advisory Board Meeting
Grand Brm. E/Gr. 8, Omni............... 12:30–2:30 PM

NSTA Reports Advisory Board Meeting
Grand Brm. E/Gr. 5, Omni............... 12:30–2:30 PM

Preservice Teacher Preparation Committee Meeting
Grand Brm. E/Gr. 9, Omni............... 12:30–2:30 PM

Professional Development in Science Education Committee Meeting
Grand Brm. E/Gr. 10, Omni............. 12:30–2:30 PM

Research in Science Teaching Committee Meeting
Grand Brm. E/Gr. 11, Omni............. 12:30–2:30 PM

Science & Children Advisory Board Meeting
Grand Brm. E/Gr. 1, Omni............... 12:30–2:30 PM

NSTA Atlanta National Conference on Science Education
Science Scope Advisory Board Meeting
Grand Blrm. E/Gr. 2, Omni ..................12:30–2:30 PM

The Science Teacher Advisory Board Meeting
Grand Blrm. E/Gr. 3, Omni ..................12:30–2:30 PM

AMSE Board of Directors Meeting
Sycamore, Omni ...............................2:30–5:30 PM

Aerospace Programs Advisory Board Meeting
Grand Blrm. E/Gr. 5, Omni ..................3:00–4:30 PM

Awards and Recognition Committee Meeting
Beechnut, Omni ...............................3:00–4:30 PM

College Science Teaching Committee Meeting
Grand Blrm. E/Gr. 4, Omni ..................3:00–4:30 PM

High School Science Teaching Committee Meeting
Grand Blrm. E/Gr. 3, Omni ..................3:00–4:30 PM

International Advisory Board Meeting
Grand Blrm. E/Gr. 6, Omni ..................3:00–4:30 PM

Middle Level Science Teaching Committee Meeting
Grand Blrm. E/Gr. 2, Omni ..................3:00–4:30 PM

Preschool–Elementary Science Teaching Committee Meeting
Grand Blrm. E/Gr. 1, Omni ..................3:00–4:30 PM

Retired Members Advisory Board Meeting
Grand Blrm. E/Gr. 7, Omni ..................3:00–4:30 PM

Rural Advisory Board Meeting
Grand Blrm. E/Gr. 8, Omni ..................3:00–4:30 PM

Science Matters Advisory Board Meeting
Grand Blrm. E/Gr. 9, Omni ..................3:00–4:30 PM

Special Needs Advisory Board Meeting
Grand Blrm. E/Gr. 10, Omni .................3:00–4:30 PM

Technology Advisory Board Meeting
Grand Blrm. E/Gr. 11, Omni .................3:00–4:30 PM

APAST Board Meeting
By Invitation Only
Chestnut, Omni ...............................4:00–6:00 PM

Outstanding Science Trade Books Committee Meeting
By Invitation Only
Willow Brdrm., Omni ........................4:30–5:30 PM

NSTA Board and Council Meet & Greet
By Invitation Only
Int’l Ballroom A/B, Omni .................4:30–6:00 PM

Best STEM Books Meeting
By Invitation Only
Hazelnut, Omni ...............................5:00–6:00 PM

NMLSTA Board Meeting
By Invitation Only
Beechnut, Omni ...............................5:00–6:30 PM

Alliance of Affiliates Networking Social
By Invitation Only
Cottonwood A/B, Omni .................5:00–7:00 PM

Introducing OK Go Sandbox, Hosted by Google
Sidney Marcus Auditorium, GWCC ..........6:00–7:00 PM

Authors Circle Reception
By Invitation Only
Grand Blrm. A, Omni ........................6:30–8:00 PM

Building Equity and Access for All Social
By Invitation Only
Int’l Blrm. E, Omni ........................7:00–8:30 PM

NGSS Live Chat
Participate in person or via Twitter using #NGSSchat
Dogwood A, Omni ............................8:30–10:00 PM

Friday, March 16

AMSE Alice J. Moses Annual Breakfast
By Invitation Only, visit www.amsek16.org.
Pine (South Tower), Omni ....................7:30–9:30 AM

NSTA President’s International Breakfast Reception
Sponsored by Northrup Grumman Foundation
Grand Blrm. E, Omni ........................8:30–9:30 AM

NSTA International Lounge
Cypress Room, Omni ........................9:00 AM–5:00 PM

Urban Science Education Advisory Board Meeting
Chestnut Room, Omni ........................10:30 AM–12 Noon

AMSE General Membership Meeting
Visit amsek16.org for additional information.
Pine (South Tower), Omni ....................10:30 AM–12:30 PM

NMLSTA Membership and Board Meeting
By Invitation Only
A314, GWCC ...............................12 Noon–12:30 PM

ASTE-Sponsored Working Meeting: Elementary Science Teaching Methods
Sycamore, Omni ...............................12:30–1:30 PM

“Meet and Greet” the NSTA Presidents and Board/Council
Entrance to Exhibit Hall, Hall B2 ...........12:45–1:30 PM
Conference Program • Meetings and Social Functions

Chapter and Associated Group Leader Roundtable
Hazelnut, Omni ........................................... 3:00–4:00 PM

GSTA Annual Meeting
Juniper, Omni ............................................. 3:30–4:30 PM

SCST Business Meeting
Hickory, Omni ............................................. 3:30–5:00 PM

APAST Social and Business Meeting
By Invitation Only
Cottonwood A/B, Omni ...................... 4:00–6:00 PM

NSTA Recommends Meeting
Visit www.nsta.org/recommends
Willow Brdrm., Omni ......................... 4:30–5:30 PM

Shell Reception
By Invitation Only
Grand Blrm. A, Omni ......................... 5:00–5:45 PM

Reception for Georgia Science Teachers
By ticket through GSTA, visit www.georgiascienceteacher.org
Int’l Blrm. F, Omni ................................. 5:00–6:00 PM

NSTA Teacher Awards Gala
(Ticket required: M-1)
Grand Blrm. E, Omni ......................... 6:00–8:45 PM

HHMI Movie Night: The Farthest—Voyager in Space by HHMI BioInteractive and HHMI Tangled Bank Studios
Separate registration (6 p.m. dinner and screening followed by inspiring panel featuring members of the original Voyager team)
Stop by Booth #323 for free ticket.
Sidney Marcus Auditorium, GWCC ........ 6:00–9:00 PM

SCST Dessert Social and Poster Session
Grand Blrm. B, Omni ......................... 7:00–9:00 PM

Saturday, March 17
Past Presidents Breakfast and Advisory Board Meeting
By Invitation Only
Intl’l Ballroom A/B, Omni ................. 7:30–9:30 AM

NSTA International Lounge
Cypress Room, Omni ......................... 9:00 AM–5:00 PM

NSTA Council Roundtable
By Invitation Only
Intl’l Blrm. C, Omni ......................... 10:00–11:30 AM

NSTA Standing Committee, Advisory Board, and Panel Chairs Meeting
By Invitation Only
International Blrm. A/B, Omni .......... 12:30–1:30 PM

Development Advisory Board Meeting
By Invitation Only
Willow Brdrm., Omni ......................... 3:30–4:30 PM

NESTA Friends of Earth Science Reception
Intl’l Blrm. F, Omni ......................... 6:30–8:00 PM

Sunday, March 18
NSTA Life Members Morning Social
By Invitation Only
Cottonwood A/B, Omni ......................... 7:30–8:30 AM
The NSTA Alliance of Affiliates (AoA) includes nine science education organizations working together with NSTA to advance their mutual missions by providing advice and recommendations on science education policy, creating public position statements on key legislative issues, and designing programs and professional development for members (both affiliate and NSTA). The AoA facilitates communication and collaboration among affiliates by working with the NSTA Board and Council and other NSTA-related units, including Division Committees and Chapters and Associated Groups.

Alliance of Affiliates

**Thursday, March 15**

5:00–7:00 PM

Alliance of Affiliates Networking Social

By Invitation Only

Cottonwood A/B, Omni CNN

**Saturday, March 17**

9:30–11:30 AM

Professional Development and Resources for Science Teachers

Magnolia, Omni CNN

**Association for Multicultural Science Education (AMSE)**

*President: Sharon Delesbore*

**Thursday, March 15**

8:00–9:00 AM

A Framework for Equity and Inclusion: Culturally Relevant Pedagogy in the Science Classroom

Juniper, Omni CNN

12:30–1:30 PM

Opening the Gateway to Success Using Case Studies to Help Implement Scientific Concepts for Diverse Learners

Juniper, Omni CNN

12:30–2:30 PM

Joint Meeting: Multicultural/Equity, Urban, Rural, and AMSE

By Invitation Only

Cottonwood A/B, Omni CNN

2:00–3:00 PM

Trustworthy Science Teaching: Six Tenets for Cultivating a Healthy Productive Science Classroom for All

Juniper, Omni CNN

2:30–5:30 PM

AMSE Board of Directors Meeting

By Invitation Only

Sycamore, Omni CNN

**Friday, March 16**

7:30–9:30 AM

AMSE Alice J. Moses Breakfast

By Invitation Only

Pine (South Towner), Omni CNN

9:30–10:30 AM

Tearing Down Walls, Building Up Relationships

Juniper, Omni CNN

10:30 AM–12:30 PM

AMSE General Membership Meeting

Pine (South Tower), Omni CNN

2:00–3:00 PM

Unpacking Race in a Science Classroom

Grand Blrm. C, Omni CNN

3:30–4:30 PM

Hands On and Easy—Stimulate Learning for Diverse Learners

Spruce South Tower, Omni CNN

**Saturday, March 17**

8:00–9:00 AM

Building Relationships with Students Across Lines of Difference

Juniper, Omni CNN

9:30–10:30 AM

George W. Carver Conversations Series on Diversity and Equity

Juniper, Omni CNN

11:00 AM–12 Noon

Science for Rapid Action Planning Session

Juniper, Omni CNN

3:30–4:30 PM

Science Teachers Promoting Culturally Relevant Education: A Panel Discussion

Juniper, Omni CNN
### Conference Program • Affiliate Sessions

#### Association for Science Teacher Education (ASTE)

*President: Gillian Roehrig*

**Thursday, March 15**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
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<tbody>
<tr>
<td>8:00–9:00 AM</td>
<td>The Myth of the Scientific Method—Dispelling It Through Inquiry that Doesn’t Fit the Mold</td>
<td>Spruce South Tower, Omni CNN</td>
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<tr>
<td>2:00–2:30 PM</td>
<td>Embedding Sustainability in ALL Classrooms: Best Practices that Honor Limited Instructional Time</td>
<td>Redwood, Omni CNN</td>
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<tr>
<td>2:30–3:00 PM</td>
<td>STEM Partnerships in Science Ed: Challenges, Collaborations, and Lessons from the Inside</td>
<td>Redwood, Omni CNN</td>
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<tr>
<td>3:30–4:30 PM</td>
<td>Phenomenal 3-D Science: Cystic Fibrosis</td>
<td>A301, GWCC</td>
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**Friday, March 16**

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<tr>
<td>8:00–9:00 AM</td>
<td>CONnected!</td>
<td>Spruce, South Tower, Omni CNN</td>
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<tr>
<td>9:30–10:30 AM</td>
<td>New Teacher Preparation Standards to Meet the Needs of the Framework</td>
<td>Spruce, South Tower, Omni CNN</td>
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<tr>
<td>12:30–1:30 PM</td>
<td>Flipping the Science Content Classroom for Preservice Elementary Teachers with the NSTA Learning Center</td>
<td>Spruce, South Tower, Omni CNN</td>
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<tr>
<td>12:30–1:30 PM</td>
<td>ASTE-Sponsored Working Meeting: Elementary Science s Teaching Method</td>
<td>Sycamore, Omni CNN</td>
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<tr>
<td>2:00–3:00 PM</td>
<td>Hands-On Performance Assessment of the NGSS: An Effective Formative Assessment Strategy for 3-D Learning</td>
<td>Spruce, South Tower, Omni CNN</td>
</tr>
<tr>
<td>3:30–4:00 PM</td>
<td>Using Web GIS and iPads for Socio-Environmental Science Investigations</td>
<td>Maple C, South Tower, Omni CNN</td>
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#### Association of Science-Technology Centers (ASTC)

*President: Anthony Rock*

**Thursday, March 15**

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<th>Time</th>
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<tbody>
<tr>
<td>8:00–9:00 AM</td>
<td>Engaging Students Through the Design Process</td>
<td>A312, GWCC</td>
</tr>
<tr>
<td>12:30–1:30 PM</td>
<td>Making STEM Connections in the Classroom Setting</td>
<td>C205, GWCC</td>
</tr>
<tr>
<td>2:00–3:00 PM</td>
<td>STEM Starts Early “Get a Taste of PASTE”</td>
<td>A313, GWCC</td>
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**Friday, March 16**

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<tr>
<th>Time</th>
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<tbody>
<tr>
<td>3:30–4:30 PM</td>
<td>Designing the World: Engineering Design through a Historical Lens</td>
<td>A312, GWCC</td>
</tr>
<tr>
<td>5:00–6:00 PM</td>
<td>Immersing Students and Teachers in Science Field Research: Developing Collaborations Between Informal Educators, Formal Educators, and Research Scientists</td>
<td>A304, GWCC</td>
</tr>
</tbody>
</table>
Association of Science-Technology Centers (ASTC), continued

Saturday, March 17

8:00–9:00 AM  Evolving Practice: An NGSS-Inspired Approach to Teaching with Fossils  A312, GWCC
9:30–10:30 AM  Literacy and STEM: The Perfect Complement  A312, GWCC
11:00 AM–12 Noon  Citizen Science Investigations: Data-Rich Learning at Your Doorstep  A312, GWCC
3:30–4:30 PM  A Novel Approach to Impact Biodiversity  A312, GWCC
5:00–6:00 PM  Sowing Creativity: “Investigating Perception”  A304, GWCC

Council for Elementary Science International (CESI)

President: James T. McDonald

Friday, March 16

11:00 AM–12 Noon  Using Interactive Technologies in the Classroom  A303, GWCC
2:00–3:00 PM  Transforming and Creating “Predict, Observe, Explain” Sequences for Lower Elementary Science  A402, GWCC

Saturday, March 17

9:30–10:30 AM  Active Formative Assessment  A402, GWCC
12:30–1:30 PM  Integrating Science and Literacy: Proven Strategies Developed from Evidence-Based Practices  A402, GWCC

Council of State Science Supervisors (CSSS)

President: Tiffany Neill

Wednesday, March 14

6:00–9:00 PM  NSELA and CSSS Joint Reception By Invitation Only  Peachtree Room and Terrace, Westin

Thursday, March 15

8:00–9:00 AM  Georgia’s Science Ambassador Program  International Blrm. C, Omni CNN
12:30–2:30 PM  Three-Dimensional Science Lessons  International Blrm. D, Omni CNN
5:00–6:00 PM  Leadership in Science Education: Addressing Equity and Access  Dogwood A, Omni CNN

Friday, March 16

8:00–9:00 AM  Supporting Language and Literacy Through 3-D Science Instruction in Early Grades  Grand Blrm. C, Omni CNN
12:30–2:30 PM  Formative Assessments of Learners’ Interests, Identities, and Knowledge  Cottonwood A/B, Omni CNN
3:30–4:30 PM  Engaging Students in Using the Crosscutting Concepts to Make Sense of Phenomena  International Blrm. E, Omni CNN
### National Association for Research In Science Teaching (NARST)

*President: Barbara A. Crawford*

#### Friday, March 16

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<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00–9:00 AM</td>
<td>Using Agriculture as a Context for Teaching Genetics in Elementary Classrooms: Insights from UniCORN (Understanding Inheritance in CORN)</td>
<td>Maple C, South Tower, Omni CNN</td>
</tr>
<tr>
<td>11:00 AM–12 Noon</td>
<td>Participatory Action Research Using Annotated Videos to Promote Reflective STEM Practice Presented at NARST 90th International Conference</td>
<td>Spruce, South Tower, Omni CNN</td>
</tr>
<tr>
<td>2:00–2:30 PM</td>
<td>Biology Alternative Conceptions and Your Students</td>
<td>Maple C, South Tower, Omni CNN</td>
</tr>
<tr>
<td>2:30–3:00 PM</td>
<td>Uncovering Secondary Students’ Alternative Conceptions in Biology</td>
<td>Maple C, South Tower, Omni CNN</td>
</tr>
<tr>
<td>3:30–4:30 PM</td>
<td>I AM STEM: Transforming the Face of STEM One Community at a Time</td>
<td>A301, GWCC</td>
</tr>
</tbody>
</table>

#### Saturday, March 17

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00–9:00 AM</td>
<td>Investigating and Designing Paper Airplanes</td>
<td>Spruce, South Tower, Omni CNN</td>
</tr>
<tr>
<td>12:30–1:30 PM</td>
<td>The INSPIRES Curriculum for Connecting Engineering to a STEM Curriculum</td>
<td>Juniper, Omni CNN</td>
</tr>
<tr>
<td>2:00–3:00 PM</td>
<td>Understanding Conceptual Effects: How Teachers’ Conceptual Models of Integrated STEM Education Influence Curriculum Writing</td>
<td>Int’l Ballroom C, Omni CNN</td>
</tr>
<tr>
<td>3:30–4:30 PM</td>
<td>Making Time for Science Reading: The News Is Good</td>
<td>Spruce, South Tower, Omni CNN</td>
</tr>
</tbody>
</table>

### National Middle Level Science Teachers Association (NMLSTA)

*Co- Presidents: Terri Hebert and Mary Lou Lipscomb*

#### Thursday, March 15

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>5:00–6:30 PM</td>
<td>NMLSTA Board Meeting</td>
<td>Beechnut, Omni CNN</td>
</tr>
<tr>
<td></td>
<td>By Invitation Only</td>
<td></td>
</tr>
</tbody>
</table>

#### Friday, March 16

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:15 AM–4:30 PM</td>
<td>Meet Me in the Middle Day See page 51, as well as Vol. 2</td>
<td>Rooms A311–314, A411/412b, GWCC</td>
</tr>
<tr>
<td>12 Noon–12:30 PM</td>
<td>NMLSTA Membership and Board Meeting By Invitation Only</td>
<td>A314, GWCC</td>
</tr>
</tbody>
</table>
# National Science Education Leadership Association (NSELA)

*President: Bob Sotak*

## Tuesday, March 13

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00 AM–5:00 PM</td>
<td>NSELA Board of Directors Meeting</td>
<td>Ansley 8 (14th Floor), Westin</td>
</tr>
<tr>
<td></td>
<td>By Invitation Only, visit <a href="http://www.NSELA.org">www.NSELA.org</a></td>
<td></td>
</tr>
</tbody>
</table>

## Wednesday, March 14

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:00–7:45 AM</td>
<td>NSELA Leadership Summit Breakfast</td>
<td>Augusta E-G, Westin</td>
</tr>
<tr>
<td></td>
<td>By Invitation Only, visit <a href="http://www.NSELA.org">www.NSELA.org</a></td>
<td></td>
</tr>
<tr>
<td>7:00 AM–6:00 PM</td>
<td>NSELA Leadership Summit</td>
<td>Augusta B-D, Westin</td>
</tr>
<tr>
<td></td>
<td>By Registration Through NSELA</td>
<td></td>
</tr>
<tr>
<td>11:30 AM–1:30 PM</td>
<td>NSELA Leadership Summit Lunch, <em>by Invitation Only</em></td>
<td>Augusta E-G, Westin</td>
</tr>
<tr>
<td></td>
<td>By Invitation Only</td>
<td></td>
</tr>
<tr>
<td>6:00–9:00 PM</td>
<td>NSELA and CSSS Joint Reception</td>
<td>Peachtree Room and Terrace, Westin</td>
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<td></td>
<td>By Invitation Only</td>
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</table>

## Thursday, March 15

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:00–10:00 AM</td>
<td>NSELA Membership Breakfast</td>
<td>Chastain F/G, Westin</td>
</tr>
<tr>
<td></td>
<td>By Invitation Only, visit <a href="http://www.NSELA.org">www.NSELA.org</a></td>
<td></td>
</tr>
<tr>
<td>12:30–1:30 PM</td>
<td>Enhancing Student Learning Through the Use of Formative Assessment Strategies in Teacher Professional Development</td>
<td>B309, GWCC</td>
</tr>
<tr>
<td>12:30–1:30 PM</td>
<td>NSELA’s Tools for Leaders</td>
<td>Magnolia, Omni CNN</td>
</tr>
<tr>
<td>2:00–3:00 PM</td>
<td>NSELA’s Technology Tools for Leaders</td>
<td>Magnolia, Omni CNN</td>
</tr>
<tr>
<td>3:30–4:30 PM</td>
<td>Connecting Informal Science Venues with K–12 Education</td>
<td>Magnolia, Omni CNN</td>
</tr>
</tbody>
</table>

## Friday, March 16

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00–9:00 AM</td>
<td>Teaching a Culturally Responsive Pedagogy</td>
<td>Magnolia, Omni CNN</td>
</tr>
<tr>
<td>9:30–10:30 AM</td>
<td>Close Reading and Science Texts: What Curriculum Leaders Need to Know</td>
<td>Magnolia, Omni CNN</td>
</tr>
<tr>
<td>11:00 AM–12 Noon</td>
<td>The Delaware NGSS Teacher Leader Program</td>
<td>Magnolia, Omni CNN</td>
</tr>
<tr>
<td>12:30–1:30 PM</td>
<td>Leadership Strategies Using NGSS as a Foundation to Ensure Each Student Has a STEM Future</td>
<td>Magnolia, Omni CNN</td>
</tr>
<tr>
<td>2:00–3:00 PM</td>
<td>Developing a Successful STEM Ecosystem: A Large Urban District’s Journey to STEM Achievement</td>
<td>Magnolia, Omni CNN</td>
</tr>
<tr>
<td>3:30–4:30 PM</td>
<td>Developing and Exploring a Culture of STEM</td>
<td>Magnolia, Omni CNN</td>
</tr>
</tbody>
</table>
### Society for College Science Teachers (SCST)

*President: Tarren Shaw*

#### Wednesday, March 14

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>2:00–5:00 PM</td>
<td>SCST Board Meeting, <em>by Invitation Only</em></td>
<td>Beechnut, Omni CNN</td>
</tr>
</tbody>
</table>

#### Thursday, March 15

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00–8:30 AM</td>
<td>Building a Community in an Online Science Course</td>
<td>Hickory, Omni CNN</td>
</tr>
<tr>
<td>8:30–9:00 AM</td>
<td>Successful 3-D Learning in Online Science Courses: Incorporating Core Ideas, Crosscutting Concepts, and Science Practices in Laboratory Application Assignments</td>
<td>Hickory, Omni CNN</td>
</tr>
<tr>
<td>12:30–1:30 PM</td>
<td>How Are We Implementing Vision and Change in the College Science Classroom?</td>
<td>Hickory, Omni CNN</td>
</tr>
<tr>
<td>2:00–2:30 PM</td>
<td>Value-Added International Science Programs: Adding Research, Presentation, and Service Components to Undergraduate Field Courses Abroad</td>
<td>Hickory, Omni CNN</td>
</tr>
<tr>
<td>2:30–3:00 PM</td>
<td>Keeping Students on Track During Multi-Week Investigations: Some Solutions and Their Impact</td>
<td>Hickory, Omni CNN</td>
</tr>
<tr>
<td>3:30–4:00 PM</td>
<td>The Benefits and Drawbacks of Using the Popular Press in Your Classroom</td>
<td>Hickory, Omni CNN</td>
</tr>
<tr>
<td>4:00–4:30 PM</td>
<td>Join Us for Appy Hour</td>
<td>Hickory, Omni CNN</td>
</tr>
</tbody>
</table>

#### Friday, March 16

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00–8:30 AM</td>
<td>Hitting the Mark? Rigor, Reflection, and Results of Co-Teaching a STEM Standards-Based Competency Program</td>
<td>Hickory, Omni CNN</td>
</tr>
<tr>
<td>8:30–9:00 AM</td>
<td>RETune Our Understanding of Research Experience for Teachers: Teacher Training That Makes a Difference in the K–12 Classroom</td>
<td>Hickory, Omni CNN</td>
</tr>
<tr>
<td>9:30–10:00 AM</td>
<td>Using a Flexible Approach to Integrating Authentic Research Experiences into a Variety of Introductory Biology Courses</td>
<td>Hickory, Omni CNN</td>
</tr>
<tr>
<td>10:00–10:30 AM</td>
<td>Do Majors and Nonmajors Have Similar Perceptions of Course-Embedded Undergraduate Research Experiences?</td>
<td>Hickory, Omni CNN</td>
</tr>
<tr>
<td>11:00 AM–12 Noon</td>
<td>OUUSTA Winner Presentation: Jeff Schinske</td>
<td>Hickory, Omni CNN</td>
</tr>
<tr>
<td>12:30–1:00 PM</td>
<td>Getting the Most Out of Peer-Led Team Learning (PLTL) Recitation Programs: Training, Organization, and Management</td>
<td>Hickory, Omni CNN</td>
</tr>
<tr>
<td>1:00–1:30 PM</td>
<td>Improving Student Accessibility for Diverse Student Populations in Core Curriculum Science Coursework</td>
<td>Hickory, Omni CNN</td>
</tr>
<tr>
<td>2:00–2:30 PM</td>
<td>Exploring the Use of Lesson Study to Develop Preservice Teachers' Pedagogical Content Knowledge in Science Teaching</td>
<td>Hickory, Omni CNN</td>
</tr>
<tr>
<td>2:30–3:00 PM</td>
<td>Analyzing Critical-Thinking Patterns and Decision-Making Processes Using the Online Platform Finding QED</td>
<td>Hickory, Omni CNN</td>
</tr>
<tr>
<td>3:30–5:00 PM</td>
<td>SCST Business Meeting</td>
<td>Hickory, Omni CNN</td>
</tr>
<tr>
<td>7:00–9:00 PM</td>
<td>SCST Dessert Social and Poster Session</td>
<td>Grand Blrm. B, Omni CNN</td>
</tr>
</tbody>
</table>
## Disciplinary Core Ideas

### Science and Engineering Practices

<table>
<thead>
<tr>
<th>SEP1</th>
<th>Asking Questions and Defining Problems</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEP2</td>
<td>Developing and Using Models</td>
</tr>
<tr>
<td>SEP3</td>
<td>Planning and Carrying Out Investigations</td>
</tr>
<tr>
<td>SEP4</td>
<td>Analyzing and Interpreting Data</td>
</tr>
<tr>
<td>SEP5</td>
<td>Using Mathematics and Computational Thinking</td>
</tr>
<tr>
<td>SEP6</td>
<td>Constructing Explanations and Designing Solutions</td>
</tr>
<tr>
<td>SEP7</td>
<td>Engaging in Argument from Evidence</td>
</tr>
<tr>
<td>SEP8</td>
<td>Obtaining, Evaluating, and Communicating Information</td>
</tr>
</tbody>
</table>

### Crosscutting Concepts

<table>
<thead>
<tr>
<th>CCC1</th>
<th>Patterns</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCC2</td>
<td>Cause and Effect: Mechanism and Explanation</td>
</tr>
<tr>
<td>CCC3</td>
<td>Scale, Proportion, and Quantity</td>
</tr>
<tr>
<td>CCC4</td>
<td>Systems and System Models</td>
</tr>
<tr>
<td>CCC5</td>
<td>Energy and Matter: Flows, Cycles, and Conservation</td>
</tr>
<tr>
<td>CCC6</td>
<td>Structure and Function</td>
</tr>
<tr>
<td>CCC7</td>
<td>Stability and Change</td>
</tr>
</tbody>
</table>

## Disciplinary Core Ideas

### Physical Science

<table>
<thead>
<tr>
<th>PS1: Matter and Its Interactions</th>
</tr>
</thead>
<tbody>
<tr>
<td>PS1.B: Chemical Reactions</td>
</tr>
<tr>
<td>PS1.C: Nuclear Processes</td>
</tr>
<tr>
<td>PS2: Motion and Stability: Forces and Interactions</td>
</tr>
<tr>
<td>PS2.A: Forces and Motion</td>
</tr>
<tr>
<td>PS2.B: Types of Interactions</td>
</tr>
<tr>
<td>PS2.C: Stability and Instability in Physical Systems</td>
</tr>
<tr>
<td>PS3: Energy</td>
</tr>
<tr>
<td>PS3.A: Definitions of Energy</td>
</tr>
<tr>
<td>PS3.B: Conservation of Energy and Energy Transfer</td>
</tr>
<tr>
<td>PS3.C: Relationship Between Energy and Forces</td>
</tr>
<tr>
<td>PS3.D: Energy in Chemical Processes and Everyday Life</td>
</tr>
<tr>
<td>PS4: Waves and Their Applications in Technologies for Information Transfer</td>
</tr>
<tr>
<td>PS4.A: Wave Properties</td>
</tr>
<tr>
<td>PS4.B: Electromagnetic Radiation</td>
</tr>
<tr>
<td>PS4.C: Information Technologies and Instrumentation</td>
</tr>
</tbody>
</table>

### Life Science

<table>
<thead>
<tr>
<th>LS1: From Molecules to Organisms: Structures and Processes</th>
</tr>
</thead>
<tbody>
<tr>
<td>LS1.A: Structure and Function</td>
</tr>
<tr>
<td>LS1.B: Growth and Development of Organisms</td>
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<tr>
<td>LS1.D: Information Processing</td>
</tr>
<tr>
<td>LS2: Ecosystems: Interactions, Energy, and Dynamics</td>
</tr>
<tr>
<td>LS2.A: Interdependent Relationships in Ecosystems</td>
</tr>
<tr>
<td>LS2.B: Cycles of Matter and Energy Transfer in Ecosystems</td>
</tr>
<tr>
<td>LS2.C: Ecosystem Dynamics, Functioning, and Resilience</td>
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<tr>
<td>LS2.D: Social Interactions and Group Behavior</td>
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<tr>
<td>LS3: Heredity: Inheritance and Variation of Traits</td>
</tr>
<tr>
<td>LS3.A: Inheritance of Traits</td>
</tr>
<tr>
<td>LS3.B: Variation of Traits</td>
</tr>
<tr>
<td>LS4: Biological Evolution: Unity and Diversity</td>
</tr>
<tr>
<td>LS4.A: Evidence of Common Ancestry and Diversity</td>
</tr>
<tr>
<td>LS4.B: Natural Selection</td>
</tr>
<tr>
<td>LS4.C: Adaptation</td>
</tr>
<tr>
<td>LS4.D: Biodiversity and Humans</td>
</tr>
</tbody>
</table>

### Earth and Space Science

<table>
<thead>
<tr>
<th>ESS1: Earth’s Place in the Universe</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESS1.A: The Universe and Its Stars</td>
</tr>
<tr>
<td>ESS1.B: Earth and the Solar System</td>
</tr>
<tr>
<td>ESS1.C: The History of Planet Earth</td>
</tr>
<tr>
<td>ESS2: Earth’s Systems</td>
</tr>
<tr>
<td>ESS2.A: Earth Materials and Systems</td>
</tr>
<tr>
<td>ESS2.B: Plate Tectonics and Large-Scale System Interactions</td>
</tr>
<tr>
<td>ESS2.C: The Roles of Water in Earth’s Surface Processes</td>
</tr>
<tr>
<td>ESS2.D: Weather and Climate</td>
</tr>
<tr>
<td>ESS2.E: Biogeology</td>
</tr>
<tr>
<td>ESS3: Earth and Human Activity</td>
</tr>
<tr>
<td>ESS3.A: Natural Resources</td>
</tr>
<tr>
<td>ESS3.B: Natural Hazards</td>
</tr>
<tr>
<td>ESS3.C: Human Impacts on Earth Systems</td>
</tr>
<tr>
<td>ESS3.D: Global Climate Change</td>
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</tbody>
</table>

### Engineering, Technology, and the Application of Science

<table>
<thead>
<tr>
<th>ETS1: Engineering Design</th>
</tr>
</thead>
<tbody>
<tr>
<td>ETS1.A: Defining and Delimiting an Engineering Problem</td>
</tr>
<tr>
<td>ETS1.B: Developing Possible Solutions</td>
</tr>
<tr>
<td>ETS1.C: Optimizing the Design Solution</td>
</tr>
<tr>
<td>ETS2: Links Among Engineering, Technology, Science, and Society</td>
</tr>
<tr>
<td>ETS2.A: Interdependence of Science, Engineering, and Technology</td>
</tr>
<tr>
<td>ETS2.B: Influence of Engineering, Technology, and Science on Society and the Natural World</td>
</tr>
</tbody>
</table>
NSTA Book Club Membership

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When you sign up for or renew your NSTA membership, select the book club membership option, choose three books from any grade level and on topics readers love—NGSS, STEM, literacy, assessment, and more—then wait for your favorite books to arrive on your doorstep while enjoying all of your other NSTA member benefits.

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At no time in our country’s history has science education been more important than it is today. Whether it be addressing mankind’s grand challenges facing coming generations, or finding solutions to local issues tomorrow, science education leaders must navigate a shifting landscape all while owning the responsibility of implementing positive changes in their field. As science education leaders, we are tasked with understanding the current trends in science education; making decisions on current trends based on evidence; and implementing instructional practices to reflect changes in science education. The leadership strands for the 2018 Leadership Summit and additional professional development series are designed to equip science leaders with the tools and resources to tackle the grand challenges in leading effective science education in an ever-changing system.

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.
9:00 AM–4:00 PM  Meeting
Science Education for Students with Disabilities
Preconference Meeting
(By Preregistration Through SESD) Birch, Omni
Science educators, special education teachers, parents, and
administrators learn and share information and strategies on
teaching science to students with disabilities.

9:00 AM–4:00 PM  Professional Learning Institutes
District-Level Administrators: You Are the Fourth
Dimension in Implementing 3-D Teaching and
Learning! (PLI-1)
(Grades K–12) Grand Ballroom A, Omni
Science Focus: GEN, NGSS
By Preregistration Only
David Crowther, NSTA President, and University of
Nevada, Reno
Christine Anne Royce, NSTA President-Elect, and Ship-
pensburg University, Shippensburg, PA
Eric Brunsell, NSTA Director, Professional Development
in Science Education, and University of Wisconsin Oshkosh
Kelly Price-Colley, Lambert High School, Suwanee, GA
Jodi Peterson, Assistant Executive Director, Legislative &
Public Affairs, NSTA, Arlington, VA
Flavio Mendez, Assistant Executive Director, NSTA
Learning Center, NSTA, Arlington, VA
For description, see page 54.

Next Generation Analyzing Instructional Materials
(NextGen AIM) (PLI-2)
(Grades K–12) Grand Ballroom B, Omni
Science Focus: GEN, NGSS
By Preregistration Only
Aneesha Badrinarayan, Achieve, Inc., Washington, DC
Jody Bintz and Audrey Mohan, BSCS, Colorado Springs,
CO
Kathy DiRanna, K–12 Alliance/WestEd, Los Alamitos, CA
Jo Topps, K–12 Alliance/WestEd, San Francisco, CA
For description, see page 54.

Connecting STEM Education to the Workplace (PLI-3)
(Grades 6–12) International Ballroom A/B, Omni
Science Focus: GEN
By Preregistration Only
Mindi Heitland and Holly Showalter, Waukee High
School, Waukee, IA
Michelle Hill, Waukee APEX, Waukee, IA
Jeffrey Weld, University of Northern Iowa, Cedar Falls
For description, see page 55.

STEM Curriculum Topic Study: A Process for Linking
Standards, Research, and Learning (PLI-4)
(Grades K–12) International Ballroom D, Omni
Science Focus: GEN, NGSS
By Preregistration Only
Page Keeley, 2008–2009 NSTA President, and The Keeley
Group, Fort Myers, FL
Joyce Tugel, Science Education Consultant, Barrington, NH
For description, see page 55.

Picture-Perfect Powerful Practices: STEM and Literacy
Integration (PLI-5)
(Grades K–5) International Ballroom E, Omni
Science Focus: GEN
By Preregistration Only
Karen Ansberry and Emily Morgan, Picture-Perfect
Science, West Chester, OH
Julie McGough, Valley Oak Elementary School, Fresno,
CA
Lisa Nyberg, California State University, Fresno
For description, see page 55.

A Shell One-Day Institute: Embracing an Equitable
Mind-set: Developing Culturally Proficient Leaders
(PLI-6)
(Grades K–12) Grand Ballroom C, Omni
Science Focus: GEN
By Preregistration Only
Natacia Campbell, NSTA Director, Multicultural/Equity
in Science Education, and Joliet (IL) Public Schools District 86
Andrea Evans, Northeastern Illinois University, Chicago
For description, see page 55.
Wednesday, 12 Noon–5:30 PM

11:30 AM–1:30 PM  Networking Opportunity
NSela Leadership Summit Lunch
(By Invitation Only) Augusta E–G, Westin

2:00–5:00 PM  Meeting
SCST Board Meeting
(By Invitation Only) Beechnut, Omni

4:00–6:00 PM  Meeting
Science Education for Students with Disabilities (SESD) Board Meeting
Birch, Omni

The annual business meeting of Science Education for Students with Disabilities, an associated group of NSTA, is open to everyone—please join us!

4:00–7:00 PM  Networking Opportunity
Fun Lab
Registration Hall B, GWCC
Play games and enjoy some friendly competition (putt-putt or cornhole anyone?). Maybe you’ll win some giveaways in raffles—held every 15 minutes! Make your competitive spirit shine and win Best in Show at the “Most Creative Lab Coat” contest. How can the night get even more enjoyable? We are opening the NSTA Science Store early for the one-time opportunity to save up to 40% on the list price of NSTA Press® Books.

4:30–6:00 PM  Networking Opportunity
NSTA Young Professional and New Teacher Reception
Galleria, Level 5 of Bldg. B, GWCC
Please note that this event is located in the lobby to Thomas B. Murphy Ballroom.

6:00–9:00 PM  Networking Opportunity
NSELA and CSSS Joint Reception
(By Invitation Only) Peachtree Room and Terrace, Westin

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The Georgia Aquarium in Atlanta houses more than a hundred thousand animals and represents several thousand species, residing in 10 million U.S. gallons of marine and salt water!
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<tr>
<th>Time</th>
<th>Featured Speakers/Sessions</th>
<th>Special Sessions</th>
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<td>8:00 AM</td>
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<td><strong>First-Timers’ Session</strong> 8:00–9:00 AM B102, GWCC</td>
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<td>9:00 AM</td>
<td><strong>General Session</strong> 9:15–10:30 AM Thomas B. Murphy Blrm., GWCC</td>
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<td><strong>Teacher Researcher Day</strong> 8:30 AM–4:30 PM International Ballroom F, Omni</td>
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<td>11:00 AM</td>
<td><strong>Ron Clark’s book signing</strong> 11:00 AM–12:15 PM Booth #603 in Exhibit Hall</td>
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<td>2:00 PM</td>
<td><strong>Mary C. McCurdy Lecture</strong> 2:00–3:00 PM B309, GWCC</td>
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<td>3:00 PM</td>
<td><strong>Featured Presentation</strong> 3:30–4:30 PM B309, GWCC</td>
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<td>4:00 PM</td>
<td><strong>Community Connections Featured Forum:</strong> Exploring Strategies for Culture-</td>
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<td>Inclusive Student Engagement 3:30–4:30 PM A312, GWCC</td>
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<td>8:00 PM</td>
<td><strong>Special Session</strong> Introducing OK Go Sandbox, hosted by Google</td>
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<td>6:00–7:00 PM Sidney Marcus Auditorium, GWCC</td>
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<td>9:00 PM</td>
<td><strong>NGSS Live Chat</strong> 8:30–10:00 PM Dogwood A, Omni</td>
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<td>Presenters: Ted Willard, Tricia Shelton, and others</td>
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<td>Join live or via Twitter using #NGSSchat</td>
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7:00–10:00 AM  Networking Opportunity
NSELA Membership Breakfast
(By Invitation Only) Chastain F/G, Westin

8:00–8:30 AM  Presentations
Intentionally and Passionately Putting STEM in Earth Science
(Grades 6–8)  A407, GWCC
Science Focus: ESS2, ETS1, CCC1, CCC2, CCC3, CCC4, SEP
Jacqueline Lauriat, Wheaton Christian Grammar School, Winfield, IL
Come learn about STEM integrated units using hands-on activities, specific job responsibilities, process logs, and rubrics—World MOON Project, Rockets, Space Vehicles, Volcanoes, Soil Study, and Tomatosphere Project.

The Virtual Vet: Elementary Learners (Grades 3–5) as Scientists in a Serious Educational Game
(Grades 3–5)  A408, GWCC
Science Focus: LS, SEP
Georgia Hodges (@gwoodhodges; georgia.hodges@gmail.com), University of Georgia, Athens
The Virtual Vet Serious Educational Game integrates math, literacy, and science concepts as students use the scientific practices to treat animals and learn the human body systems.

Touching Triton
(Grades 9–College)  C202, GWCC
Science Focus: LS
Madeleene Loftin (@MadLoftin) and Dasi Price, Hudson-Alpha Institute for Biotechnology, Huntsville, AL
BYOD and meet Touching Triton, a free online activity focused on conceptualizing complex disease risk. Set in long-term spaceflight, Touching Triton’s game-like interface challenges students to make medical packing decisions.

Science Area
A science area category is associated with each session. These categories are abbreviated on the Science Focus line for each session listing. On page 172, you will find the conference sessions grouped according to their assigned science area category.

The science areas and their abbreviations are:

- LS = Life Science
- PS = Physical Science
- ESS = Earth and Space Science
- ETS = Engineering, Technology, and the Application of Science
- GEN = General Science Education
- INF = Informal Science Education

NGSS
See page 75 for a complete list of the NGSS codes used in this program.

Strands
The Atlanta Conference Committee has planned the conference around the following four strands, enabling you to focus on a specific area of interest or need. Strand events are identified by icons throughout the daily program. For strand descriptions, see page 46.

3D  Focusing On Evidence of 3-D Learning

STEM

Comprehending the Role of Literacy in Science

3D  Reflecting On Access for All Students

The following icons will be used throughout this program.

INF  Sessions highlighting STEM learning experiences that occur in out-of-school environments.
Thursday, 8:00–8:30 AM

Water in Society: Making Water Issues Matter to Undergraduate Students
(College) C206, GWCC
Science Focus: ESS2.C
Diane Lally (@dlally17; dlally@huskers.unl.edu) and Cory Forbes (@coryforbes; cforbes3@unl.edu), University of Nebraska–Lincoln
We will share an interdisciplinary FEW-Nexus–based approach to water. Learn how to use infographics, computer-based groundwater modeling tools, and active learning to increase science literacy.

Mathematical Thinking as a Sense-Making Practice for Refining Student Models of Real-World Phenomena
(Grades 7–12) C213, GWCC
Science Focus: GEN, NGSS
Todd Campbell (@dtcampbe; todd.campbell@uconn.edu), University of Connecticut, Storrs Mansfield
Drew Neilson (@NeilsonDrew; drew.neilson@loganschools.org), Logan High School, Logan, UT
We will introduce strategies for using mathematical and computational thinking to further refine student-developed models of real-world phenomena.

Experimental Design in the K–12 Classroom: Reimagining Cookbook Lessons by Integrating Them with NGSS
(Grades K–12) Birch, Omni
Science Focus: GEN, SEP
Jean Hourihane (jhourihane@schools.nyc.gov), P.S. 092
Harry T. Stewart Sr., Corona, NY
Meng-Ping Tu (mtu.teach@gmail.com), Stuyvesant High School, New York, NY
A professional learning team from Math for America consisting of elementary, middle school, and high school science teachers remakes “cookbook” lessons according to the NGSS. They will share their process and products.

Explaining Phenomena or Designing Solutions to Problems? The Relationship of Science and Engineering in the NGSS
(Grades K–12) Dogwood B, Omni
Science Focus: GEN, SEP
Jean Flanagan (flanaganj@si.edu) and Brian Mandell (mandellb@si.edu), Smithsonian Science Education Center, Washington, DC
Each of the science and engineering practices can be applied to either purpose—this can give us flexibility in developing performance expectations and storylines.

SCST-Sponsored Session: Building a Community in an Online Science Course
(College) Hickory, Omni
Science Focus: GEN
Barbara Fortier (bfortier1@une.edu), University of New England, Portland, ME
Online courses often promote isolation, but building a community is essential to student success in science. Find out how to engage students, one group at a time.

Read, Write, Publish! Help Your Science Students Become Authors
(Grades 3–College) Walnut, Omni
Science Focus: GEN
Susan Tate (@SusanTate22; susan+tate@whitehallschools.net), Whitehall Middle School, Whitehall, MI
With online tools, it’s easy to create and publish your own book. Let me show you how my students applied their learning through authorship.
8:00–9:00 AM  Presentations

Closing the Literacy Gap with Technology: Helping At-Risk Students Succeed in Science
(Grades 4–12)  A301, GWCC
Science Focus: GEN, SEP4, SEP7, SEP8
Lucia Jacobs (@EngagingScience; lckjacobs@gmail.com), Olympia Learning Center, Columbia, SC
Watch a demonstration of various technology apps that have been used successfully to support science literacy with at-risk students.

A Unique Ice Core Investigation That Integrates the Three Dimensions of NGSS and STEM
(Grades 8–12)  A302, GWCC
Donna Young (dlyoung.nso@gmail.com), NASA NSO STEM Coordinator, Bullhead City, AZ
Hear about a multidisciplinary open-ended investigation that incorporates absolute and relative dating, anomalies, historical context, volcanoes, solar proton events, energy cycles, Earth systems, terrestrial events, and supernovas.

First-timers, Preservice Teachers and New Teacher Session
Are you an experienced teacher attending your very first NSTA conference? Or a new (or preservice) teacher anxious about the vast number of sessions and would like some guidance? Join us for this interactive session with opportunities to win prizes.

Is This Your First NSTA Conference?
First-Timer Conference Attendees’ Orientation
Thursday, March 15
8:00–9:00 AM
Georgia World Congress Center, B102
Yager Scholar Kristin Rademaker: Teaching Through Phenomena  
(Grades K–12) A303, GWCC  
Science Focus: GEN, NGSS  
Kristin Rademaker (@krademaker; krad70@gmail.com), Harlem High School, Machesney Park, IL  
Come learn best practices in how to move from a teacher-driven classroom to a student-focused learning environment. Hear how to use phenomena to drive instruction and how making small shifts can bring about huge changes. I’ll share how these shifts make science accessible to all students, including struggling learners.

Discover the NGSS: An Interactive Exploration of the Next Generation Science Standards  
(Grades K–12) A304, GWCC  
Science Focus: GEN, NGSS  
Leisa Clark, Assistant Executive Director, e-Products, NSTA, Arlington, VA  
Learn how to put the pieces of the NGSS together with NSTA’s interactive e-book on the standards—Discover the NGSS: Primer and Unit Planner.

Engaging Students in Earth Science, ETS, and CCSS Through an Innovative, Multidisciplinary Approach  
(Grades 10–12) A412a, GWCC  
Science Focus: ESS3.C, ETS  
Kavita Gupta (@chem_tweets; kavita_gupta@fiusd.org), Monta Vista High School, Cupertino, CA  
Learn about an innovative project to engage students from multiple disciplines in understanding climate change through student presentations around the documentary Before the Flood.

Sensing Science Through Modeling Matter for Kindergarten Students  
(Kindergarten) A401, GWCC  
Science Focus: ESS2.D, PS1, CCC6, SEP2, SEP4, SEP5  
Carolyn Staudt (@cjstaudt; cstaude@concord.org), Curriculum/Professional Developer, Concord, MA  
Nathan Kimball (nkimball@concord.org), The Concord Consortium, Concord, MA  
Participate in Sensing Science and uncover your children’s ability to reason about the states of matter using visualizations, including models, probes, and online interactive stories.

Stellarium: Bringing the Universe to YOUR Classroom  
(Grades 1–12) A410, GWCC  
Science Focus: ESS1  
Randy Bell (randy.bell@oregonstate.edu), Oregon State University, Corvallis  
Learn ways that the excellent (and free!) planetarium program Stellarium can enhance science teaching and learning for astronomy learners of all ages.

Is This Your First NSTA Conference? First-Timer Conference Attendees’ Orientation  
(General) B102, GWCC  
Science Focus: GEN  
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 exploration through the program, the conference app, and NSTA’s social media. By the end of the session, you will know just how to get the most from your conference experience in addition to building new networks with science colleagues.

Using Science Practices to Engage Students: Designing a High School Evolution Curriculum from a Feminist Perspective  
(Grades 9–12) B211, GWCC  
Science Focus: LS4, SEP  
Heather Page (hpage12@gmail.com), High School of Economics and Finance, New York, NY  
Patrick Callahan (pcallahan@baxsm.org), Bronx Center for Science and Mathematics, Bronx, NY  
Explore an evolution unit designed from a feminist perspective using practice as its pedagogical strategy. Curriculum integrates the NGSS three dimensions, encouraging all students to “do science.”

Magical Illusions and Scintillating Simulations for Science: It’s Showtime!  
(Grades 3–College) B309, GWCC  
Science Focus: LS, PS, SEP  
Alan McCormack (amccorma@mail.sdsu.edu), 2010–2011 NSTA President, and Professor Emeritus, San Diego State University, San Diego, CA  
Storylines, discrepant events, and magic develop concepts in both physical and biological sciences, pique students’ interest and imagination, and build creative and logical thinking skills.
Career-Connected Learning and NGSS: Tools and Strategies for Students, Teachers, and Administrators
(Grades K–12) B402, GWCC
Science Focus: GEN, NGSS
Brian Day (@Science_Ed; bday@everettsd.org), Everett (Wash.) Public Schools
Leave with tools and strategies to effectively combine Career and Technical Education (CTE) pathways with NGSS implementation.

NSTA Press® Session: Unlocking the Vision of the NGSS in the Classroom: Implications for K–12 Teachers
(General) B405, GWCC
Science Focus: GEN, NGSS
Tricia Shelton (@tdishelton; tshelton@nsta.org), Standards Implementation Specialist, NSTA, Arlington, VA
Mary Colson (@MnMColson; mcolson@moorheadschools.org), Horizon Middle School, Moorhead, MN
Susan German (@susan_german; susangermanscienceteacher@gmail.com), Hallsville Middle School, Hallsville, MO
Kenneth Huff (huffkennethlee@gmail.com), NSTA Director, Middle Level Science Teaching, and Mill Middle School, Williamsville, NY
Jack Rhoton (rhotonj@etsu.edu), East Tennessee State University, Johnson City
Join our group to hear some of the nation’s outstanding science teachers showcase how they are implementing the vision of the NRC Framework and NGSS in their respective classrooms, including successful pedagogical approaches being used to support students in three-dimensional learning.

Breaking Down Barriers with Community-Based Phenomena
(Grades 6–12) C207, GWCC
Science Focus: GEN
Whitney McCormick (wmccormick@laalliance.org), Alliance College-Ready Public Schools, Los Angeles, CA
Find out how to use community-based phenomena to engage all students in connecting their own community to global societal issues.

Next Generation Chemistry
(Grades 9–12) C301, Omni
Science Focus: PS, SEP
Tanya Katovich (@tkatovich; tkatovich@d211.org), Hoffman Estates High School, Hoffman Estates, IL
Receive guidance on integrating science and engineering practices into chemistry labs and developing three-dimensional assessments for chemistry units.

CSSS-Sponsored Session: Georgia’s Science Ambassador Program
(General) International Ballroom C, Omni
Science Focus: GEN, NGSS
Juan-Carlos Aguilar (jagular@doe.k12.ga.us), Georgia Dept. of Education, Atlanta
Brett Moulding (mouldingb@ogdensd.org) and Nicole Paulson (nicole.paulson@nebo.edu), Partnership for Effective Science Teaching and Learning, Spanish Fork, UT
We will offer school leaders an example of a professional development model that has as a primary goal of creating local expertise to support teachers with implementing the instructional changes needed to translate state standards into classroom instruction.

Medicine Without Evolution Is Like Engineering Without Physics
(Grades 9–College) C204, GWCC
Science Focus: LS
Mark Friedman (marklewisfriedman@gmail.com), Los Angeles Maritime Institute, San Pedro, CA
Charles Nunn (clunn@duke.edu), Duke Global Health Institute, Durham, NC
Evolutionary medicine or Darwinian medicine is the application of modern evolutionary theory to understanding health and disease. Join in for resources, lessons, and ideas to integrate these concepts into your physio-anatomy and AP biology course.

Reaching ALL of Your Students in Your 1:1 Classroom
(Grades 5–12) International Ballroom E, Omni
Science Focus: ETS
Diane Kasparie, Quincy Notre Dame High School, Quincy, IL
Deliver your high-quality standards-based science curriculum, assess student understanding, and keep them engaged in your 1:1 classroom to ensure genuine student learning, painlessly! BYOD!
AMSE-Sponsored Session: A Framework for Equity and Inclusion: Culturally Relevant Pedagogy in the Science Classroom
(Grades K–12)
Juniper, Omni
Science Focus: GEN
Brian Williams (@bawilli; bawilli@gsu.edu) and David Wojnowski (wojnowskidavid@gmail.com), Georgia State University, Atlanta
Presider: Sharon Delesbore, AMSE President, and Fort Bend ISD, Rosharon, TX
Let’s discuss equity issues in science education and the concept of culturally responsive pedagogy and its use in science learning.

8:00–9:00 AM Hands-On Workshops
Our Dynamic Climate and the Energy Budget
(Grades 7–College)
A305, GWCC
Science Focus: ESS2.D, ESS3.D, CCC4, CCC5, SEP2, SEP4, SEP5, SEP6, SEP7, SEP8
John Russell (@EarthSci822; jrussell@mathforamerica.org), Math for America, New York, NY
Learn how data from Lamont Doherty’s Climate Library can be used to teach climate by emphasizing the way forms of radiation compose the energy budget.

Want to keep all K-5 students STEM-curious?
Make STEM current, real and relatable.

Want to bring 3D Learning to life?
You need to tell stories.

CreositySpace makes STEM current, real and relatable to young minds.
Our TEC modules, activity kits, and Book of Ideas translate the personal stories and technology discoveries of today’s entrepreneurs to connect elementary students to science and the breadth of STEM careers.

Turn your classroom into a CreositySpace!
Find out how at www.CreositySpace.com
Peg@CreositySpace.com / 508.740.5906

Booth 1203
across from Disney Youth Programs
Using the 5E Instructional Model to Support a Districtwide Transition to 3-D Learning and Assessment
(Grades 6–12) A311, GWCC
Science Focus: ESS2.A, ESS2.B, CCC5, SEP2
John Salazar (@JohnSalNVsci; jsalazar@newvisions.org), New Visions for Public Schools, New York, NY
Join in for an immersive experience that will demonstrate how the BSCS 5E Instructional Model can serve as a framework for implementing and assessing three-dimensional learning.

ASTC-Sponsored Session: Engaging Students Through the Design Process
(Grades 2–5) A312, GWCC
Science Focus: GEN, INF
Eva Rosenthal (eva.rosenthal@austinisd.org), Metz Elementary School, Austin, TX
Brenda Lopez (blopez@thinkeryaustin.org), Thinkery, Austin, TX
Daniela Willett (daniela.willett@austinisd.org), Volma Overton Early College Prep, Austin, TX
Learn how collaborations between informal learning institutions and elementary teachers bring crucial scientific learning process skills and design thinking to public schools.

Middle School Students as Designers, Makers, and Creators
(Grades 4–8) A315, GWCC
Science Focus: ETS
Melinda Huffman (melindajhs@mac.com), Riverbend School, Natick, MA
Learn about a grade 5 science course that was created to engage and interest students in engineering, making, and the design process while exploring important scientific concepts.

Planning and Carrying Out Erosion and Deposition Investigations
(Grades 8–12) A316, GWCC
Science Focus: ESS2.C, SEP3
Beverly Pierson (bpierson@ecasd.us), Memorial High School, Eau Claire, WI
Build students’ content knowledge of erosion and deposition through engagement activities and learn how to guide them through planning and conducting an investigation using stream tables.

Integrative STEM (iSTEM) for Little Learners
(Grades P–3) A402, GWCC
Science Focus: GEN, SEP1, SEP3, SEP4, SEP6
Nanette Marcum-Dietrich (ndietrich@millersville.edu), Millersville University of Pennsylvania
Learn how to engage your young learners in integrative STEM (iSTEM) through dynamic learning activities that promote problem solving, designing, and innovative thinking.

Geology Rocks
(Grades P–2) A403, GWCC
Science Focus: ESS
Anne Lowry (alowrynnews1@yahoo.com), Aleph Academy, Reno, NV
Go beyond rock collecting and add geological investigations to your class! Activities are aimed at preschool to grade 2, but can be adapted for all elementary classes. Resources provided.

Connecting Makerspaces to the NGSS and CCSS
(Grades K–6) A404, GWCC
Science Focus: ETS, SEP
Heather Pelkey (@mrs_pelkey; hpelkey@wnhsd.org) and Lauren Elliott (lelliott@wnhsd.org), Winchester (NH) School District
Explore how to create low-tech projects that meet the NGSS and CCSS while connecting the makerspace to the curriculum.

Creating Culturally Responsive STEAM Lessons to Solve Real-World Problems
(Grades K–5) A405, GWCC
Science Focus: ETS, SEP1, SEP2, SEP3, SEP6
JeRita Humphrey (@APS_CCESGifted; humphrey.jerita@gmail.com), Atlanta (GA) Public Schools
Discover ways to create and implement STEAM lessons that are culturally relevant and solve real-world problems in an urban, low socio-economic setting.
Thursday, 8:00–9:00 AM

National Stem Cell Foundation Scholars Share-a-Thon
(Grades 6–8) B101, GWCC
Science Focus: ESS2.E, LS2.A, SEP2, SEP4, SEP6, SEP7
Kerrie McDaniel (kerrie.mcdaniel@wku.edu), Rico Tyler (rico.tyler@wku.edu), and Tyler Clark (@tylermath12; thomas.clark@wku.edu), Western Kentucky University, Bowling Green
Suzanne Banas (sbanas@dadeschools.net), South Miami Middle Community School, Miami, FL
Kiki Contreras (kcontreras@evergreenschool.org), The Evergreen School, Shoreline, WA
Katie Donlin (@DonlinSTEM; katie.donlin@byron.k12.mn.us), Byron Middle School, Byron, MN
Angela Gospodarek (angela.gospodarek@gorhamschools.org), Gorham Middle School, Gorham, ME
Jay Hollis (@jayhollis; jay.hollis@bgreen.kyschools.us), Bowling Green High School LEAD Academy, Bowling Green, KY
John Lui (luij@kmsd.edu), Kettle Moraine Middle School, Dousman, WI
Donna Shartzer (donna.shartzer@breck.kyschools.us), Breckenridge County Middle School, Harned, KY
Emily McKernan (theponyplace@gmail.com), Brushtown-Moira Central School, Brushtown, NY
Valerie Pumala (@vpumala; vpumala@cameron.k12.wi.us), Cameron Middle School, Cameron, WI
Dana Young (dyoung@ewrsd.k12.nj.us), Melvin H. Kreps Middle School, Hightstown, NJ
Please join the National Stem Cell Foundation Scholars as they share innovative middle school classroom projects, ideas, and activities!

NMEA Session: Whale of a Tale Share-a-Thon
(General) B103, GWCC
Science Focus: ESS, INF
Mellie Lewis, NOAA National Ocean Service, Silver Spring, MD
Tami Lunsford (@tamiteach; tami.lunsford@gmail.com), Newark Charter Junior/Senior High School, Newark, DE
Dale Stanley (dale.stanley@ncce.edu), Professor Emeritus, Nassau Community College, Franklin Square, NY
Jaime Thom (jthom@scaquarium.org), South Carolina Aquarium, Charleston
Meghan Marrero (mmarrero3@mercy.edu), Mercy College, Dobbs Ferry Campus, Dobbs Ferry, NY
David Wehunt (wehunt@hotmail.com), Soddy Daisy High School, Soddy Daisy, TN
David Christopher (dchristopher@aqua.org), National Aquarium, Baltimore, MD
Linda Chilton (lchilton@usc.edu), USC Sea Grant, Los Angeles, CA
Kathy Fuller (mskathyfuller@gmail.com), William Schmidt Environmental Center, Brandywine, MD
Linda McIntosh, Massachusetts Marine Educators, New Bedford
Kim Morris-Zarneke (kim.morris-zarneke@dnr.ga.gov), Georgia Dept. of Natural Resources/Project WILD, Mankinsfield
Carol Steingart, Coast Encounters, LLC, Wells, ME
Presider: David Bader, Aquarium of the Pacific, Long Beach, CA
The National Marine Educators Association invites you to engage in hands-on activities and take home resources for your classroom. Join us to discover how you can become involved in both ocean and freshwater initiatives from local and national organizations to promote ocean and climate literacy.

Exploring the Science of Sound
(Grades K–5) B212, GWCC
Science Focus: PS
Kristin Rearden (krearden@utk.edu) and Amy Broemmel (broemmel@utk.edu), The University of Tennessee, Knoxville
Explore ways to engage young students with the concept of sound through both physics and literacy.
Get Inspired with a Phenomena Walk  
(Grades K–5)  
B401, GWCC  
Science Focus: GEN, NGSS  
Michael Mangiaracina (mike.mangiaracina@gmail.com), Brent Elementary School, Washington, DC  
Explore a collection of carefully chosen phenomena that inspire curiosity and drive planning for a variety of inquiry-based lessons.

Get Creative! Develop Students’ Science and Engineering Practices, Inspired by Birds  
(Grades 3–11)  
C201, GWCC  
Science Focus: ETS1, LS2, INF, SEP6  
Jennifer Fee (@BirdSleuth; jms327@cornell.edu), The Cornell Lab of Ornithology, Ithaca, NY  
Birds are a springboard for scientific investigations and design challenges that develop students’ science and engineering practices. Explore free hands-on activities that will excite and challenge!

The Engineering of The Lorax  
(Grades 3–5)  
C203, GWCC  
Donna Barton (donna.barton@myoneclay.net), Argyle Elementary School, Orange Park, FL  
Betty Kelley, Retired Educator, Jacksonville, FL  
This is sure to engage your students in engineering! Look at the story of The Lorax from a new perspective. Students design a Whisper-ma-Phone and a Gluppity Glup filter using ideas that integrate science, engineering, and real-world problems.

Data-Driven and Paper-Free Math and Science Integration  
(Grades 6–8)  
C205, GWCC  
Science Focus: GEN, NGSS  
Stephanie Keyser (stephanie.keyser@cobbk12.org) and Ansley Barfield (ansley.barfield@cobbk12.org), McClure Middle School, Kennesaw, GA  
Engage and excite students by using real-world data to improve presentation, comprehension, and critical-thinking skills.

Using the NGSS in an Equity-Oriented Way for Science Learning and Identity Formation  
(Grades 5–8)  
C209, GWCC  
Science Focus: GEN, NGSS  
Kathleen Schenkel (@KASchenkel; schenk13@msu.edu), and Angela Calabrese Barton (acb@msu.edu), Michigan State University, East Lansing  
Discover how to adapt the NGSS in order to support your students in seeing themselves as capable, able, and welcomed to do science and engineering in meaningful ways with their community!

Read-Aloud with Rigor: Deepening Middle Schoolers’ Science Content Knowledge Through Literacy  
(Grades 6–8)  
C210, GWCC  
Science Focus: GEN  
Rebecca Taylor (rtaylor@amnh.org), American Museum of Natural History, New York, NY  
Middle-schoolers’ understanding of complex science concepts can be deepened through interactive read-aloud of content-rich texts. Walk away with tools for implementing this powerful strategy.

Rocket into Physics  
(Grades 3–12)  
C302, GWCC  
Science Focus: PS2, CCC, SEP  
Susan Romano (susanromano7@gmail.com), Keene High School, Keene, NH  
Launch into 21st-century student engagement using rocketry with tiered learning that emphasizes accurate understanding of Newton’s laws.

Yellowstone Science for Educators: Bring the Science of Yellowstone into Your Classroom  
(Grades 5–12)  
Cottonwood A/B, Omni  
Science Focus: GEN  
Julie Angle (@sciedu4u; julie.angle@okstate.edu), Oklahoma State University, Stillwater  
Come learn how the natural phenomena of Yellowstone National Park can be used to turn your students into scientific investigators, without ever leaving your classroom.
Virtual STEM Missions  
(Grades 5–10)  
Dogwood A, Omni  
Science Focus: ETS1  
Melissa DeLaurentis (mdelaurentis@lcps.net), Las Cruces (NM) Public Schools  
Kathleen Guitar (guitar@zianet.com), Challenger Learning Center of Las Cruces, NM  
Enrich critical thinking and discourse through a virtual space simulation. Conduct real-world performance tasks through a 3-D immersive field trip, without ever leaving the classroom.

3-2-1 Satellite Liftoff with NASA's Beginning Engineering Science and Technology  
(Grades K–12)  
Grand Ballroom B, Omni  
Barbara Buckner (@bbuckner; barbie.buckner@nasa.gov), NASA Armstrong Flight Research Center, Palmdale, CA  
Michael Romano (@romano_mich; mromano@abschools.org), Einstein Fellow, NASA Goddard Space Flight Center, Greenbelt, MD  
Use each stage of the Engineering Design process to complete a team challenge of building and launching a satellite while making connections to NASA missions.

Bringing 3-D Learning to Life with 360 Spherical Photography  
(General)  
International Ballroom A/B, Omni  
Science Focus: GEN, NGSS  
Jonathan Frostad, Oak Harbor High School, Oak Harbor, WA  
Learn from a National Geographic Teacher Fellow how to create immersive three-dimensional lessons using affordable spherical cameras and VR viewers to bring engaging phenomena to your students.

Concept Maps as Tools for Differentiation and Evaluating Student Growth  
(Grades 6–College)  
International Ballroom D, Omni  
Science Focus: GEN, SEP2, SEP6  
Keli Veillette (@KeliVeillette; keli.veillette.91@gmail.com), The Interdistrict Science Magnet Schools at Fairchild Wheeler Campus, Bridgeport, CT  
Cindy Kern (@CindyLKern; cindy.kern@quinnipiac.edu), Quinnipiac University, Hamden, CT  
Concept mapping is a meta-cognitive modeling activity designed to make science accessible to all students. We will evaluate differentiated student work for change in understanding over time.

Literacy and Hands-On Science Through Model Building  
(Grades 3–10)  
Oak, South Tower/Main Lobby Level, Omni  
Science Focus: GEN, NGSS  
Judith Lucas-Odom (@Judith_Odom; judyps23@yahoo.com), Chester High School, Chester, PA  
Find out how to engage your students through hands-on science by building models through the use of literacy and writing strategies.

ASTE-Sponsored Session: The Myth of the Scientific Method—Dispelling It Through Inquiry That Doesn't Fit the Mold  
(Grades 7–12)  
Spruce, South Tower, Omni  
Science Focus: ESS, LS, SEP3  
Susan Poland (spoland3@masonlive.gmu.edu), George Mason University, Fairfax, VA  
Come learn about ways of conducting investigations in biology and Earth science classrooms that do not fit the mold of the scientific method.
Let NSTA help your district move forward with new standards with a workshop for every stage of the process, including:

**Making Sense of Three-Dimensional Teaching and Learning Workshop:** Focus on developing deep understanding of science and engineering practices, disciplinary core ideas, and crosscutting concepts. Engage in professional learning using high-quality instructional materials and a powerful toolkit of resources to implement 3D learning centered on phenomena and design solutions.

**Designing Three-Dimensional Lessons and Units Train-the-Trainer Workshop:** Support the design and implementation of three-dimensional units of instruction that encourage students to explain phenomena or design solutions to problems. Use the elements of the dimensions to inform instructional design and assessment of classroom learning, integrate the three dimensions to plan a unit of instruction, and choose phenomena that drive teaching and learning.

**EQuIP Rubric Workshop:** Deepen understanding of the Next Generation Science Standards while also increasing proficiency in applying the EQuIP Rubric for Science. Gain the knowledge and experience to review science lessons and units, to make suggestions for improving instructional materials, and to identify model lessons and units.

For a full list of programs, visit [www.nsta.org/district/ngss.aspx](http://www.nsta.org/district/ngss.aspx) or contact Jennifer Horak at ngss@nsta.org.
8:00–9:00 AM  Exhibitor Workshops

DNA Fingerprinting: Identifying Individuals Using Gel Electrophoresis
(Grades 6–College)  B209, GWCC
Sponsor: miniPCR
Sebastian Kraves (seb@minipcr.com), miniPCR, Cambridge, MA
DNA can identify individuals in a broad range of applications, from forensics and paternity testing to biodiversity conservation. In two DNA gel electrophoresis investigations, you will help marine biologists understand the source of shark attacks that are frightening beachgoers, and learn how to analyze human genetic differences using the fast, safe, and classroom-friendly blueGel system.

Who Is Baby Whale’s Father? DNA Fingerprinting Solves the Mystery!
(Grades 8–College)  B210, GWCC
Science Focus: ETS1, ETS2.A, LS1, LS3, PS1.A, PS2
Sponsor: MiniOne Systems
Richard Chan (info@theminionesystems.com), MiniOne Systems, San Diego, CA
Come get hands-on experience on how to teach gel electrophoresis and DNA fingerprinting in this session. You will pour, load, and run a gel; capture a gel image; analyze the results; and deduce a probable conclusion for a whale of a forensic mystery.

Engage ALL Students by Integrating Engineering, Science, and Daily Life
(Grades 8–12)  B214, GWCC
Science Focus: ETS, PS3
Sponsor: Activate Learning
Mihir Ravel, Olin College of Engineering, Needham, MA
Cary Sneider, Portland State University, Portland, OR
Come learn how to engage a diversity of students by applying core ideas from the NGSS about energy and systems to meet people’s needs for shelter, transportation, and entertainment. Practice this approach with a design activity that applies crosscutting concepts of energy, systems, and models to make an electronic gadget.

Take Your Students on a Quest!
(Grades K–8)  B216, GWCC
Science Focus: GEN, NGSS
Sponsor: Pearson Learning Services
Chuck McMillan, Pearson, Boston, MA
Take your students on a Quest! These real-world Problem-Based Learning projects incorporate all three dimensions of the NGSS. Experience a Quest! bringing classroom concepts to life as students are immersed in a world of discovery to help solve real-world problems through a combination of hands-on and digital simulations.

Martian Genetics: A DNA and Electrophoresis Exploration
(Grades 6–College)  B306, GWCC
Science Focus: LS
Sponsor: Edvotek, Inc.
Maria Dayton (info@edvotek.com), Brian Ell, and Tom Cynkar, Edvotek Inc., Washington, DC
Explore genetics with our “out of this world” workshop! Imagine being the first scientist to explore Mars and discovering extraterrestrials. How would you use biotechnology to learn about the Martians? Learn how to explore the relationship between genotype and phenotype and how to see DNA in your middle school classroom. We will cover both DNA extraction using spooling and the separation of simulated DNA fragments using electrophoresis.

—Courtesy of Jennifer Williams and Mary Ellen Hamner
What’s in the Water? Colorimetry and Conductivity of Solutions
(Grades 9–12) B315, GWCC
Science Focus: PS1.A, CCC1, CCC3, SEP2, SEP5
Sponsor: PASCO scientific
Jason Lee, East Georgia State College–Statesboro
Water is a precious resource but certain solutes can threaten that resource. Help students understand the importance of identifying and quantifying solutes in solution. Using the new Wireless Colorimeter and Wireless Conductivity sensor, your students will get a deeper understanding of water and solutions!

Use Free GIS to Launch Weather Units into the Stratosphere
(Grades 9–12) B316, GWCC
Sponsor: PASCO scientific
Roger Palmer, Bishop Dunne Catholic School, Dallas, TX
Understanding global phenomena such as climate change can be difficult and abstract for students. We’ll make local measurements demonstrate how lots of individual datasets can be combined to create big understandings. By building on that experience, analyze global GIS data to understand the changing world and human impact.

8:00–9:30 AM Exhibitor Workshops
Positively Engaging Demos and Labs for Chemistry from Flinn Scientific
(Grades 7–College) B203, GWCC
Science Focus: PS
Sponsor: Flinn Scientific, Inc.
Jillian Saddler (jsaddler@flinnsci.com) and Joan Berry (jberry@flinnsci.com), Flinn Scientific, Inc., Batavia, IL
Come join Flinn as we go through interactive and fun activities for your first-year chem students! Learn multiple ways to keep class interesting and ensure that students understand the concepts. Entice students with the beauty of chemistry! We’ll go over labs, demos, and guided inquiry activities, sure to keep your classroom buzzing! Handouts and door prizes. Visit www.flinnsci.com for more information.

Integrating Chromebook with Vernier Technology
(Grades 3–College) B207, GWCC
Science Focus: ETS2, PS1, PS2
Sponsor: Vernier Software & Technology
Rick Rutland (info@vernier.com), Five Star Education Solutions, Stockdale, TX
Participate in fun and engaging experiments using Vernier digital tools with Chromebooks to compare grip strength, investigate pressure and volume relationships, and match position graphs. See how sensor-based experiments teach students about data collection and analysis—practices that promote science inquiry, improve science literacy, and boost test scores.

Integrating iPad with Vernier Technology
(Grades 7–College) B208, GWCC
Science Focus: ESS3, ETS2, PS3
Sponsor: Vernier Software & Technology
Verle Walters (info@vernier.com), Vernier Software & Technology, Beaverton, OR
Participate in fun and engaging hands-on experiments using Vernier digital tools with iPads to compare grip strength, investigate gas laws, and match position graphs. See how sensor-based experiments teach students about data collection and analysis—practices that promote science inquiry, improve science literacy, and boost test scores.

Using Maggots, Flies, and Flesh to Solve a Mystery!
(Grades 6–12) B213, GWCC
Science Focus: GEN
Sponsor: Texas Instruments
Stacy Thibodeaux, Southside High School, Youngsville, LA
Jeffrey Lukens, Sioux Falls (SD) School District
A decomposing corpse is found in a field. Four possible missing persons fit the description. But who is it? Using clues near the scene will help determine identity. Forensic anthropologist Diane France helped to develop this free middle school and high school forensic science lesson.

Linking Literature and STEM in the Primary Classroom
(Grades K–3) B217, GWCC
Science Focus: GEN
Sponsor: SAE International
Amy Smith, SAE International, Warrendale, PA
Breathe new life into your primary classroom by incorporating literature into your STEM lessons.
Making the Most of Hands-On with Leveled Reading and Notebooking  
(Grades 3–5)  
科学焦点：GEN  
赞助：Delta Education/School Specialty Science  
Mary Anne Feller，Sts. Peter and Paul Catholic School, Haubstadt, IN  
Deborah Vannatter, University of Evansville, IN  
推动手头上的科学，但是需要提高学生的使用信息性文本？无缝融合手头上的经验和阅读策略使用分级阅读和科学笔记本与Delta Education的新ScienceFLEX模块。离开时带着阅读器，设备，和一个你可以尝试与学生下次的课程。

Identifying Energy Transfers in Motors and Generators  
(Grades 6–8)  
科学焦点：PS2, PS3  
赞助：Delta Education/School Specialty Science—FOSS  
Jessica Penchos, The Lawrence Hall of Science, University of California, Berkeley  
解剖一个马达，识别其组件，并对能量转移的现象在新的FOSS Next Generation Electromagnetic Force课程中进行比较。对比马达组件到一个生成器和考虑能源来源的可持续性。识别与三个维度的NGSS的连接。

Go on a Cell Quest! Teaching Cell Structure Through Gaming  
(Grades 6–12)  
科学焦点：LS  
赞助：CPO Science/School Specialty Science  
Kat Mills, School Specialty Science, Rosharon, TX  
Erik Benton, CPO Science/School Specialty Science, Nashua, NH  
你的挑战，你应该接受它，是去探索一个3D的新CPO科学细胞游戏！在细胞结构和功能冒险使用最前沿的现实，然后使用你的知识来完成一个在8种不同的细胞类型。

Essential Materials for Easy NGSS Lessons  
(Grades 6–8)  
科学焦点：ESS, LS, PS  
赞助：Ward’s Science  
Patty Muscatello, VWR Science Education, Rochester, NY  
伟大的NGSS课程不应是昂贵或复杂的。学习如何节省时间，金钱——和你的精力——而教授现实世界的STEM技能并涵盖核心的生物、地球和物理科学课程。扮演生物医学工程师，建筑师，化学家，和更多——并赢得产品赠品。

NGSS Waves: Making an Abstract Concept Visible!  
(Grades 6–8)  
赞助：Sepup，Inc.  
Lisa Kelp, Lab-Aids, Inc., Ronkonkoma, NY  
体验两个显眼的NGSS活动从SEPUP，它把波浪和它们的应用技术发展起来。波浪和它们的应用技术（MS-PS4-2）。安放于健康问题环绕各种类型和水平的波浪接触，这些活动模型无缝整合的三个维度，ELA，和数学标准。我们将探索可视光频率和能量通过使用磷光材料和使用光盒来探索折射和反射。

How Do Species Coexist? Niche Partitioning with HHMI BioInteractive  
(Grades 9–12)  
赞助：HHMI BioInteractive  
Scott Sowell (scottpowell@gmail.com), Darnell-Cookman School of the Medical Arts, Jacksonville, FL  
Amy Fassler (fasslera@marshfieldschools.org), Marshfield High School, Marshfield, WI  
使用新的资源从HHMI BioInteractive，我们将教你如何使用观察喂食习惯和DNA的元数据编码来创建一个模型的胞内分割用于大型草食性在非洲的草原。参与者被鼓励带来一个笔记本/平板电脑。

Are Increased Incidences of Infection the Result of Climate Change?  
(Grades 9–College)  
科学焦点：ESS3, LS  
赞助：Bio-Rad Laboratories  
Tamicah Stubbs, Bio-Rad Laboratories, Hercules, CA  
为什么气候改变对我来说？过去有增加的报告说带有症状如胃肠道炎症，血便，发烧，和深色水泡。找出哪些被视为的微生物是与这个增加相关和为什么它们可能更常见作为地球温度的平均温度的增加。
Conserving the Panda Population Through Understanding Their Reproductive Endocrinology  
(Grades 9–College) B311, GWCC  
Science Focus: LS  
Sponsor: Bio-Rad Laboratories  
**Damon Tighe**, Bio-Rad Laboratories, Hercules, CA  
Can your students save the giant pandas? See how your students can explore challenging topics—such as homeostatic regulation and the effect of reproductive hormones, immunological responses, and ecosystem balance—all at once as they engineer a hormone detection system that can be used for giant panda population conservation efforts.

Putting the “E” in STEM: Engineering in the Middle School Science Classroom  
(Grades 6–9) B313, GWCC  
Science Focus: ETS, SEP  
Sponsor: AEOP  
**Alexandra Wakely**, eCYBERMISSION Outreach Specialist STEM/Academia, NSTA, Arlington, VA  
**Matthew Hartman**, eCYBERMISSION Content Manager, NSTA, Arlington, VA  
Many science teachers are working on bringing engineering (the E in STEM) into their science classes. But with limited time, state requirements, and plenty of science content to cover, it can be a challenge. Discussion centers on the value of integrating engineering into your science classes and tips on how to make the integration seamless. There will also be an explanation of the online STEM competition eCYBERMISSION and how it relates to engineering in the science classroom.

DNA Structure and Function with a Twist of Dynamic DNA  
(Grades 9–College) B403, GWCC  
Science Focus: LS, CCC1, CCC2, CCC6, CCC7, SEP3, SEP6  
Sponsor: 3D Molecular Designs  
**Gina Vogt** (gina.vogt@3dmoleculardesigns.com), 3D Molecular Designs, Milwaukee, WI  
**Tim Herman** (herman@msoe.edu), MSOE Center for Biomolecular Modeling, Milwaukee, WI  
Support three-dimensional learning with engaging instructional materials that introduce DNA as a double-stranded helical molecule and as information that encodes proteins. Physical models allow students to explore DNA structure and function. A paper bioinformatics exercise focuses on the beta subunit of hemoglobin and the sickle cell disease mutation.

What’s So Phenomenal About Phenomena?  
(Grades P–8) B404, GWCC  
Science Focus: GEN, NGSS  
Sponsor: Amplify  
**Sophia Lambertsen** (ampliffscie@berkeley.edu) and **Rebecca Abbott**, The Lawrence Hall of Science, University of California, Berkeley  
You’ve probably heard about phenomenon-based instruction. Figure out what this actually means and how it’s embodied in an NGSS-designed curriculum. Leaders from The Lawrence Hall of Science at UC Berkeley will deliver this interactive presentation to unpack the meaning of phenomenon-based instruction through sharing the Hall’s research-based pedagogy and Amplify Science program.

Earth and Space Science for the Modern, Interactive Classroom  
(Grades 5–12) B408, GWCC  
Sponsor: Simulation Curriculum Corp.  
**Herb Koller**, Simulation Curriculum Corp., Minnetonka, MN  
Join us to see Simulation Curriculum’s acclaimed Starry Night and The Layered Earth on the web. Now our complete curriculum solutions for Earth and space science, grades 5–12, include animations and stunning simulations and are available to you for Chromebooks, Windows, Mac OS, iPads, and Android tablets.

Use Science, Coding, and Robotics in the Elementary Classroom to Solve Real-World Problems  
(Grades K–5) B409, GWCC  
Science Focus: ESS, ETS, LS  
Sponsor: LEGO Education  
**Laura Jackson**, Retired Science Teacher, Lee’s Summit, MO  
Build and code robotic models while exploring exciting Earth, space, and life science lessons. Learn the importance of teaching coding and computational thinking at the elementary level and leave with concrete activities that will empower your students to solve real-world problems.
Thursday, 8:00 AM–5:00 PM

**8:00 AM–5:00 PM  Meetings**

Making Sense of Three-Dimensional Teaching and Learning (Level 1)
(By Preregistration Only) Savannah A/B, Westin
This two-day workshop focuses on developing deep understanding of three-dimensional design by giving them a powerful tool kit of resources including the interactive e-book Discover the NGSS: Primer and Unit Planner.

Designing Three-Dimensional Lessons and Units Train-the-Trainer Workshop (Level 2)
(By Preregistration Only) Savannah C, Westin
This workshop leverages the interactive e-book Discover the NGSS: Primer and Unit Planner to prepare participants to conduct comprehensive professional learning around the new standards and support the design and implementation of three-dimensional units of instruction.

8:30–9:00 AM  Presentations

**STEMing-Up Life Science**
(Grades 5–8) A407, GWCC
Science Focus: ETS1, LS1.A, LS1.B, CCC2, CCC3, CCC4, SEP
**Jacqueline Lauriat,** Wheaton Christian Grammar School, Winfield, IL
Come learn about STEM integrated units using hands-on activities, specific job responsibilities, process logs, and rubrics—Cell Cycle Division, Invertebrates, Prosthetic Devices, and Robotics.

**Zoo Genetics Plus: A Free Curriculum for All**
(Grades 7–College) C202, GWCC
**Jason Crean** (jcrean@lths.net), Lyons Township High School South, Western Springs, IL
Zoo Genetics is a free curriculum that allows students to answer important scientific questions via actual research projects from the Wildlife Genetics Laboratory in Chicago.

**Reading with Strategic Questions**
(Grades 7–12) C213, GWCC
Science Focus: GEN, SEP8
**Kirsten Mawyer** (kmawyer@hawaii.edu), University of Hawaii at Manoa, Honolulu
**Heather Johnson** (heather.j.johnson@vanderbilt.edu), Vanderbilt University Peabody College, Nashville, TN
Learn strategic questions that can be used to help students read journal articles, newspapers, and textbooks to better understand real-world phenomena.

**How to Use the Crosscutting Concepts to Launch Rich NGSS Instruction**
(Grades K–12) Dogwood B, Omni
Science Focus: GEN, CCC
**Karen Whisler** (whisler.karen@measuredprogress.org), Measured Progress, Dover, NH
Learn how to introduce phenomena and launch lessons via crosscutting concepts, in order to promote deeper engagement and learning opportunities for students.

**SCST-Sponsored Session: Successful 3-D Learning in Online Science Courses: Incorporating Core Ideas, Crosscutting Concepts, and Science Practices in Laboratory Application Assignments**
(College) Hickory, Omni
Science Focus: ESS3
**Renee Clary** (rclayr@geosci.msstate.edu), Mississippi State University, Mississippi State, MS
Online courses’ laboratory assignments can successfully incorporate three-dimensional learning through content application in students’ local environments! Students enjoy hands-on learning and creative assignment flexibility.

**Sharing the Language of Science Through a Blended 5E and 5R Model**
(Grades P–12) Walnut, Omni
Science Focus: GEN, NGSS
**Kate Baird** (@7350goldendream; katebaird1430@gmail.com), STEMporium Educational Consulting, Columbus, IN
**Stephanie Coy** (sscoy@iupuc.edu), Orlando Science Technology Campus, Orlando, FL
We will share how all learners can be scaffolded to learn science vocabulary through inquiry first instruction.
National Earth Science Teachers Association Events at the 2018 NSTA National Conference in Atlanta

We have a number of exciting sessions! To find our sessions, enter NESTA as the keyword when searching events online at NSTA’s session browser for the conference. On Friday, March 16 and Saturday, March 17, we have a series of sessions all in B103 of the Georgia World Congress Center. Don’t miss out on our Share-a-Thons and the events below! www.nestanet.org

Friday, March 16
2:00 – 3:00 p.m. American Geophysical Union (AGU) Lecture: Chasing Coral Bleaching: A Present and Growing Ecological Disaster: Dr. C. Mark Eakin

Coral reefs are amazingly beautiful and complex ecosystems that support at least a quarter of all marine species. However, as ocean temperatures rise, corals have been expelling the algae that give them their color and their food, causing them to die around the world at a record rate. This talk describes this growing problem and its haunting future while attempting to leave you hopeful that we still can save coral reefs before they are all gone.

Sidney Marcus Auditorium, Georgia World Congress Center

Saturday, March 17
5:00 – 6:00 p.m. NESTA’s exciting Rock, Mineral, and Fossil Raffle!

Georgia World Congress Center, B103
6:30 – 8:00 p.m. NESTA Friends of Earth Science Reception
International Ballroom F, Omni Atlanta at CNN Center

NESTA gratefully acknowledges the following organizations as sponsors:

AGU  CAROLINA®
Howard Hughes Medical Institute  TERC
American Geosciences Institute

NAGT
Thursday, 8:30–9:30 AM

8:30–9:30 AM Presentation
Teacher Researcher Day Session: Poster Session for Teachers and Teacher Educators Inquiring into Science Learning and Teaching
(General) International Ballroom F, Omni
Science Focus: GEN, NGSS
Deborah Roberts-Harris (drober02@unm.edu), The University of New Mexico, Albuquerque
Come find out what questions teachers and teacher educators are asking and how they are exploring these in their own classrooms.

8:30–11:00 AM Meeting
Science Safety Advisory Board Meeting
Willow Boardroom, Omni

9:00 AM–5:00 PM Networking Opportunity
NSTA International Lounge
Cypress, Omni

9:15 AM–10:30 AM General Session
Teaching Through Adversity: Facing Challenges and Making a Difference
(General) Thomas B. Murphy Ballroom, GWCC
Science Focus: GEN
Ron Clark (@ronclarkacademy), Founder, The Ron Clark Academy, Atlanta, GA
Presider and Introduction: David Crowther, NSTA President, and University of Nevada, Reno
Platform Guests: Ron Clark; David Crowther; Mary Gromko, NSTA Retiring President, Colorado Springs, CO; Christine Anne Royce, NSTA President-Elect, and Shippensburg University, Shippensburg, PA; Dennis Schatz, NSTA President-Elect-Elect, NSTA Director, Informal Science, and Pacific Science Center, Seattle, WA; Donald White, President, Georgia Science Teachers Association, and Coweta County School System, Newnan; Nancy Caffee, President, Alabama Science Teachers Association, and Blount County Career Technical Center, Cleveland; David L. Evans, NSTA Executive Director, Arlington, VA; Zoe Evans, NSTA Director, District V, Chairperson, NSTA Atlanta National Conference, and Bowdon High School, Bowdon, GA; Jeremy Peacock, Program Coordinator, NSTA Atlanta National Conference, and Northeast Georgia RESA, Athens; Rabieh Hafza, Local Arrangements Coordinator, NSTA Atlanta National Conference, and Atlanta (GA) Public Schools

Join Ron Clark as he shares his journey from teaching in a low-wealth rural area in North Carolina to the inner-city streets of Harlem in New York City. Along the way, he will share inspirational stories on how his students made outstanding growth in test scores, conducted projects that garnered worldwide attention, and were invited to the White House three separate years to be honored by the President.

A 2000 Disney American Teacher of the Year awardee, Ron Clark’s education career spans both rural and urban—from teaching in rural North Carolina to Harlem, New York City. His philosophy of “I teach you and you teach me. Together we learn to love to learn” even inspired a 2006 TV movie, The Ron Clark Story, starring Matthew Perry.

Be sure to join author Ron Clark after his talk, starting at 11:00 AM until 12:15 PM at Booth #603 in the Exhibit Hall, where he will be signing copies of his books. The books will be available for purchase at the booth while supplies last.
**9:15–10:45 AM  Exhibitor Workshop**

**Foodborne Outbreak Investigation Using Gel Electrophoresis**  
(Grades 10–College)  
B210, GWCC  
Science Focus: ETS1, ETS2.A, LS1, LS3, PS1.A, PS2  
Sponsor: MiniOne Systems  
**Ellen Chevalier** *(info@theminione.com)* and **Winnie Litten,**  
Oak Park High School, Oak Park, CA  
Learn firsthand to engage students in using scientific reasoning to mimic a foodborne outbreak investigation and design an experiment using gel electrophoresis to determine the source of the outbreak. You will pour, load, and run a gel; capture a gel image; and analyze the results to test your hypothesis.

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**9:30–10:30 AM  Presentation**

**NMEA Session: Using Authentic Ocean Data to Meet the NGSS**  
(Grades 4–College)  
B103, GWCC  
Science Focus: GEN, NGSS  
**Meghan Marrero** *(mmarrero3@mercy.edu)*, Mercy College, Dobbs Ferry Campus, Dobbs Ferry, NY  
Hear how to incorporate freely available authentic ocean data—from animal tracks to physical and chemical readings—into your lessons to promote three-dimensional learning.

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**9:30–10:30 AM  Exhibitor Workshops**

**DNA Glow Lab: A New Way to Investigate DNA Structure**  
(Grades 4–College)  
B209, GWCC  
Science Focus: LS1.A, LS1.D, LS3, CCC2, CCC6, CCC7, SEP1, SEP2, SEP3, SEP4, SEP6, SEP7  
Sponsor: miniPCR  
**Ezequiel Alvarez-Saavedra** *(zeke@minipcr.com)*, miniPCR, Cambridge, MA  
Discover a completely new approach to studying DNA in the classroom. Have your students directly investigate how factors like temperature, pH, and genetic sequence affect DNA structure. Go beyond building paper and candy models; use modern biotechnology techniques to introduce an authentic lab component to your DNA unit…and it glows!

**Literacy in the Context of Science in the Middle School Classroom**  
(Grades 5–8)  
B214, GWCC  
Science Focus: GEN, NGSS  
Sponsor: Activate Learning  
**Ellen Mintz,**  
Charleston County School District, Charleston, SC  
Experience a lesson that demonstrates the integration of literacy strategies in the context of science. This includes the incorporation of academic language in written responses in science notebooks and oral discourse in conjunction with investigations using an interactive word wall.

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**Make Any Classroom a Makerspace**  
(Grades K–12)  
B216, GWCC  
Science Focus: ETS  
Sponsor: Pearson Learning Services  
**Obie Martin,**  
Pearson, Logansport, IN  
Makerspaces are everywhere, from television to your public library. Make your classroom into a makerspace without a lot of equipment or cost. All you need is the right attitude and the willingness to promote the innovated thinking in your students. Come try it out for yourself in this fun hands-on workshop.

**Exploring STEAM with Transformation!**  
(Grades 6–College)  
B306, GWCC  
Science Focus: LS  
Sponsor: Edvotek, Inc.  
**Maria Dayton** *(info@edvotek.com)*, **Brian Ell,** and **Tom Cynkar,**  
Edvotek Inc., Washington, DC  
Transforming bacteria with plasmids that express brightly colored or fluorescent proteins is an unforgettable way to teach the central dogma of molecular biology. Why not take it a step further and see the art your students can create using their transformed bacteria? Receive tips and tricks to maximize classroom success, as well as dust off your paintings skills! Artistic? Our favorite design will win a free kit.
**Thursday, 9:30–10:30 AM**

**pH: Hands-On Strategies to Tackle Misconceptions**  
(Grades 7–12)  
B315, GWCC  
Science Focus: PS1.A, CCC1, CCC3, SEP2, SEP5  
Sponsor: PASCO scientific  
Jason Lee, East Georgia State College–Statesboro  
What is pH and why is the scale 0–14? Help students understand the logarithmic pH scale by creating serial dilutions in this hands-on workshop. Using the Wireless pH sensor and universal indicator, your students will be able to analyze and visualize what pH actually means and measures!

**Hands-On: Exploring Enzymes the NGSS Way**  
(Grades 9–12)  
B316, GWCC  
Sponsor: PASCO scientific  
Ryan Reardon, Shades Valley High School, Irondale, AL  
Use an inquiry-based approach to plan and carry out an investigation to test enzyme activity by designing trials to examine how pH, temperature, and concentrations impact reaction rates. With simple materials and fast data runs, students can create a rich dataset to engage in arguments from evidence.

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**CALLING ALL MIDDLE SCHOOL EDUCATORS**

**Friday, March 16, 2018 | 10:15 AM–4:30 PM**  
Rooms A311-314, A411/412b, GWCC  

*MUST BE REGISTERED FOR THE CONFERENCE TO ATTEND*

Join us for a special “Meet Me in the Middle Day,” designed just for middle school educators, at NSTA’s 2018 National Conference in Atlanta!  
The day’s events will include a networking session, more than a dozen presentations specifically for middle school educators, and an afternoon share-a-thon featuring more than 100 presenters. You’ll walk away with ideas you can put to use in your classroom next week!

Organized by the National Middle Level Science Teachers Association (NMLSTA)  

Attend for a chance to win a variety of incredible door prizes!
**9:30–11:00 AM  Presentation**  
Teacher Researcher Day Session: You CAN Do Classroom Research: The Teacher Researcher  
*(General)*  
Science Focus: GEN, NGSS  
**John Graves** (graves@montana.edu), Montana State University, Bozeman  
Join teachers who conducted classroom research as they share their stories of student and personal growth through the process. Q&A to follow.

**10:00–11:30 AM  Exhibitor Workshops**  
**Shifting to the Five Innovations: Density Phenomena**  
*(Grades 6–8)*  
B201, GWCC  
Science Focus: PS  
Sponsor: Carolina Biological Supply Co.  
**Carolina Teaching Partner**  
Experience the five innovations firsthand from the Smithsonian’s middle school chemistry unit. Through three-dimensional lessons, the misconceptions about density can be cleared up. Leave with a better understanding of how the innovations enhance the teaching of science with learning progressions, making sense of phenomena, and designing solutions.

**Carolina’s Young Scientist™ Dissections with Carolina’s Perfect Solution® Specimens**  
*(Grades 1–8)*  
B202, GWCC  
Science Focus: LS  
Sponsor: Carolina Biological Supply Co.  
**Carolina Teaching Partner**  
Transform your students into young scientists when you bring these simple hands-on dissections to your classroom! We will guide you through the dissections of a squid and a frog, promoting classroom discussions of easily observable adaptations and the relationship between structure and function.

**Flinn Favorite Biology Activities and Games**  
*(Grades 7–College)*  
B203, GWCC  
Science Focus: LS  
Sponsor: Flinn Scientific, Inc.  
**Matt Anderson** (manderson@flinnsci.com) and **Annemarie Duncan** (aduncan@flinnsci.com), Flinn Scientific, Inc., Batavia, IL  
Students learn better and faster when they are actively involved in hands-on activities that are not only fun, but also create learning opportunities along the way. We’ll share some inquiry-based labs, interactive demonstrations, and collaborative games you can use to motivate your students. Focusing on core topics like evolution, genetics, biochemistry, and more—you’re sure to find a Flinn favorite that works for you! Handouts for all activities. Visit [www.flinnsci.com](http://www.flinnsci.com) for more information.

**Engineer Physical Science Excitement with a Carolina STEM Challenge®**  
*(Grades 6–12)*  
B204, GWCC  
Science Focus: PS, SEP  
Sponsor: Carolina Biological Supply Co.  
**Carolina Teaching Partner**  
Rockets zoom and race cars zip through hands-on activities that engage your middle school and high school students. Apply creative problem-solving skills and engineering practices to chemistry and physical science challenges. Experience how Carolina makes it easy to incorporate STEM into your classroom.

**Biology with Vernier**  
*(Grades 7–College)*  
B207, GWCC  
Science Focus: ETS2, LS1, LS2  
Sponsor: Vernier Software & Technology  
**Colleen McDaniel** (info@vernier.com), Vernier Software & Technology, Beaverton, OR  
Participate in fun and engaging hands-on experiments that use Vernier digital tools to investigate cellular respiration, enzyme activity, and the spectral analysis of chlorophyll. See how sensor-based experiments teach students about data collection and analysis—practices that promote science inquiry, improve science literacy, and boost test scores.
Physics with Vernier Using Chromebook  
(Grades 3—College)  
B208, GWCC  
Science Focus: ETS2, PS1, PS2  
Sponsor: Vernier Software & Technology  
Frances Poodry (info@vernier.com), Vernier Software & Technology, Beaverton, OR  
Participate in fun and engaging hands-on experiments using the new Go Direct Sensor Cart and other Vernier digital tools with Chromebooks. See how sensor-based experiments teach students about data collection and analysis—practices that promote science inquiry, improve science literacy, and boost test scores.

Save a Nickle and Learn to Trickle!  
(Grades 6—12)  
B213, GWCC  
Science Focus: ESS, ETS, CCC1, CCC2, CCC5, CCC7, SEP1, SEP2, SEP3, SEP4, SEP5, SEP6  
Sponsor: Texas Instruments  
Jeffrey Lukens, Sioux Falls (SD) School District  
Fred Fotsch, Texas Instruments, Dallas  
Explore some of the parameters involved in irrigating a garden or lawn more efficiently. This hands-on session combines some simple computer coding (no experience necessary) with a few inexpensive sensors to create a smart irrigation system. Appropriate for middle school to high school students, this activity combines Project-Based Learning, science, and coding into a meaningful solution to an unfortunate phenomenon.

Stop Creating Lesson Plans; Start Creating Learning Experiences  
(Grades K—12)  
B215, GWCC  
Science Focus: GEN, NGSS  
Sponsor: Van Andel Education Institute  
Randall Schregardus (randy.schregardus@vaei.org) and Janyce Huff (janyce.huff@vaei.org), Van Andel Education Institute, Grand Rapids, MI  
Engage your students to think and act like scientists. Be the teacher that transforms everyday lesson plans into authentic, memorable learning experiences with inquiry-focused instruction. Come with a willingness to inspire learning; leave with strategies and tools to make it happen.

Hands-On STEM in the Upper Elementary Classroom  
(Grades 4—8)  
B217, GWCC  
Science Focus: ETS1  
Sponsor: SAE International  
Amy Smith, SAE International, Warrendale, PA  
Learn how to keep your upper elementary students engaged in STEM. This hands-on workshop will provide you with the tools you need to use the engineering design experience in your classroom.

Teaching Effectively with 3D Visualization at the Molecular Level  
(Grades 8—College)  
B218, GWCC  
Sponsor: Wavefunction  
Paul Price, Wavefunction, Inc., Irvine, CA  
Conceptual understanding of molecular processes is a huge focus for the NGSS and the revised AP® Chemistry Curriculum. Join in and learn how to work with ODYSSEY Molecular Explorer—a highly interactive and scientifically sound program for three-dimensional visualization. Please bring a Windows or Macintosh laptop if you can (some loaners will also be available).

How to Argue in the Elementary Science Class  
(Grades 3—5)  
B301, GWCC  
Science Focus: GEN, SEP7  
Sponsor: Delta Education/School Specialty Science  
Deborah Vannatter, University of Evansville, IN  
Mary Anne Feller, Sts. Peter and Paul Catholic School, Haubstadt, IN  
Help students develop scientific argumentation skills by making claims based on observable evidence. Put these skills into practice with lessons from ScienceFLEX, as we prove (or disprove) fundamental science concepts. Leave with readers, equipment, and a lesson you can try with your students next week.

Wave Properties and Information Technologies  
(Grades 6—8)  
B302, GWCC  
Science Focus: PS4, CCC, SEP  
Sponsor: Delta Education/School Specialty Science—FOSS  
Jessica Penchos, The Lawrence Hall of Science, University of California, Berkeley  
Engage in activities using lasers and optical fibers in the new FOSS Next Generation Waves Course for middle school. Explore the phenomena of refraction and reflection that allow information transfer by fiber-optic technology, and identify connections to the three dimensions of NGSS.
Energy Quest: Where Cell Pathways ARE Fun and Games
(Grades 6–12) B303, GWCC
Science Focus: LS
Sponsor: CPO Science/School Specialty Science
Kat Mills, School Specialty Science, Rosharon, TX
Erik Benton, CPO Science/School Specialty Science, Nashua, NH
Get ENERGIZED about teaching energy pathways with the CPO Science Link Energy Quest module—featuring cutting-edge Augmented Reality. Through collaborative game board play and manipulating 3D imagery with a swipe of a finger, students will be clamoring to earn 32 ATP and synthesize glucose molecules.

Be Phenomenal in Physical Science and NGSS
(Grades 9–12) B304, GWCC
Science Focus: PS
Sponsor: Ward's Science
Kathy Mirakovits and Michelle Mason, Portage Northern High School, Portage, MI
Learn how to use science phenomena and common misconceptions to spark curiosity and generate student interest in NGSS physical science topics. Led by two phenomenal high school teachers, this hands-on workshop will show you how to engage student participation and drive instruction using conceptual models, group work, and student discussion.

NGSS Ecology: Modeling the Introduction of a New Species
(Grades 6–8) B305, GWCC
Science Focus: LS2.B, LS2.C, LS3, CCC4, CCC5, CCC6, SEP2
Sponsor: Lab-Aids, Inc.
Cindy Lilly, Ocean Bay Middle School, Myrtle Beach, SC
How does a new species affect the flow of matter and energy in an ecosystem? This card sort–style activity models the introduction of a new species with special attention to the effect on existing predators and producers. From the new SEPUP middle level ecology unit, revised and updated for the NGSS and published by Lab-Aids. Take home free samples of the activity.

The Central Dogma, CRISPR, and Genetic Medicine
(Grades 9–College) B308, GWCC
Science Focus: LS1.A, LS3, CCC2, CCC6, SEP2, SEP6
Sponsor: HHMI BioInteractive
Kathryn Fisher Hedeen (kate.fisher@orecity.k12.or.us), Oregon City High School, Oregon City, OR
Ann Brokaw (abrokaw44@gmail.com), Rocky River High School, Rocky River, OH
Looking for new ways to teach molecular genetics? Hear from experienced educators on how to incorporate free HHMI BioInteractive resources into your classes. We will present a variety of teaching strategies exploring gene expression, including hands-on activities, animations, and a Click and Learn, all centered around new discoveries in genetic medicine.

Become a GMO Investigator
(Grades 9–College) B310, GWCC
Science Focus: LS
Sponsor: Bio-Rad Laboratories
Tamica Stubbs, Bio-Rad Laboratories, Hercules, CA
Regardless of where you stand in the GM debate, wouldn’t it be interesting to know which foods you eat are GM foods? This hands-on workshop teaches basics of DNA extraction, PCR, and electrophoresis and how they are used to test grocery store food products for the presence of GM foods.

STEM Challenge: Keeping Students Engaged with Problem Solving
(Grades 6–9) B313, GWCC
Science Focus: GEN, SEP1
Sponsor: AEOP
Matthew Hartman, eCYBERMISSION Content Manager, NSTA, Arlington, VA
The practices included in the NGSS are all based on solving problems. Come work on and solve some problems that you can take back to the classroom, as well as develop your own problem-solving activities. We will also share how the online STEM competition, eCYBERMISSION, gives students a chance to solve problems using science and engineering and how you and your students can participate at no cost.
Thursday, 10:00–11:30 AM

**Going with the Flow of Genetic Information: Transcription and Translation**  
*(Grades 9–College)* B403, GWCC  
Science Focus: ETS1, LS1, LS3, CCC1, CCC2, CCC3, CCC4, CCC6, CCC7, SEP1, SEP2, SEP4, SEP5, SEP6  
Sponsor: MSOE Center for BioMolecular Modeling  
**Tim Herman** (herman@msoe.edu), MSOE Center for BioMolecular Modeling, Milwaukee, WI  
**Gina Vogt** (gina.vogt@3dmoleculardesigns.com), 3D Molecular Designs, Milwaukee, WI  
Explore the cellular processes of DNA replication, transcription, and translation using hands-on/minds-on instructional manipulatives that support the three dimensions of NGSS, most notably the science and engineering practice of developing and using models. Handouts and information on borrowing materials from a university model lending library program will be provided!

**Harnessing Spider Silk: Phenomena and 3-D Instruction for Grades 6–8**  
*(Grades 6–8)* B404, GWCC  
Sponsor: Amplify  
**Sophia Lambertsen** (amplifyscience@berkeley.edu) and **Rebecca Abbott**, The Lawrence Hall of Science, University of California, Berkeley  
Experience how students investigate how to breed spiders whose silk can be used for medical purposes, while figuring out principles of genes, traits, and reproduction. Get a hands-on dive into Amplify Science for Grades 6–8, engaging with this new NGSS-designed curriculum from The Lawrence Hall of Science.

**BIOZONE’s New NGSS Series for High School**  
*(Grades 9–10)* B406, GWCC  
Science Focus: GEN, NGSS  
Sponsor: BIOZONE International  
**Richard Allan**, BIOZONE International Ltd., Hamilton, New Zealand  
Successfully implement the high school biology, chemistry, physics, and Earth and space science core ideas of the NGSS with BIOZONE’s newest award-winning series. Strongly focused on student inquiry, it’s written from first principles to address the NGSS practices. Take home free review copies.

**Of Mice and Men: Engaging High School Students in Biomedical Science**  
*(Grades 9–College)* B407, GWCC  
Sponsor: Vaccine Education Center at Children’s Hospital of Philadelphia  
**Donald Mitchell** (donald@medicalhistorypictures.com), Medical History Pictures, Inc., Haverford, PA  
**Charlotte Moser** (moser@email.chop.edu), Vaccine Education Center at Children’s Hospital of Philadelphia, PA  
Understanding the immune system and how diseases develop will help students long after they have left your classroom. We will introduce free modules that help students understand these concepts and more, including the use of animals in biomedical research and the science behind vaccines.

**Plate Tectonics Made Easy**  
*(Grades 5–12)* B408, GWCC  
Science Focus: ESS2.B  
Sponsor: Simulation Curriculum Corp.  
**Herb Koller**, Simulation Curriculum Corp., Minnetonka, MN  
Join us as we use Simulation Curriculum’s *The Layered Earth* to investigate continental drift and the theory of plate tectonics. Classroom-ready NGSS lessons engage students with interactive simulations, learning activities, and thought-provoking exercises using an interactive model of Earth. Now available for all platforms, including Chromebooks.

**Gears, Wheels, Axles, Levers, and Pulleys: How Do They Lay the Foundation for Robotics?**  
*(Grades P–8)* B409, GWCC  
Science Focus: ETS, PS2  
Sponsor: LEGO Education  
**Laura Jackson**, Retired Science Teacher, Lee’s Summit, MO  
Discover the fundamentals of robotics by exploring the underpinnings of more complex machines. Build and experiment with gears, wheels, axles, levers, and pulleys as you work through real-world engineering problems. This workshop will teach educators how to lay a solid foundation for more advanced robotics learning.
10:30–11:30 AM  Exhibitor Workshop
Investigate Photosynthesis and Cellular Respiration with Algae Beads
(Grades 9–College)  
B311, GWCC

Science Focus: LS
Sponsor: Bio-Rad Laboratories
Damon Tighe, Bio-Rad Laboratories, Hercules, CA

Use algae beads in a colorimetric assay to study both photosynthesis and cellular respiration through authentic inquiry investigations in formats to support both AP and NGSS biology. Learn how to extend this lab to study the effects of light intensity, light color, temperature, and other organisms on these processes.

10:55–11:00 AM  Ribbon Cutting/Exhibits Opening

Hall B2/Exhibits Entrance, GWCC

Presider: David Crowther, NSTA President, and University of Nevada, Reno

Welcoming Remarks: Zoe Evans, NSTA Director, District V; Chairperson, NSTA Atlanta National Conference; and Bowdon High School, Bowdon, GA

Musical Entertainment: Grady High School String Quartet in Atlanta, GA, under the direction of Krissi Davis, Musical Director

Special Guests: Mary Gromko, NSTA Retiring President, Colorado Springs, CO; Christine Anne Royce, NSTA President-Elect, and Shippensburg University, Shippensburg, PA; Dennis Schatz, NSTA President-Elect-Elect, NSTA Director, Informal Science, and Pacific Science Center, Seattle, WA; Donald White, President, Georgia Science Teachers Association, and Coweta County School System, Newnan; Nancy Caffee, President, Alabama Science Teachers Association, and Blount County Career Technical Center, Cleveland; David L. Evans, NSTA Executive Director, Arlington, VA; Jeremy Peacock, Program Coordinator, NSTA Atlanta National Conference, and Northeast Georgia RESA, Athens; Rabieh Hafza, Local Arrangements Coordinator, NSTA Atlanta National Conference, and Atlanta (GA) Public Schools; Jason Sheldrake, NSTA Assistant Executive Director, Sales, Arlington, VA
11:00–11:30 AM  Presentation  
Teacher Researcher Day Session: Increasing Student Engagement with Science Practices: Teacher Inquiry Projects in Chicago Public School Science Classrooms Offer Insights  
(Grades 9–12)  
International Ballroom F/Group 2, Omni  
Science Focus: LS1, SEP2, SEP6, SEP8  
Tiffany Childress (tchildress@nlchs.org), North Lawndale College Prep High School, Chicago, IL  
Darrin Collins (d.a.collins1831@gmail.com), Kenwood Academy High School, Chicago, IL  
Kathleen Tysiak (ktysiak@gmail.com), George Westinghouse College Prep, Chicago, IL  
Chicago Public School teachers share findings from their teacher inquiry projects that strengthen student learning of all science dimensions.

11:00 AM–12 Noon  Presentations  
Teacher Researcher Day Session: From Cookbook to CER—Integrating the Claim-Evidence-Reasoning Model into the Chemistry Classroom  
(Grades 9–12)  
International Ballroom F/Group 1, Omni  
Science Focus: PS, SEP  
Sarah English (@SHChemistry; senglish@sweethomeschools.org), Sweet Home Senior High School, Buffalo, NY  
Michelle Hinchliffe (mhincliffle@lew-port.com), Lewiston-Porter Central School District, Youngstown, NY  
This session will provide participants with insight into implementing the Claim-Evidence-Reasoning Model in a chemistry classroom and its impact on student learning.

Teacher Researcher Day Session: Young Children as Scientists  
(Grades P–3/College)  
International Ballroom F/Group 3, Omni  
Science Focus: GEN, INF, NGSS  
Deborah Roberts-Harris (drober02@unm.edu), The University of New Mexico, Albuquerque  
Preschool children have insatiable curiosity about the world around them. I learned a lot working with 2- to 5-year-olds!

Teacher Researcher Day Session: An Immersive Science Experience for Middle School Science  
(Grades 5–8)  
International Ballroom F/Group 4, Omni  
Science Focus: ESS, CCC4  
Michael Jabot (@mjabot; jabot@fredonia.edu), SUNY Fredonia, NY  
Amy Lauer (alauer@fcsd.wnyric.org), Fredonia Middle School, Fredonia, NY  
Review findings on the impact of an immersive science experience for middle school students offered during summer 2017. The experience focused on a place-based science research experience using GLOBE protocols to guide inquiry. The aim was to develop student understanding of the crosscutting science concepts presented using the Earth SySTEM approach to foster a global understanding of the role of science in our lives.
Thursday, March 15
8:00 a.m. – 9:30 a.m.  Positively Engaging Demos & Labs for Chemistry from Flinn Scientific
10:00 a.m. – 11:30 a.m.  Flinn Favorite Biology Activities and Games
12:00 p.m. – 1:30 p.m.  Year-Round Solutions for Success in AP* Chemistry from Flinn Scientific
2:00 p.m. – 3:30 p.m.  Project-Based Design STEM Engineering by WhiteBox Learning
4:00 p.m. – 5:30 p.m.  Exploring Biology through Dissection with Flinn Scientific

Friday, March 16
8:00 a.m. – 9:30 a.m.  Fantastic Physical Science Phenomena from Flinn Scientific
10:00 a.m. – 11:30 a.m.  Support Your Students in Their Scientific Journey with Flinn's Digital Resources
12:00 p.m. – 1:30 p.m.  Dynamic Demonstrations from Flinn Scientific
2:00 p.m. – 3:30 p.m.  Green Chemistry Experiments for General and Advanced Placement* Chemistry
4:00 p.m. – 5:30 p.m.  Flipping AP* Biology with FlinnPREP™

Saturday, March 17
8:00 a.m. – 9:30 a.m.  Flinn Favorite Biology Activities & Games
10:00 a.m. – 11:30 a.m.  Project-Based Design STEM Engineering by WhiteBox Learning
12:00 p.m. – 1:30 p.m.  Award-Winning STEM Enrichment Program for Grades 4-8 from Flinn Scientific
2:00 p.m. – 3:30 p.m.  Building or Renovating a Laboratory? Get Your Questions Answered

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11:00 AM–12 Noon  Exhibitor Workshops
Are You a Night Owl? A Morning Lark? The Answer May Be in Your Genes…
(Grades 7–College) B209, GWCC
Sponsor: miniPCR
Sebastian Kraves (seb@minipcr.com), miniPCR, Cambridge, MA
The miniPCR Sleep Lab links the genetic control of circadian rhythms to students’ own DNA. Use PCR to amplify a locus associated with preference for morning vs. evening activity, and DNA gel electrophoresis to read your own circadian genotype. Students explore a genetic association in an authentic research investigation.

Implementing Project-Based Science: Storylines, Standards, and Student Work
(Grades 6–8) B214, GWCC
Science Focus: GEN, NGSS
Sponsor: Activate Learning
Mary Starr, Michigan Mathematics and Science Centers Network, Plymouth
We will explore the structure of a project-based science unit, the built-in opportunities for formative and summative assessment, and evaluate the type of student work that naturally flows from the learning that comes from being truly engaged in science.

Cultivating a Culture of Argumentation in Your Classroom
(Grades K–12) B216, GWCC
Science Focus: GEN
Sponsor: Pearson Learning Services
Zipporah Miller, Anne Arundel County Public Schools, Annapolis, MD
Critical thinking, communication, collaboration, creativity, and innovation are skills needed to compete in today’s global economy. Cultivating a culture of argumentation in classrooms affords students with the opportunity to develop these skills. Learn techniques that encourage students to formulate explanations based on evidence in an effort to defend their ideas or challenge a classmate’s ideas. Discover how argumentation allows students to challenge the status quo based on evidence.

Left at the Scene of the Crime: Introduction to Forensic Science
(Grades 6–College) B306, GWCC
Science Focus: LS
Sponsor: Edvotek, Inc.
Maria Dayton (info@edvotek.com), Brian Ell, and Tom Cynkar, Edvotek Inc., Washington, DC
Explore genetic diversity using forensic science! Your students become crime scene investigators as they analyze biological evidence using blood typing and DNA fingerprinting. An agglutination test is used to conclusively identify crime scene samples as “blood” and to preliminarily screen suspects by ABO type. Next, gel electrophoresis is used to create DNA profiles from crime scene and suspect samples.

Stoichiometry: Tools and Strategies That Make It Easier to Teach
(Grades 9–12) B315, GWCC
Science Focus: PS1.A, PS1.B, CCC1, CCC3, SEP4, SEP5
Sponsor: PASCO scientific
Jason Lee, East Georgia State College–Statesboro
How can you tell when a reaction is complete? Why doesn’t more reactant always lead to more product? Help students develop a better understanding of mole ratios, stoichiometry, and limiting reactants through this hands-on activity using household chemicals and a Wireless Pressure Sensor.

Crash Barrier: How to Design a STEM Engineering Challenge
(Grades 7–12) B316, GWCC
Science Focus: ETS, PS, CCC2, CCC5, CCC6, SEP1, SEP2, SEP3, SEP4, SEP5, SEP6, SEP8
Sponsor: PASCO scientific
Brett Sackett, PASCO scientific, Roseville, CA
Understand and explore the relationship between momentum and impact forces by making real-time measurements of collisions. Design your own crash barrier to minimize the maximum collision force of a moving cart colliding into your barrier. Then analyze your results to iterate and improve on your original design.
11:00 AM–12:15 PM  Exhibitor Workshop
A New Hands-On Clear and Reliable Way to Teach Restriction Digest Labs
(Grades 10–College)  
B210, GWCC
Science Focus: ETS1, ETS2.A, LS1, LS3, PS1.A, PS2
Sponsor: MiniOne Systems
Chelsea Stewart (info@theminione.com), Harvard-Westlake Middle School, Studio City, CA
Frustrated by current AP biology restriction digest labs? Join this hands-on workshop to see how our new restriction digest lab delivers clean, clear, and reliable results simply. This lab covers restriction enzyme concepts, uses electrophoresis to confirm restriction sites of known enzymes, and determines restriction sites of an unknown enzyme.

11:30 AM–12 Noon  Presentation
Teacher Researcher Day Session: Promoting Student Access and Equity: Building Pedagogical Capacity Through Teacher Inquiry Projects in Chicago Public Schools High School Science Classrooms
(Grades 9–12)  
International Ballroom F/Group 2, Omni
Science Focus: GEN
Johan Tabora (@JohanTabora; mt.tabora@gmail.com), The University of Illinois at Chicago
Leigha Ingham, Chicago (IL) Public Schools
Jorge Santana, Theodore Roosevelt High School, Chicago, IL
Chicago Public School teachers will share findings from their teacher inquiry projects that pertain to access and equity for all students.

12 Noon–12:30 PM  Presentation
Teacher Researcher Day Session: Come Be a Part of the Science Inquiry Group Network
(General)  
International Ballroom F, Omni
Science Focus: GEN, NGSS
Deborah Roberts-Harris (drober02@unm.edu), The University of New Mexico, Albuquerque
The Science Inquiry Group Network provides a way for interested teachers and teacher educators to continue talking with one another via the internet in between Teacher Researcher Days. Join us and engage in discussing ways to support teachers interested in inquiring into their own teaching practices and student learning.

12 Noon–1:30 PM  Exhibitor Workshops
Planning and Designing Investigations Using Balanced and Unbalanced Forces
(Grades K–5)  
B201, GWCC
Science Focus: PS2
Sponsor: Carolina Biological Supply Co.
Carolina Teaching Partner
NGSS recommends a departure from traditional step-by-step confirmation labs moving instead to students planning and designing investigations. How can I demonstrate balanced and unbalanced forces? What is the relationship between inertia, force and mass? Engage with colleagues in answering these questions using the lessons from Building Blocks of Science 3-D.

Keep Calm and Chemistry On: Successful Lab Activities for the New Chemistry Teacher
(Grades 6–12)  
B202, GWCC
Science Focus: PS
Sponsor: Carolina Biological Supply Co.
Carolina Teaching Partner
Looking for lab activities that work every time, not just periodically? Explore easy, engaging, and safe chemistry activities that will produce a reaction in your students. Whether you’re new to chemistry or feeling out of your element, you will learn new ways to create excitement with hands-on labs, demonstrations, and digital content.
Year-Round Solutions for Success in AP Chemistry from Flinn Scientific  
(Grades 9—College) B203, GWCC  
Science Focus: PS  
Sponsor: Flinn Scientific, Inc.  
Joan Berry (jberry@flinnsci.com) and Alan Downward (adownward@flinnsci.com), Flinn Scientific, Inc., Batavia, IL  
Join Flinn as we share AP chemistry demonstrations, labs, inquiry activities, and more! Learn about new ways to engage your advanced students. Also, discover the benefits of preparing students for the first day of class with FlinnPREP™, a new online review of foundational chemistry concepts. Handouts and door prizes. AP is a trademark of the College Board. Visit www.flinnsci.com or www.flinnprep.com for more information.

Come to Your Senses: Physiology in Action  
(Grades K—12) B204, GWCC  
Science Focus: LS  
Sponsor: Carolina Biological Supply Co.  
Carolina Teaching Partner  
Don’t think you have the nerves for physiology? Learn about easy hands-on activities you can use to explore homeostasis, reflexes and reactions, and responses to stimuli. The activities are suitable for all grade levels.

Chemistry with Vernier Using Chromebook  
(Grades 9—College) B207, GWCC  
Science Focus: ETS2, PS1, PS3, PS4  
Sponsor: Vernier Software & Technology  
Nüsret Hisim (info@vernier.com), Vernier Software & Technology, Beaverton, OR  
Participate in fun and engaging hands-on experiments using Vernier digital tools with Chromebooks to measure intermolecular attractions, investigate pressure and volume relationships, and explore spectroscopy. See how sensor-based experiments teach students about data collection and analysis—practices that promote science inquiry, improve science literacy, and boost test scores.

Elementary Science with Vernier  
(Grades 9—College) B208, GWCC  
Science Focus: ETS2, PS2, PS3, PS4  
Sponsor: Vernier Software & Technology  
David Carter (info@vernier.com), Vernier Software & Technology, Beaverton, OR  
Participate in fun and engaging hands-on STEM activities using temperature probes and other Vernier sensors that will excite your students. See how age-appropriate sensor-based experiments teach students about data collection and analysis—practices that promote science inquiry, improve science literacy, and boost test scores.

Are You Moody?  
(Grades 6—12) B213, GWCC  
Science Focus: ETS, PS, CCC2, SEP5, SEP6  
Sponsor: Texas Instruments  
Fred Fotsch, Texas Instruments, Dallas  
We will bring science and coding together as participants learn to do some basic coding (no experience necessary) while developing their own mood ring! The science of color mixing is explored while determining the right body temperature thresholds. Is fuchsia flirty? Should green be groovy? It’s up to you!

What’s New in Physics?  
(Grades 10—College) B215, GWCC  
Science Focus: PS  
Sponsor: Perimeter Institute  
Tonia Williams (outreach@perimeterinstitute.ca), Perimeter Institute for Theoretical Physics, Waterloo, ON, Canada  
From quantum mechanics to cosmology, this session will explore cutting-edge physics for teachers who are looking for current real-world science connections in their classrooms. We’ll discuss the big breakthroughs that your students are talking about and show you how you can incorporate them in your class.

Teaching Solar Astronomy in the Classroom  
(Grades 4—College) B217, GWCC  
Science Focus: ESS  
Sponsor: Celestron  
Stephen W. Ramsden, Charlie Bates Solar Astronomy Project, Atlanta, GA  
Renowned solar astronomer Stephen W. Ramsden, the director and founder of Charlie Bates Solar Astronomy Project, will show you many methods for bringing actual observations of solar activity into your classroom to augment your state’s solar system science criteria. Class includes hands-on observation and imaging through state-of-the-art solar telescopes and cameras. Free solar eclipse glasses and spectrographs for all in attendance.
Unpacking the NGSS Through Instructional Practices  
(Grades K–12)  
B218, GWCC  
Science Focus: GEN, NGSS  
Sponsor: Measured Progress  
Deborah Farrington (farrington.deborah@measuredprogress.org) and Jessica Yonker (yonker.jessica@measuredprogress.org), Measured Progress, Dover, NH  
Learn what goes into high-quality NGSS-focused assessments and hear how districts are implementing three-dimensional assessment into instruction. We will demonstrate high-quality science assessment and ideas for student engagement through formative assessment activities, classroom strategies, and support tools.

Embedding Practices and Crosscutting Concepts into Hands-On Science  
(Grades 3–5)  
B301, GWCC  
Science Focus: GEN, NGSS  
Sponsor: Delta Education/School Specialty Science  
Mary Anne Feller, Sts. Peter and Paul Catholic School, Haubstadt, IN  
Deborah Vannatter, University of Evansville, IN  
Find out how to unleash the power of these two dimensions. Come be a student and experience ScienceFLEX lessons that give the crosscutting concepts and science and engineering practices the attention they deserve. Leave with materials and strategies that you can use in your classroom next week.

Sense-Making Through Modeling, Argumentation, and Explanations in Grades K–5  
(Grades K–5)  
B302, GWCC  
Science Focus: GEN, NGSS  
Sponsor: Delta Education/School Specialty Science–FOSS  
Brian Campbell, The Lawrence Hall of Science, University of California, Berkeley  
Investigate phenomena and experience how students create models, construct explanations, and engage in argumentation from evidence in FOSS lessons. Explore how these NGSS science and engineering practices are integrated and reinforce each other to enhance student learning. Leave with instructional strategies to support student sense-making.

Solve the Mystery of STEM Using Forensic Science  
(Grades 6–12)  
B303, GWCC  
Science Focus: GEN  
Sponsor: Frey Scientific/School Specialty Science  
Kat Mills, School Specialty Science, Nashua, NH  
Try your hand as a detective by conducting STEM-focused forensic activities that link scientific investigation and analysis to solve multifaceted cases involving fingerprint, blood spatter, and document analysis. Apply basic mathematical principles, integrate reading and writing strategies, and use hands-on strategies to meet NGSS and state standards.

Georgia on My Brain: Hands-On Neuroscience Labs  
(Grades 5–12)  
B304, GWCC  
Science Focus: LS  
Sponsor: Ward’s Science  
Gregory Gage, Backyard Brains, Inc., Ann Arbor, MI  
Using simple, yet powerful neuroscience kits, popularized through engaging Ted Talks and Mythbuster videos, you can help enlist the next generation of neuroscientists. Backyard Brains’ kits show students firsthand how the brain communicates with our senses, memories, and desires. This workshop will demonstrate our human, invertebrate, and plant biology devices.

Cliff Model  
(Grades 6–8)  
B305, GWCC  
Sponsor: Lab-Aids, Inc.  
Cindy Lilly, Ocean Bay Middle School, Myrtle Beach, SC  
The relentless action of waves breaking on the shoreline can pose special problems for coastal homeowners. Use new tools to model the effect of ocean waves on a cliff as you design and test breakwater structures to prevent beach erosion. Strong support for middle level NGSS engineering practices provided. Supports Developing a Model, Designing Solutions, Engaging in Argument from Evidence, and CCSS ELA. From the SEPUP Third Edition Middle School Land, Water and Human Interactions unit—redesigned for NGSS.
Making Evolutionary Connections Within an NGSS Storyline
(Grades 9–12) B308, GWCC
Sponsor: HHMI BioInteractive
Michele Koehler (koehlerm@rbhs208.net), Riverside Brookfield (IL) District 208
Jason Crean (jcrean@lths.net), Lyons Township High School South, Western Springs, IL
Participants will be engaged in activities that are phenomenon-driven as part of a coherent storyline. We will model a storyline unit that makes use of phenomena and authentic data available through HHMI BioInteractive, such as the rock pocket mouse and the Biology of Skin Color. These phenomena help build the coherent ideas needed by students to make sense of how variations are naturally selected, how populations adapt to their environments, and how the basic mechanisms of evolution work over time.

Out-of-School STEM Enrichment: AEOP Program Design Collaboration
(Grades K–12) B313, GWCC
Science Focus: GEN, NGSS
Sponsor: AEOP
Jarod Phillips, Project Manager, GEMS, NSTA, Arlington, VA
Come learn about what AEOP can do for your students' STEM enrichment outside of school time! This workshop is hosted by the Army Educational Outreach Program (AEOP), sponsors of out-of-school programs across the nation for K–12 students. Join in to get a chance to work with colleagues in developing your ideal (fictional) program and seeing how it stacks up to the programs offered by AEOP!

5 E’sy Ways to Investigate Enzymes!
(Grades 8–College) B403, GWCC
Science Focus: LS1, LS3, LS4, PS1, PS2, CCC1, CCC2, CCC4, CCC6, CCC7, SEP1, SEP2, SEP6
Sponsor: 3D Molecular Designs
Gina Vogt (gina.vogt@3dmoleculardesigns.com), 3D Molecular Designs, Milwaukee, WI

Integration in Amplify Science: Implementing an NGSS Approach to Cross-Disciplinary Teaching and Learning
(Grades 6–8) B404, GWCC
Science Focus: GEN, NGSS
Sponsor: Amplify
Sophia Lambertsen (amplifyscience@berkeley.edu) and Rebecca Abbott, The Lawrence Hall of Science, University of California, Berkeley
Figure out what it means to teach in an integrated way within a unit and across a full year of science. Dive into the Amplify Science Integrated Sequence for Grades 6–8, designed to support deep and coherent learning of disciplinary core ideas while providing opportunities to apply and connect across domains.

How to Teach Science with Minecraft
(Grades K–12) B408, GWCC
Science Focus: GEN, INF
Sponsor: Minecraft Education
Sara Cornish, Microsoft, Redmond, WA
Learn how science educators are using Minecraft: Education Edition to teach chemistry, biology, physics, and more. This hands-on workshop will teach you how to play Minecraft and provide sample science lessons for your classroom. Minecraft offers an immersive and engaging learning environment with over 300 free lessons across subject areas.
12:30–1:00 PM  Presentations

Argumentation and Modeling in Earth Science Using Free Online Modules  
(Grades 6–12)  
Stephanie Harmon (@StephHarmon41; sharmon8264@earthlink.net), Rockcastle County High School, Mount Vernon, KY  
Discover free Earth system and environmental science simulations and curricula that focus on scientific argumentation when teaching topics such as plate tectonics, climate change, and hydraulic fracturing.

Bring Content to Life with NGSS-Focused Design Challenges for the Science Classroom  
(Grades 6–12)  
Science Focus: ETS, LS  
Jeannie Gargiulo (jeanniegargiulo@gmail.com), Fieldston Lower, Middle, and Upper School, Harrison, NY  
Gina Tesoriero (@Miss_STEM; ginateso@uw.edu), University of Washington, Seattle  
Amanda Solarsh (amandasolarsh@gmail.com), Simon Baruch MS104, New York, NY  
Tired of life science being left out of the engineering discussion? Learn how to to successfully integrate design thinking without compromising life science content.

Pop Culture and Comics: Making STEM Accessible for At-Risk Learners  
(Grades 6–12)  
Science Focus: GEN, SEP1, SEP6  
Shari Brady (@Scienceof_org; shari@thescienceof.org), Winston-Salem State University, Winston Salem, NC  
Matt Brady (@Scienceof_org; matt.brady@gmail.com), Parkland Magnet High School, Winston-Salem, NC  
Join us to learn how to infuse pop culture into your STEM classroom to engage at-risk learners.

Designing Professional Development for K–12 Integrated STEM Education  
(Grades K–12)  
Science Focus: GEN, SEP6  
Lynn Bryan (labryan@purdue.edu) and Drew Ayres (@dcayres89; dayres@purdue.edu), Purdue University, West Lafayette, IN  
We will model a successful professional development for integrated STEM education for K–12 STEM teachers.

Bringing STEAM and Literacy to the Periodic Table  
(Grades 6–10)  
Science Focus: PS  
Elizabeth Weissman (weissmane@ramaz.org), The Ramaz School, New York, NY  
Learn how an elements project integrates technology, literacy, and the arts into the study of atomic structure and the periodic table.

Big “S” Little “t” Little “e” Little “m”, STEM: Using the TEM to Make Science Happen in Schools  
(Grades 5–12)  
Science Focus: GEN, SEP  
Colby Tofel-Grehl, Utah State University, Logan  
Add mathematical modeling and engineering into your classroom to engage students with technology in the service of their science content learning. Using e-textiles, or sewable circuits, we will build rapid prototypes of circuits and explore ways to fully integrate STEM in the service of science.

Teacher Researcher Day Session: GLOBE “Placed” Within Community  
(Grades 3–8)  
Science Focus: GEN, CCC4, SEP1, SEP3, SEP4, SEP6, SEP7, SEP8  
Michael Jabot (@mjabot; jabot@fredonia.edu), SUNY Fredonia, NY  
Review initial findings from the implementation of the Global Learning and Observation to Benefit the Environment (GLOBE) program through a regional approach in a rural setting.

12:30–1:00 PM  Hands-On Workshop

Teacher Researcher Day Session: Using Found Objects to Introduce STEM Concepts to Little Ones  
(Grades P–2)  
Science Focus: ESS, LS, CCC1  
Mary Hobbs (maryhobbs@utexas.edu), The University of Texas at Austin  
Bob Williams, Consultant, Belmont, TX  
Participants will examine a variety of activities using simple and found objects from the local environment and discuss their value as instructional materials for use with young children.
12:30–1:30 PM  Presentations

NSTA Press® Session: Creating a STEM Culture for Teaching and Learning
(General)  A302, GWCC
Science Focus: GEN, NGSS
Jeffrey Weld (jeff.weld@uni.edu), University of Northern Iowa, Cedar Falls
Hot off the NSTA Press, this book is for teachers, administrators, business partners, community members, parents, scholars, and policymakers who seek to be up-to-speed on the many elements of STEM, from curricula to professional development to assessment to partnerships to licensing and more.

The Roots of Innovation: Engineering for Early Learners
(Grades P–2)  A303, GWCC
Science Focus: ETS, CCC6, SEP1, SEP3, SEP4, SEP6, SEP7, SEP8
Martha Davis (mdavis@mos.org), Museum of Science, Boston, MA
Examine the development of engineering practices for early learners through classroom video and discuss how to foster engineering skills and critical thinking in all young children.

Do You Need a New Science Lab?
(Grades 6–12)  A304, GWCC
Science Focus: GEN
Ruth Ruud (ruudruth61@gmail.com), Cleveland State University, Cleveland, OH
Win a Shell Science Lab Makeover ($20,000 value) for your school! Are you a middle school or high school science teacher in need of a science lab makeover? Attend this presentation and learn how you can apply to win the Shell Science Lab Makeover. You will have an opportunity to actually begin to complete the application and have your questions answered.

NGSS-ifying Career and Technical Education Courses
(Grades 6–College)  A312, GWCC
Science Focus: GEN, NGSS
Chris Embry-Mohr (chrisembry.mohr@olympia.org), Olympia High School, Stanford, IL
Hear how Olympia High School is “NGSS-ifying” several Career and Technical Education courses, including building a fully integrated agriculture course.

Bringing the Outside In: Enhancing Interdisciplinary Instruction Through Agriculture
(Grades 4–8)  A407, GWCC
Science Focus: GEN, CCC
James Swart (jswart@tennessee.edu), The University of Tennessee, Knoxville
Jennifer Richards (jennifer.richards@utk.edu), The University of Tennessee Institute of Agriculture, Knoxville
Agriculture is more than cows and plows. It’s a highly interdisciplinary scientific field allowing students to make connections to their everyday lives outside the classroom.

How to Write Stories That Support Your Science Standards
(Grades P–6)  A408, GWCC
Science Focus: GEN
Steve Rich (@bflyguy; bflywriter@comcast.net), University of West Georgia, Carrollton
Writing original stories for your students can be a powerful experience. Take a look at some samples and see how they are used in teaching.

A Year of Education on the Space Station
(General)  A412a, GWCC
Science Focus: ESS1, SEP
Becky Kamas (@beckykamas; anaamarie.r.kamas@nasa.gov), NASA Johnson Space Center, Houston, TX
Beginning September 2017 and ending September 2018, two educator astronauts will live and work aboard the International Space Station.

Georgia Science Innovation Exposition Share-a-Thon
(Grades K–12)  B101, GWCC
Science Focus: GEN
Jeremy Peacock (@jeremy_peacock; peacock.jeremy@gmail.com), Program Coordinator, NSTA Atlanta National Conference, and Northeast Georgia RESA, Winterville
Amy Peacock (peacocka@clarke.k12.ga.us), Clarke County School District, Athens, GA
Learn how Georgia schools are keeping science on our students’ minds. Georgia teachers will share innovative programs, strategies, and initiatives aligned to the conference strands.
NMEA Session: The Ocean and Climate Change by the Numbers
(Grades 4–College) B103, GWCC
Science Focus: ESS2.C, ESS2.D, ESS3
Pat Harcourt (pharcourt@umces.edu), MADE-CLEAR, Annapolis, MD
How much heat is the ocean absorbing from the atmosphere? What is ocean acidification? Join me as I share data-rich lessons on climate change and the ocean.

NSELA-Sponsored Session: Enhancing Student Learning Through the Use of Formative Assessment Strategies in Teacher Professional Development
(Grades K–12) B309, GWCC
Science Focus: GEN, NGSS
Page Keeley (@CTSKeeley; pagekeeley@gmail.com), 2008–2009 NSTA President, and The Keeley Group, Fort Myers, FL
Brian Kruse (bkruse@astrosociety.org), Astronomical Society of the Pacific, San Francisco, CA
Find out how to use formative assessment strategies when engaging in professional development with inservice teachers, and as a part of working with preservice teachers.
NSTA Press® Session: Notable Notebooks in Your Classroom  
(Grades 1–5) B405, GWCC  
Science Focus: GEN, SEP  
Jessica Fries-Gaither (@ElemSciTchr; jfriesgaither@gmail.com), Columbus School for Girls, Columbus, OH  
Join the author of Notable Notebooks: Scientists and Their Writings to discuss effective notebooking practices. We will examine different styles, view student work, and discuss assessment.

Instructionally Supportive Assessment Tasks and Classroom-Based Strategies for Promoting 3-D Learning  
(Grades 6–8) C204, GWCC  
Science Focus: GEN, NGSS  
Sania Zaidi (sania@uic.edu), Mon-Lin Monica Ko (mlko@uic.edu), and Krystal Madden (kmadde4@gmail.com), The University of Illinois at Chicago  
Christopher Harris (@chrsharris; christopher.harris@sri.com) and Nonye Alozie (nonye.alozie@gmail.com), SRI International, Menlo Park, CA  
Phyllis Haugabook Pennock (phylhdpennock@gmail.com), CREATE for STEM Institute, Michigan State University, East Lansing  
Explore NGSS-focused three-dimensional assessment tasks for middle grades science and learn classroom-based strategies for using the tasks effectively to support your instruction.

Tools and Resources to Meet the Needs of English Language Learners in the Science Classroom  
(Grades 7–12) C206, GWCC  
Science Focus: GEN  
Duane Stilwell (dstilwell57@yahoo.com), Nyack (NY) Public Schools  
Identify, select, and adapt effective tools and resources to meet the needs of English language learners in the science classroom.

The Science of Learning  
(Grades 7–12) C213, GWCC  
Science Focus: GEN  
Tom Flanagan (thomas.p.flanagan@gmail.com), New Trier High School, Winnetka Campus, Winnetka, IL  
Understanding how the brain learns will help you transform your practice. This presentation will debunk learning myths and share teaching strategies informed by neuroscience.

Finding Your Voice Without Shouting: Successful Strategies for Getting Yourself Heard  
(General) Birch, Omni  
Science Focus: GEN  
Rebecca Hite (@sciencebecca; rebecca.hite@ttu.edu), Texas Tech University, Lubbock  
Pat Shane (pshane@unc.edu), 2009–2010 NSTA President, Chapel Hill, NC  
Discussion centers on how to frame issues, use data to support positions, craft “elevator” speeches, leverage social media, and use effective communication strategies when you want to be heard.

Empowering Students to Build Resilient Schools with STEM  
(Grades 6–12) Dogwood A, Omni  
Science Focus: ESS3, CCC, SEP  
Lynn Shon (@lynnshon), Middle School 88, Brooklyn, NY  
Andrew Zimmermann (@andybobzimm), JHS 088 Peter Rouget, Brooklyn, NY  
Empower students to apply STEM to build resilience within their school communities in preparation for the impacts of climate change using NOAA digital coast tools.

Using Memes, Puns, Jokes, and Comics in the Science Classroom  
(Grades 6–College) Grand Ballroom C, Omni  
Science Focus: GEN  
Emily Doty, Citronelle High School, Citronelle, AL  
LOL! Find out how and why to incorporate memes, puns, jokes, and comics into your science classroom.

SCST-Sponsored Session: How Are We Implementing Vision and Change in the College Science Classroom?  
(College) Hickory, Omni  
Science Focus: LS, SEP  
Tarren Shaw (tpshaw@ou.edu), SCST President, and The University of Oklahoma, Norman  
Donald French (dfrench@okstate.edu), Oklahoma State University: Stillwater  
Kerry Cheesman (kcheesma@capital.edu), Capital University, Columbus, OH  
Join us for a moderated panel discussion regarding the best practices in science teaching.
Teacher Researcher Day Session: Assessment, NGSS, Flipped Classrooms, and More  
(General) International Ballroom F/Group 2, Omni  
Science Focus: GEN, SEP3, SEP4  
John Graves (graves@montana.edu), Montana State University, Bozeman  
Hear from teachers who have conducted flipped classrooms about the changes that occurred for their students and themselves.

Teacher Researcher Day Session: Science Methods and NGSS: Helping Preservice Teachers Grasp the 3-D Approach  
(General) International Ballroom F/Group 3, Omni  
Science Focus: GEN, NGSS  
Deborah Roberts-Harris (drober02@unm.edu), The University of New Mexico, Albuquerque  
Preservice teachers are only familiar with the Common Core State Standards and often believe that the CCSS are science standards as well. NGSS can be challenging!

AMSE-Sponsored Session: Opening the Gateway to Success Using Case Studies to Help Implement Science Concepts for Diverse Learners  
(Grades 10–12) Juniper, Omni  
Science Focus: GEN, NGSS  
Chelia McCoo Dogan, Elsik High School, Houston, TX  
Gain a better understanding of the relevance and implementation of the NGSS with the use of case studies as a powerful tool to enhance scientific instruction with diverse learners.

NSELA-Sponsored Session: NSELA’s Tools for Leaders  
(General) Magnolia, Omni  
Science Focus: GEN  
Larry Plank, Hillsborough County Public Schools, Tampa, FL  
Join NSELA leadership and members who will share tools related to a best practice for leaders in science education.  
These tools can be curricular, instructional, or managerial. In all cases, you will learn from the best around the nation!

Teaching Science in the Age of Alternative Facts and Fake News: Critical Literacy Skills for the New Era  
(Grades 4–12) Oak, South Tower/Main Lobby Level, Omni  
Science Focus: GEN  
Lauren Rentfro (rentfro@lewisu.edu) and Maisa Abu-Mallouh (@MimiAbuMallouh; maisamabumallouh@lewisu.edu), Lewis University, Romeoville, IL  
People encounter media reports involving scientific findings or claims daily. Critical literacy skills can be applied to become more savvy media consumers of these reports.

The Statistical Education of Teachers (SET): An American Statistical Association Document to Support K–12 Teachers  
(General) Redwood, Omni  
Science Focus: GEN, SEP  
Christine Franklin (chris_franklin@icloud.com), Senior Lecturer Emerita, University of Georgia, Athens  
Statistical reasoning is important in science at all grades as emphasized by the NGSS. We will explore statistical content all science teachers need to know.

Student-Led Learning  
(Grades K–12) Walnut, Omni  
Science Focus: GEN, NGSS  
Kyla Gentry (kgentry@searcyschools.org) and Cristina Farley (cfarley@searcyschools.org), Ahlf Junior High School, Searcy, AR  
Discover multiple strategies to help make students become owners of their learning. Inquiry-based labs, literacy strategies, cooperative learning, and so much more!
Thursday, 12:30–1:30 PM

Hands-On Workshops

**STEM Escapes: Bringing the Escape Room to the Classroom!**
(Grades 6–8)  
Science Focus: GEN, CCC  
**Eva Cwynar** ([@evacwynar; eva.cwynar@palmbeachschools.org](mailto:eva.cwynar@palmbeachschools.org)), The School District of Palm Beach County, West Palm Beach, FL  
Learn how to bring escape room–style learning to the STEM classroom. Using an interdisciplinary approach to learning, participants will race against the clock to solve a STEM problem before time runs out!

**Strategies for Districts to Implement NGSS or Other 3-D Performance Expectations**
(Grades K–12)  
Science Focus: GEN, NGSS  
**Teresa Eliopoulos** ([@T_Eliopoulos; teliopoulos@achieve.org](mailto:T_Eliopoulos@achieve.org)), Achieve, Inc., Washington, DC  
Presider: Ted Willard ([twillard@nsta.org](mailto:twillard@nsta.org)), Assistant Executive Director, Science Standards, NSTA, Arlington, VA  
Come to this interactive workshop for school and district leaders to learn how to manage the transition to the NGSS. Find out about Achieve’s district resources and how to use them in your school or district to ensure effective implementation.

**Exploring Biodiversity in One Cubic Foot**
(Grades 6–College)  
**Tara Langus** ([tlangus5@nevada.unr.edu](mailto:tlangus5@nevada.unr.edu)), University of Nevada, Reno  
**David Crowther** ([@Dtcrowther; crowther@unr.edu](mailto:Dtcrowther@unr.edu)), NSTA President, and University of Nevada, Reno  
Explore aquatic and terrestrial ecosystems and the life that thrives in one cubic foot using living models, taxonomy, and tarsia puzzles.

**Forensics Fun for All**
(Grades 4–8)  
**Beth Guzzetta** ([@bethguzzetta; bguzzetta@allendalecolumbias.org](mailto:bethguzzetta@allendalecolumbias.org)), Allendale Columbia School, Rochester, NY  
Involve your students in an engaging forensics unit that can be adapted to elementary and middle school classrooms. Hands-on activities + materials = fun.

**NGSS-ifying Your Field Trip**
(Grades K–8)  
Science Focus: LS1, LS4, CCC1, SEP4  
**Mary Whaley** ([mwhaley@mbayaq.org](mailto:mwhaley@mbayaq.org)) and **Beth Callaghan** ([bcallaghan@mbayaq.org](mailto:bcallaghan@mbayaq.org)), Monterey Bay Aquarium, Monterey, CA  
Engage in science and engineering practices on any field trip! Learn tech tools and literacy strategies to extend the learning back to the classroom.

**Connecting the Classroom to the Field with Focused Field Trips**
(Grades P–5)  
Science Focus: INF, NGSS  
**Jenny Flowers** ([jflowers@fieldmuseum.org](mailto:jflowers@fieldmuseum.org)) and **Kyla Cook** ([kcook@fieldmuseum.org](mailto:kcook@fieldmuseum.org)), The Field Museum, Chicago, IL  
**Sarah Wehlgate** ([swehlgate@naturemuseum.org](mailto:swehlgate@naturemuseum.org)), Peggy Notebaert Nature Museum, Chicago, IL  
Enhance student learning and create connections between the classroom and the real world by using the Focused Field Trip model.

**Bird Enthusiasts Engineer Mindful Science**
(Grades K–5)  
Science Focus: LS, INF  
**Virginia Frissell** ([virginia.frissell@sdhc.k12.fl.us](mailto:virginia.frissell@sdhc.k12.fl.us)), Twin Lakes Elementary School, Tampa, FL  
Discover how citizen science and inquiry can shape the STEM leaders of our future! Spark a sense of innovation and explore natural bird phenomena in school yards.

**Train Like an Astronaut with STEM**
(Grades K–5)  
Science Focus: ETS2.A, ETS2.B, SEP1, SEP2, SEP8  
**Becky Busby** ([@buzzbee4me; bbusby@liberty.k12.ga.us](mailto:buzzbee4me@liberty.k12.ga.us)), Frank Long Elementary School, Hinesville, GA  
**Katrina Roddenberry** ([@KRoddenberry9; katrinaroddenberry@yahoo.com](mailto:KRoddenberry9@k12.ga.us)), Wakulla Middle School, Crawfordville, FL  
Engage in hands-on activities to train like an astronaut and incorporate STEM practices into your science curriculum. Free lesson plans and resource links will be shared to help you use space as a springboard for STEM.
Reading, Writing, Speaking, Listening in Three-Dimensional Learning  
(Grades K–5)  
A405, GWCC  
Science Focus: GEN, NGSS  
Kathy Renfrew (@KRScienceLady; krsienceslady@gmail.com), Westwood (MA) Public Schools  
Karen Umeda (karen_umeda@notes.k12.hi.us), Hawaii State Dept. of Education, Pearl City  
Would you like to teach your students reading, writing, speaking, and listening while engaging them in three-dimensional learning? Then join us as we show you how we improve literacy skills while teaching three-dimensional learning.

NESTA and NSTA Aerospace Education Advisory Board Space Science Share-a-Thon  
(Grades P–12)  
B102, GWCC  
Science Focus: ESS, INF, SEP  
Paul Nordhaus (upnordha@gmail.com), Harborside Academy, Kenosha, WI  
Carla McAuliffe (carla_mcauliffe@terc.edu), TERC, Cambridge, MA  
Join more than 20 NESTA members and other education specialists as they share their favorite NGSS-congruent classroom activities. Lots of free handouts!

Teaching about the Intersections of Biology, History, Race, and Racism: Strategies, Curriculum Resources, and Research  
(Grades 7–12)  
B211, GWCC  
Science Focus: LS3  
Jeanne Chowning (@jchowning; jeannechowning@gmail.com), Fred Hutchinson Cancer Research Center, Seattle, WA  
Deb Morrison (@educatordeb; educator.deb@gmail.com), University of Washington, Seattle  
Jason Foster (jasfos@d219.org), Niles West High School, Skokie, IL  
We will explore the intersection of racism, the construct of race, genetic variation, and the history of science to support biology educators in discussions with students.

Engineering for the Gingerbread Baby  
(Grades P–3)  
B212, GWCC  
Science Focus: ETS1, SEP  
Valerie Patel (@valpatel; valerie_m_patel@mcpsmd.org), Erin Del Balzo (erin_e_delbalzo@mcpsmd.org), and Karen Anderson (karen_p_anderson@mcpsmd.org), William B. Gibbs, Jr. Elementary School, Germantown, MD  
Let’s help our youngest learners be engineers! Come engage in designing a structure based upon the story Gingerbread Baby by Jan Brett. Leave the session with lessons straight from kindergarten classrooms where engineering is seamlessly integrated throughout content areas.

The Copper Conundrum: Using Claim, Evidence, and Reasoning as Evidence of 3-D Learning  
(Grades 5–10)  
B401, GWCC  
Science Focus: ESS3.A, CCC, SEP  
Candace Penrod (cpenrod354@gmail.com), Salt Lake City (UT) School District  
Wendi Laurence (wendi@create-osity.com), Meadowlark Elementary School, Salt Lake City, UT  
Investigate the uneven distribution of mineral resources in Utah’s Bingham Canyon Mine and gather evidence to support your argument in a CER format.

AMP-IT-UP: An NSF Math-Science Partnership to Cultivate the Next Generation of STEM Innovators  
(Grades 6–8)  
C201, GWCC  
Science Focus: GEN, CCC1, CCC2, CCC4, SEP2, SEP3, SEP4, SEP8  
Jayma Koval (jayma.koval@ceismc.gatech.edu), Sabrina Grossman (sabrina.grossman@ceismc.gatech.edu), Marion Usselman (marion.usselman@ceismc.gatech.edu), and Mike Ryan, CEISMC, Georgia Institute of Technology, Atlanta  
AMP-IT-UP stands for Advanced Manufacturing & Prototyping Integrated To Unlock Potential curriculum. Hear about AMP-IT-UP, a partnership between Georgia Tech and Griffin-Spalding County Schools, specifically focusing on the design of middle school science modules that can used within three-dimensional learning.

DIY Inquiry-Based Forensic Labs  
(Grades 9–College)  
C203, GWCC  
Science Focus: LS1.A, LS1.C, CCC6, SEP1, SEP3, SEP4  
Claire Gilmour (gilmour.claire@gmail.com), Leduc Composite High School, Leduc, AB, Canada  
Learn how to make your own easy and cheap blood typing and urine analysis labs using materials you already have at your school. Take-home resources.
ASTC-Sponsored Session: Making STEM Connections in the Classroom Setting
(Grades K–12) C205, GWCC
Science Focus: ETS
Renee Shull-Harmon (@shullre; renee.harmon@sciowa.org), Science Center of Iowa, Des Moines
Presider: Jolie Pelds (jolie.pelds@sciowa.org), Science Center of Iowa, Des Moines
Incorporating the Maker Movement into the classroom setting allows students to use and develop 21st-century skills.

Keeping 3-D in Focus: Integrating Crosscutting Concepts into Everyday Instruction
(Grades 6–12) C209, GWCC
Science Focus: GEN, CCC
Caroline DePetris (@carriedepetris; carrie.depetris@meridenk12.org), Lincoln Middle School, Meriden, CT
Examine how to scaffold students from hidden crosscutting concepts while viewing content through the explicit lenses of the crosscutting concepts.

Learning By Doing: Simulation and PBLs
(Grades 6–12) C210, GWCC
Science Focus: GEN, SEP1, SEP2, SEP3, SEP4, SEP6, SEP7, SEP8
Jason Dupuis (jason.dupuis@msichicago.org) and Sophia Shrand (sophia.shrand@msichicago.org), Museum of Science and Industry, Chicago, IL
Learn how simulation-based lessons can increase student engagement, strengthen lesson authenticity, foster collaboration, and act as performance assessment tools for robust three-dimensional learning.

Using Modeling Activities in the High School Chemistry Class
(Grades 6–College) C302, GWCC
Science Focus: PS, SEP2
Kimberly Duncan (@chemduncan; kimberly.z.duncan@gmail.com), American Association of Chemistry Teachers, Washington, DC
Visualization is difficult for many students. Join us as we discuss and demonstrate several modeling activities you can use in your chemistry class.

Equity-Centered NGSS Storylining: A Practical Guide to the Planning of Phenomena-Centered Science Learning
(Grades K–12) Dogwood B, Omni
Science Focus: GEN, NGSS
MaryMargaret Welch (mmwelch@seattleschools.org), Seattle (WA) Public Schools
Enrique “Henry” Suárez (@sciedhnery; suareze@uw.edu), University of Washington, Seattle
Planning equitable NGSS units of instruction is challenging. We will engage participants in sense-making this process through the use of a storylining tool.

Tinkering in the Classroom: Building Interest in STEM
(General) Grand Ballroom A, Omni
Science Focus: GEN
Olga Jarrett (ojarrett@mindspring.com) and Brian Williams (@bawilli; bawilli@gsu.edu), Georgia State University, Atlanta
Robert Jarrett, Retired Engineer, Decatur, GA
Aliya Jafri, International Community School, Decatur, GA
Join us for this workshop on tinkering as we play around with materials, along with an interest-building aspect of STEM problem solving. Handouts.

(Grades K–12) Grand Ballroom B, Omni
Science Focus: GEN, INF, NGSS
John Loehr (jfloehr@soinc.org), Science Olympiad, Oakbrook Terrace, IL
Explore and evaluate hands-on activities addressing the three dimensions of the NGSS using a examples from Science Olympiad.

On-the-Farm STEM Events: An Immersive Approach to Making Real-World STEM Connections
(Grades 6–College) International Ballroom A/B, Omni
Science Focus: ETS, LS, CCC2, CCC4, CCC5, CCC6, CCC7, SEP
Chris Schau (@AgFoundation; educationdirector@fb.org), Vivayic, Inc., Lincoln, NE
Discover how you can encourage access to STEM experiences through immersive experiences in STEM-related industries. Leave with resources to create an immersive learning experience.
Planning and Designing Safe and Sustainable Science Facilities That Meet the NGSS (Science Facilities: 101)

LaMoine Motz (llmotz@comcast.net), 1988–1989 NSTA President, and The Motz Consulting Group, White Lake, MI

Science Focus: GEN, NGSS

So you want new science facilities? Does your curriculum define your science teaching facility? With more than 20 years of conducting visits and presentations of new/renovated school science facilities, the author team of NSTA Guide to Planning School Science Facilities (2nd ed.) will present the “basics” of science facility planning for safe, ergonomically designed, and sustainable facilities.

12:30–1:30 PM  Exhibitor Workshops

Solving a Forensics Mystery Through DNA Analysis: D1S80 VNTR Lab

LaMoine Motz (llmotz@comcast.net), 1988–1989 NSTA President, and The Motz Consulting Group, White Lake, MI

Science Focus: GEN, NGSS

So you want new science facilities? Does your curriculum define your science teaching facility? With more than 20 years of conducting visits and presentations of new/renovated school science facilities, the author team of NSTA Guide to Planning School Science Facilities (2nd ed.) will present the “basics” of science facility planning for safe, ergonomically designed, and sustainable facilities.

12:30–1:30 PM  Exhibitor Workshops

Solving a Forensics Mystery Through DNA Analysis: D1S80 VNTR Lab


Sponsor: miniPCR

Ezequiel Alvarez-Saavedra (zeke@minipcr.com), miniPCR, Cambridge, MA

Experience how you can bring real DNA analysis into your forensics classroom. Learn how your students can use their own DNA and modern biotechnology techniques to investigate if they can rule themselves out as a suspect. Have your students do real DNA fingerprinting in your classroom using the D1S80 VNTR.

Dorothy K. Culbert Chapter and Associated Groups

Roundtable

Are you a Chapter or Associated Group leader with a proven track record of moving your organization forward?

Or do you struggle with issues like membership, board relations, and conference planning?

Join us for this networking opportunity to share your experience and learn from other leaders who are “in the trenches” just like you. NSTA’s Chapter Relations staff will be available to offer their expertise, and Chapters and Associated Groups celebrating special anniversaries will be recognized.

Refreshments provided.

Friday, March 16
3:00–4:00 PM
Omni Atlanta Hotel at CNN Center
Hazelnut
Structuring Discussion to Be Equitable and Rigorous
(Grades K–12)  
B214, GWCC
Science Focus: PS2, SEP2, SEP6, SEP7, SEP8
Sponsor: Activate Learning

Heather Milo, Activate Learning, Greenwich, CT

The Framework promotes learning as a fundamentally social endeavor supported by collaborative and communicative norms. Yet, sustaining these norms requires teachers to examine and support K–12 students’ ways of talking so they all are able to articulate, make sense of, and evaluate each other’s ideas. Walk away with ready-to-use tools that foster and assess productive talk. Uses IQWST unit, How Will It Move?

Climate Change and Beyond: The Understanding Global Change (UGC) Conceptual Framework
(Grades 9–12)  
B216, GWCC
Science Focus: ESS3, LS, CCC2, CCC3, CCC6, CCC7
Sponsor: Pearson Learning Services

Joseph Levine, Author, Boston, MA

The UGC framework presents an NGSS-oriented interdisciplinary perspective that blends biology and Earth science into compelling narratives about global ecology and change. Its Earth system models further understanding of crosscutting concepts—cause and effect, structure and function, time and scale, and stability and change. Its core infographic encourages critical thinking and inquiry, and integrates numerous performance expectations and disciplinary core ideas.

What’s in My Lunch: Using Biotechnology to Detect GMOs and Common Allergens
(Grades 9–College)  
B306, GWCC
Science Focus: LS
Sponsor: Edvotek, Inc.

Maria Dayton (info@edvotek.com), Brian Ell, and Tom Cynkar, Edvotek Inc., Washington, DC

Biotech got its first break with the domestication of animals and plants and the use of microorganisms to make cheese, bread, beer, and wine. We want to bring the field back to these rich roots with two of our most delectable experiments! Learn how to use an enzyme-linked immunosorbent assay (ELISA) to detect common food allergens. Next, identify foods containing GMOs by separating amplified DNA using gel electrophoresis.

Use Data to Slay Misconceptions About Photosynthesis and Respiration
(Grades 6–12)  
B315, GWCC
Sponsor: PASCO scientific

Ryan Reardon, Shades Valley High School, Irondale, AL

How can you clear up student misconceptions about respiration only occurring in the dark, or that only green light is used for photosynthesis? With data! Plan and carry out investigations on carbon exchange and plant pigments by building a model to illustrate how plants convert light energy into chemical energy.

155 Essential Interactive Equations and Simulations for Physics
(Grades 9–12)  
B316, GWCC
Science Focus: PS, CCC1, CCC2, CCC3, CCC6, CCC7, SEP1, SEP2, SEP3, SEP4, SEP5, SEP6, SEP8
Sponsor: PASCO scientific

Tom Hsu, PASCO scientific, Roseville, CA

Join us and play with essential interactive equations and simulations that span physics from Newton’s laws to the atom. Interactive equations and simulations are powerful teaching and learning tools that bridge math and science. Receive free trial access to the whole collection of simulations and interactive equations.
12:30–1:45 PM  Exhibitor Workshop
An Affordable Hands-On PCR Lab in One Class Period Is for Real
(Grades 10–College)  B210, GWCC
Science Focus: ETS1, ETS2.A, LS1, LS3, PS1.A, PS2
Sponsor: MiniOne Systems
Ellen Chevalier (info@theminimone.com) and Winnie Litten, Oak Park High School, Oak Park, CA
Experience how engaging, affordable, and accessible a PCR lab in the classroom can be! Amplify sections of the Lambda phage genome in 20 minutes. You will set up the reaction, program and monitor the MiniOne PCR System from a tablet app, and then analyze your PCR products using the MiniOne Electrophoresis System.

12:30–2:00 PM  Meeting
Nominations Committee Meeting  Beechnut, Omni

12:30–2:30 PM  Meetings
Joint Meeting—Multicultural/Equity, Urban, Rural, and AMSE
(By Invitation Only)  Cottonwood A/B, Omni

Science & Children Advisory Board Meeting  Grand Ballroom E/Group 1, Omni

Science Scope Advisory Board Meeting  Grand Ballroom E/Group 2, Omni

The Science Teacher Advisory Board Meeting  Grand Ballroom E/Group 3, Omni

Journal of College Science Teaching Advisory Board Meeting  Grand Ballroom E/Group 4, Omni

NSTA Reports Advisory Board Meeting  Grand Ballroom E/Group 5, Omni

Coordination and Supervision of Science Teaching Committee Meeting  Grand Ballroom E/Group 6, Omni

Informal Science Education Committee Meeting  Grand Ballroom E/Group 7, Omni

NGSS Advisory Board Meeting  Grand Ballroom E/Group 8, Omni

Preservice Teacher Preparation Committee Meeting  Grand Ballroom E/Group 9, Omni

Professional Development in Science Education Committee Meeting  Grand Ballroom E/Group 10, Omni

Research in Science Teaching Committee Meeting  Grand Ballroom E/Group 11, Omni
12:30–2:30 PM  Hands-On Workshop
CSSS-Sponsored Session: Three-Dimensional Science Lessons
(Grades K–12)  International Ballroom D, Omni
Science Focus: GEN, NGSS
Brett Moulding (mouldingb@ogdensd.org), Partnership for Effective Science Teaching and Learning, Ogden, UT
Engage in three-dimensional science performances to deepen understanding 3-D teaching and learning consistent with Framework and NGSS. Emphasis will be placed on deepening understanding of crosscutting concepts, core ideas, and science and engineering practices. Leave with a link to hundreds of NGSS 3-D lessons for every grade level and subject.

1:00–1:30 PM  Presentations
Activities to Help Put Some STEAM in Your Body System Projects
(Grades 6–12)  C202, GWCC
Science Focus: LS, CCC4
Leila Warren (leila_w_warren@dekalbschoolsga.org), Chamblee Charter High School, Atlanta, GA
Tanya Hallett Sanchez (tsanchez99@gmail.com), Manhattan Beach Middle School, Manhattan Beach, CA
Learn how students can discover joints in their body and create models to explain different movements. Also revisit some favorite projects to teach anatomy and physiology concepts and discover how to put some more STEAM into designing student models and your own lesson designs.

Science Is for Everyone!
(Grades 6–12)  C207, GWCC
Science Focus: GEN
Lindsay Knippenberg (@ScienceWithMsK; lindsayknippenberg@ngsd.k12.nc.us), Mooresville High School, Mooresville, NC
How can you provide equal access to science learning for all your students? Learn tips for teaching science to students with a variety of disabilities.

Leveraging GLOBE Resources to Implement Middle Grades Science and Mathematics Standards
(Grades 5–8)  C211, GWCC
Science Focus: GEN, NGSS
Deborah McAllister (deborah-mcallister@utc.edu), The University of Tennessee at Chattanooga
Hear about a grant-funded research project to implement the GLOBE program for grade 6 science and mathematics teachers.

DRONE-ing for STEM
(Grades 4–10)  International Ballroom E, Omni
Science Focus: ETS
Kathy Biernat (@ScientistMaker; kathybiernat@gmail.com), St. Mary’s Visitation School, Elm Grove, WI
Diane Ripollone (@rippie77; rippie77@nc.rr.com), Cardinal Gibbons High School, Raleigh, NC
Drones offer students a way to learn about their environment. Find out about projects using drones, monitoring systems, and cameras to collect and analyze data.

Teacher Researcher Day Session: Learning Through the Earth SySTEM
(Grades 3–8)  International Ballroom F/Group 1, Omni
Science Focus: ESS, CCC4
Michael Jabot (@mjabot; jabot@fredonia.edu), SUNY Fredonia, NY
Hear how remotely sensed data and geospatial technologies were used to develop deep student understanding of Earth as a system.

1:00–1:30 PM  Hands-On Workshop
Teacher Researcher Day Session: Teaching Measurement to Young Children
(Grades P–2)  International Ballroom F/Group 4, Omni
Science Focus: GEN, CCC3
Mary Hobbs (maryhobbs@utexas.edu), The University of Texas at Austin
Bob Williams, Consultant, Belmont, TX
Measurement is an important science skill. Learn research-based strategies for teaching young learners how to use measurement tools, including rulers, the balance, and the thermometer.
1:00–2:30 PM Exhibitor Workshop
Integrating Robotics into Your Science Classroom
(Grades 5+)
(Grades 5–12) B409, GWCC
Science Focus: ETS, PS2
Sponsor: LEGO Education
Laura Jackson, Retired Science Teacher, Lee’s Summit, MO
Eric Knapp, Tucker Middle School, Tucker, GA
Want to prepare your students for STEM-related fields as you bring more engineering and Problem-Based Learning into the classroom? Attend this workshop and learn how to use robotics to teach science principles such as friction, acceleration, and velocity.

1:30–2:00 PM Presentation
Teacher Researcher Day Session: Want to Present Next Year?
(General) International Ballroom F, Omni
Science Focus: GEN, NGSS
Deborah Roberts-Harris (drober02@unm.edu), The University of New Mexico, Albuquerque
Michael Jabot (@mjabot; jabot@fredonia.edu), SUNY Fredonia, NY
Come to this session to share ideas, get support, and begin writing your proposal for next year!

2:00–2:30 PM Presentations
PBL: Solving the Bee Problem
(Grades 3–8) C206, GWCC
Alexandra Laing (@missalaing; alexandra.laing@palmbeachschoools.org), School District of Palm Beach County, West Palm Beach, FL
As the bee population dwindles, get the buzz on how students can be engaged in solving a real-world problem through their own experiences at their school garden.

The Trial of the Archaeopteryx Fossil: A Journey in Earth Science Student-Centered Learning
(Grades 6–12) C211, GWCC
Brian Gardiner (brian_gardiner@dekalbschoolsga.org), Peachtree Charter Middle School, Atlanta, GA
Your classroom is turned into a court of science. Student are turned into lawyers, expert witness, and a jury who makes the ultimate decision.

Authentic Assessment in Action: Using Personal Meaning Maps to Determine the Impact of an Enrichment Activity in the Secondary Classroom
(Grades 10–11) Grand Ballroom C, Omni
Science Focus: GEN, NGSS
Paul Orbe (porbe@ucboe.us), Academy for Enrichment and Advancement, Union City, NJ
Measure student changes in understanding through Personal Meaning Maps (PMMs). Join me for an overview of the activity and some interesting results.

SCST-Sponsored Session: Value-Added International Science Programs: Adding Research, Presentation, and Service Components to Undergraduate Field Courses Abroad
(General) Hickory, Omni
Science Focus: GEN
Kerry Cheesman (kchesma@capital.edu), Capital University, Columbus, OH
With costs of international travel for students going up each year, parents and administrators want to know the value of these trips for students.
Teacher Researcher Day Session: The Use of Makerspace to Develop Environmental Understanding
(Grades 3–8) International Ballroom F/Group 2, Omni
Science Focus: ESS2.D, SEP3, SEP4, SEP5
Michael Jabot (@mjabot; jabot@fredonia.edu), SUNY Fredonia, NY
Discover a makerspace approach to develop instrumentation to collect environmental data. This work was done around the instrumentation that is used in meeting the Global Learning and Observation to Benefit the Environment (GLOBE) program protocols.

Teacher Researcher Day Session: Teacher Research and Teacher Evaluation?
(General) International Ballroom F/Group 3, Omni
Science Focus: GEN, NGSS
Deborah Roberts-Harris (drober02@unm.edu), The University of New Mexico, Albuquerque
Working with secondary teachers at a local grades 6–12 school has been a fascinating experience. Research projects are 15% of the teacher evaluations. Come find out!

ASTE-Sponsored Session: Embedding Sustainability in ALL Classrooms: Best Practices That Honor Limited Instructional Time
(General) Redwood, Omni
Science Focus: ESS3, ETS1
Renee Clary (reclary@geosci.msstate.edu) and Ryan Walker, Mississippi State University, Mississippi State, MS
All future citizens need sustainability education! Join us as we explore research-based best practices for implementing sustainability instruction within limited classroom time constraints.

2:00–2:30 PM Hands-On Workshop
Teacher Researcher Day Session: Properties of Matter for Young Learners
(Grades P–2) International Ballroom F/Group 1, Omni
Science Focus: PS, CCC1, CCC6
Mary Hobbs (maryhobbs@utexas.edu), The University of Texas at Austin
Bob Williams, Consultant, Belmont, TX
The understanding that matter is all around us and has properties that are observable with our senses is foundational to later STEM learning. We will address the content of properties of matter and focus on the science skills of observing and sorting.

2:00–3:00 PM Mary C. McCurdy Lecture
Cultivating Every Child’s Curiosity in the Natural World
(Grades P–5) B309, GWCC
Science Focus: GEN, NGSS
Carla Zembal-Saul (@czem; czem@psu.edu), The Kahn Professor of STEM Education, Penn State, University Park, PA
Presider: Jeremy Peacock, Program Coordinator, NSTA Atlanta National Conference; and Northeast Georgia RESA, Winterville
Young children are naturally curious about how the world works and are capable of sophisticated thinking and reasoning. In the age of an ambitious framework and the Next Generation Science Standards, there is a compelling focus on young children—nurturing their wonder about phenomena and equipping them to engage in scientific discourse and practices for investigating the natural world. I’ll share the approaches that elementary teachers are using to leverage children’s natural curiosity in early grades to support three-dimensional learning in science. Special attention will be given to approaches intended to engage English language learners.

Carla Zembal-Saul is a professor of science education and the Kahn Professor of STEM Education at Penn State. A former middle school science teacher with a background in biology, she is co-author of the book, What’s Your Evidence? Engaging K–5 Students in Constructing Explanations in Science.

Carla’s research investigates instructional practices and tools that support preservice and practicing elementary teachers in engaging children productively in scientific practices and discourse with an emphasis on sense-making about natural phenomena. She is deeply invested in practitioner inquiry and video analysis of practice as mechanisms for advancing teacher learning and development.

In 2015, Carla was recognized as a NSTA Fellow and she served on the National Academies of Sciences consensus panel that produced the report, Science Teachers’ Learning: Enhancing Opportunities, Creating Supportive Contexts.
Incorporate STEM into your classroom with eCYBERMISSION!

eCYBERMISSION is a national web-based STEM competition, free to students in grades 6–9. Teams compete for awards up to $9,000 per student in U.S. Savings Bonds.

Teachers can APPLY for MINI-GRANTS to support implementation of student projects.

Visit booth #1815 for more information on eCYBERMISSION and mini-grant applications.
2:00–3:00 PM  Presentations

Blending Science and Language Arts
(Grades P–5)  A303, GWCC
Science Focus: LS
Ashley Endicott (@MsAEndicott; aum_santeria@yahoo.com), Fickett Elementary School, Atlanta, GA
Children's books can be powerful tools for science learning. Explore book-related activities that connect STEM, art, and ELA while inspiring outdoor observation.

Using the NSTA Learning Center as an Online Textbook
(College)  A304, GWCC
Science Focus: GEN
Flavio Mendez (@fljmendez; flavio_m@nsta.org), Assistant Executive Director, NSTA Learning Center, NSTA, Arlington, VA
Professors are invited to come learn how to use the NSTA Learning Center as an online textbook when teaching science preservice teachers.

Designing 3-D Curriculum Through Coaching, Collaboration, and Community
(Grades P–12)  A312, GWCC
Science Focus: GEN, NGSS
LeeAnne Jimenez (@LeeAnnePower; jimenma2@tulsaschools.org), Wilson Teaching and Learning Academy, Tulsa, OK
Emily Mortimer (#tulsastem; emily.mortimer@TulsaSTEM.org), Tulsa Regional STEM Alliance, Tulsa, OK
This professional development model builds three-dimensional instructional capacity capitalizing on local talent to promote internal leadership in concert with partners and formal and informal educators.

Stellaluna: Exploring the Three Dimensions and Interdisciplinary Opportunities
(Grades P–4)  A402, GWCC
Science Focus: GEN, NGSS
Eva Ogens (eogens@ramapo.edu), Ramapo College of New Jersey, Mahwah
A classic children’s book enables participants to engage students while exploring the three dimensions of the NGSS, while integrating literacy, math, civics, and diversity.

Driving Our Future: Electric Vehicles (EV)
(Grades 9–12)  A408, GWCC
Science Focus: ESS3, INF
Susan Schleith (susan@fsec.ucf.edu) and Penny Hall (penny@fsec.ucf.edu), Florida Solar Energy Center, Cocoa
Electric vehicles are here! Explore new free curriculum activities that introduce EV technology, its impacts, and opportunities for careers and a more sustainable world.

Engaging All Learners in an Authentic STEM Investigation with GLOBE
(Grades 4–9)  A412a, GWCC
Science Focus: ESS2.D, ESS3, CCC1, CCC2, SEP
Tina Harte (tina.r.harte@nasa.gov), NASA Langley Research Center, Surry, VA
Explore an inquiry-based learning module designed to provide underserved audiences with an authentic STEM learning opportunity through a series of GLOBE/NASA learning activities.

Award-Winning Share-a-Thon: Featuring NSTA Distinguished Teachers
(Grades K–12)  B101, GWCC
Science Focus: GEN
Tom Lough, Retired Educator, Round Rock, TX
Paul Adams (@padams11; padams@fhsu.edu), NSTA Director, Preservice Teacher Preparation, and Fort Hays State University, Hays, KS
James Brown (brownj@scolonie.org), Sand Creek Middle School, Albany, NY
Susan German (@susan_german; susanerganscienceteacher@gmail.com), Hallsville Middle School, Hallsville, MO
Alan McCormack (amccorma@mail.sdsu.edu), 2010–2011 NSTA President, and Professor Emeritus, San Diego State University, San Diego, CA
Karen Ostlund (@karen_ostlund; klostlund@utexas.edu), 2012–2013 NSTA President, and The University of Texas at Austin
Julie Taylor, Teacher/Science Mentor/NASA Consultant, Victorville, CA
Jean Tushie (jtushie@mediacombb.net), Eden Prairie High School, Eden Prairie, MN
Come for conversations with NSTA Distinguished Teaching Award winners who share reflections, describe science teaching approaches/experiences, and discuss favorite projects and current interests.
NMEA Session: Bridge DATA Activity: Ghostbusting the Chesapeake  
(Grades 9–12)  
B103, GWCC  
Science Focus: ESS3  
Celia Cackowski (@celiacackowski; ccackowski@vims.edu), Virginia Institute of Marine Science, Gloucester Point  
Crab pots lost at sea continue to catch animals. This activity uses real research to teach students about bycatch issues associated with the commercial crabbing industry.

Girls Rock STEM: Creating a STEM Day for Middle School Girls  
(Grades 6–8)  
B211, GWCC  
Science Focus: GEN, SEP2, SEP3, SEP6  
Deborah Kravchuk (@NYSMTP; @MomChuk; deborahkravchuk@gmail.com), F.D. Roosevelt High School, Staatsburg, NY  
Nancy Rypchema (nancy.rypkema@valleycentralschools.org), Valley Central Middle School, Montgomery, NY  
Lisa Roloson, Union Vale Middle School, Lagrangeville, NY  
Tracey Waters (@NYSMTP; WarwickTracey; @mid-hudson; @wvcsd; traceywaters05@gmail.com), Warwick Valley Middle School, New Paltz, NY  
Alison Andolino (alison.andolino@mac.com), SUNY New Paltz, NY  
Susanna O’Brien (sobrien@newpaltz.k12.ny.us), New Paltz Middle School, New Paltz, NY  
Want to engage women in STEM careers? Plan a one-day event that brings together young women with female role models currently working in the field.

Photosynthesis, NGSS Style!  
(Grades 6–8)  
C202, GWCC  
Science Focus: LS1, LS2.B, CCC5, SEP2, SEP6, SEP7  
Shelley Tomlinson, O.U.R. Educational Cooperative, Valley Springs, AR  
A condensed version and student samples of an 8–10 day unit addressing MS-LS1-6 will be shared. Modeling, science talk, and CER are used strongly.

Science at the Dollar Store: 2018 Version!  
(General)  
C204, GWCC  
Science Focus: GEN, NGSS  
Nancy Foote (@mrsfoote; tinkerbell0611@gmail.com), Sossaman Middle School, Queen Creek, AZ  
I’ll demo lots of standards-based hands-on science labs that you can do with your students with materials from the dollar store! Stop spending so much money! I’ll even show you how to get stuff for free!

Electrolysis of Potassium Iodide: A Chemistry Demo That Illustrates and Unites Multiple Concepts  
(Grades 9–12)  
C301, GWCC  
Science Focus: PS, CCC4, CCC5, CCC6, SEP2, SEP4  
Harvey Gendreau (hgendreau1@comcast.net), The Laboratory Safety Institute, Natick, MA  
The electrolysis of KI can be used to introduce electrochemistry or unite many different concepts in chemistry and act as a multi-topic review.

NSTA Press® Session: Creative Writing in Science  
(Grades 3–12)  
Dogwood A, Omni  
Science Focus: GEN, SEP8  
Katie Coppens (contactkatiecoppens@gmail.com), Falmouth Middle School, Falmouth, ME  
The author of the NSTA Press® book Creative Writing in Science: Activities That Inspire will show you how to integrate writing and science to better assess students’ understanding. Discover strategies to help students demonstrate their scientific knowledge through poetry, plays, and prose.

Addressing Makerspace, STEM Lab, and Fab Lab Safety Hazards  
(General)  
International Ballroom C, Omni  
Science Focus: ETS, SEP2, SEP3  
Tyler Love (@UMES_Tech_Dept; tslove@umes.edu), University of Maryland Eastern Shore, Princess Anne  
Kenneth Roy (@drroysafersci; royk@glastonburyus.org), Glastonbury (CT) Public Schools  
Critical safety designs, management strategies, and teacher liability for makerspaces, STEM labs, and fab labs will be addressed by leading safety experts.

Teacher Researcher Day Session: Conducting Action Research That WORKS!  
(General)  
International Ballroom F/Group 4, Omni  
Science Focus: GEN, NGSS  
John Graves (graves@montana.edu), Montana State University, Bozeman  
Hear from teacher researchers about how they transformed their teaching and learning through classroom research.
AMSE-Sponsored Session: Trustworthy Science Teaching: Six Tenets for Cultivating a Healthy, Productive Science Classroom for All  
(Grades 5—College)  
Juniper, Omni  
Science Focus: GEN, NGSS  
Antoinette Linton, California State University, Fullerton  
Imagine a classroom where students leave feeling more like themselves than when they entered. Discover how to create science classrooms where ALL students can engage in authentic science.

NSELA-Sponsored Session: NSELA’s Technology Tools for Leaders  
(General)  
Magnolia, Omni  
Science Focus: GEN  
Larry Plank, Hillsborough County Public Schools, Tampa, FL  
Bob Sotak (@nselascience; bobsotak@gmail.com), NSELA President, and Science/STEM Education Consultant, Edmonds, WA  
Join NSELA leadership and members who will share technology and communication tools for leaders in science education.

2:00–3:00 PM  Hands-On Workshops  
Forces and Motion (PS2): An Integrated K–8 Hands-On Approach Supporting the NGSS and CCSS ELA  
(Grades P–8)  
A301, GWCC  
Science Focus: PS2  
Chihche Tai (ectai59@gmail.com) and Karin Keith (keithkj@etsu.edu), East Tennessee State University, Johnson City  
Diana O’Neal (@DOnealdiana; oneald@wde.org), Sulphur Springs Elementary School, Jonesborough, TN  
We will combine hands-on science investigations with supporting literacy activities to help students tell the “whole story” of force and motion.

“Why Should We Care?” Encouraging Students’ Interest in Their Watershed Through an Integrated STEM Unit  
(Grades 9–12)  
A302, GWCC  
Science Focus: ESS2.C, ESS3.C, SEP  
Susan Gran (@drsusangran; sgran@lsc.k12.in.us), Lafayette School Corporation, Lafayette, IN  
Come sample activities, view examples of student work, and leave with a copy of an Earth science–based STEM unit plan ready for implementation!

AMP UP Your Earth Science Curriculum with Integrated Practices  
(Grades 5–9)  
A305, GWCC  
Science Focus: ESS2.B, CCC4, SEP2, SEP3  
Jayma Koval (jayma.koval@ceismc.gatech.edu) and Mike Ryan, CEISMC, Georgia Institute of Technology, Atlanta  
The Advanced Manufacturing and Prototyping Integrated To Unlock Potential (AMP-IT-UP) project is an NSF-sponsored math and science partnership between the Griffin-Spalding County School System and Georgia Tech’s Center for Education Integrating Science, Mathematics and Computing (CEISMC). This workshop will focus on the module Lava Challenge. Discover how these modules can be integrated within your classes to support three-dimensional learning.

NSTA Press® Session: EUREKA! Grade 3–5 Science Activities and Stories  
(Grades 3–5)  
A311, GWCC  
Science Focus: GEN, SEP  
Donna Farland-Smith (farlandsmit@aol.com), The Ohio State University at Mansfield  
Julie Thomas (julie.thomas@unl.edu), University of Nebraska—Lincoln  
Join us to take part in some of the 27 lessons linking nonfiction historical trade books and science content for grade 3–5.

ASTC-Sponsored Session: STEM Starts Early—“Get a Taste of PASTE”  
(Grades P–3)  
A313, GWCC  
Science Focus: GEN  
Rachel Cahill, Lancaster Science Factory, Lancaster, PA  
Learn to create concrete STEM interactions with simple supplies to elevate the understanding of your students. Don’t just use the teachable moments but create them.

Exploring Insulators Through Engineering and Data Collection  
(Grades 6–8)  
A314, GWCC  
Science Focus: ETS  
Catherine Pozarski Connolly (cpozarski@gmail.com) and Tim Robinson (timothyr@unr.edu), University of Nevada, Reno  
David Crowther (@Dtcrowther; crowther@unr.edu), NSTA President, and University of Nevada, Reno  
Lou Loftin (lloftin@washoeschools.net), Nevada’s Northwest Regional Professional Development Program, Reno  
Bring energy efficiency into the classroom through hands-on inquiries exploring insulators and promoting the collection and use of data to propose changes for efficiency.
Using Discrepant Events to Jump-Start Inquiry  
(Grades 3–8)  
A315, GWCC  
Science Focus: GEN, NGSS  
Stephanie Wendt (@StephanieWendt1; swendt@tntech.edu), Kelly Moore (@kellyramey; kellymoore@tntech.edu), Jennifer Meadows (@meadowsjr007; jmmeadows@tntech.ed), and Perihan Fidan (@PerihanFidan1; pfidan21@students.tntech.edu), Tennessee Tech University, Cookeville  
Discrepant events puzzle and startle the learner, because the results are different from what one expects. Join us to learn how to jump-start scientific inquiry!

Birding in Three Dimensions  
(Grades K–8)  
A316, GWCC  
Science Focus: LS  
Sarah Faulkner, East Granby Middle School, East Granby, CT  
Birds provide the focal point for this workshop that bundles NGSS three-dimensional performance expectations around bird phenomena, storylines, engaging STEM activities, and relevance to students.

Let’s Get Wet: Water and Weather  
(Grades P–3)  
A403, GWCC  
Science Focus: ESS, PS1.A  
Ruth Ruud (ruudtruth61@gmail.com), Cleveland State University, Cleveland, OH  
Juliana Texley (@JulianaTexley; texle1j@cmich.edu), 2014–2015 NSTA President, and Central Michigan University, Mount Pleasant  
Don’t look now, but the CCSS asks that you teach Earth science as early as kindergarten, and the NGSS have specific goals for early primary. No more procrastinating! The good news is that you have your equipment. Come get easy activities, lit basics, and basic teacher background so that you can start right away!

STEM Lessons for the Primary Classroom  
(Grades K–2)  
A404, GWCC  
Science Focus: GEN  
Susanne Smith (@susannecoulter3; susanne.smith@cobbk12.org), East Side Elementary School, Marietta, GA  
Engage in three STEM lessons perfect for the K–2 classroom.

Engineering Design for All  
(Grades P–5)  
A405, GWCC  
Science Focus: ETS1, SEP1, SEP2, SEP6, SEP8  
Ana Appel (ana.appel@ascendlearning.org), Ascend Learning, Brooklyn, NY  
Engineering on a budget? Eco-friendly classroom? Learn how to blend the engineering design with upcycled materials for all scholars. We will use case studies from urban classrooms.

Improve Science and Language Arts Instruction Through Notebooking? We “Shell” Do Just That!  
(Grades K–5)  
A410, GWCC  
Science Focus: GEN, NGSS  
Frances Hamilton (franceshamilton87@gmail.com), The University of Alabama in Huntsville  
Discover activities that can be completed using seashells, explore some great children’s books, and learn how to use notebooks to enhance student learning in science and language arts, simultaneously.

NESTA Shares: Connecting Culture and Earth Science  
(General)  
B102, GWCC  
Science Focus: ESS  
Michael Passow (michael@earth2class.org), Retired Teacher, Englewood, NJ  
Join NESTA members and others to share ideas and experiences for incorporating aspects of cultures (art, music, societal traditions, special needs) into Earth science learning.

Helping Students Navigate Scientific Literacy: Teaching Students to Read, Speak, and Write Science  
(Grades 4–9)  
B212, GWCC  
Science Focus: GEN, CCC, SEP1, SEP2, SEP4, SEP6, SEP7, SEP8  
Elizabeth MacTavish (@Eliz_MacTavish; emactav@vols.utk.edu), Bryson Scruggs (bscrugg1@utk.edu), Cassidy Raulston (xzlr981@vols.utk.edu), and Stephanie Morse (@smorse9; smorse2@vols.utk.edu), The University of Tennessee, Knoxville  
Having difficulty knowing how to incorporate literacy components into your science lessons? Through the development of a comprehensive science literacy website, our team has developed strategies for K–12 science teachers to use to engage students in successfully reading, speaking, and writing science. We will share an overview of some of the most successful strategies used to cultivate scientifically literate students.
Modeling and the Three Dimensions of the NGSS in Middle School Genetics

(Grades 6–9) B401, GWCC
Science Focus: LS2, LS3, CCC, SEP

Maia Binding (@SEPUP_UCB; mbinding@berkeley.edu) and Tiffani Quan (@SEPUP_UCB; tiffani.quan@berkeley.edu), The Lawrence Hall of Science, University of California, Berkeley
Participate in hands-on genetics activities that integrate the science practice of modeling into a three-dimensional approach supporting the NGSS for heredity.

Using Tiny Homes to Connect with STEM

(Grades 6–12) B402, GWCC
Science Focus: ETS, CCC3, CCC6, SEP

Heidi Bjerke (@hbjerke; hbjerke@gmail.com), Jefferson Middle School, Champaign, IL
Presider: Stephen Csukas (scsukas@bellsouth.net), Tucker Middle School, Tucker, GA
Design and build your own green tiny home and I will share all the resources used in my STEM classes.

NSTA Press® Session: Once Upon an Earth Science Book

(Grades 5–9) B405, GWCC
Science Focus: ESS, CCC, SEP6, SEP7, SEP8

Jodi Wheeler-Toppen (wheelertop@gmail.com), Author/Staff Development, Atlanta, GA
Want your students to read and write more effectively? Join the author of the Once Upon a Science Book series for lessons that integrate literacy and Earth science content.

Weaving Biotechnology Throughout Your Biology Curriculum

(Grades 9–12) C201, GWCC
Science Focus: LS, CCC, SEP

Leslie Prudhomme, Mass Insight Education, Boston, MA
Stop teaching biotechnology as a “unit of study” and instead start using it as a tool to reinforce and demonstrate core concepts.

Elementary Teachers: Teaching 3-D Science with Confidence

(Grades K–5) C203, GWCC
Science Focus: GEN, NGSS

Catherine Bowers (cbowers@rockdale.k12.ga.us), Honey Creek Elementary School, Conyers, GA
Still struggling with three-dimensional science? Join me as we transform lessons into learning experiences using phenomena, probes, lessons, and activities.

Coasting Through Physics: Bring the Thrill of Roller Coasters to Your Classroom!

(Grades 4–10) C205, GWCC
Science Focus: PS

Shanna Hall-David (shanna.david@hsv-k12.org), Hampton Cove Middle School, Owens Cross Roads, AL
Hold on for the ride of your life! Make a marble roller coaster using everyday supplies that can be found in any classroom. Have your class rolling and coasting through physics as we examine roller coaster design and how Newton’s laws affect riders.

Intersection of Understanding by Design Framework and NGSS

(Grades 6–12) C209, GWCC
Science Focus: GEN, NGSS

Jessica Mulhern (@JMulhernBiology; jessica_mulhern@hcpss.org) and Jaclyn Austin (@jaclyn_austin; jaclyn_austin@hcpss.org), Howard County Public School System, Ellicott City, MD
Explore intersections between the Understanding by Design framework and NGSS instruction. Investigate essential questions and performance tasks that promote understanding and transfer of content knowledge.

Canned Data?! Not in The House of STEM!

(Grades 6–12) C210, GWCC
Science Focus: GEN

Jeffrey Lukens (jeffreylukens0613@gmail.com), Sioux Falls (SD) School District
When students collect their own data, they are WAY more likely to take an interest in the data. Come experience the engagement!

Using the NGSS to Plan a Unit of Instruction

(Grades 6–12) C212, GWCC
Science Focus: GEN, NGSS

David Randle (drandle@amnh.org), American Museum of Natural History, New York, NY
Plan for instruction using a tool and NGSS card sets to deepen student understanding of the three dimensions and consider what students need to know.
Improving 3-D Learning in Your Classroom: Building Assessment Tasks That Work
(General) Dogwood B, Omni
Science Focus: GEN, NGSS
Philip Bell (pbell@uw.edu), University of Washington, Seattle
Come improve your NGSS assessment through analysis of assessment tasks and exploration of how they can be improved to better elicit three-dimensional science learning.

STEM: A Defining Situation!
(Grades K–12) Grand Ballroom A, Omni
Science Focus: GEN
Carol Waters (cwaters@pasadenaisd.org), Pasadena (TX) ISD
Review preliminary research findings on identifying educators’ perceptions of STEM education and identifying educators’ perceptions on key components of a STEM school using different hands-on instructional strategies. Join in to share and discuss what are key components of STEM schools and how science educators play an important role in creating successful STEM schools.

TEAM Science: Amelia and Friends!
(Grades 5–12) Grand Ballroom B, Omni
Science Focus: GEN, SEP
Megan Stitt (megan.stitt@wcs.edu), Fred J. Page High School, Franklin, TN
Wendy Comer (wendyc@wcs.edu), Crockett Elementary School, Brentwood, TN
Come join us as we travel along with Amelia Earhart and friends! Paper airplanes, flight paths, engineering, and literacy await!

Unboxing Knowledge to Think Inside the Box!
(Grades 1–12) International Ballroom A/B, Omni
Science Focus: ETS1.B, INF
Tonja Felton and Sue Levine (@staffdevjnkie; suelevine2@gmail.com), Fernbank Science Center, Atlanta, GA
Promote critical thinking by connecting learners with information in multiple formats using an immersive mystery game model known as Breakout EDU. Participants will learn new ways of communicating and assessing students’ understanding of scientific concepts by allowing students to use problem-solving methods to “Think Inside the Box”!

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Planning and Designing Safe and Sustainable Science Facilities That Meet the NGSS (Science Facilities: 102)  
(General) Spruce, South Tower, Omni  
Science Focus: GEN, NGSS  
LaMoine Motz (lilmotz@comcast.net), 1988–1989 NSTA President, and The Motz Consulting Group, White Lake, MI  
Is your district planning for new science facilities? Are you involved? If not, you need to be before it is too late. In an advanced course (an extension of the Science Facilities: 101 session), the NSTA author team for NSTA Guide to Planning School Science (2nd ed.) will present more detailed information and examples of safe, ergonomically correct, and functional science facilities for STEM-based science. Budgeting, working with the architect, technology, and special adjacencies will also be presented. Packet will be distributed.

2:00–3:00 PM Exhibitor Workshops  
Genes in Space STEM Contest: Your DNA Experiment in Space!  
(Grades 7–12) B209, GWCC  
Science Focus: ESS1, ETS2, LS, CCC2, CCC4, CCC6, CCC7, SEP  
Sponsor: miniPCR  
Emily Gleason (emily@minipcr.com), miniPCR, Cambridge, MA  
Join a science competition co-founded by Boeing and miniPCR where teachers and students design authentic DNA research proposals. Students inspired by space and biology engage in self-guided experimental design. Winning experiments are launched to the International Space Station! This real-world STEM contest can win amazing awards for your school.

Personalized Genetics: Isolate and Amplify Your Own PTC Taste Gene  
(Grades 9–College) B210, GWCC  
Science Focus: ETS1, ETS2.A, LS1, LS3, PS1.A, PS2  
Sponsor: MiniOne Systems  
Dawn Tessandore (info@theminione.com), Highline High School, Burien, WA  
PTC sensitivity is an example of Mendelian inheritance. Learn firsthand how to conduct a PCR experiment by extracting, amplifying, and digesting your own DNA. Stay for our next session to run your DNA sample on gel electrophoresis to determine if you are a PTC taster.

Science Storylines and the Driving Question Board: Keeping NGSS Curricula Student Driven  
(Grades K–12) B214, GWCC  
Science Focus: GEN, CCC6, SEP2  
Sponsor: Activate Learning  
Heather Milo, Activate Learning, Greenwich, CT  
What if K–12 lessons could both meet the standards and leverage student curiosity about the natural world? Join us for an engaging workshop on storyline coherence as a means to not only have pedagogy meet the NGSS, but also build on students’ wonderment questions using the Driving Question Board. Uses IQWST unit, How Can I Smell Things from a Distance.
Make Any Classroom a Makerspace  
(Grades K–12)  
B216, GWCC
Science Focus: ETS
Sponsor: Pearson Learning Services
Obie Martin, Pearson, Logansport, IN
Makerspaces are everywhere, from television to your public library. Make your classroom into a makerspace without a lot of equipment or cost. All you need is the right attitude and the willingness to promote the innovated thinking in your students. Come try it out for yourself in this fun hands-on workshop.

Cancer Investigators: Medical Diagnostics in Your Classroom  
(Grades 9–College)  
B306, GWCC
Science Focus: LS
Sponsor: Edvotek, Inc.
Maria Dayton (info@edvotek.com), Brian Ell, and Tom Cynkar, Edvotek Inc., Washington, DC
Cancer contributes to almost one in every four deaths in the United States. Fortunately, innovations in biomedical research have improved our understanding of the differences between normal and cancer cells. In this hands-on workshop, participants use microscopy and electrophoresis to explore the hallmarks of cancer.

Subscripts and Coefficients Made Easy!  
(Grades 6–12)  
B315, GWCC
Science Focus: PS1.A, PS1.B, CCC1, CCC5, SEP2
Sponsor: PASCO scientific
Fran Zakutansky, PASCO scientific, Roseville, CA
Can your students tell the difference between coefficients and subscripts? Do they know when they need more of an atom in a compound, or more of the compound itself? Help your students by using the Molecular Model Kit and Essential Chemistry Equation Builder to make molecules and model chemical reactions!

Made Easy: How to Untangle Electric Circuits  
(Grades 7–12)  
B316, GWCC
Science Focus: ETS, PS, CCC1, CCC2, CCC4, CCC5, CCC6, SEP1, SEP2, SEP3, SEP4, SEP5, SEP6, SEP8
Sponsor: PASCO scientific
Tom Hsu, PASCO scientific, Roseville, CA
Join us to experience the best way to teach basic circuits! Remove the tangled wires that confuse student learning and focus on the science. Give your students the freedom to explore their own circuit designs while making the teaching of circuits easier than ever!

2:00–3:30 PM Exhibitor Workshops

Smithsonian Engineering: Sending Coded Messages Using Sound  
(Grades K–5)  
B201, GWCC
Science Focus: PS
Sponsor: Carolina Biological Supply Co.
Carolina Teaching Partner
How can I send a coded message using sound? What causes sound? Engage in engineering your own musical instrument and designing a code to send a message. Experience this new module bringing the best of the Smithsonian to science, engineering, and literacy connections for primary students.

Strawberry Milkshakes: DNA and Lactose Intolerance  
(Grades 6–12)  
B202, GWCC
Science Focus: LS
Sponsor: Carolina Biological Supply Co.
Carolina Teaching Partner
Introduce students to the fascinating world of molecular biology through age-appropriate hands-on activities. We designed the activities to make challenging abstract concepts (including DNA, genes, and enzymes) more concrete—and to make biology fun. Now presented with Carolina’s digital enhancements.

New Standards: Project-Based STEM Engineering by WhiteBox Learning  
(Grades 5–College)  
B203, GWCC
Science Focus: ETS1
Sponsor: WhiteBox Learning, a Flinn Scientific Company
Graham Baughman (graham@whiteboxlearning.com), WhiteBox Learning, Louisville, KY
Engage your students in the complete engineering design process. Meet the new science standards with WhiteBox Learning’s project-based STEM Learning System. Students can research, design, analyze, and simulate (iterate) their designs, and compete “virtually,” all around the world, from any browser. An integrated learning management system (LMS) is included during this hands-on workshop. Visit www.whiteboxlearning.com for more information.
Introduction to Wisconsin Fast Plants®
(Grades K–12) B204, GWCC
Science Focus: LS
Sponsor: Carolina Biological Supply Co.

Carolina Teaching Partner
Experience the versatility of Wisconsin Fast Plants. These quick-growing plants engage students and are ideal for all grade levels. Easily integrate disciplinary core ideas, cross-cutting concepts, and practices in life cycle, heredity and inheritance, variation and evolution, and environmental science lessons. Learn to plant, pollinate, and teach with Fast Plants.

Environmental Science with Vernier
(Grades 7–College) B207, GWCC
Science Focus: ETS2, LS2
Sponsor: Vernier Software & Technology
Colleen McDaniel (info@vernier.com), Vernier Software & Technology, Beaverton, OR
In this exciting hands-on workshop, use Vernier technology to study environmental science topics, such as acid rain. Learn how to geotag and share data with a LabQuest 2. See how sensor-based experiments teach students about data collection and analysis—practices that promote science inquiry, improve science literacy, and boost test scores.

Middle School Science with Vernier Using Chromebook
(Grades 5–8) B208, GWCC
Science Focus: ETS2, PS2, PS3
Sponsor: Vernier Software & Technology
David Carter (info@vernier.com), Vernier Software & Technology, Beaverton, OR
Participate in fun and engaging hands-on STEM activities using Vernier digital tools with Chromebooks to study temperature, light, friction, and grip strength. See how age-appropriate sensor-based experiments teach students about data collection and analysis—practices that promote science inquiry, improve science literacy, and boost test scores.

Integrating Engineering into the Grades 6–12 Classroom
(Grades 6–12) B213, GWCC
Science Focus: ETS1, SEP
Sponsor: McGraw-Hill Education
Chris Anderson, Integrative STEM Coach and Educational Consultant, Trenton, N.J.
Participate in the “Innovative Device Stand Design Challenge” and then use this activity in your classroom to introduce students to the NGSS engineering practices. This fast-paced hands-on workshop highlights best practices for a design-based pedagogy where the curriculum addresses real-world problems and instruction occurs via the engineering design process.

How Do Scientists Think?
(Grades 4–10) B215, GWCC
Science Focus: GEN, NGSS
Sponsor: Perimeter Institute
Tonia Williams (outreach@perimeterinstitute.ca), Perimeter Institute for Theoretical Physics, Waterloo, ON, Canada
What is so special about the way scientists think? What are the key habits of mind that scientists practice that enable them to make discoveries? Come explore the process of science and engage in hands-on inquiry activities that will encourage students to develop their problem-solving, collaboration, and creativity skills.

Big Data in the Classroom: Teaching About Earth with Authentic Data for Elementary Grades
(Grades K–5) B217, GWCC
Science Focus: ESS, SEP
Sponsor: PBS LearningMedia/WGBH
Jacob Foster (jake_foster@wgbh.org), WGBH Education, Brighton, MA
Nancy Gifford, Monomoy Regional Middle School, Chatham, MA
Learn how you can encourage the development of your students’ skills in analyzing and interpreting authentic scientific data. Students can develop their scientific practice skills with free digital media tools and resources from PBS LearningMedia, produced by WGBH in collaboration with NASA and other partners.

Stream Ecology: Slimy Leaves for Healthy Streams
(Grades 4–College) B218, GWCC
Sponsor: LaMotte Co.
Tara Muenz (tmuenz@stroudcenter.org), Stroud Water Research Center, Avondale, PA
Observe aquatic macroinvertebrate specimens, conduct experiments, learn classification skills, and calculate a biotic index in this hands-on introduction to stream ecology. Come learn from a Stroud Water Research scientist. Takeaways and a door prize!
Guiding Students Through Informational Text to Support Hands-On  
(Grades 3–5)  
B301, GWCC  
Science Focus: GEN, NGSS  
Sponsor: Delta Education/School Specialty Science  
Kim Michel, School Specialty Science, Pembroke Pines, FL  
Show off your “inner reading” teacher in a hands-on science setting! Come be a student and experience ScienceFLEX lessons that integrate informational text and notebooking alongside hands-on science. Leave with readers, strategies, equipment, and a lesson you can try with your students next week.

Ten Minutes to Improving Science Achievement  
(Grades 3–8)  
B302, GWCC  
Science Focus: GEN  
Sponsor: Delta Education/School Specialty Science–FOSS  
Kathy Long, The Lawrence Hall of Science, University of California, Berkeley  
The word “assessment” can strike fear into the hearts of teachers and students. Join FOSS developers to learn how assessment can be transformed into an integrated teaching tool that both grades 3–8 teachers and students embrace to create a classroom culture that motivates effort and a growth mind-set to improve learning.

Gamifying the Atom: Fun with Ions, Particles, Bonding, and Periodicity  
(Grades 6–12)  
B303, GWCC  
Science Focus: PSI  
Sponsor: CPO Science/School Specialty Science  
Kat Mills, School Specialty Science, Rosharon, TX  
Erik Benton, CPO Science/School Specialty Science, Nashua, NH  
Experience innovative activities to learn about atomic structure and the periodic table through game play with the CPO Science Link Atom Building Game and Periodic Table Tiles. Use a digital learning environment with hands-on equipment to study bonding, isotopes, subatomic particles, ions, balancing equations, energy levels, and periodicity.

Grants in 3D: Define, Design, and Deliver  
(General)  
B304, GWCC  
Science Focus: GEN  
Sponsor: Ward’s Science  
Rusti Berent, Ward’s Science, West Henrietta, NY  
Learn how to craft a better grant proposal with the 3 Ds of grants. Using hands-on activities and takeaway materials, we will define what funders look for in proposals, apply backward design principles to grants projects, and learn simple evaluation methods to deliver sustainable outcomes for student learning.

Chemical Batteries  
(Grades 6–8)  
B305, GWCC  
Science Focus: PS, CCC2, CCC5, SEP1, SEP2, SEP3, SEP4  
Sponsor: Lab-Aids, Inc.  
Cindy Lilly, Ocean Bay Middle School, Myrtle Beach, SC  
Although we live a battery-powered lifestyle, most of us (middle school and high school students included) have no idea how batteries actually work. Engage in an activity from Issues and Physical Science from Lab-Aids. Make a wet cell battery, explore the effect of using different metal electrodes on battery output, and consider ways to reduce the number of discarded batteries in the waste stream.

Using HHMI Resources as Phenomena: The Earth/Life Science NGSS Crosswalk  
(Grades 6–12)  
B308, GWCC  
Sponsor: HHMI BioInteractive  
Samantha Johnson (smjohnson@slzusd.org), Arroyo High School, San Lorenzo, CA  
James Clark (jclark@slzusd.org), San Lorenzo (CA) Unified School District  
Struggling to find phenomena? Learn how to use the extensive HHMI BioInteractive resources to anchor phenomena-based three-dimensional lessons. The NGSS requires students to investigate phenomena; participants will create 5E lessons that will facilitate students’ explanations of natural phenomena, showcasing the overlap of Earth and life sciences in the NGSS.

Barcoding Lionfishes’ Last Meal: A Citizen Science Project for the Classroom  
(Grades 9–College)  
B310, GWCC  
Science Focus: LS  
Sponsor: Bio-Rad Laboratories  
Sherri Andrews, Bio-Rad Laboratories, Hercules, CA  
Learn about this student-centered project to understand the ecological impact of an invasive species. Students dissect lionfish and use sequencing to identify the fish species in their stomachs, indicating which fish the lionfish prey upon.
Fight World Hunger with Protein Biology and Designing Treatment Plans
(Grades 9–College) B311, GWCC
Science Focus: LS
Sponsor: Bio-Rad Laboratories
Tamica Stubbs, Bio-Rad Laboratories, Hercules, CA
Starving children worldwide can experience symptoms of Protein Energy Undernutrition (PEU). Sufficient protein intake is critical for human health and prevention of this dangerous condition. In this hands-on workshop, use a quantitative color-change experiment to design a process to measure protein content in foods and propose an evidence-based treatment plan.

GMOs—A Hot Topic in the Media, Classroom, and Around the Dinner Table: Panel Discussion and Presentation by Monsanto Company
(General) B312, GWCC
Science Focus: GEN
Sponsor: Monsanto Co.
Valerie Bayes (stemeducation.outreach@monsanto.com), Monsanto Co., Saint Louis, MO
Monsanto Company scientists will discuss what a GMO is and isn’t, how these innovations are tested, the limitations and benefits of the technology, and where biotechnology is used outside of agriculture today. Find out how Monsanto is partnering with others in the agriculture industry to help farmers continue to grow food for a growing population while remaining sustainable and environmentally conscious.

Speaking from Experience: AEOP Alumni Tell All!
(General) B313, GWCC
Science Focus: GEN, NGSS
Sponsor: AEOP
Matthew Hartman, eCYBERMISSION Content Manager, NSTA, Arlington, VA
Competitions and symposia are just the beginning. Young scientists/engineers across the country are empowering the future through their AEOP participation. Come see just how far our alumni have traveled, learn where they are going, and experience their contagious excitement. Drawing for NSTA Science Store gift cards during the workshop.

Soft Drinks, Subject Silos, Synergy, and Sweet Darwinian Diet Deliberations
(Grades 7–12) B314, GWCC
Science Focus: LS, PS
Sponsor: Houghton Mifflin Harcourt
Thomas O’Brien, Binghamton University, Binghamton, NY
Personal and social/STS literacy requires consilience or interdisciplinary synergy. Discrepant math measurement mysteries will serve as an entry to chemistry, physics, and biology disciplinary core ideas essential to the historical development, marketing, and social impacts of sugar-laden soft drinks. This case study models how three-dimensional NGSS teaching and cross-curricular collaborations benefits students.

Science Notebooking: Finding What Works
(Grades 5–10) B403, GWCC
Science Focus: GEN
Sponsor: LearnEd Notebooks
Rachel Miller (rachelm@learnednotebooks.com), LearnEd Notebooks, Lincolnton, NC
Notebooking in the science classroom can be a valuable tool for both you and your students, but it can also present certain challenges. Learn how to overcome these obstacles with a truly unique solution from LearnEd Notebooks. Join us to learn how to easily differentiate lessons, promote student organization, incorporate unique games, and streamline instructional time. Includes giveaways and free lessons!

A Great Resource to Implement NGSS Through the 5E Model
(Grades 6–10) B404, GWCC
Science Focus: GEN, NGSS
Sponsor: Learning Bits Inc.
Kassidy Loy, Learning Bits, Miami, FL
Learn how you can effectively and easily implement active learning science practices using the 5E (Engage, Explore, Explain, Elaborate, and Evaluate) instructional model into your classroom. Science Bits is a comprehensive NGSS-focused digital curriculum that will support teachers in streamlining and creating an active learning science classroom for their students.
Ballistics: Recreating the Sacco and Vanzetti Case  
(Grades 8–12)  
B406, GWCC  

Science Focus: PS3.B, SEP2, SEP4, SEP5  
Sponsor: AquaPhoenix Scientific  
Roxane Ohl (rohl@aquaphoenixsci.com), AquaPhoenix Scientific Inc., Hanover, PA  

Train ballistics experts in the ultimate forensics lab as we recreate the Sacco and Vanzetti crime scene using trigonometry, Newton’s laws, calipers, and chemical reactions. Together we outline the phases of ballistics relating them to the conservation of energy, and then use stringing techniques to reconstruct shootings and calculate projectile trajectories.

Hands-On Anatomy: Body Building with Clay  
(Grades 9–College)  
B408, GWCC  

Science Focus: LS1.A  
Sponsor: ANATOMY IN CLAY® Learning System  
Chuck Roney, ANATOMY IN CLAY Learning System, Loveland, CO  

Experience a hands-on approach to teaching anatomy and body systems. We will share a proven method used from middle schools to medical schools that allows for learning, not memorization, of how the human body systems work together. Participants will be involved in building, as well as discussing how the system works in the classroom.

NSTA Young Professional and New Teacher Reception  

Preservice and new teachers are invited to attend this fun and interactive networking session. The reception will include short presentations offering tips on how to excel in the classroom from both new and preservice teachers as well as NSTA Student Chapter leaders. An overview on NSTA resources geared to preservice and new teachers will also be presented. Refreshments and hors d’oeuvres will be served as you network with your peers.

Wednesday, March 14  
4:30–6:00 PM  
Georgia World Congress Center Galleria
2:30–3:00 PM  Presentation
Using CER to Analyze Structure and Function in Plant Reproduction
(Grade 7)  A407, GWCC
Science Focus: LS1.A, CCC6, SEP4, SEP6, SEP7, EP8
Chris Sullivan (csullivan@stlukesbrschool.org), St. Luke’s Episcopal Day School, Baton Rouge, LA
Middle school students can use the Claims-Evidence-Reasoning format to learn the crosscutting concept of structure and function by observing flowers, pollinators, and seed dispersal in lilies.

Phenomenon-Based Teaching in a Mastery-Based School
(Grades 6–12)  C206, GWCC
Science Focus: GEN, NGSS
Jessica Smith (@WBBCoachSmith; wbbcoachsmith@gmail.com), Metropolitan Business Academy, New Haven, CT
How do you get exemplary work from a phenomenon-based lesson? Evaluate your rubrics to weave 21st-century competencies and the three dimensions into your everyday classroom assessment.

Tips, Tricks, and Tribulations of Bringing the NGSS into Your Science Classroom
(Grades 6–12)  C207, GWCC
Science Focus: GEN, NGSS
Jeannie Gargiulo (jeanniegargiulo@gmail.com), Fieldston Lower, Middle, and Upper School, Harrison, NY
Gina Tesoriero (@Miss_STEM; ginateso@uw.edu), University of Washington, Seattle
Explore the different protocols that can be used to enhance collaboration and consensus building in your science classroom to support a student-centered learning environment.

Using Science to Teach Math and History: Historical Source Documents as an Anchor for Content
(Grades 6–12)  C211, GWCC
Science Focus: GEN, CCC
Lee Pruett, Notre Dame High School, San Jose, CA
We use historical records and drawings from Thomas Jefferson as a springboard into our interdisciplinary curriculum that combines environmental science, geometry, and U.S. history.

Science in the One-to-One Classroom
(Grades 6–12)  C213, GWCC
Science Focus: GEN
Lindsay Knippenberg (@ScienceWithMsK; lindsayknippenberg@mgsd.k12.nc.us), Mooresville High School, Mooresville, NC
What does a successful one-to-one science classroom look like? Gain management tips, activities, and lesson ideas for incorporating technology in your science class.

Narrowing the Gap Through Communication
(Grades 9–12)  Grand Ballroom C, Omni
Science Focus: GEN
Tiffany Shoham Jones (@tjones1rmsst; tjones1@rockdale.k12.ga.us), Rockdale County Public Schools, Conyers, GA
Attention will be paid to strategies used by a successful AP teacher to communicate formative assessment data with students. Includes mail merge, data analysis, and formative assessment types.

SCST-Sponsored Session: Keeping Students on Track During Multi-Week Investigations: Some Solutions and Their Impact
(College)  Hickory, Omni
Science Focus: GEN
Donald French (dfrrench@okstate.edu), Oklahoma State University, Stillwater
This presentation describes how we address issues of equality of contribution, absenteeism, and procrastination in a lab that simulates a professional research environment.

Teacher Researcher Day Session: Using Reflective Practice for Professional Learning in a STEM Classroom
(General)  International Ballroom F/Group 1, Omni
Science Focus: GEN, NGSS
Jeremy Ervin (@drjervin; jervin62@gmail.com), Cedarville University, Cedarville, OH
Join me for reflection on the use of intentional, systemic questions in a STEM classroom to improve teacher effectiveness and student learning.

Teacher Researcher Day Session: Building Knowledge and Academic Vocabulary with Text Sets
(Grades P–5)  International Ballroom F/Group 2, Omni
Science Focus: GEN, SEP1, SEP4, SEP7, SEP8
Michael Jabot (@mjabot; jabot@fredonia.edu), SUNY Fredonia, NY
Learn more about text sets as a central strategy to develop content background knowledge around science issues.
Teacher Researcher Day Session: Summer STEM Institute for Grades 3–8: Relating Physical Activity to Science
(Grades 3–8) International Ballroom F/Group 3, Omni
Science Focus: GEN, INF, NGSS
Deborah Roberts-Harris (drober02@unm.edu), The University of New Mexico, Albuquerque
We added a STEM component to a summer sports camp. Come learn about our attempts to connect the physical activity to different science content areas.

ASTE-Sponsored Session: STEM Partnerships in Science Ed: Challenges, Collaborations, and Lessons from the Inside
(Grades 6–College) Redwood, Omni
Science Focus: GEN, SEP
Amanda Glaze (@EvoPhD; aglazeua@gmail.com), Georgia Southern University, Statesboro
STEM partnerships draw a great deal of interest from universities and teachers alike, however, many have questions about what these should look like, how to get started, and where to go once connections are made. Join me as I draw from STEM partnerships and endorsement development to inform and support STEM building with a science foundation.

Quantitative and Qualitative Results of Modeling Instruction Workshops
(Grades 7–College) Walnut, Omni
Science Focus: LS, PS
Michael Kelley (@mrkelley23; mrkelley23@gmail.com), North High School, Evansville, IN
We will share Concept Inventory data in biology, chemistry, and physics from a series of Modeling Instruction teacher workshops in southern Indiana.

3:00–4:30 PM Meetings

Awards and Recognitions Committee Meeting
Beechnut, Omni
Preschool–Elementary Science Teaching Committee Meeting
Grand Ballroom E/Group 1, Omni
Middle Level Science Teaching Committee Meeting
Grand Ballroom E/Group 2, Omni
High School Science Teaching Committee Meeting
Grand Ballroom E/Group 3, Omni
College Science Teaching Committee Meeting
Grand Ballroom E/Group 4, Omni
Aerospace Programs Advisory Board Meeting
Grand Ballroom E/Group 5, Omni
International Advisory Board Meeting
(Grades ) Grand Ballroom E/Group 6, Omni
Retired Members Advisory Board Meeting
Grand Ballroom E/Group 7, Omni
Rural Advisory Board Meeting
Grand Ballroom E/Group 8, Omni
Science Matters Advisory Board Meeting
Grand Ballroom E/Group 9, Omni
Special Needs Advisory Board Meeting
Grand Ballroom E/Group 10, Omni
Technology Advisory Board Meeting
Grand Ballroom E/Group 11, Omni

For more information, please visit amsek16.org.
Thursday, 3:00–4:30 PM

3:00–4:30 PM  Exhibitor Workshop
Explore Renewable Energy with Hands-On Activities
(Grades 4–8)  B409, GWCC
Science Focus: ETS, PS3
Sponsor: LEGO Education
Laura Jackson, Retired Science Teacher, Lee’s Summit, MO
Discover how to engage your students’ kinesthetic senses while teaching them the importance of renewable energy. This workshop is designed for educators looking to teach renewable energy sources such as solar, wind, and hydro energy in an engaging, hands-on way.

3:00–6:00 PM  Short Courses
If You Can Think It, You Can Model It (SC-1)
(Grades 5–12)  Tickets Required; $42  Chastain C, Westin
Science Focus: GEN, CCC4, SEP2
Steven Roderick (steveroderick@mac.com) and Daniel Damelin (@dandamelin; ddamelin@concord.org), The Concord Consortium, Concord, MA
Tom Bielik (tbielik@msu.edu) and Joseph Krajcik (@krajcik-joe; krajcik@msu.edu), CREATE for STEM Institute, Michigan State University, East Lansing
For description, see page 58.

Climate Change Misinformation: Sort Fact from Fiction with Ice Core Science (SC-2)
(Grades 5–12)  Tickets Required; $38  Chastain D, Westin
Science Focus: ESS2.C, ESS2.D, ESS3, ETS1, CCC2, CCC7, SEP4, SEP6, SEP8
Louise T. Huffman (louise.t.huffman@dartmouth.edu), Thayer School of Engineering at Dartmouth, Hanover, NH
Zoe Courville (zoe.r.courville@usace.army.mil), Cold Regions Research and Engineering Lab, Hanover, NH
For description, see page 58.

Meaning Making in Science: How Disciplinary Literacy Supports the Development of Scientific Understanding (SC-3)
(Grades K–12)  Tickets Required; $38  Chastain H, Westin
Science Focus: GEN, SEP
Pamela M. Pelletier (@BPPSciencePam; ppletier@bostonpublicschools.org) and Holly Rosa (@BPSSciHolly; hrosa@bostonpublicschools.org), Boston (MA) Public Schools
For description, see page 58.

3:00–6:00 PM  Exhibitor Workshop
Lab in a Box: A Free Biotechnology Loaner Program from Genes in Space
(Grades 7–12)  B209, GWCC
Science Focus: ESS1, LS1, LS3, LS4, CCC4, SEP
Sponsor: miniPCR
Emily Gleason (emily@minipcr.com), miniPCR, Cambridge, MA
Learn about the free biotechnology loaner program that brings hands-on DNA science into middle school and high school classrooms across the United States. We will cover training opportunities, free PCR and gel electrophoresis curriculum, and how to request a loaner for your classroom. Participants will be given priority in 2018–2019.

3:30–4:00 PM  Presentations
3-D Learning Through Interdisciplinary Teaching in Elementary School
(Grades K–5)  A401, GWCC
Science Focus: GEN, NGSS
Kitchka Petrova (dr.k.petrova@gmail.com), Florida State University, Tallahassee
Come explore the use of interdisciplinary lessons in elementary science classrooms to achieve three-dimensional learning.

Exploration and Discovery Through Maps: Teaching Science with Technology
(Grades K–5)  A408, GWCC
Science Focus: ESS2.C, ESS3, ETS1, LS1, LS2, CCC4
Jenna Hartley (@JHartleySTEM; hartley.jenna@epa.gov), ASPPH, Hillsborough, NC
Facilitated exploration with a three-part lesson package: hands-on, outdoors, and a high-tech web-based mapping tool developed by the EPA (EnviroAtlas).

Exploring Collaborative Scientific Argumentation Through Teacher Guidance in Science Classrooms
(Grades 6–8)  C211, GWCC
Science Focus: ESS3
Pi-Sui Hsu (phsu@niu.edu), Northern Illiniois University, DeKalb
Meg Van Dyke (@docV216; megvandyke@yahoo.com), O’Neill Middle School, Downers Grove, IL
We will explore how types of teacher guidance might scaffold the development of middle school students’ collaborative scientific argumentation skills.
Phenomenal Argumentation: A Collaborative Approach to Promote Argumentative Writing
(Grades 6–8) C213, GWCC
Science Focus: LS3, SEP6, SEP7, SEP8
Anna Bahnson (agbahnson@gmail.com) and Elizabeth Patrick (epatrick@oconeeschools.org), Malcom Bridge Middle School, Bogart, GA
Use an engaging phenomena to integrate science and argumentative writing. Learn how science and ELA teachers joined forces to support student learning and maximize time.

Spark Students’ Curiosity with Chemistry!
(Grades K–12) C301, GWCC
Science Focus: PS1, PS3
Karen Kaleuati, American Chemical Society, Washington, DC
Learn about the various free resources—games, lesson plans, grants, and more—available from the American Chemical Society (ACS) without being a member. Leave with copies of the resources.

A Lesson Framework for the Next Generation
(Grades 6–College) Dogwood B, Omni
Science Focus: GEN, NGSS
Kristoffer Carroll (@RPDPSci; carrollk@rpdp.net), Southern Nevada Regional Professional Development Program, North Las Vegas
Cindy Kern (@cindylkern; @QUeST-LC; cindy.kern@quinnipiac.edu), Quinnipiac University, Hamden, CT
We will share the five featured Dynamic Inquiry Enterprise (5-DIE), a three-dimensional lesson-designed framework situated around an anchoring phenomenon. This framework is used to develop or adapt classroom material.

How Motivated Are Your Students?
(Grades 9–12) Grand Ballroom C, Omni
Science Focus: GEN, NGSS
Megan McCall (@meganomccall; meganomccall@gmail.com), Bayside Academy, Daphne, AL
Come discover how cooperative testing with flipped lessons can impact the academic achievement, study time, and motivation toward science for your students!

SCST-Sponsored Session: The Benefits and Drawbacks of Using the Popular Press in Your Classroom
(College) Hickory, Omni
Science Focus: GEN
Lynn Diener (dienerl@mtmary.edu) and Maureen Leonard (leonardm@mtmary.edu), Mount Mary University, Milwaukee, WI
We will share our experiences using the popular press in our science classrooms. What has worked well, what hasn’t worked as well?

Access for All: Using Universal Design for Learning to Increase Access for Students
(Grades 5–12) Juniper, Omni
Science Focus: GEN
Gregory Taylor, Dayton (OH) Public Schools
Learn the basics of Universal Design for Learning and walk away with a plan to implement UDL into your classroom.

— Courtesy of Jacob Slaton
What if science teachers did not have to choose between engaging students in science practices and building their literacy skills? Cynthia’s talk will offer compelling reasons to read in science classes, as well as science-supportive ways to do so. She will show examples of curriculum and videos of science classrooms that illustrate how reframing reading as an investigation can help students gain both science and literacy practices.

For nearly three decades, Cynthia Greenleaf has conducted cutting-edge research in disciplinary literacy and designed powerful teacher professional development and innovative instructional interventions. Her work co-developing the Reading Apprenticeship Instructional Framework has resulted in promoting literacy, content knowledge, and motivation—leading to better student outcomes that reach beyond classroom walls. She is co-director and director of Research of the Strategic Literacy Initiative at WestEd, where she conducts R&D through field-based partnerships with teachers, focusing especially on integrating purposeful science reading approaches into middle school and high school science and gateway STEM courses in college settings.

Cynthia has also served as co-principal investigator of Project READI, a multi-year, multi-site project funded by the U.S. Department of Education’s Reading for Understanding Initiative to develop middle school and high school students’ ability to make evidence-based arguments from multiple sources in literature, history, and science. She has co-authored the books Leading for Literacy: A Reading Apprenticeship Approach and Reading for Understanding.

Eric Jolly, President and Chief Executive Officer, The Saint Paul & Minnesota Community Foundations, Saint Paul

Eric Jolly’s talk will explore strategies for uncovering a student’s natural curiosity and joy in learning. He will focus on examining language metaphor and cultural issues that can open STEM disciplines to all students.

A former professor, dean, assistant chancellor, and director for Affirmative Action and Diversity, Eric J. Jolly brings a wealth of expertise to his present role as president and chief executive officer of The Saint Paul & Minnesota Community Foundations. With assets of $1.3 billion, the foundation's mission is to serve donors at all stages of life who are committed to strengthening their communities.

Prior to his current position, Eric was president of the Science Museum of Minnesota for a decade. Under his leadership, the museum hosted provocative, educational, and highly successful exhibitions such as Body Worlds and RACE: Are We So Different?. He also served as vice president and senior scientist at the Education Development Center in Massachusetts. Widely recognized for his contributions to mathematics and science education, he frequently works with such groups as the American Association for the Advancement of Science, National Action Council for Minorities in Engineering, National Council for Teachers of Mathematics, and the National Science Teachers Association. In addition, he is also a life member of the Society for Advancement of Chicanos and Native Americans in Science.

Eric has authored numerous books, articles, and curricula for students and teachers, including Bridging Homes and Schools (a comprehensive resource for teachers of Limited English Proficiency students).
Inspired by the Inductees of the National Inventors Hall of Fame, our preschool through 9th grade programs are designed to impact young minds through fun, hands-on activities infused with the spirit of innovation!

**Come visit us at Booth #648!**

800.968.4332  |  NIHFatmyschool@invent.org  |  invent.org/inspire

In partnership with the United States Patent and Trademark Office
3:30–4:30 PM  Presentations

How to Implement STEM and NGSS into Your Classroom Through the Use of NSTA Competitions  
(Grades K–12)  
A303, GWCC

Science Focus: GEN, NGSS

Acacia McKenna (amckenna@nsta.org), Director, Competitions, NSTA, Arlington, VA

Sue Whitsett (swhitsett@nsta.org), AEOP Project Director, NSTA, Arlington, VA

Hear about various NSTA competitions and how they can bring STEM and the NGSS into the classroom, as well as give students and teachers a chance to earn recognition and prizes. Free food and a gift bag will be distributed to each participant.

Creating and Using a Makerspace to Differentiate Instruction  
(Grades K–8)  
A407, GWCC

Science Focus: GEN, NGSS

Donna Knoell (dknoell@sbcglobal.net), Educational Consultant, Overland Park, KS

Let’s discuss explorations, problem solving, and real-life applications of STEM concepts. Find out how to use a makerspace to differentiate science explorations that incorporate STEM integration, constructing and analyzing structures and everyday objects to advance learning and ignite creativity and engagement.

Educating the Next Generation of Climate Change Activists Through Problem-Based Learning and Role-Play  
(Grades 6–12)  
A410, GWCC

Science Focus: ESS3, CCC

Jeanette Thomas (jthomas1@fcps.edu), Langston Hughes Middle School, Reston, VA

Introduce your students to the complexities of the climate change debate as they role-play their way through a simulated Congressional hearing.

NASA Astrobiology: The Search for Life Beyond Earth  
(Grades 6–College)  
A412a, GWCC


Rachel Zimmerman Brachman (@RachelZBrachman; rachel.zimmerman-brachman@jpl.nasa.gov), NASA Jet Propulsion Laboratory, Pasadena, CA

Discover how astrobiologists at NASA’s Jet Propulsion Laboratory are searching for signs of life on icy moons of our solar system and beyond.

NMEA Session: Ocean Guardian School Program: Encouraging All Children to Explore Their Natural Surroundings to Form a Personal Connection to the Ocean  
(Grades 1–12)  
B103, GWCC

Science Focus: ESS, INF, CCC, SEP

Seaberry Nachbar (seaberry.nachbar@noaa.gov), NOAA Office of National Marine Sanctuaries, Monterey, CA

Encourage your students to become ocean guardians through the Ocean Guardian School program that supports schools in implementing a school- or community-based conservation project.

Pedagogical Practices in Literacy to Enhance Inquiry-Based Instruction  
(Grades 6–12)  
B212, GWCC

Science Focus: GEN, SEP8

Jennifer Richards (jennifer.richards@utk.edu), The University of Tennessee Institute of Agriculture, Knoxville

James Swart (jswart@tennessee.edu), The University of Tennessee, Knoxville

Scientific inquiry intrinsically supports literacy skills and concepts. We will present creative ways to integrate strong pedagogical practice—enhancing science instructional quality and student learning.

Creating and Maintaining Kid-Friendly, Bird-Friendly Gardens  
(Grades K–12)  
C202, GWCC

Science Focus: LS

Kathy Rigling (riglingk@aol.com), Piedmont Lakes Middle School, Apopka, FL

Lindsay Glasner (@BirdSleuth; lhg27@cornell.edu), The Cornell Lab of Ornithology, Ithaca, NY

School gardens inspire students to explore the characteristics that create good habitat for birds and wildlife. Discover grants and resources, and get your free bird feeder!

Sense in Molecules: Modeling Personalized Medicine  
(Grades 10–College)  
C204, GWCC


Bruce Nash (@DNALC; nash@csil.edu), Dolan DNA Learning Center, Cold Spring Harbor, NY

Students analyze their DNA and predict ability to taste a bitter molecule. This lab highlights the phenotype and genotype relationship, modeling prediction of drug responses.
Yes, You Can! Tips and Tricks for Presenting at an NSTA Conference  
(Grades P–12) Birch, Omni  
Science Focus: GEN  
Jennifer Williams (@ScienceJennifer; jenniferwilliams@newmanschool.org), Isidore Newman School, New Orleans, LA  
Dedric McGhee (@dedricmcghee; mcgheed@scsk12.org), Shelby County Schools, Memphis, TN  
Kavita Gupta (@chem_tweets; kavita_gupta@fwhsd.org), Monta Vista High School, Cupertino, CA  
Adriana Guerra, E.P. Foster STEM Academy, Ventura, CA  
So you have this great idea! Now what? Learn from present and past STEM Forum & Expo steering committee members on how to take a successful classroom activity, strategy, or lesson and turn that into a successful proposal and presentation worthy of being presented at a future NSTA conference.

Starting a Makerspace? Best Practices, STEM, and NGSS Integration…and Lessons Learned!  
(Grades 1–12) International Ballroom E, Omni  
Science Focus: ETS, SEP  
Gabriele St. Martin (gabriele114@yahoo.com), The Benjamin School, North Palm Beach, FL  
Learn about the research done and a yearlong journey starting a makerspace and effectively using such a space across the curriculum while integrating STEM and NGSS. Get great ideas for planning and implementing your own makerspace!

3:30–4:30 PM Hands-On Workshops
ASTE-Sponsored Session: Phenomenal 3-D Science: Cystic Fibrosis  
(Grades 7–12) A301, GWCC  
Science Focus: LS  
Donna Barrett-Williams (@donnascience; williamsd17@fultonschools.org), Fulton County Schools, Atlanta, GA  
Come find out more about using phenomena and storylines to engage students in three-dimensional learning through a task about cystic fibrosis and hereditary disorders.

Soil: A Nonrenewable Resource?  
(Grades 6–12) A302, GWCC  
Science Focus: ESS, LS2.B  
Nancy Bridge (nancy.bridge@ocps.net), Olympia High School, Orlando, FL  
Healthy soil is the world’s most valuable resource. We will go in-depth into nutrient cycling, soil filtration, water conservation, and agriculture’s role in soil sustainability.

Ticket, Please! Engineering Efficient Experiences  
(Grades 3–6) A313, GWCC  
Science Focus: ETS, CCC4, SEP1, SEP2, SEP3, SEP4, SEP6  
Kristy Kidd (@kristykidd; kiddzoo@sbcglobal.net), University of Arkansas at Little Rock  
Explore the biography Mr. Ferris and His Wheel as the foundation to enrich a unique and exciting design challenge for elementary students.

Critical Thinking Through CCCs  
(Grades 1–8) A314, GWCC  
Science Focus: GEN, CCC  
Judy Sweeney (@judystsweeney1; judystsweeney@gmail.com), Denali PEAK, Anchorage, AK  
Examine the crosscutting concepts through scientific discovery and build an understanding of how to integrate them into classroom instruction.
Using Common Materials to Enhance STEM Learning for All
(Grades K–8)  A316, GWCC
Science Focus: ETS, SEP
Rebecca Dyasi (bdyasi@aol.com), Long Island University, Brooklyn, NY
Find out how thematic learning centers that require students to engage with commonly available materials advance contextualized understanding of science, math, and engineering ideas and practices.

Using Science to Support Early Literacy Essential Practices
(Grades P–3)  A402, GWCC
Science Focus: GEN, CCC1, SEP1, SEP6, SEP7, SEP8
Wendi Vogel (@vogelwendi; wendivogel@kentisd.org), Kent Intermediate School District, Grand Rapids, MI
Look for evidence of early literacy essential practices in a three-dimensional science lesson showing how science and literacy support one another.

Brainstorming Solutions to Global Water Issues
(Grades 6–9)  A403, GWCC
Science Focus: ESS3.C, ETS2.B, CCC2, SEP6
Sue Counterman (sue.counterman@coloradoacademy.org), Colorado Academy, Denver
Delve into a problem-solving program using a design-thinking model on the issue of water needs in the 21st century.

Connected Content Storylines Spark Student Engineers to Create with Confidence
(Grades K–5)  A404, GWCC
Science Focus: ETS, PS1
Kimber Hershberger (kmbrhersh1109@gmail.com), Penn State, University Park, PA
Deana Washell and Colleen McCracken (cmm5116@gmail.com), Easterly Parkway Elementary School, State College, PA
Megan Germ (mgerl19@scasd.org), State College (PA) Area School District
Presider: Carla Zembal-Saul (czemsaul@gmail.com), Penn State, University Park, PA
Experience integrated investigations around energy, force, and states of matter, which help students tackle and persevere through engineering tasks using their background knowledge.

Full STEM Ahead: Starting Small with STEM in Your Classroom
(Grades K–5)  A405, GWCC
Science Focus: GEN
Alisha Richardson (@STEMalisha; alisha_richardson@dekalbschools.org), Hawthorne Elementary School, Atlanta, GA
Want to implement STEM in your classroom but unsure where to start? Feeling overwhelmed by the amount of time STEM activities take? Unsure of what STEM really is or looks like? If you answered YES to any of these questions, then this session is for you!

Earth Match: Making Earth Science Culturally Relevant
(Grades 6–12)  B211, GWCC
Larry Lebofsky (lebofsky@lpl.arizona.edu), Planetary Science Institute, Tucson, AZ
Lisa Strishock (@cosmoquestX; l.strishock@gmail.com), The University of Arizona, Tucson
Theresa Summer (tsummer@astrosociety.org), Astronomical Society of the Pacific, San Francisco, CA
NASA astronaut images of Earth engage students in exploring their region, and building connections between geoscience and their experiences through culturally relevant learning.

NSTA Press® Session: Phenomenon-Based Learning: Fun, Hands-On, and Cooperative Learning of Both Science and Language Arts
(Grades 3–12)  B405, GWCC
Science Focus: PS, CCC, SEP
Matt Bobrowsky (@DrMattB; expert_education@rocketmail.com), Delaware State University, Dover
Experience the kind of learning that propelled Finland to international leadership in education—not by memorizing facts, but by using scientific exploration, discovery, and literacy skills.

NGSS-Designed Assessments for a Middle School Ecosystems Unit
(Grades 6–8)  C201, GWCC
Science Focus: LS2, SEP
Anna MacPherson (@annamacp; amacpherson@amnh.org), American Museum of Natural History, New York, NY
I will share three-dimensional science assessments from a middle school ecosystems unit. Join in to analyze student work, provide hypothetical feedback, and discuss instructional responses.
JetStream: An Online School for Weather
(Grades 3–College)  C205, GWCC
Science Focus: ESS, INF
Dennis Cain (dennis.cain@noaa.gov), NOAA National Weather Service, Fort Worth, TX
JetStream is a free online resource from the National Weather Service that has lesson plans and demonstrations to teach various aspects of weather.

Lots of Bots: Using Robots to Teach the NGSS in Elementary School
(Grades 3–5)  C206, GWCC
Science Focus: ETS, LS, PS
Kaitlin Klein (@missklein20; kleink@unionsd.org), Oster Elementary School, San Jose, CA
Learn to incorporate the NGSS using LEGO® WeDo 2.0, Ozobots, and Dash robots. Participants will gain experience with robots, as well as implementation and application tips.

Group Learning Routines to Promote Access in an Inquiry-Based Science Classroom Through Equitable Discussion
(Grades 6–12)  C209, GWCC
Science Focus: GEN, CCC7, SEP3, SEP6
John Salazar (@JohnSalNVsci; jsalazar@newvisions.org), New Visions for Public Schools, New York, NY
Attention will be paid to an immersive experience exploring group learning routines as a reliable way to promote access to three-dimensional learning in science for learners of all abilities.

Deflategate: Critical Thinking and the Ideal Gas Law
(Grades 9–12)  C212, GWCC
Science Focus: PS1.A, SEP3, SEP7
Phil Mansfield (@Pawsitronium; mansfield@uchicago.edu), The University of Chicago, IL
Walk away with a hands-on lab where students explore, examine, and explain the ideal gas law through the study of a well-known national sports controversy.

Incorporating Inquiry and Argumentation in Middle School and High School Physics Classrooms
(Grades 6–College)  C302, GWCC
Science Focus: PS, CCC, SEP
Paige Evans, University of Houston, TX
Discover inquiry-based activities and argumentation that preservice and inservice teachers can use in their physics or physical science classrooms.

Harnessing STEAM Power: The Effects and Impact of Meaningful Integration
(Grades P–12)  Dogwood A, Omni
Science Focus: ETS
Daniella Shoshan (@MakerEdOrg; @dlasho; daniella@makered.org), Maker Education Initiative, Emeryville, CA
Courtney Bryant (teacherbryant@gmail.com), Charles R. Drew Charter High School, Atlanta, GA
Mae Pagett (@PagettMae; mae.pagett@drewcharterschools.org), Charles R. Drew Charter School, Junior Academy Campus, Atlanta, GA
Engage in hands-on examples of how preK–12 students embrace the PBL + STEAM framework at Drew Charter School.

3:30–4:30 PM  Exhibitor Workshops

Determine the Genotype for PTC Taster and Non-Taster by Electrophoresis
(Grades 8–College)  B210, GWCC
Science Focus: ETS1, ETS2.A, LS1.A, LS3, PS2
Sponsor: MiniOne Systems
Richard Chan (info@theminione.com), MiniOne Systems, San Diego, CA
Learn and get hands-on experience teaching Mendelian genetics and genotyping by doing electrophoresis. You will pour, load, and run a gel; capture a gel image; analyze the results; and determine PTC taster genotype. If you attended our PTC Taster by PCR session, you may load and analyze your own amplified DNA.

Literacy in the Context of Science in the Elementary Classroom
(Grades K–5)  B214, GWCC
Science Focus: GEN, NGSS
Sponsor: Activate Learning
Ellen Mintz, Charleston County School District, Charleston, SC
Experience a lesson that demonstrates the integration of literacy strategies in the context of science. This includes the incorporation of academic language in written responses in science notebooks and oral discourse in conjunction with investigations using an interactive word wall.
Get Your Chemistry in Gear: Problem-Based Learning in Your Chemistry Classroom  
(Grades 9–12)  
Science Focus: PS  
Sponsor: Pearson Learning Services  
Jacqueline Orgain, Pearson, Knightdale, NC  
Shannon Petree, Pearson, Boston, MA  
Chemistry is everywhere. We live it, breathe it, and see it every day. But do we really understand it? How do your students approach it? What does STEM look like? Chemistry should be relevant, engaging, and a hands-on experience for all learners. Come experience easy-to-implement Problem-Based Learning strategies that you can take back to your classroom.

Exploring the Genetics of Taste: SNP Analysis of the PTC Gene Using PCR  
(Grades 9–College)  
Science Focus: LS  
Sponsor: Edvotek, Inc.  
Maria Dayton (info@edvotek.com), Brian Ell, and Tom Cynkar, Edvotek Inc., Washington, DC  
Explore the relationship between genotype and phenotype using Phenylthiocarbamide (PTC). Some think PTC tastes bitter, while others find it tasteless. The ability to taste PTC has been linked to variations in a taste receptor gene. In this workshop, you will learn to use PCR to distinguish between PTC alleles. We’ll share tips and tricks along the way to ensure experimental success!

Evaporative Cooling: Visualizing Matter so It Makes Sense!  
(Grades 7–12)  
Science Focus: PS1.A, CCC1, CCC3, CCC5, SEP2, SEP7  
Sponsor: PASCO scientific  
Fran Zakutansky, PASCO scientific, Roseville, CA  
Why does perspiration make you feel cooler? How is cooling related to molecular properties? Help your students understand evaporation by measuring the temperature difference when a substance changes from liquid to gas. Look at the process from a molecular perspective to understand how bonding, shape, and polarity affect cooling.

Hands-On: Teach Speed and Velocity with Motion Graphs  
(Grades 7–12)  
Science Focus: ETS, PS, CCC1, CCC2, SEP1, SEP2, SEP3, SEP4, SEP5, SEP6, SEP8  
Sponsor: PASCO scientific  
Tom Hsu, PASCO scientific, Roseville, CA  
Graphs of position, speed, and velocity are often confused by students attempting to describe the motion of moving objects. In this hands-on workshop, you will create and compare these graphs to discuss their meaning. This lesson helps students understand the distinction between positive and negative positions and velocity.

Mixtures and Solutions: The Effectiveness of the 5E Model Undergirded with Reciprocal Teaching in Diverse Settings  
(Grades 4–6)  
Science Focus: GEN, NGSS  
Jane Casey (@4lizziebeth; jane.casey@tamiu.edu), Texas A&M International University, Laredo  
Selina Mireles (mireles_s@utpb.edu), The University of Texas of the Permian Basin, Odessa  
We will disseminate findings from a pilot study conducted in preparation for an internally grant-funded study to take place during the 2017–2019 school years. Participants will be able to identify effective literacy supports for diverse learners in a science classroom.
Amphibians and Reptiles Rock: An Informal Science Education Project for Elementary-Age Students in Rural Alabama
(Grades P–6)  
Science Focus: LS, INF
Melody Russell, James Shepard, and Misty Thomas (mst0016@auburn.edu), Auburn University, Auburn University, AL
David Laurencio (norops@auburn.edu), Auburn University Museum of Natural History, Auburn University, AL
Laura Crowe (@lauramcrowe; lmcrowe@auburnschools.org), Auburn Junior High School, Auburn, AL
Jennifer Lolley (jrl0006@auburn.edu), Louise Kreher Forest Ecology Preserve, Auburn University, AL
In this collaborative project, grades 3–5 students and elementary teachers from rural school districts in Alabama engaged in hands-on science lessons in an informal setting.

Middle School Adventures with NGSS
(Grades 6–8)  
Tanya Hallett Sanchez (tsanchez99@gmail.com), Manhattan Beach Middle School, Manhattan Beach, CA
Leila Warren (leila_w_warren@dekalbschoolsga.org), Chamblee Charter High School, Atlanta, GA
Hear about our experience with 5Es lessons and strategies using NGSS in middle school. Successes, failures, reflections, and scaffolding will be explained to help others.

“Don’t simply retire from something; have something to retire to.”
—Harry Emerson Fosdick

Before and After Retirement—Practicalities and Possibilities
Saturday, March 17
9:30–10:30 AM
Omni Atlanta Hotel at CNN Center Chestnut

For more information on the Retired Members Advisory Board, contact Lloyd Barrow, Chair, at barrowl@missouri.edu.
The Power of Images: Curating Positive Images of People Doing (Real) Science for Middle Grades (Grades 6–8)
Science Focus: GEN
Rebecca Hite (@Sciencebecca; rebecca.hite@ttu.edu), Texas Tech University, Lubbock
Carolanne Grogan (@sciteach74; cgrogan@saralandboe.org), Saraland High School, Saraland, AL
Brainstorm ways to integrate authenticity and diversity in your middle school science classroom from a research study exploring images in mainstream middle grades science textbooks.

Identifying Epistemic Games to Assist in Improving Students’ Chemistry Reasoning (Grades 6–College)
Science Focus: PS
Steven Couture (coutures@gmail.com) and Hannah Sevian, UMass Boston, Dorchester, MA
Epistemic games are ways that students approach open-ended problems. Find out how to recognize the most common epistemic games in chemistry problem solving.

Stop Nodding Along and Start Understanding the NGSS (Grades P–12)
Science Focus: GEN, NGSS
Kailey Rhodes (@movableleist; kaileyrhodes@gmail.com), Clarity Innovations, Inc., Portland, OR
Ready to demystify the NGSS? Want to finally understand three-dimensional instruction, from the acronyms to the teaching implications? Let’s review their history, organization, and classroom applicability from the ground up!

Use Brain-Based Strategies to Create Routines That Help All Students Learn (Grades 8–10)
Science Focus: GEN, SEP
Ashley Harlacher (aharlacher@phm.k12.in.us), Penn High School, Mishawaka, IN
Struggling to create an environment of no excuses? Learn and share effective strategies for a flipped, project-based science class that engages learners of all backgrounds.

SCST-Sponsored Session: Join Us for Appy Hour (College)
Science Focus: GEN
David Allard (@dwallard; david.allard@tamut.edu), Texas A&M University–Texarkana
We will present some apps we commonly use in our teaching. These will include a variety of tools for both management and content.

Integrating Discussions About Race and Gender into the Science Classroom (Grades 6–College)
Science Focus: GEN
Jacqueline Gnant (jackobanzi@gmail.com), New Trier High School, Winnetka Campus, Northfield, IL
How do we discuss race, gender, and their impact on science inquiry without detracting from the content our curricula demand? Whether you teach a general science course or focus on a specific discipline, there are topics that lend themselves to conversations about how race, gender, and science intersect. You will leave with a list of these topics as well as a better understanding of how to recognize these opportunities and develop your own lessons around them.

Science for Service Learning Success (Grades K–12)
Science Focus: ETS2.B, INF, CCC
Kate Burton (@k8burton; kburton@trinityatl.org), Trinity School, Atlanta, GA
To move beyond charity to service learning, science topics afford students avenues to learning and growth inside the classroom and out in their community.
4:00–4:30 PM  Exhibitor Workshop
LARP! Live Action Role Playing and the Biology Curriculum
(Grades 4—College)          B209, GWCC
Sponsor: miniPCR
Bruce Bryan (bruce@minipcr.com), miniPCR, Cambridge, MA
Kinesthetic learning is more than doing labs. Discuss how your students can learn by being. Our curriculum director, a veteran biology teacher, will share some of his favorite activities designed to get students out of their desks and role-playing biological processes. We won’t try to sell you anything!

4:00–5:30 PM  Exhibitor Workshops
Plants, Bessbugs, and Squid: Build Understanding of Structure and Function
(Grades K–5)          B201, GWCC
Science Focus: LS
Sponsor: Carolina Biological Supply Co.
Carolina Teaching Partner
How does the structure of plants, bessbug, and squid help them survive? Why does NGSS suggest that students learn better through a coherent learning progression? Can science be taught in 30-minute lessons? Experience this new module bringing the best of the Smithsonian to science, engineering, and literacy connections for primary students.

Autopsy: Forensic Dissection Featuring Carolina’s Perfect Solution® Pigs
(Grades 6–12)          B202, GWCC
Science Focus: LS
Sponsor: Carolina Biological Supply Co.
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 the protocols of a forensic pathologist.

Exploring Biology Through Dissection from Flinn Scientific
(Grades 7–College)          B203, GWCC
Science Focus: LS
Sponsor: Flinn Scientific, Inc.
Matt Anderson (manderson@flinnsci.com) and Annemarie Duncan (aduncan@flinnsci.com), Flinn Scientific, Inc., Batavia, IL
Ready to move beyond frogs? Participants will have the opportunity to dissect several organisms from Flinn’s new line of preserved specimens. Help students identify and recognize similarities and differences among diverse phyla within the animal kingdom. For more information, visit www.flinnsci.com.

Hands-On Science with Classroom Critters
(Grades K–12)          B204, GWCC
Science Focus: LS
Sponsor: Carolina Biological Supply Co.
Carolina Teaching Partner
Add action and excitement to your science class with live organisms! Discover fun, simple, hands-on activities with a variety of insects and arthropods that you can use in your labs. Learn about care and handling, as well as easy ways to introduce inquiry. Additional resources available online for your classroom.
### Thursday, 4:00–5:30 PM

**Chemistry with Vernier**  
*(Grades 9–College)*  
B207, GWCC  
Science Focus: ETS, PS1, PS3, PS4  
Sponsor: Vernier Software & Technology  
**Nüsret Hisim** *(info@vernier.com)*, Vernier Software & Technology, Beaverton, OR  
Participate in fun and engaging hands-on experiments using Vernier digital tools to measure intermolecular attractions, investigate pressure and volume relationships, and explore spectroscopy. See how sensor-based experiments teach students about data collection and analysis—practices that promote science inquiry, improve science literacy, and boost test scores.

**STEM/Engineering Activities Using Vernier Sensors with Arduino**  
*(Grades 7–12)*  
B208, GWCC  
Science Focus: ETS1, ETS2  
Sponsor: Vernier Software & Technology  
**Dave Vernier** *(info@vernier.com)*, Vernier Software & Technology, Beaverton, OR  
Attend this engaging hands-on workshop to explore introductory coding using Vernier sensors with the inexpensive Arduino RedBoard. Topics include an introduction to programming Arduino microcontrollers, using the Vernier Arduino library, and sample STEM projects for controlling motors, LEDs, and buzzers based on sensor readings.

**Building Knowledge with BioInteractive and Understanding Global Change**  
*(Grades 6–12)*  
B213, GWCC  
Science Focus: ESS2, ESS3, LS2, PS3, INF, CCC2, CCC3, CCC4, CCC7, SE1P, SE2P, SE3P, SEP6, SEP8  
Sponsor: HHMI BioInteractive  
**Jessica Bean** *(jbean@berkeley.edu)*, University of California Museum of Paleontology, Berkeley  
**Aleeeza Oshry** *(oshrya@hhmi.org)*, Howard Hughes Medical Institute, Chevy Chase, MD  
Join us for an interactive workshop to learn how to incorporate HHMI’s BioInteractive resources with UCMP’s Understanding Global Change Framework to develop student-centered, inquiry-based learning progressions. Whether you are developing, implementing, or supplementing curricula, the resources and methods shared will enhance your efforts.

**Toward High School Biology: Introducing a New Middle School Curriculum Unit**  
*(Grades 6–8)*  
B215, GWCC  
Sponsor: AAAS Project 2061  
**Jo Ellen Roseman**, AAAS/Project 2061, Washington, DC  
**Sarah Quick Pappalardo**, Dunloggin Middle School, Ellicott City, MD  
**Leah Donovan**, Oakland Mills Middle School, Columbia, MD  
We will provide an overview of Toward High School Biology, a new middle school unit that meets the NGSS and is published by NSTA Press®. Participants will engage in sample activities to see how the unit promotes student learning and supports teachers in its use.

**Legendary Game-Based Learning**  
*(Grades 3–8)*  
B217, GWCC  
Science Focus: ESS, LS, PS  
Sponsor: Legends of Learning  
**Sean Reidy** and **Aryah Fradkin** *(aryah@legendsoflearning.com)*, Legends of Learning, Washington, DC  
Currently, Legends of Learning has 700 games in Earth, life, and physical science for grades 5–8 and 300 games for grades 3–5. Our games focus on subject mastery and classroom engagement. Join us for a preview of our platform, a collaborative discussion of how games align with TEKS standards and improve student achievement, and, of course, playing fun Edgames.

**Engaging Students with Chemistry Games**  
*(Grades 7–12)*  
B218, GWCC  
Science Focus: PS  
Sponsor: PlayMada Games  
**Lindsay Plavchak** *(lindsayp@playmadagames.com)* and **Edward Wang** *(edwardw@playmadagames.com)*, PlayMada Games, New York, NY  
Explore how to use Collisions™, a system of interconnected digital chemistry games, to support student understanding of ionic bonding! Experience how a game can encourage student exploration of cation-anion attraction, neutrality, and ionic ratios in a fun and interactive environment. Plus, you will come away with several ready-to-use classroom activities.
Boosting the Makerspace Experience for Young Scientists!
(Grades 1–5) B301, GWCC
Science Focus: ETS
Sponsor: Delta Education and Frey Scientific
Deborah Vannatter, University of Evansville, IN
Mary Anne Feller, Sts. Peter and Paul Catholic School, Haubstadt, IN
Makerspaces are popping up everywhere, providing a creative space to explore questions and solve problems. But for elementary students, tackling STEM-related challenges requires a foundation in science investigation. Help young scientists build the skills needed for independent exploration in their makerspaces with programs like Science in A Nutshell®.

FOSS for All Students—Access and Equity
(Grades K–8) B302, GWCC
Science Focus: GEN
Sponsor: Delta Education/School Specialty Science–FOSS
Brian Campbell and Jessica Penchos, The Lawrence Hall of Science, University of California, Berkeley
Providing equitable learning opportunities for all students requires knowing the curriculum, understanding the diverse needs of your students, and responding effectively to those needs. Join us for a closer look at how the FOSS program provides both universal access and targeted instruction for your most vulnerable students.

Cubelets! Modular Robotics for K–12
(Grades 1–12) B303, GWCC
Science Focus: ETS
Sponsor: Frey Scientific/School Specialty Science
Kat Mills, School Specialty Science, Rosharon, TX
Erik Benton, CPO Science/School Specialty Science, Nashua, NH
Encourage inquisitiveness and unlock your students’ inner inventor with Cubelets—blocks that magnetically connect to make robots. Use the robotic operations THINK, SENSE, and ACT to solve problems, create, and learn about coding. Answer questions like “What sensory input is needed?” and “What output is generated?” with Cubelets.

Get on the Fast Track to Engineering
(Grades K–12) B304, GWCC
Science Focus: ETS, SEP
Sponsor: Ward’s Science
Samantha Bonelli, VWR Science Education, Rochester, NY
Get on track to more engaging and versatile engineering lessons with this hands-on STEM workshop. Learn how one simple idea can meet many Next Generation Science Standards across multiple grade levels. Test-drive new engineering activities that will put you, and your students, on the fast track to STEM success.

NGSS Reproduction: Breeding Critters—More Traits
(Grades 6–8) B305, GWCC
Science Focus: LS1.B, LS3, CCC1, CCC2, SEP2, SEP6
Sponsor: Lab-Aids, Inc.
Cindy Lilly, Ocean Bay Middle School, Myrtle Beach, SC
Students model and explain additional patterns of inheritance as they explore cause-and-effect relationships for additional traits of the critters. These patterns help them model and explain the wide variation that can result from sexual reproduction. The activity provides an opportunity to assess student work related to Heredity: Inheritance and Variation of Traits (MS-LS3-2).

Modeling Population Dynamics in Gorongosa National Park
(Grades 9–College) B308, GWCC
Sponsor: HHMI BioInteractive
Paul Strode (paul.strode@bvsd.org), Fairview High School, Boulder, CO
Helen Snodgrass (helensnodgrass@gmail.com), YES Prep North Forest, Houston, TX
Population dynamics can be a challenging and abstract topic for students. Come explore free resources from HHMI BioInteractive for engaging students with exponential and logistic population growth models. The resources are connected to conservation efforts in Gorongosa National Park and are adaptable for various high school and college course levels.

Explore Molecular Evolution Using Protein Electrophoresis (AP Big Ideas 1, 3, 4)
(Grades 9–College) B310, GWCC
Science Focus: LS
Sponsor: Bio-Rad Laboratories
Sherri Andrews, Bio-Rad Laboratories, Hercules, CA
Generate protein profiles from distant and closely related species of fish using protein gel electrophoresis. Test the hypothesis that protein profiles are indicators of evolutionary relatedness and construct cladograms from your gel results. Learn about proteomics and explore biology’s central mantra: DNA>RNA>Protein>Trait.
Upgrade Your Genetics Class with Neurobiology and Chemotaxis

(Grades 9–College) B311, GWCC
Science Focus: LS
Sponsor: Bio-Rad Laboratories
Leigh Brown, Bio-Rad Laboratories, Hercules, CA
Integrate genetics and neurobiology while infusing your chemotaxis lab with inquiry. Use *C. elegans* to compare normal and mutant behavior in a classical conditioned learning experiment (think Pavlov’s worms). Explore worm taste preferences in a simple chemotaxis assay, and examine the connection of our worm mutant to human diseases.

On Your Mark: Get RESET!

(Grades 6–12) B313, GWCC
Science Focus: GEN
Sponsor: AEOP
Sally Pardue, Millard Oakley STEM Center, Cookeville, TN
Do you want to work with scientists/engineers during the summer…and receive a stipend for doing so? Come hear from teachers who have had the opportunity with the Army Educational Outreach Program “Research Experiences for STEM Educators and Teachers.” There is still time to apply for this year.

NGSS Engineering and Self-Powered Vehicles

(Grades 6–8) B314, GWCC
Science Focus: ETS1, PS
Sponsor: Houghton Mifflin Harcourt
Michael DiSpezio, HMH Author, Broadcast Host, and Global Educator, North Falmouth, MA
Experience the 3-DS of NGSS engineering and physical science practices as you explore the construction of simple self-powered vehicles. Apply computational thinking and self-directed strategies to an inexpensive, repeatable, and highly motivating student experience that explores the concepts in engineering design.

Blinded By the Light

(Grades 1–12) B403, GWCC
Science Focus: PS
Sponsor: Arbor Scientific
Dwight “Buzz” Putnam, Whitesboro High School, Marcy, NY
Strap in for amazing light and color demos presented by award-winning physics teacher Buzz Putnam. These classroom-ready activities include mixing primary colors to cast shadows in cyan and magenta, why it’s perfectly acceptable to eat a black strawberry, answering Buzz’s famous “mirror challenge” question, and more! Discover great tools that support the STEM inquiry. Lesson plans and door prizes.

BUGDORK! Using Insects to Engage Students and Inspire Learning

(Grades K–5) B404, GWCC
Science Focus: LS
Sponsor: Celestron
Kristie Reddick (thebugchicks@gmail.com), The Bug Chicks, College Station, TX
Learn ways you can use arthropods in the classroom! Entomologist and educator Kristie Reddick of The Bug Chicks will help you conquer your fears and gain knowledge about animals that inspire inquiry in your students. Workshop includes digital microscope training, lessons to use immediately, integration of scientific concepts, and a chance to win digital microscopes!

Use Teacher-Created Frameworks to Integrate Engineering Design and Teach Science Content

(Grades 6–12) B408, GWCC
Science Focus: ETS1, SEP
Sponsor: Knowles Teacher Initiative
Katherine Shirey (katey.shirey@knowlesteachers.org), Knowles Teacher Initiative, Moorestown, NJ
Support for getting started with engineering integration is here! Our teacher-developed frameworks can turn your science content into engaging engineering design challenges. Join in to try a content-specific design challenge, dissect the design process, and see how to drive design decisions with data collected in your existing science labs.
4:00–6:00 PM  Meeting  
APAST Board Meeting  
(By Invitation Only)  Chestnut, Omni

4:30–5:30 PM  Meeting  
Outstanding Science Trade Books Committee Meeting  
(By Invitation Only)  Willow Boardroom, Omni

4:30–6:00 PM  Meeting  
NSTA Board and Council Meet & Greet  
(By Invitation Only)  International Ballroom A/B, Omni

5:00–5:30 PM  Presentations  
The Intersection of 5E Instruction and the Claims, Evidence, and Reasoning Framework: A Hands-On Approach Supporting the NGSS in Upper Elementary Classrooms  
(Grades 3–6)  A401, GWCC  
Science Focus: GEN, SEP7
Laura Robertson (robertle@etsu.edu) and Renee Moran (ricemoran@etsu.edu), East Tennessee State University, Johnson City
Andrea Lowery (loweryar@etsu.edu) and Lindsay Lester (lesterl@etsu.edu), University School, Johnson City, TN
We will share examples of hands-on investigations combining the 5Es and the CER Framework with supporting literacy activities to help upper elementary students demonstrate learning.

A Science Symposium Will Skyrocket Science Literacy and Transform the Classroom Culture!  
(Grades K–8)  A407, GWCC  
Science Focus: GEN, CCC1, CCC4, SEP1, SEP2, SEP3, SEP4, SEP6, SEP7, SEP8
April Sawey (@ASawey; asawey@fwacademy.org), Fort Worth Academy, Fort Worth, TX
Give your elementary science students a firm grounding in communicating scientific evidence to their peers! A “Science Symposium” can transform your classroom culture!

NSTA Community Hub  
Be sure to stop by the NSTA Community Hub today between 11:00 AM and 6:00 PM. It’s located in the Exhibit Hall at Booth #1909. Center. Meet up with your peers in our Networking Lounge and exchange teaching ideas or session notes. Come see what NSTA has to offer! See page 15 for more details.

Integrating Nanotechnology into the Middle School Classroom  
(Grades 6–8)  C211, GWCC  
Science Focus: GEN, NGSS
Melody Russell (russeml@auburn.edu), Misty Thomas (mst0016@auburn.edu), and Ruby Ellis (rubyellis@bellsouth.net), Auburn University, Auburn University, AL
David Laurencio (norops@auburn.edu), Auburn University Museum of Natural History, Auburn University, AL
Mohammed Qazi, Tuskegee University, Tuskegee Institute, AL
Laura Crowe (@lauramcrowe; lmcrowe@auburnschools.org), Auburn Junior High School, Auburn, AL
Presider: Shaik Jeelani, Tuskegee University, Tuskegee Institute, AL
We will highlight an innovative nanotechnology curriculum project for grades 6–8 students in the Alabama Black Belt Region.

Science, Literacy, and the Bilingual Learner  
(Grades K–5/College)  Juniper, Omni  
Science Focus: GEN, SEP
Corey McKenna (@cmckenna39; mckenna_c@heritage.edu), Heritage University, Toppenish, WA
Through the use of science trade books and skills to support English language learners, I’ll share how one university teacher prep program integrates its science and literacy methods courses to better prepare preservice teachers.
Student Engagement in Direct Instruction, Undergraduate Microbiology Laboratories
(College) Magnolia, Omni

Science Focus: LS, SEP3, SEP4, SEP8

Eva Nyutu, Saginaw Valley State University, University Center, MI

Introductory laboratory courses are a standard component of undergraduate science programs and are historically taught using direct instruction. This baseline can be used in further research seeking to improve college laboratory instruction.

Who Wants a Scientist? Scaling Impactful Programs Through University Partnerships
(General) Redwood, Omni

Science Focus: ETS

Dieuwertje Kast (dkast@usc.edu), USC Joint Educational Project, Los Angeles, CA

When teachers engage scientists, student content and STEM attitudes skyrocket. Leave with research-based models and tips to engage university students in your classroom.

5:00–6:00 PM Meeting
Best STEM Books Meeting
(By Invitation Only) Hazelnut, Omni

5:00–6:00 PM Presentations

SEPUP and NGSS: Rewriting Your Middle School Curriculum
(Grades 5–8) A304, GWCC

Science Focus: ESS, LS, PS, CCC, SEP

Rachael Sheridan (rachael.sheridan@asu.edu), Brownsville Ascend Charter School, Brooklyn, NY

Come learn about the strategies and challenges encountered as we revamped our middle school curriculum to prepare our students for three-dimensional learning. Special focus will be on sixth grade with units in physical, Earth, and life science.

Using Models to Support STEM Learning in Grades K–5: Examples and Insights from NSF’s DRK–12 Program
(Grades K–5) A408, GWCC

Science Focus: ESS, PS3, CCC4, CCC5, SEP2

Sarah Lacy (sara_lacy@terc.edu), TERC, Cambridge, MA

Cory Forbes (@coryforbes; cforbes3@unl.edu), University of Nebraska–Lincoln

Brian Reiser (@reiserbrianj; reiser@northwestern.edu), Northwestern University, Evanston, IL

Carolyn Staadt (@cjstaadt; cstaadt@concord.org), Curriculum/Professional Developer, Concord, MA

Presider: Amy Busey (abusey@edc.org), Education Development Center, Inc., Waltham, MA

Discussion centers on research-based examples of how students can engage in modeling in the elementary grades.

Weather and Climate: Use a Free Web-Based Graphing Tool to Analyze and Interpret Local and National Climate Data for Patterns or Change
(Grades 6–8) A410, GWCC

Science Focus: ESS2.D, ESS3.D, CCC1, CCC4, CCC7, SEP1, SEP2, SEP3, SEP4, SEP5

Jay Holmes (jholmes@amnh.org), American Museum of Natural History, New York, NY

Explore weather and climate data through an online graphing tool that simplifies data visualization so students can focus on analysis and interpretation. Bring an internet-connected laptop/tablet to access site: http://uanyc.site/wcp.
NASA’s Eyes on the Solar System: Bringing the Planets to Your Classroom
(Grades 4–College) A412a, GWCC
Science Focus: ESS1.A, ESS1.B, CCC1, CCC3, CCC4, SEP1, SEP2
Rachel Zimmerman Brachman (@RachelZBrachman; rachel.zimmerman-brachman@jpl.nasa.gov) and Kevin Hussey (@NASA_Eyes; kjhussey@jpl.nasa.gov), NASA Jet Propulsion Laboratory, Pasadena, CA
Bring the solar system to your classroom using this free online tool from NASA. Explore planets, spacecraft, and more! For more information, visit https://eyes.nasa.gov.

Using Digital Science Notebooks to Reach Diverse Learners
(Grades 9–12) B211, GWCC
Science Focus: GEN, SEP
Jacqueline Vega, Valley High School, Las Vegas, NV
Learn how to implement online science notebooks with Google Drive. These notebooks meet the NGSS and are adaptive to students’ academic levels and socioeconomic statuses.

Lessons Learned: Integrating Computer Science into the Elementary Day
(Grades 1–6) B212, GWCC
Science Focus: ETS, CCC4
Annmargareth Marousky (@Amsky43; annmargareth.marousky@browardschools.com), Lisa Milenkovic (@sleuthacademy; @BrowardSTEM; lisa.milenkovic@browardschools.com), and Debra Thomas (@MISS_DKT; debra.k.thomas@browardschools.com), Broward County Public Schools, Fort Lauderdale, FL
Learn how we integrated STEM + computer science Problem-Based Learning units into the literacy block to focus on relevant learning, improving critical thinking, and expose students to CS.

Chief Science Officers: Giving Students a Voice in STEM Education
(Grades 6–12) C207, GWCC
Science Focus: GEN
Richard McNamara, Phoenix Union High School District #210, Phoenix, AZ
Hear from Arizona’s Chief Science Officers—peer-elected grades 6–12 students who represent the diverse voices of their peers in school and community conversations about STEM education.

Strategies for Equitable Access to Science for English Language Learners
(Grades 6–12) C213, GWCC
Science Focus: GEN, SEP
Hillary Paul Metcalf (hillarymetcalf@gmail.com), Chelsea High School, Chelsea, MA
Steven Taylor Wichmanowski (stw7278@lausd.net), Los Angeles (CA) Unified School District
Join us as we share resources and strategies to level the playing field for English language learners while maintaining high expectations for all learners.
Illuminating Evidence of 3-D Learning
(Grades 6–8) C301, GWCC
Science Focus: PS4
Jessica Addison, Christian County Public Schools, Hopkinsville, KY
Witness grades 6–8 students grapple with the phenomenon of light waves. We’ll discuss the three-dimensional evidence of student learning compared to the expectations of the NGSS.

Assessment FOR Learning in STEM and Beyond: A Professional Learning Model
(Grades K–12) Birch, Omni
Science Focus: GEN, NGSS
Anita Stewart McCafferty (@AnitaStewartMcC; anita.stewart@maine.edu), University of Southern Maine, Gorham Campus
Helene Adams (adams@cheverus.org), Cheverus High School, Portland, ME
Beth Byers Small (bbyerssmall@gmail.com), The Maine Center for Research in STEM Education (RiSE Center), Orono
Kirsten Gould (kgould@bonnyeagle.org), Buxton Center Elementary School, Buxton, ME
We will highlight a collaborative model for training STEM teacher leaders to use and teach colleagues high-impact Assessment FOR Learning tools in K–12 classrooms.

CSSS-Sponsored Session: Leadership in Science Education: Addressing Equity and Access
(Grades P–12) Dogwood A, Omni
Science Focus: GEN
Jamie Rumage (jamie.rumage@state.or.us), Oregon Dept. of Education, Salem
Philip Bell (@philipbell; pbell@uw.edu), University of Washington, Seattle
Ellen Ebert (ellen.ebert@k12.wa.us), Washington Office of Superintendent of Public Instruction, Olympia
Engage with state science supervisors and university researchers to explore approaches to equity and work toward developing equitable and inclusive strategies for your school or district.

Closing the Loop: Developing NGSS-Focused Performance Assessments
(Grades K–12) Dogwood B, Omni
Science Focus: PS3
Lisa Scolaro (lscolaro@cpsd.us), Emily Speck (especk@cpsd.us), and Elizabeth Butler Everitt (ebutlereveritt@cpsd.us), Cambridge (MA) Public Schools
Susan Agger (sagger@cpsd.us), Maynard Ecology Center, Cambridge, MA
Kristin Newton (knewton@cpsd.us), Cambridge Rindge and Latin School, Cambridge, MA
Come hear about how Cambridge (MA) Public Schools tackled the challenge of developing and implementing new NGSS-focused performance assessments that embed the practices.

Catch Them Early! Establishing NSTA Student Chapters for Preservice Teachers
(College) Hickory, Omni
Science Focus: GEN
Jessica Martin (@jmartin164; jamartin9254@ung.edu) and Donna Governor (donna.governor@ung.edu), University of North Georgia, Dahlonega
Discover how NSTA student chapters can prepare preservice teachers for the challenges of becoming K–12 teachers of science in the 21st century using the NSTA Learning Center.

Standards-Based Grading Strategies and Solutions
(Grades 6–College) Walnut, Omni
Science Focus: GEN
Elizabeth Savage (@savageaggiesci; esavage@bcahs.com), Craig Johnson (@aggiescience; cjohnson@bcahs.com), and Emily Perry (eperry@bcahs.com), Bristol County Agricultural High School, Dighton, MA
Our whole science department has been using standards-based grading for four years within a school with a traditional grading system. Come learn the strategies that have worked for us in our classrooms and how we integrated SBG into our school.
5:00–6:00 PM Hands-On Workshops

Using Storylines to Support 3-D Learning: Why Don’t Antibiotics Work Like They Used To? (Grades 9–12) A301, GWCC
Science Focus: LS4, CCC, SEP
Tara McGill (@tarantulamarch; taraawmcgill@gmail.com), Northwestern University, Evanston, IL
William Penuel (@bpenuel; @ACESSEProject; @nextgenstoryli1; william.penuel@colorado.edu) and Katie Van Horne (@dizzvh; katievh@gmail.com), University of Colorado Boulder
William Reed (@WmGReed; wgreed@cps.edu), Gwendolyn Brooks College Preparatory Academy, Chicago, IL
Explore the first part of an instructional storyline that engages high school students in five NGSS performance expectations related to natural selection and evolution.

Exploring the Wanderers: A Trip Through the Solar System (Grades 6–12) A302, GWCC
Science Focus: ESS1, CCC
Debra Hardy (debra.hardy@krumisd.net), Krum High School, Krum, TX
Take the tour and visit the Wanderers. Stop at each planet to explore their wonders and major moons. Take souvenirs with you!

Environmental Heroes—From Field Research to Environmental Advocacy (Grades 6–12) A305, GWCC
Science Focus: ESS3, LS2, CCC, SEP
Kathryn Kwiatkowski (kmk21@case.edu), Leonard Gelfand STEM Center, Cleveland, OH
Authentic field research to build evidence for population abundance and distribution of amphibians and reptiles demonstrates three-dimensional learning. Engage in research protocols and learn about environmental advocacy.

Modeling Forces with Newton’s Third Law First (Grades 9–College) A311, GWCC
Science Focus: PS2, CCC4, SEP2
Kimberlee Freudenberg (@KimFreudenberg; gatorfreud@gmail.com) and MariFlor Medrano (mmedrano@shcp.edu), Sacred Heart Cathedral Preparatory, San Francisco, CA
Still teaching Newton’s laws as 1-2-3? Join us as we take you through our forces unit sequence where Newton’s Third Law rules above all.

Can You Hear Me Now? An Elementary Storyline Approach to 3-D Learning (Grades 1–5) A312, GWCC
Science Focus: PS, CCC, SEP
Jolaine Whitehead (jolaine.whitehead@negaresa.org), Oconee River GYSTC, Winterville, GA
Amy Peacock (peacocka@clarke.k12.ga.us), Clarke County School District, Athens, GA
Kathryn Kipling (kiplingk@clarke.k12.ga.us), Chase Street Elementary School, Athens, GA
Engage in a storyline for elementary students investigating sound phenomena. We will share experiences in developing our own three-dimensional practices, student work samples, and assessments.

Step Up to Science: Using Step Books to Engage Students and Integrate Literacy (Grades 3–5) A313, GWCC
Donna Barton (donna.barton@myoneclay.net), Argyle Elementary School, Orange Park, FL
Betty Kelley, Retired Educator, Jacksonville, FL
Engage students and integrate ELA strategies into life science lessons using step books. Take a look at student work samples and create your own sample to take back to the classroom.

Everyday Natural Items: Studying Seeds as the Basis for STEM (Grades P–8) A314, GWCC
Science Focus: LS, INF
Maggie Johnston, Camp McDowell, Nauvoo, AL
Learn to use observation of everyday natural objects as a springboard for all STEM education. Seeds are a good example and we have lots more!

Science Focus: GEN, SEP
Kevin Cherbow (cherbow@bc.edu) and Katherine McNeil (kmcneill@bc.edu), Boston College, Chestnut Hill, MA
We will present a set of online tools and video examples designed to analyze and adapt science instruction to promote science practices.
**Hot or Not? Transferring Heat Efficiently to Provide Clean Energy**  
(Grades 3–8)  
Kari Ingram (@KariSalomon; karisalomon2003@gmail.com), Hull Middle School, Duluth, GA  
Tanya England (tanya_england@gwinnett.k12.ga.us), Nesbit Elementary School, Tucker, GA  
Engage in a hands-on STEAM session for elementary to middle grades. We will cover heat transfer, efficiency, and insulators to reduce heat loss. NGSS connections.

**Teaching Life Science Through STEM Integration: An Ecosystems Project**  
(Grades 6–8)  
Science Focus: ETS1, LS2, SEP6  
Drew Ayres (@dcayres89; dayres@purdue.edu), Purdue University, West Lafayette, IN  
Leave with a unit plan that is focused on teaching ecosystems and engineering/technology design.

**Using Issues as a Context to Enhance Students’ Three-Dimensional Learning**  
(Grades 6–9)  
Science Focus: LS2  
Maia Binding (@SEPUP_UICB; mbinding@berkeley.edu), The Lawrence Hall of Science, University of California, Berkeley  
Participate in hands-on middle school ecology activities that use biotic and abiotic ecological disruptions to engage students in the three dimensions of the NGSS.

**Developing Scientifically Literate Students with STEM-Manities!**  
(Grades K–5)  
Science Focus: GEN  
Nicole Ford, Fulton County Schools South Learning Center, Union City, GA  
Teachers become integration gurus and students expertly ask, find, and determine answers to questions derived from curiosity through this integrated STEM-manities instructional approach.

**INF NMEA Session: A View from Above: Teaching Science with Unmanned Aerial Vehicles**  
(Grades 9–12)  
Science Focus: ETS1.B, INF  
Marie Kowalski (@SheddLearning; mariekowalski11@gmail.com), Shedd Aquarium, Chicago, IL  
Make learning “take off” with unmanned aerial vehicles. Discover successes and lessons learned from Shedd Aquarium’s UAV program pilot year.

**Start Big, Go Small...with Life Science Storylines**  
(Grades 3–8)  
Katie Brkich (kbrkich@georgiasouthern.edu), Georgia Southern University, Statesboro  
Tamra Lamb (talamb@bullochschools.org), Mattie Lively Elementary School, Statesboro, GA  
Use science storylines with three-dimensional learning to make micro- and macroscopic upper elementary and middle school life science concepts accessible for diverse learners.

**Anatomy Rocks!**  
(Grades 10–12)  
Laurie Hayes (lhayes@cart.org), The Center for Advanced Research and Technology, Clovis, CA  
Susan Hartley (susan.mumford.hartley@hotmail.com), Hinkley High School, Aurora, CO  
From Vampire Metabolism to Anatomical Twister, join us in learning strategies and techniques that will allow all students to be successful in a challenging science curriculum.

**How Big Was Megalodon? Hands-On Science Learning Using 3D-Printed Shark Teeth**  
(Grades 8–9)  
Claudia Grant (@paleoteach; claugrant; cgrant@flmnh.ufl.edu) and Pavlo “Pasha” Antonenko (@EDNEURO; p.antonenko@coe.ufl.edu), University of Florida, Gainesville  
Megan Hendrickson (@meghendrickson; mhendrickson@holynamestpa.org), Academy of the Holy Names, Tampa, FL  
Victor Perez (@paleoteach; vperez@sd129.org), West Aurora (IL) School District 129  
How could scientists determine the length of Megalodon? Immerse yourself in real science by calculating the size of an extinct apex predator using 3D-printed fossil teeth.
Activating Creative Thinking and Problem Solving Through STEM Activities and Lessons for Primary-Age Students
(Grades K–4) C205, GWCC
Science Focus: GEN
Anna Fazio (afazio@yorktown.org), Yorktown Central School District, Yorktown Heights, NY
Experience lessons on real-world problems and see demonstrations of hands-on activities for primary-age students while building engineering and design thinking, creative exploration, and problem solving.

Authentic Assessments for All
(Grades 7–12) C209, GWCC
Science Focus: LS2, CCC
Michelle Dodge (michelle_dodge@brewsteracademy.org), Brewster Academy, Wolfeboro, NH
Differentiated assessments, created using real-world applications, will allow students of all abilities to be better prepared to solve scientific problems.

Obtaining, Evaluating, and Communicating Information: Tools for Teachers and Students
(Grades 6–12) C210, GWCC
Science Focus: GEN, SEP8
Margaret Holzer (mholzer@monmouth.com), Chatham High School, Chatham, NJ
Vicky Pilitsis (vickypilitsis@hvrsd.org), Hopewell Valley Regional School District, Pennington, NJ
This practice is challenging for teachers and students, but with these scientific literature evaluation tools, teachers identify appropriate articles and students excel at synthesizing them.

Large K Equilibrium
(Grades 7–College) C212, GWCC
Science Focus: GEN, SEP
Greg Dodd (gbdodd@gmail.com), Retired Educator, Pennsboro, WV
Join this workshop on Large K Equilibrium and learn methods to overcome common student misconceptions. Participants will take part in a hands-on equilibrium lab.

Connecting Chemistry to Your World Through ChemClub
(Grades 9–12) C302, GWCC
Science Focus: PS, INF
Karen Kaleuati (@ACSChemClubs; k_kaleuati@acs.org), American Chemical Society, Washington, DC
The ACS ChemClub program provides fun and educational resources—all for free! Learn about the program, try out some of the activities, and take home a copy of the resources.

Supporting ELLs in Collaborative Sense-Making in Science
(Grades 1–9) Spruce, South Tower, Omni
Science Focus: ESS2, ESS3
Emily Miller (emilycatherine329@gmail.com), Madison (WI) Metropolitan School District
How can teachers engage English language learners in the abstract ideas in science and at the same time support language acquisition? Discussion centers on how the NGSS provide a unique opportunity for emerging bilingual students.

5:00–6:00 PM Exhibitor Workshop
DNA Forensics Solves the Murder of Dr. Ward
(Grades 9–College) B210, GWCC
Science Focus: ETS1, ETS2.A, LS1, LS3, PS1.A, PS2
Sponsor: MiniOne Systems
Richard Chan (info@theminionesystems.com), MiniOne Systems, San Diego, CA
In this interactive MiniLab, students analyze hair, fingerprint, and DNA evidence from the crime scene to determine who is the killer of Dr. Ward. Learn how to conduct the hands-on lab using electrophoresis to perform DNA analysis for DNA forensics.

5:00–6:30 PM Meeting
NMLSTA Board Meeting
(By Invitation Only) Beechnut, Omni

5:00–7:00 PM Networking Opportunity
Alliance of Affiliates Networking Social
(By Invitation Only) Cottonwood A/B, Omni
5:30–6:00 PM  Presentations

Collaborative Conversation in the Classroom
(Grades 2–6)  
_A401, GWCC_
Science Focus: GEN, SEP1, SEP6, SEP7, SEP8
_Angela Stanford_ (agstanford@saumag.edu), Southern Arkansas University, Magnolia
_Janie Hill_ (hillj@hssd.net), Gardner STEM Magnet School, Hot Springs, AR
We will introduce a research-based discussion progression technique that uses students’ speaking and listening skills to enhance their depth of science knowledge.

Strategies for Teaching in a Block Schedule
(Grades 7–12)  
_C211, GWCC_
Science Focus: GEN
_Tamara Slowiak_ (@tsowiak; slowiatj@chipfalls.org) and _Kari Skaar_ (skaark@chipfalls.org), Chippewa Falls High School, Chippewa Falls, WI
Whether you currently teach in a block schedule or your school is considering a block, come learn about some effective preparation and teaching strategies for teaching in a longer class period.

Increasing Student Engagement Through Inquiry-Based Teaching Methods and Exploration of Climate Change Science in an Undergraduate Biology Laboratory Course
(College)  
_Magnolia, Omni_
Science Focus: ESS3, LS, SEP
_Stephanie Gutzler_ (gutzlerl@gsu.edu) and _Adani Pujada_ (apujadal@student.gsu.edu), Georgia State University, Atlanta
An inquiry-based curriculum on climate change was applied in a biology laboratory course. Discussion centers on instructional and assessment methods and effects on student engagement.

(General)  
_Redwood, Omni_
Science Focus: GEN, NGSS
_Samantha Levine_ (@Sciencediva14; sdd131424@yahoo.com) and _Brian Culot_ (@bculot1; bculot@socsd.org), South Orangetown Central School District, Blauvelt, NY
_Brian Newburger_ (bnewburger@socsd.org), Tappan Zee High School, Orangeburg, NY
Come hear how the role of Instructional Science Coach has revamped the way our district does science. This role has revitalized the science curriculum and enhanced the integration of technology, literacy, and math into the coursework.

6:00–7:00 PM  Special Session

Introducing OK Go Sandbox
_Sidney Marcus Auditorium, GWCC_
Join Damian Kulash (of OK Go) as he and partners unveil OK Go Sandbox, a new series of content and activities designed for classroom use. Hosted by Google.

6:30–8:00 PM  Networking Opportunity

Authors Circle Reception
(By Invitation Only)  
_Grand Ballroom A, Omni_

7:00–8:30 PM  Networking Opportunity

Building Equity and Access for All Social
(By Invitation Only)  
_International Ballroom E, Omni_

8:30–10:00 PM  Networking Opportunity

NGSS Live Chat
_Dogwood A, Omni_
Come to the NGSS Live Chat, presented by Ted Willard, Tricia Shelton, and others as they discuss the NGSS. Join us live or via Twitter…#NGSSchat.
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<td>8:00–9:00 AM</td>
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<td>8:00–9:00 AM</td>
<td>Dogwood A, Omni at CNN</td>
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<td>Virtual STEM Missions</td>
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<td>National Stem Cell Foundation Scholars Share-a-Thon</td>
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<td>Using Science Practices to Engage Students: Designing a High School</td>
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<td>Evolution Curriculum from a Feminist Perspective</td>
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<td>DNA Fingerprinting: Identifying Individuals Using Gel Electrophoresis</td>
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<td>Get Creative! Develop Students’ Science and Engineering Practices, Inspired by Birds</td>
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<td>Life Science</td>
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<td>ASTE-Sponsored Session: The Myth of the Scientific Method—Dispelling It Through Inquiry that Doesn’t Fit the Mold</td>
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<td>Magical Illusions and Scintillating Simulations for Science: It’s Showtime!</td>
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<td>8:00–9:00 AM</td>
<td>Who Is Baby Whale’s Father? DNA Fingerprinting Solves the Mystery!</td>
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<td>8:00–9:00 AM</td>
<td>Martian Genetics: A DNA and Electrophoresis Exploration</td>
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<td>Use Science, Coding, and Robotics in the Elementary Classroom to Solve Real-World Problems</td>
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<td>Essential Materials for Easy NGSS Lessons</td>
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<td>Go on a Cell Quest! Teaching Cell Structure Through Gaming</td>
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<td>Are Increased Incidences of Infection the Result of Climate Change?</td>
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<td>Conserving the Panda Population Through Understanding Their Reproductive Endocrinology</td>
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<td>How Do Species Coexist? Niche Partitioning with HHMI BioInteractive</td>
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<td>DNA Structure and Function with a Twist of Dynamic DNA</td>
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<td>STEMing-Up Life Science</td>
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<td>Foodborne Outbreak Investigation Using Gel Electrophoresis</td>
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<td>Exploring STEAM with Transformation!</td>
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<td>DNA Glow Lab: A New Way to Investigate DNA Structure</td>
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<td>Hands-On: Exploring Enzymes the NGSS Way</td>
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<td>Harnessing Spider Silk: Phenomena and 3-D Instruction for Grades 6–8</td>
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<td>Carolina’s Young Scientist™ Dissections with Carolina’s Perfect Solution® Specimens</td>
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<td>NGSS Ecology: Modeling the Introduction of a New Species</td>
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<td>Going with the Flow of Genetic Information: Transcription and Translation</td>
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<td>Of Mice and Men: Engaging HS Students in Biomedical Science</td>
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<td>Energy Quest: Where Cell Pathways ARE Fun and Games</td>
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<td>The Central Dogma, CRISPR, and Genetic Medicine</td>
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<td>Flinn Favorite Biology Activities and Games</td>
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<td>Become a GMO Investigator</td>
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<td>Investigate Photosynthesis and Cellular Respiration with Algae Beads</td>
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<td>9:00–10:00 AM</td>
<td>Teacher Researcher Day Session: Increasing Student Engagement with Science Practices: Teacher Inquiry Projects in Chicago Public School Science Classrooms Offer Insights</td>
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<td>10:00–11:00 AM</td>
<td>AreYou a Night Owl? A Morning Lark? The Answer May Be in Your Genes</td>
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<td>11:00 AM –1:00 PM</td>
<td>Left at the Scene of the Crime: Introduction to Forensic Science</td>
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<td>A New Hands-On Clear and Reliable Way to Teach Restriction Digest Labs</td>
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<td>12 Noon–1:30 PM</td>
<td>Georgia On My Brain: Hands-On Neuroscience Labs</td>
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<td>Making Evolutionary Connections Within an NGSS Storyline</td>
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<td>5 Easy Ways to Investigate Enzymes!</td>
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<td>Come to Your Senses: Physiology in Action</td>
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<td>Bring Content to Life with NGSS-Focused Design Challenges for Science Classroom</td>
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<td>12:30–1:00 PM</td>
<td>Int’l Blrm. F/Group 4, Omni at CNN</td>
<td>Teacher Researcher Day Session: Using Found Objects to Introduce STEM Concepts to Little Ones (p. 113)</td>
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<tr>
<td>12:30–1:30 PM</td>
<td>6–C A314, GWCC</td>
<td>Exploring Biodiversity in One Cubic Foot (p. 118)</td>
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<td>12:30–1:30 PM</td>
<td>7–C B209, GWCC</td>
<td>Solving a Forensics Mystery Through DNA Analysis: DIS80VNTR Lab (p. 121)</td>
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<td>12:30–1:30 PM</td>
<td>C Hickory, Omni at CNN</td>
<td>SCST-Sponsored Session: How Are We Implementing Vision and Change in the College Science Classroom? (p. 116)</td>
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<td>12:30–1:30 PM</td>
<td>K–8 A316, GWCC</td>
<td>NGSS-ifying Your Field Trip (p. 118)</td>
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<td>12:30–1:30 PM</td>
<td>7–C B211, GWCC</td>
<td>Teaching About the Intersections of Biology, History, Race, and Racism: Strategies, Curriculum Resources, and Research (p. 119)</td>
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<td>12:30–1:30 PM</td>
<td>9–C C203, GWCC</td>
<td>DIY Inquiry-Based Forensic Labs (p. 119)</td>
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<td>12:30–1:30 PM</td>
<td>K–5 A403, GWCC</td>
<td>Bird Enthusiasts Engineer Mindful Science (p. 118)</td>
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<td>12:30–1:30 PM</td>
<td>4–8 A315, GWCC</td>
<td>Forensics Fun for All (p. 118)</td>
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<td>12:30–1:30 PM</td>
<td>6–12 B315, GWCC</td>
<td>Use Data to Slay Misconceptions about Photosynthesis and Respiration (p. 122)</td>
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<td>12:30–1:30 PM</td>
<td>6–C Int’l Blrm. A/B, Omni at CNN</td>
<td>On-the-Farm STEM Events: An Immersive Approach to Making Real-World STEM Connections (p. 120)</td>
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<td>12:30–1:30 PM</td>
<td>9–C B306, GWCC</td>
<td>What’s in My Lunch: Using Biotechnology to Detect GMOs and Common Allergens (p. 122)</td>
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<td>12:30–1:30 PM</td>
<td>9–12 B216, GWCC</td>
<td>Climate Change and Beyond: The Understanding Global Change (UGC) Conceptual Framework (p. 122)</td>
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<td>12:30–1:45 PM</td>
<td>10–C B210, GWCC</td>
<td>Affordable Hands-On PCR Lab in One Class Period Is for Real (p. 123)</td>
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<td>1:00–1:30 PM</td>
<td>6–12 C202, GWCC</td>
<td>Activities to Help Put Some STEAM in Your Body System Projects (p. 124)</td>
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<td>2:00–2:30 PM</td>
<td>6–12 C211, GWCC</td>
<td>The Trial of the Archaeopteryx Fossil: A Journey in Earth Science Student-Centered Learning (p. 125)</td>
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<td>2:00–3:30 PM</td>
<td>3–8 C206, GWCC</td>
<td>PBL: Solving the Bee Problem (p. 125)</td>
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<td>6–8 C202, GWCC</td>
<td>Photosynthesis, NGSS Style! (p. 129)</td>
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<td>5–P A303, GWCC</td>
<td>Blending Science and Language Arts (p. 128)</td>
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<td>2:00–3:00 PM</td>
<td>9–12 C201, GWCC</td>
<td>Weaving Biotechnology Throughout Your Biology Curriculum (p. 132)</td>
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<td>K–8 A316, GWCC</td>
<td>Birding in Three Dimensions (p. 131)</td>
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<td>2:00–3:00 PM</td>
<td>6–9 B401, GWCC</td>
<td>Modeling and the Three Dimensions of the NGSS in Middle School Genetics (p. 132)</td>
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<td>9–C B210, GWCC</td>
<td>Personalized Genetics: Isolate and Amplify Your Own PTC Taste Gene (p. 134)</td>
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<td>9–C B306, GWCC</td>
<td>Cancer Investigators: Medical Diagnostics in Your Classroom (p. 135)</td>
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<td>7–12 B209, GWCC</td>
<td>Genes in Space STEM Contest: Your DNA Experiment in Space! (p. 134)</td>
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<td>7–C B207, GWCC</td>
<td>Environmental Science with Vernier (p. 136)</td>
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<td>9–C B408, GWCC</td>
<td>Hands-On Anatomy: Body Building with Clay (p. 139)</td>
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<td>2:00–3:00 PM</td>
<td>9–C B310, GWCC</td>
<td>Barcoding Lionfishes’ Last Meal: A Citizen Science Project for the Classroom (p. 137)</td>
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<td>2:00–3:30 PM</td>
<td>9–C B311, GWCC</td>
<td>Fight World Hunger with Protein Biology and Designing Treatment Plans (p. 138)</td>
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<td>2:00–3:30 PM</td>
<td>7–12 B314, GWCC</td>
<td>Soft Drinks, Subject Silos, Synergy, and Sweet Darwinian Diet Deliberations (p. 138)</td>
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<td>2:00–3:30 PM</td>
<td>6–12 B202, GWCC</td>
<td>Strawberry Milkshakes: DNA and Lactose Intolerance (p. 135)</td>
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<td>2:00–3:30 PM</td>
<td>6–12 B308, GWCC</td>
<td>Using HHMI Resources as Phenomena: The Earth/Life Science NGSS Crosswalk (p. 137)</td>
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<td>K–12 B204, GWCC</td>
<td>Introduction to Wisconsin Fast Plants® (p. 136)</td>
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<td>2:00–3:30 PM</td>
<td>4–C B218, GWCC</td>
<td>Stream Ecology: Slimy Leaves for Healthy Streams (p. 136)</td>
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<td>7–C Walnut, Omni at CNN</td>
<td>Quantitative and Qualitative Results of Modeling Instruction Workshops (p. 141)</td>
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<td>2:30–3:00 PM</td>
<td>7 A407, GWCC</td>
<td>Using CER to Analyze Structure and Function in Plant Reproduction (p. 140)</td>
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<td>7–12 B209, GWCC</td>
<td>Lab in a Box: A Free Biotechnology Loaner Program from Genes in Space (p. 142)</td>
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<td>K–5 A408, GWCC</td>
<td>Exploration and Discovery Through Maps: Teaching Science with Technology (p. 142)</td>
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<td>3:30–4:00 PM</td>
<td>6–8 C213, GWCC</td>
<td>Phenomenal Argumentation: A Collaborative Approach to Promote Argumentative Writing (p. 143)</td>
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<td>3:30–4:30 PM</td>
<td>8–C B210, GWCC</td>
<td>Determine the Genotype for PTC Taster and Non-Taster by Electrophoresis (p. 149)</td>
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<td>NGSS-Designed Assessments for a Middle School Ecosystems Unit (p. 148)</td>
<td>C201, GWCC</td>
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<td>3:30–4:30 PM</td>
<td>Exploring the Genetics of Taste: SNP Analysis of the PTC Gene Using PCR (p. 150)</td>
<td>B306, GWCC</td>
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<td>3:30–4:30 PM</td>
<td>Lots of Bots: Using Robots to Teach the NGSS in Elementary School (p. 149)</td>
<td>C206, GWCC</td>
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<td>Sense in Molecules: Modeling Personalized Medicine (p. 146)</td>
<td>C204, GWCC</td>
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<td>Soil: A Nonrenewable Resource? (p. 147)</td>
<td>A302, GWCC</td>
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<td>3:30–4:30 PM</td>
<td>Creating and Maintaining Kid-Friendly, Bird-Friendly Gardens (p. 146)</td>
<td>C202, GWCC</td>
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<td>NASA Astrobiology: The Search for Life Beyond Earth (p. 146)</td>
<td>A412a, GWCC</td>
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<td>3:30–4:30 PM</td>
<td>Amphibians and Reptiles Rock: An Informal Science Education Project for Elementary-Age Students in Rural Alabama (p. 151)</td>
<td>A408, GWCC</td>
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<td>4:00–4:30 PM</td>
<td>LARP! Live Action Role Playing and the Biology Curriculum (p. 153)</td>
<td>B209, GWCC</td>
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<td>4:00–5:30 PM</td>
<td>NGSS Reproduction: Breeding Critters—More Traits (p. 155)</td>
<td>B305, GWCC</td>
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<td>4:00–5:30 PM</td>
<td>BUGDORK! Using Insects to Engage Students and Inspire Learning (p. 156)</td>
<td>B404, GWCC</td>
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<td>4:00–5:30 PM</td>
<td>Hands-On Science with Classroom Critters (p. 153)</td>
<td>B308, GWCC</td>
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<td>4:00–5:30 PM</td>
<td>Legendary Game-Based Learning (p. 154)</td>
<td>B217, GWCC</td>
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<td>4:00–5:30 PM</td>
<td>Autopsy: Forensic Dissection Featuring Carolina’s Perfect Solution® Pigs (p. 153)</td>
<td>B202, GWCC</td>
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<td>Toward High School Biology: Introducing a New Middle School Curriculum Unit (p. 154)</td>
<td>B215, GWCC</td>
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<td>Plants, Bessbugs, and Squid: Build Understanding of Structure and Function (p. 153)</td>
<td>B201, GWCC</td>
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<td>4:00–5:30 PM</td>
<td>Exploring Biology Through Dissection from Flinn Scientific (p. 153)</td>
<td>B203, GWCC</td>
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<td>4:00–5:30 PM</td>
<td>Explore Molecular Evolution Using Protein Electrophoresis (AP Big Ideas 1, 3, 4) (p. 155)</td>
<td>B310, GWCC</td>
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<td>4:00–5:30 PM</td>
<td>Upgrade Your Genetics Class with Neurobiology and Chemotaxis (p. 156)</td>
<td>B311, GWCC</td>
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<td>5:00–6:00 PM</td>
<td>Student Engagement in Direct Instruction, Undergraduate Microbiology Laboratories (p. 158)</td>
<td>Magnolia, Omni at CNN</td>
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<td>5:00–6:00 PM</td>
<td>How Big Was Megalodon? Hands-On Science Learning Using 3D-Printed Shark Teeth (p. 162)</td>
<td>C203, GWCC</td>
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<td>5:00–6:00 PM</td>
<td>Step Up to Science: Using Step Books to Engage Students and Integrate Literacy (p. 161)</td>
<td>A313, GWCC</td>
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<td>5:00–6:00 PM</td>
<td>Using Storylines to Support 3-D Learning: Why Don’t Antibiotics Work Like They Used To? (p. 161)</td>
<td>A301, GWCC</td>
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<td>5:00–6:00 PM</td>
<td>Anatomy Rocks! (p. 162)</td>
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<td>5:00–6:00 PM</td>
<td>Everyday Natural Items: Studying Seeds as the Basis for STEM (p. 161)</td>
<td>A314, GWCC</td>
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<td>5:00–6:00 PM</td>
<td>Using Combined Text Genres to Influence to Meaning Construction in Science (p. 159)</td>
<td>C206, GWCC</td>
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<td>5:00–6:00 PM</td>
<td>SEUP and NGSS: Rewriting Your Middle School Curriculum (p. 158)</td>
<td>A304, GWCC</td>
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<td>5:00–6:00 PM</td>
<td>Start Big, Go Small…with Life Science Storylines (p. 162)</td>
<td>B401, GWCC</td>
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<td>5:00–6:00 PM</td>
<td>DNA Forensics Solves the Murder of Dr. Ward (p. 163)</td>
<td>B210, GWCC</td>
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<td>5:00–6:00 PM</td>
<td>Environmental Heroes—From Field Research to Environmental Advocacy (p. 161)</td>
<td>A305, GWCC</td>
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<td>5:00–6:00 PM</td>
<td>Using Issues as a Context to Enhance Students’ Three-Dimensional Learning (p. 162)</td>
<td>A404, GWCC</td>
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<td>5:00–6:00 PM</td>
<td>Teaching Life Science Through STEM Integration: An Ecosystems Project (p. 162)</td>
<td>A402, GWCC</td>
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<td>6–12 B315, GWCC</td>
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## General Science Education: Thursday

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<td>NSTA Conferences (Booth #236, 7th Annual STEM Forum &amp; Expo, hosted by NSTA), (Booth #233, Reno), (Booth #235, National Harbor), (Booth #234, Charlotte), (Booth #230, St. Louis), <a href="http://www.nsta.org/conferences">www.nsta.org/conferences</a></td>
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<td>5, 15, 36, 37, 51, 62, 100, 115, 133</td>
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<td>NSTA Member Services, <a href="http://www.nsta.org/membership">www.nsta.org/membership</a>, 800-722-6782</td>
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<td>76, 83, 121, 139, 151</td>
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<td>NSTA Press®, <a href="http://www.nsta.org/store">www.nsta.org/store</a>, 800-277-5300</td>
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</table>
### Free Hands-On Workshops

**No pre-registration required**

<table>
<thead>
<tr>
<th>Day</th>
<th>Time</th>
<th>Room Number B207</th>
<th>Room Number B208</th>
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<tbody>
<tr>
<td><strong>THURSDAY</strong></td>
<td><strong>3/15</strong></td>
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<tr>
<td>8:00–9:30 a.m.</td>
<td>Integrating Chromebook™ with Vernier Technology</td>
<td>Integrating iPad® with Vernier Technology</td>
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<tr>
<td>10:00–11:30</td>
<td>Biology with Vernier</td>
<td>Physics with Vernier Using Chromebook</td>
<td></td>
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<tr>
<td>12:00–1:30 p.m.</td>
<td>Chemistry with Vernier Using Chromebook</td>
<td>Elementary Science with Vernier</td>
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<tr>
<td>2:00–3:30</td>
<td>Environmental Science with Vernier</td>
<td>Middle School Science with Vernier Using Chromebook</td>
<td></td>
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<tr>
<td>4:00–5:30</td>
<td>Chemistry with Vernier</td>
<td>STEM/Engineering Activities using Vernier Sensors with Arduino™</td>
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<tr>
<td><strong>FRIDAY</strong></td>
<td><strong>3/16</strong></td>
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<tr>
<td>8:00–9:30 a.m.</td>
<td>Water Quality with Vernier</td>
<td>Advanced Physics with Vernier</td>
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<tr>
<td>10:00–11:30</td>
<td>Chemistry with Vernier</td>
<td>Explore Motion with Vernier Video Physics™ for iOS</td>
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<tr>
<td>12:00–1:30 p.m.</td>
<td>Biology with Vernier Using Chromebook</td>
<td>Inquiry Physics Experiments from Vernier—No Lab Setup Required!</td>
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<tr>
<td>2:00–3:30</td>
<td>AP Chemistry with Vernier</td>
<td>Physics with Vernier</td>
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<tr>
<td>4:00–5:30</td>
<td>Biology with Vernier</td>
<td>Renewable Energy with KidWind and Vernier</td>
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<tr>
<td><strong>SATURDAY</strong></td>
<td><strong>3/17</strong></td>
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<tr>
<td>8:00–9:30 a.m.</td>
<td>Biology with Vernier Using Chromebook</td>
<td>Wind and Solar Energy Basics with Vernier</td>
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<tr>
<td>10:00–11:30</td>
<td>Integrating Chromebook with Vernier Technology</td>
<td>Physics with Vernier Using Chromebook</td>
<td></td>
</tr>
<tr>
<td>12:00–1:30 p.m.</td>
<td>Chemistry with Vernier Using Chromebook</td>
<td>Middle School with Vernier</td>
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<tr>
<td>2:00–3:30</td>
<td>Human Physiology with Vernier</td>
<td>Introductory Engineering-Design Projects with Vernier</td>
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